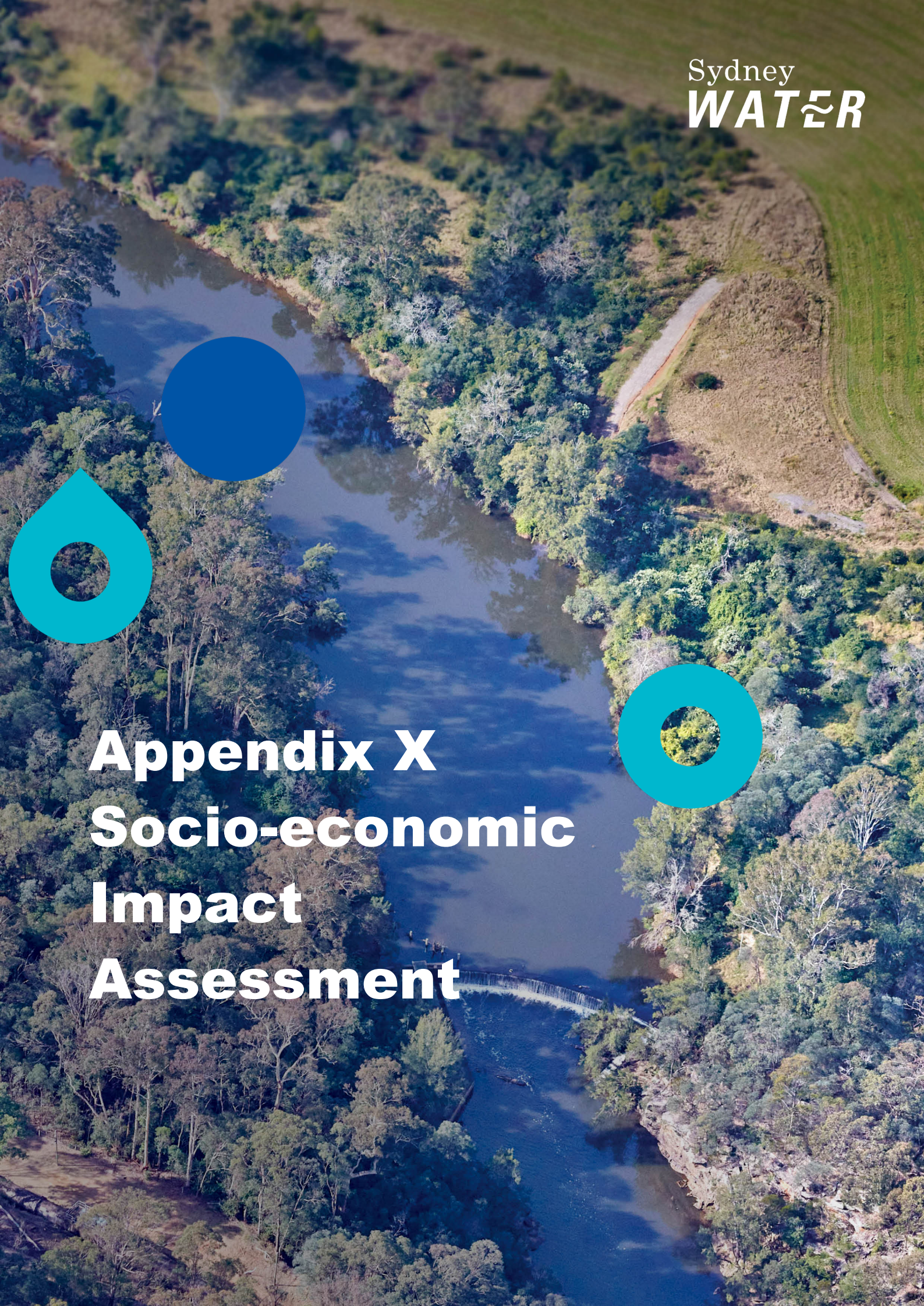

Appendix X Socio-economic Impact Assessment

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Upper South Creek Advanced Water Recycling Centre

Socio-economic and land use impact assessment

Executive Summary

Project overview and background

Sydney Water is seeking approval to build and operate new wastewater infrastructure to service the South West and Western Sydney Aerotropolis Growth Areas (SWGA and WSAGA). The proposed development will include:

- A new wastewater treatment plant (the Advanced Water Recycling Centre (AWRC)
- New infrastructure from the AWRC to South Creek, to release excess treated water and wet weather flows
- A new pipeline from the AWRC to the Nepean River, to release treated water (treated water pipeline)
- A new pipeline extension from the new Nepean River pipeline to the Warragamba River for environmental flows (environmental flows pipeline)
- A new pipeline from the AWRC to Sydney Water's existing wastewater system to discharge brine (brine pipeline).

The AWRC and associated pipelines form 'the project'. The project crosses five local government areas (LGAs) and is a total of approximately 55km in length.

The project is being assessed under the *Environmental Planning and Assessment Act 1979* (EP&A Act) as State significant infrastructure (SSI). This socio-economic and land use impact assessment provides an appraisal of the potential positive and negative social, economic and land use impacts associated with the project. It supports the Environmental Impact Statement (EIS) prepared for the project. It has been produced with reference to the Secretary's Environmental Assessment Requirements (SEARs). The Socio-economic Impact Assessment component has also been prepared to align with the former *Department of Planning, and Environment's*[1] *(DPE) Social Impact Assessment Guideline (September 2017)* – referred to as DPE's Social Impact Assessment Guideline where relevant.

Methodology used in this assessment

The socio-economic impact assessment covers three key study areas:

- **Impact assessment area** –whole-of-project 'impact assessment area' and the direct impact area
- **Local influence area –** this represents a 25-metre buffer around the impact assessment area and acknowledges the influence direct impacts may have on neighbouring community
- **Socio-economic study area** (SESA) – this represents broader communities most likely to interact with and intersect with the project. The SESA is separated into three geographical study areas:
  - The western study area (SESA-western)
  - The central study area (SESA-central)

[1] It is noted that this department is not known as the Department of Planning, Industry and Environment, and DPE was the name at publication of the document

- The eastern study area (SESA-eastern).

The land use impact assessment is centred on the impact assessment area, and local influence area. Alongside direct impacts to land use within the SESA, a land use conflict risk assessment (LUCRA) has also been undertaken, to determine any potential conflicts between the project and adjoining or nearby surrounding land uses, in alignment with the guidelines (Department of Primary Industries, 2011).

The methodology for assessment of socio-economic and land use impacts involves:

- Establishment of the existing environment to provide a profile of the community, its character, location and values, against which we can understand how the project will positively and negatively impact upon on the community ecosystem, and the people within it
- Identification of impacts through a review of project design and details, and the outcomes of other technical studies and community and stakeholder engagement activities.
- Evaluation of socio-economic impacts to determine the significance of each potential impact without mitigation. This uses the social risk matrix within the DPE Social Impact Assessment Guideline which ranks impact likelihood against consequence to provide an indication of the likely social significance – ranging from low to extreme.
- Development of mitigation, management and enhancement measures for all material impact, having regard to the considerations set out in the DPE Social Impact Assessment Guideline.
- Assessment of residual socio-economic impacts, to re-evaluate the significance of potential impacts, taking into account the proposed mitigation, management and enhancement measures.

Community and stakeholder consultation

This socio-economic and land use impact assessment draws upon the findings of community and stakeholder engagement undertaken for the project. Early engagement with key stakeholders and community has been central to the project, and inputs have been sought throughout the preparation of the EIS and specialist studies. Figure i provides an overview of consultation and stakeholder engagement activities to March 2021.

To support this assessment Sydney Water has undertaken direct engagement with landowners within the vicinity of the project and with local Councils to inform this socio-economic and land use impact assessment specifically. Sydney Water has also engaged directly with Council representatives from across the SESA regarding potential socio-economic opportunities and challenges.

The key features of the project

- The AWRC would be located within the SESA-central, predominantly on land currently used for research and agricultural activity by the University of Sydney. The site falls within the Wianamatta-South Creek and Kemps Creek precincts of the Strategic Environmental Planning Policy (Aerotropolis) (Aerotropolis SEPP). The Wianamatta-South Creek area is zoned for environment and recreation and corresponds to the part of the site proposed for the green space

are. The Kemps Creek precinct is zoned as RU2 zone under the Penrith LEP. Sydney Water is currently in discussions with University of Sydney regarding acquisition of the site

- The treated water pipeline and environmental flows pipeline would be predominantly within the SESA-western, and would largely be located on cleared land within or adjacent to existing road corridors along Elizabeth Drive and Park Road. Existing land uses surrounding these corridors is mostly rural residential or agricultural uses. However, a large portion of this land falls within land covered by the Aerotropolis SEPP, with the main zoning identified as either infrastructure, Enterprise or Agribusiness uses. This area will see a significant change to the character and land use within the SESA-central and SESA-western, to higher density, mixed-use, urban and industrial uses
- The brine pipeline would be located in the SESA-eastern and would largely be located on cleared land within or adjacent to existing road corridors. Existing land uses surrounding these corridors is predominantly residential (predominantly low density, but ranging to high density), running through a number of residential suburbs, and across the Western Sydney Parklands and other local open spaces. Future land uses are relatively similar to existing, and no substantial changes to character are anticipated around the brine pipeline
- The treated water, environmental flows and brine pipelines traverse a total of 72 properties and easements. Temporary land easements are required during construction to provide Sydney Water with access to property to lay the pipelines. It is understood no permanent acquisition is required in relation to the pipelines, and that land subject to easements during construction will be returned to owners in original condition during the operation of the project.

Existing environment

Strategic policy and land use context

The project is in a central part of Western Sydney, an area which is the subject of significant plans for growth and change. It is a key strategic area in the land use and infrastructure plans for NSW and Sydney. The project sits in the context of a range of strategies and plans which guide land use and infrastructure planning, as well as social and economic outcomes for the broader Western Sydney area.

Currently characterised by mainly agricultural land and rural landscapes, with pockets of rural residential uses and small rural villages, the SESA-central and SESA-western will be subject to major long term planned development. This development which will see a transformation to the character and land use within the SESA-central and SESA-western to higher density, mixed-use, urban and industrial uses.

Socio-economic context

- Population and demographics:
  - There is a relatively large existing residential population in the SESA, predominantly focussed in the SESA-eastern (approximately 108,000 people), with less than 25,000 in the more metropolitan-rural SESA-western and SESA-central. The residential population is forecast to grow significantly in the SESA-west and SESA-central, in line with planned development for Western Sydney over the next 20 years
  - There is a greater proportion of the population that identifies as Indigenous in the SESA-western and SESA-central, when compared to the Greater Sydney average. The population is generally younger than the Greater Sydney average, except for the SESA-western which is also home to a higher than average proportion of people aged over 65 years.
- Economy, industry and employment:

  - Employment is currently focussed predominantly in the SESA-eastern, with the main employment types being retail, construction and health and education services. The planned development in Western Sydney, around WSAGA and SWGA developments in particular, will alter this pattern, with particular growth projected in agribusiness and enterprise, as well as retail, accommodation and food and beverage, as well as high-tech and knowledge intensive and professional and scientific industries
  - There is a variety of business type across the local influence area, with specific industries being clustered in specific locations. In the SESA-western and SESA-central there are agricultural businesses and producers, home businesses and trades people. There are also clusters of small local businesses. In the SESA-eastern, there are larger commercial areas, with small to medium businesses scattered throughout suburbs and clustered around transport networks such as stations and major roads.

- Social infrastructure:
  - Social infrastructure in the SESA-western is centred around residential areas and community villages. There is also limited social infrastructure across the SESA-central, with housing dispersed across its extent and some clusters of facilities. It is likely that residents that live within the SESA-central would travel outside of area to access social infrastructure
  - There are large reserves and parks in the SESA-western, including the Blue Mountains National Park, which draws people from across Sydney. The Western Sydney Parklands are also located in the SESA-central, which is a place for growing communities, as it offers a range of facilities and spaces that can be enjoyed by a range of people
  - There are a range of social infrastructure facilities across the SESA-eastern, primarily due to the dense population. There are multiple facilities in each suburb, mostly clustered around shopping areas and transport networks.
- Access and connectivity:
  - There are several major roads and motorways located across the SESA, including the M4 and M7 Motorway, and the proposed M12 development. Reliability on private vehicles is relatively high across the SESA. A greater share of households in the SESA-western and SESA-central own three or more vehicles in comparison to the Greater Sydney average
  - Public transport is limited in the SESA-western and SESA-central, with local buses servicing these areas. The SESA-eastern has more public transport options, with buses and trains. Similarly, active transport facilities are fairly limited across the SESA-western and SESA-central with the SESA-eastern having more pathways and green spaces that provide active transport connections.

- Community cohesion:
  - There is a lower than average level of participation in voluntary work, and a higher ethnic diversity which can both be an indicator of lower community cohesion across all study areas (noting community cohesion is challenging to measure)
  - The SESA-eastern in particular has a very high proportion of the population who speak a language other than English at home compared to Greater Sydney, which may suggest potential for lower social cohesion, although large areas of Assyrian, Vietnamese and Cambodian residents may mean that cohesion within communities is strong.
- Community values (informed by review of consultation materials and Council strategic documents):

- Both positive and negative perspectives associated with growth and change in Western Sydney (including cumulative impacts associated with scale of historic and future change)
- Concern about impacts of land acquisition/easements on activities and land uses within the area, particularly agriculture
- Concern about impacts on key community facilities and services, particularly parks and public spaces which are used regularly by the community
- Concern about impacts to local and regional roads during construction and operations and queries about capacity and design of current roads to cope with construction and operational influx
- High value of local rivers and creeks, including strong cultural and Aboriginal heritage value of the area and surrounding land and waterways. and concern that any discharges into natural watercourses should be of the highest quality and have no adverse impact on river and creek quality.

Construction impacts

In summary, the main impacts during construction would include:

- Land use and property: permanent acquisition of 78 hectares of land for the AWRC, and 72 properties subject to easements (predominantly within rural and agricultural land). The project is not expected to substantially alter land use activities nor compromise future development planning
- Employment: provision of local employment for up to 400 people per day over the course of construction
- Community: potential for impacts to community cohesion resulting from differing views on the project within local communities, as well as potential for increased anxiety and stress associated with the anticipation of impacts during construction
- Access and connectivity: Construction partial road closures and temporary access changes to properties, delays and short-term parking impacts
- Social infrastructure and places of community value: Educational precincts and community centres that are comprised of passive recreational spaces, community clubs, sporting/leisure centres and places of worship may experience impacts. Impacts are likely to include changes in access, impacts to the use of parts of facilities (i.e. sections of open space used for construction) and amenity impacts in the form of dust impacts, noise impacts and visual impacts
- Commercial operations and businesses: temporary amenity impacts (noise, air quality and visual) for businesses closest to the project and associated construction areas. Freight operators, delivery vehicles, patrons of local stores and staff may experience traffic delays around construction areas and alternate parking arrangements.

Table i and ii provide further detail on an overview of the impact assessment during construction.

Table i: Summary of land use impacts

Property	• A total of 60 properties will be impacted by the project construction (within the impact assessment area). Of these properties, two (currently in ownership of University of Sydney) will be subject to permanent land acquisition for the AWRC – with permanent acquisition of a total of approximately 19% of their total lot area • The remaining property impacts will be through partial and temporary access arrangement with 58 properties.
Land use	• The AWRC will directly impact on approximately 78 hectares of the land currently used for research related activities and cattle grazing by the University of Sydney. The land will no longer be available for this use, although it is noted that current use is not understood to be on a daily basis • The treated water pipeline, environmental flows pipeline, brine pipeline and associated compound sites will impact most substantially on existing road infrastructure uses, and land currently used for agricultural and rural purposes. This impact will be temporary for the period of construction, with land returned to its previous use on completion • Access to several parks and open spaces is also anticipated to experience temporary impacts for the period of construction and with some places unavailable for public use (impacts to these spaces are considered in the socio-economic impact assessment of social infrastructure) • The project construction is not expected to prevent the proposed future land uses, including WSAGA and SWGA plans, within the local influence area and SESA.
Neighbouring land use conflicts	• The LUCRA summarises the potential for land use conflicts with neighbouring properties as a result of the project • There is potential for some temporary impacts to neighbouring transport and access, with localised congestion particularly around the pipeline construction and for those properties sharing access with the project • No significant amenity impacts are anticipated, however, there may be some minor noise and air quality impacts to neighbouring properties associated with construction activities • Change in character from agriculture to infrastructure may present some conflict for existing land uses, however, it is noted that this character change is anticipated with or without the project • The land use impacts and requirements for property easements and construction on some productive land, has the potential to impact on the agricultural industry and economy • The project may bring potential benefits to neighbouring land uses and properties in the form of infrastructure to support growth and change

Table ii: Summary of construction socio-economic impacts

Way of life	• **Access to housing:** the project is not expected to impact on access to housing during construction, as it will take place predominantly within existing roadways. There is potential for temporary construction impacts to residents adjacent to the project, in the SESA-eastern where densities are higher, including access to properties, usual routes of travel and amenity impacts (these are considered under 'Surroundings'**.** • **Access to employment:** there is expected to be a moderate increase in employment opportunities as a result of the project, creating approximately 400 construction jobs, which will predominantly available for a local workforce. This will support employment in the local area, particularly for the young population and Aboriginal communities, and reduce stress and anxiety around job provision and income**.** • **Commercial operations and businesses:** the project is expected to temporarily impact upon businesses and some commercial operations, with most direct impacts experienced within the social influence area, and amenity impacts (noise and visual) expected along pipeline routes during trenching/tunnelling. Some impacts to tourism in the SESA-western may also be experienced, particularly near Wallacia and Mulgoa which are used for accommodation, camping and by visitors of the Blue Mountains National Park and Warragamba Dam. Freight operators, delivery vehicles, patrons of local stores and staff may experience traffic delays around construction areas and impacts to parking (see Access and Connectivity).
Access and connectivity	• **Local road network and access:** construction is expected to require partial road closures and temporary access changes to properties in the local influence area – resulting in minor social impacts. Detours may be required and disruption to traffic in some areas would occur. This may cause delays and confusion for some road users. Trenchless pipe installations would be used in areas that have busy roads and intersections • Most impacts to traffic and the local road network are expected to occur in the SESA-eastern due to the higher population density • **Parking:** Short term, minor parking impacts during trenching works and around construction areas are expected to occur, resulting in motorists having to utilise alternate parking areas. Access for emergency vehicles/services would be maintained • **Construction traffic:** Additional vehicle movements in all study areas for workers travelling to and from construction areas may result in minor, noticeable impacts to surrounding receivers, particularly in the SESA-western which is comprised of quieter suburbs • **Public and active transport:** Bus routes, pedestrians and cyclists are expected to be minorly be impacted during construction. Detours and construction traffic may result in longer travel times. Bus stops are expected to need to be relocated if they are impacted during the construction phase. The temporary closure or adjustment of pathways and the local road network may affect accessibility, community cohesion and some resident and visitor enjoyment of public spaces in the SESA.
Community	• **Socio-demographic profile:** with 400 new jobs, there is potential for a very minimal impact on the number of people living in the SESA. However, this is expected to be limited, noting aspirations for substantially local jobs and a strong existing construction employment base within the area • **Physical cohesion:** the project largely follows existing roadways where possible. As such, there is potential for this to cause severance – preventing community from accessing other services and places on the opposite side of the road. This impact will be minor and for the duration of construction in each localised area only • **Social cohesion**: there is potential for the project to create some minor impacts on social cohesion as a result of opposing views from the community on the project.

Access to and use of infrastructure, services and facilities	• **Social infrastructure:** There is expected to be a minor reduction in amenity at social infrastructure facilities and areas, including Blue Mountains National Park, Western Sydney Parklands and local parks and reserves • There are several parks and open spaces, including Cabravale Memorial Park and Fowlers Reserve which are within the impact assessment area, and will be subject to direct impacts during construction. Some additional areas within the impact assessment area may be used for passive recreation in informal spaces. Individuals and communities can often create areas of informal place making that would need to be considered during construction • Educational precincts and community centres that are comprised of community clubs, sporting/leisure centres and places of worship may experience minor changes in access, dust impacts, noise impacts and visual impacts. Delays and disruptions to the local road network would increase travel time which may also impact access to community services and facilities. The potential temporary relocation of essential services and centres should be considered.
Culture	• **Non-Aboriginal heritage:** No significant impacts are anticipated • **Aboriginal cultural heritage:** impacts are expected to 15 Aboriginal archaeological sites, ranging from low to moderate, and some resulting in a partial loss of value. Some design changes have been implemented to minimise these impacts.
Health and wellbeing	• **Air quality/health impacts:** No significant impacts are anticipated associated with air quality emissions or odour, or human health.
Surroundings	• **Visual impacts:** The rural amenity within the SESA is expected to be moderately impacted during construction of the AWRC. Impacts to the landscape and views may result in a sense of loss of valued character and impact on surrounding receiver's ability to enjoy the rural and vegetated areas surrounding their residences and across their suburbs. Proposed compound sites have been strategically located to minimise community and environmental impacts, however, impacts would still occur, particularly in quieter suburbs such as Warragamba, Wallacia and Cecil Hills. • **Noise impacts:** construction of the project, as well as the operation of some compound sites is expected to result in minor construction noise impacts above noise management levels (NMLs) during construction. These are likely to be experienced by people working from home and businesses, older residents and residents with young children who may be home during the day. Some vibration impacts are expected experienced by residents and businesses during the construction of the pipelines in some areas. Noisy works could potentially cause annoyance and stress, particularly if noisy works are continuous and over a period of time.
Personal and property rights	• Some social impacts associated property easements are anticipated as a result of property impacts from project – impacting of way of life of residents. The requirement to allow access to their land may cause anxiety and stress for the affected residents, and result in time being spent considering options and worrying about potential impacts. This is particularly noting the that many residents have lived in the area for a long time
Decision making systems	• No significant impacts to existing decision-making systems are expected. Following the exhibition period, Sydney Water will continue to identify and manage issues of interest or concern to the community during the assessment and approval process and, if the project is approved, during its construction.
Fears and aspirations	• **Biodiversity:** a review of community values shows a passion in the local community for the natural and biodiverse landscapes. The Biodiversity Development Assessment Report suggests that biodiversity impacts are of an acceptable level for a project of its scale, and impacts to native vegetation and threatened flora and fauna will be somewhat mitigation through offsets. As a result, social impacts associated with perceived biodiversity impacts are expected to be minor but possible.

	• **Agricultural impacts:** one significant concern raised during consultation and engagement has been the impact of the project on neighbouring agricultural land uses. Potential conflicts include potential noise, odour, dust and air quality impacts to agricultural land uses, and direct impacts to around 3km of BSAL and some easements directly on agricultural land. • In addition, there may be a concern among agricultural neighbours with regard to the change from an established rural landscape and lifestyle, to more infrastructure focused urban development (particularly around the facility itself).
Cumulative ***This includes impacts from the Western Sydney Airport and M12 Motorway development.***	• Potential for consultation fatigue as a result of multiple consultation and engagement exercises with the local community on various projects • Concern, expressed by some stakeholders, that the Western Sydney area is being disproportionately targeted for industrial and infrastructure development • Potential for the project to help communities in demonstrating the benefits and opportunities of the large-scale development of the area • Amenity and traffic and transport impacts from the project are likely to be increased as a result of cumulative development.

Operational impacts

The impact assessment highlights a reduced set of operational impacts that would include:

- Anticipated benefits in providing essential infrastructure to support transformation of the area which will in turn bring housing choice, employment, open space, social infrastructure and significant liveability enhancements.
- Following construction, the visual impact of the AWRC would be substantial, noting the shift away from rural character (although this is in the context of the known growth plans for the wider area)
- Minor noise exceedances in the surrounding areas of the AWRC during the operation of the project are expected

Table iii and iv provide further detail.

Table iii: Summary of operational land use impacts

Property	• The majority of land subject to temporary access arrangement during construction would be returned to existing ownership once the project is operational • A total of 71 properties will be subject to permanent easements for the time of operation of the project.
Land use	• No further impacts to land use for the AWRC are anticipated during operation beyond those reported during construction • The pipelines will be located below ground. As such, on operation, the land will no longer be required for the project, and land would be returned to the previous land use, with no long-term land use impacts expected. Land used for compound sites will be returned to the previous land use with no long-term land use impacts expected.
Future land use	• There would be no additional direct impacts upon land use or property associated with future development, beyond those identified during the construction phase • Indirectly, the project will enable wastewater services to support the policy aspirations for growth and change of land use in Western Sydney (particular around WSAGA and SWGA) – with a shift from the current rural and agricultural uses, to urban, industrial and employment uses. Noting this alignment with strategic policy and land use aspirations – a strong positive impact is anticipated.

Neighbouring land use conflicts	• The LUCRA summarises the potential for land use conflicts with neighbouring properties as a result of the project • The project is not expected to impact the local road network during operation • Some exceedances of noise criteria associated with the AWRC may be experienced during the night-time period – particularly affecting neighbouring residents in Badgerys Creek and Kemps Creek – although these are not expected to impact on the continued land use of these area • There is a risk of wildlife hazards and biosecurity impacts, given the availability of open water as part of the landscaped area of the AWRC site. Stakeholder engagement has suggested that there is potential for a biosecurity risk associated with this and the close proximity of poultry farms to the site, and the risk that visiting birds to the AWRC will bring pests and disease which will affect farming activities • There is potential for concern among neighbouring properties, particularly agricultural properties with regard to the change from an established rural landscape and lifestyle, to more infrastructure focused urban development (particularly around the facility itself). However, the surrounding areas to the project, within which the identified neighbours are located, are predominantly located within land under the Aerotropolis SEPP, and as such likely to experience significant urban development.

Table iv: Summary of operational socio-economic impacts

Way of life	• **Access to housing:** the project is not expected to impact on access to housing during operation • **Access to employment:** up to 10 jobs increase in employment opportunities as a result of the project (albeit small scale) will support reduced unemployment levels, and reduce stress and anxiety around job security • **Commercial operations and businesses:** the project is expected to have benefits to businesses and employment areas, through the provision of wastewater services to support development. There are likely to be perceived impacts associated with amenity impacts to agricultural businesses in particular • **Long-term liveability**: a significant anticipated benefit in providing essential infrastructure to support transformation of the area which will in turn bring housing choice, employment, open space and significant liveability enhancements.
Access and connectivity	• **Local road network and access:** the project is not expected to impact the local road network during operation. Travel movements by operational staff and for maintenance works and inspections along the pipeline routes would result in negligible impacts in the SESA • **Public and active transport:** the operation of the project would not impact public or active transport.
Community	• **Socio-demographic profile:** no change to population expected as a result of operational employment opportunities (up to 10 jobs) due to small scale • **Community cohesion:** there is potential for the project to create some minor impacts on social cohesion as a result of opposing views from the community on the project. This is expected to reduce over time.
Access to and use of infrastructure, services and facilities	• **Social infrastructure:** the project is not expected to have adverse impacts on social infrastructure during operation

	• **Utilities:** the project will result in utility improvements through the provision of wastewater utilities infrastructure. Other utilities and services are not expected to be impacted as a result of the operation of the project.
Culture	• **Non-Aboriginal Heritage: n**o significant impacts are anticipated • **Aboriginal Cultural Heritage:** no further Aboriginal cultural impacts are reported as part of the Aboriginal Cultural Heritage assessment undertaken for the project, other than those recorded in construction impacts.
Health and wellbeing	• **Air quality/health impacts**: no significant impacts are anticipated associated with air quality emissions or odour or human health.
Surroundings	• **Visual impacts:** ongoing impacts to landscape character and visual amenity are expected to occur in the SESA as a result of the new AWRC. This is likely to change over time as the Western Sydney area becomes more urban, however following construction, the visual impact of the AWRC would be moderate, particularly due to the associated vegetation removal required for the project. There would be some temporary visual impacts in areas where pipeline infrastructure would be located, particularly where vegetation removal has been required and replanting has occurred – however these are expected to be minimal • **Noise impacts:** minor noise exceedances in the surrounding areas of the AWRC during the operation of the project are expected. Management measures will ensure that no significant noise impacts during construction will occur. There are no proposed impacts along pipeline routes during the operation of the project.
Personal and property rights	• No significant impacts to personal and property rights are anticipated.
Decision making systems	• No significant impacts to existing decision-making systems are expected. There will be ongoing engagement with local communities.
Fears and aspirations	• **Water quality:** several stakeholders have expressed concerns around the impact of treated water outflows upon water quality within the surrounding waterways. Water quality modelling undertaken as part of the project (see the EIS) shows that there will be predominantly negligible impacts of the project upon waterways, and no significant changes in water quality, beyond temporary and localized areas. As such, no significant negative impacts to water quality, or use of the waterways for recreation are anticipated. • However, there is likely to remain potential for a perceived impact relating to this concern – noting the community views expressed. It is notable that engagement with the Aboriginal communities in relation to the project has highlighted the importance of protecting water quality and providing access to and protection of water for future generations. • A significant recurrent theme in consultation and engagement on the project has been the future use of recycled water generated by the project, and there is generally significant support from Councils and community members for the use of recycled water • Consultation with the community, and targeted Council engagement has demonstrated a keen focus on climate change, sustainable operation, and strategies such as urban cooling and energy efficiency. • Sustainable solutions for the Water Recycling Centre also include retaining water in the landscape to mitigate urban heating, circular economy approaches to waste management, installation of roof-mounted and ground mounted solar photovoltaics and adaptation measures to improve climate resilience

Cumulative	• While the project alone will not result in significant land use impacts, it will provide a supportive environment for the growth and development of the area • Potential negative impacts to agricultural economy and land use, and concerns from the local community regarding the local character that they value • Positive impacts might include the provision of greater access to employment, housing choice and other services and opportunities for local and future residents.

Mitigation

Mitigation measures have been included in this report to manage and avoid potential socio-economic and land use impacts during construction and operation. Consultation with the community and stakeholders, in particular, affected property owners, businesses and sensitive receivers would be required during all stages of the project. Mitigation measures include:

Code	Measure
Construction	
SELU1	Social and local procurement and employment strategy
SELU2	Consultation with local businesses
SELU3	Consultation with agricultural businesses
SELU4	Signage and visibility for passing trade
SELU5	Traffic management for schools and educational facilities
SELU6	Traffic management for stakeholders and the broader community across SESA
SELU7	Temporary relocation of bus stops
SELU8	Consultation with Councils
SELU9	Consultation with social infrastructure facilities
SELU10	Design refinement considerations in areas where impacts are expected to be substantial
SELU11	Consultation with emergency services for access
SELU12	Temporary crossings and route signage
SELU13	Communications, education and engagement program
SELU14	Consultation with impact properties and landowners
SELU15	Management of residual land
Operation	
SELU16	Engagement with surrounding developers
SELU17	Communications, education and engagement program

Conclusion

Based on these mitigation measures, an assessment of residual impacts is undertaken in Chapter 11 of this report. It identifies that there would predominately be a low to moderate significance of impact (with some high positive and negative) during construction and during operation of the project.

While some negative impacts will remain for the project, all efforts have been made, and will continue to be made to minimise and mitigate those impacts where possible. The project is a major infrastructure project, providing significant opportunities for Western Sydney and beyond. It is typical for construction of such projects to generate some short-term impacts, however, overall, the project would benefit the community and stakeholders through the establishment of the AWRC and associated infrastructure.

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Acknowledgement of country

The authors of this socio-economic and land use impact assessment would like to pay respect to the Darug, Dharawal and Gunungurra people, the Traditional Custodians of the land to which this impact assessment applies; pay respect to the Elders past, present and emerging; and acknowledge their living culture and spiritual connections to the land.

Acronyms and definitions

Acronym	Meaning
ADWF	Average dry weather flow
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEP	Annual Exceedance Probability
AHIMS	Aboriginal Heritage Information Management System
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resources Management Council of Australia and New Zealand
AQIA	Air Quality Impact Assessment
AWRC	Advanced water recycling centre
ARR	Australian Rainfall and runoff
BAM	Biodiversity Assessment Methodology
BDAR	Biodiversity Development Assessment Report
CEMP	Construction environmental management plan
COfA	Certificate of Authority
CSEP	Community and stakeholder engagement plan
CSP	Community Strategic Plan
DPE	Department of Planning and Environment (former
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment
EKAMS	Sydney water's effluent knowledge and management system
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Protection Act 1999*
EPL	Environment protection licence
ESD	Environmentally sustainable development
NSW FDM	New South Wales Floodplain Development Manual
GSC	Greater Sydney Commission
INSW	Infrastructure NSW
ISCA	Infrastructure Sustainability Council of Australia
kg	Kilogram
km	Kilometre
La90	[use definition in specialist report]

Acronym	Meaning
Laeq	[use definition in specialist report]
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local government area
LSPS	Local Strategic Planning Statement
ML	Megalitres
ML/year	Megalitres per year
m	Metre
mm	Millimetre
m^2	Square metres
m^3	Cubic metres
NML	Noise management level
NOE	Notice of Entry
NHMRC	National Health and Medical Research Council
NSW	New South Wales
OEH	Office of Environment and Heritage (now known as the Department of Premier and Cabinet (Heritage))
OEMP	Operational environmental management plan
OU	Odour unit
PMF	Probable maximum flood
PRP	Pollution reduction program
RBL	Rated background level
REF	Review of environmental factors
RMS	Roads and Maritime Services (now Transport for New South Wales)
RWSA	Raw water supply agreement
SEARs	Secretary's environmental assessment requirements
SEPP	State environmental planning policy
SSI	State significant infrastructure
SWGA	South West Growth Area
TEC	Threatened ecological community
TfNSW	Transport for New South Wales
USC	Upper South Creek
WSAGA	Western Sydney Aerotropolis Growth Area
WRP	Water Recycling Plant
WCAA	Western City Aerotropolis Authority

Acronym	Meaning
Section 39	Certificate of Authority of Section 39 of the Sydney Water Act 1994 (the Act)
DECCW 2010	Code of Practice for archaeological investigation of Aboriginal objects in NSW (DECCW 2010) to establish the extent and significance of Aboriginal heritage
Water NSW Access Protocol	Sydney Water and Water NSW Access Protocol provides an access framework for the parties to follow.

1 Introduction

Sydney Water is seeking approval to build and operate new wastewater infrastructure to service the South West and Western Sydney Aerotropolis Growth Areas (SWGA and WSAGA), under the *Environmental Planning and Assessment Act 1979* (EP&A Act) as State significant infrastructure (SSI). The proposed development will include a wastewater treatment plant in Western Sydney, known as the Upper South Creek (USC) Advanced Water Recycling Centre (AWRC). Together, the AWRC and associated treated water, environmental flows and brine pipelines, are known as the 'project'. An overview of the location of the proposed infrastructure is provided in Figure 1-1. Further details of each component of the project are provided in Section 2.

1.1 Purpose of this report

This socio-economic and land use impact assessment identifies and evaluates the potential positive and negative socio-economic and land use impacts associated with the project. It supports the Environmental Impact Statement (EIS) prepared for the project. This Assessment has been produced with reference to the Secretary's Environmental Assessment Requirements (SEARs). The Socio-economic Impact Assessment component has also been prepared to align with the former *Department of Planning, and Environment's (DPE) Social Impact Assessment Guideline (September 2017)* – referred to as DPE's Social Impact Assessment Guideline.[2]

The objectives of the socio-economic and land use impact assessment are:

- To identify the area of influence likely to be affected by the project
- To describe the existing land use, social and economic context to establish a baseline from which impacts and benefits of the project can be identified
- To analyse and assess the potential impacts (positive and negative) of the project on socio-economic factors and land use
- To identify mitigation and management measures to either reduce or remove potential negative impacts and maximise positive impacts of the project.

1.2 Report structure

The report is structured as follows:

- Section 1 - Introduction
- Section 2 - The project
- Section 3 - Legislation and Secretary's Environmental Assessment Requirements (SEARS)
- Section 4 - Methodology
- Section 5 – Community and stakeholder consultation
- Section 6 – Strategic planning context

[2] A draft Social Impact Assessment Guideline was published in December 2020 by DPIE. This would supersede the 2017 guidelines where adopted. As this is not adopted, the 2017 guidelines have been used (in accordance with project SEARs). However, the assessment has also drawn from the 2020 draft guidelines where relevant and appropriate.

- Section 7 – Existing environment
- Section 8 – Land use impact assessment
- Section 9 – Socio-economic impact assessment
- Section 10 – Mitigation, management and enhancement measures
- Section 11 – Residual impacts
- Section 12 – Conclusion
- Section 13 – Authorship declaration
- Section 14 – References

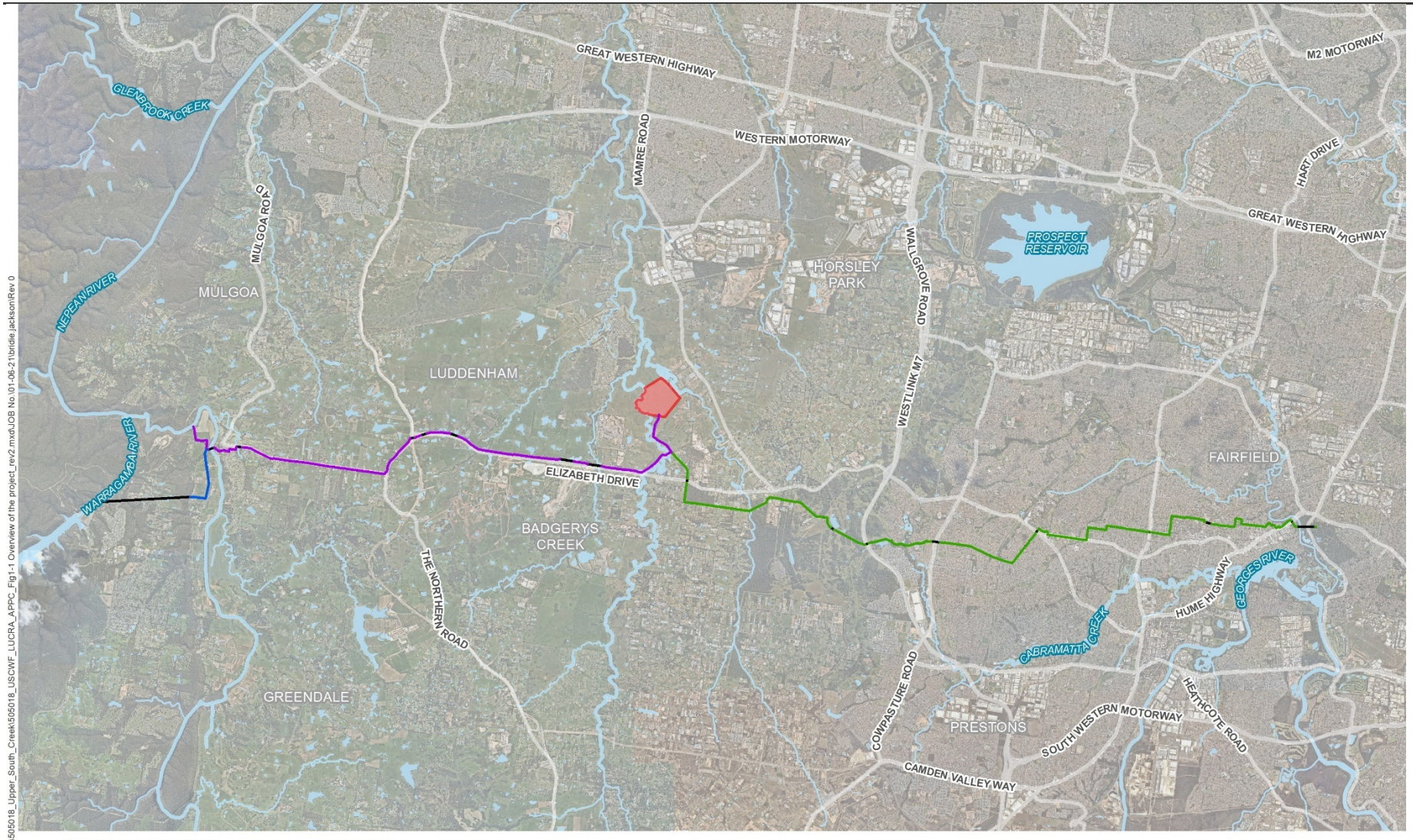

Figure 1-1 Overview of the project

2 The project

2.1 Project need

Wastewater is produced as an output from residential, commercial and industrial facilities. Wastewater collected from houses and businesses is transferred by a collection network of pipelines to one of Sydney Water's 16 wastewater treatment plants. Sydney's wastewater system has evolved over time in response to population growth. The historically lower volume and density of residents in parts of Western Sydney has meant that some areas, currently have limited wastewater infrastructure. Western Sydney is forecast to experience significant growth and change over coming decades. With interim servicing approaches expected to reach their limits by 2026, the project aims to meet long-term wastewater and recycled water service demands for the area well into the future.

The project will also be a critical asset in Sydney Water's vision to transition to an integrated and sustainable water future where the economic value of water is leveraged for shaping, building, greening and cooling the Western Parkland City. The Western Parkland City is located to the west of Greater Sydney between Liverpool and the Blue Mountains (Greater Sydney Commission, 2018a). The *Greater Sydney Region Plan – A metropolis of three cities* defines the Western Parkland City as an emerging city in an area of transformation, infrastructure, housing, employment and economic development (Greater Sydney Commission, 2018a).

2.2 Project objectives

The objectives for the project are provided in Table 2-1.

Table 2-1 Project objectives

Objective	Objective detail
Respond to growth	Provide wastewater services to the SWGA and WSAGA, in line with the NSW Government's long-term population forecasts and Sydney Water's licence obligations.
Provide cost-effective service	Provide a wastewater treatment service that is financially sustainable for Sydney Water and minimises impact on customer bills.
Minimise disruption	Plan, construct and operate the infrastructure required to deliver the service with minimum disruption to the community.
Sustainable solutions	Demonstrate leadership in integrated and sustainable water management, including: • preserving waterways health and amenity values of the Hawkesbury-Nepean River, South Creek, and tributaries • retaining water in the landscape to mitigate urban heating and create green and vibrant places • supplying recycled water for non-drinking purposes for use in homes and businesses, for agricultural purposes or irrigation of public open space • pursuing circular economy approaches to waste management by explicitly adopting renewable energy solutions and resource reuse.
Adaptable solution	Incorporate into the solution, alternative futures, addressing a range of demand scenarios (including before 2025), meeting customers changing aspirations.

2.3 Project description

The project comprises the following key features:

- The AWRC, a new wastewater treatment plant that includes production of:
  - High-quality treated water suitable for a range of uses including recycling and environmental flows
  - Renewable energy
  - Biosolids suitable for beneficial reuse

  This area will contain the wastewater treatment infrastructure and compound sites.
- New infrastructure from the AWRC to South Creek, to release excess treated water and wet weather flows
- A new pipeline from the AWRC to the Nepean River, to release treated water (treated water pipeline)
- A new pipeline extension from the new Nepean River pipeline to the Warragamba River for environmental flows (environmental flows pipeline)
- A new pipeline from the AWRC to Sydney Water's existing wastewater system to discharge brine (brine pipeline).

Further detail is provided in Section 2.3.2 of this assessment, and the EIS provides a full detailed description of these features, and the project in its entirety.

Key elements of the project which form the basis of this socio-economic and land use impact assessment are outlined in the following sections.

2.3.1 Design

This assessment is based on a design, which has been prepared to establish feasibility and design parameters, and to set the boundary conditions for approvals. During the tender and detailed design process, the contractor may change the design arrangement, (within the approval footprint and conditions). Therefore, the assumptions made in this report should be treated as indicative for the current stage of design.

Throughout the design process there have been various iterations between designers and technical specialists. These have sought to minimise any possible impacts and reduce implications for local communities. To inform this, community consultation and engagement has occurred throughout and the outcomes integrated into design (see Section 5 for further detail).

2.3.2 Operation

Table 2-2 summarises the proposed design and operational activities. For Stage 1 of project operation, the project will operate at 50ML/day. Sydney Water will build the project to accommodate all flows from the Water Recycling Centre when it reaches an ultimate capacity of 100ML/day. This is to avoid the additional community and environmental disturbance that would occur if they needed to be duplicated in the future. For the purposes of this assessment, it is considered that impacts would be similar across all stages, and as such, this assessment has been undertaken on the basis of the project at ultimate capacity.

Table 2-2 Proposed project features and operational activities

Project feature	Features / Description
AWRC	The AWRC is a wastewater treatment plant with the capacity to treat up to 50 ML of wastewater per day, with ultimate capacity of up to 100ML per day. It will be located on a 78-ha site in the suburb of Kemps Creek and will include a green space area along South Creek. Access to the site (during construction and operation) will be via a new road off Clifton Avenue. This access road will be built before construction of the AWRC and has not been included in the scope of works assessed by the EIS.
Treated water pipeline	The treated water pipeline would be about 16.7 km long and have a diameter of up to 1.2 metres. It would span from the AWRC to the Nepean River at Wallacia Weir, for the release of treated water. The pipeline itself will be below ground but will have some above ground structures such as the release structure at the Nepean River.
Environmental flows pipeline	The environmental flows pipeline would be about 4.5 km in length and would have a diameter of about 0.6 metres. The pipeline would transfer very high-quality treated water from the treated water pipeline to the Warragamba River, downstream of the Warragamba Dam. The environmental flows pipeline would split from the treated water pipeline at Bents Basin Road in Wallacia and would be tunnelled for about 2.5 kilometres, ending at the release structure at the Warragamba River. The flow split function enables the remote operation of diverting the treated water between the Nepean River and Warragamba River release locations.
Brine pipeline	The brine pipeline would be about 24 km long and have a diameter of about 0.6 metres. The brine pipeline would transfer brine from the AWRC to Lansdowne, in south-west Sydney, where it connects to Sydney Water's existing Malabar wastewater network. The brine pipeline would be located below ground, with potential for some minor above ground structures such as air valves to assist with operation.

Sydney Water is seeking a staged approval for the project. Stage 1 of the project includes:

- Building and operating the AWRC to treat an average dry weather flow of up to 50 megalitres per day (ML/day)
- Building all pipelines to cater for up to 100 ML/day flow at the AWRC (but only operating them to transport and release volumes produced by the Stage 1).

Current growth projections suggest the ultimate capacity of the AWRC will need to be up to 100 ML per day. The timing and size of these stages will be established over time to align with growth in the servicing area. Sydney Water is only seeking approval to build and operate Stage 1.

2.3.3 Construction

2.3.3.1 Advanced water recycling centre

The construction of the AWRC will take place over seven main phases (with some expected to overlap), as follows:

- Phase 1 – site establishment and mobilisation (approx. 2 months)
- Phase 2 – site earthworks, stockpiling, storage and removal of materials (approx. 12 months)
- Phase 3 – civil works (approx. 12 months)

- Phase 4 – AWRC structure construction (approx. 18 months)
- Phase 5 – mechanical and electrical installation (approx. 18 months)
- Phase 6 – landscaping works and rehabilitation (approx. 3 months)
- Phase 7 – commissioning (approx. 6 months).

Subject to approval it is expected that construction will start in mid-2022, and last for approximately 36 months. Detailed construction staging will be established by the construction contractor.

2.3.3.2 Pipeline construction

There are five main phases of pipeline construction:

- Phase 1 – site establishment and mobilisation, installation of environmental controls, such as erosion and sediment control
- Phase 2 – site earthworks, including excavation for trenches and launch and receival pits for trenchless pipe sections
- Phase 3 – installation of pipe bedding material and pipeline, as well as backfilling of trench. Civil works such as pipeline and ancillary infrastructure will also be installed during this stage
- Phase 4 – commissioning
- Phase 5 – landscaping works and rehabilitation.

Construction of the pipelines will likely occur in several locations at one time, rather than moving progressively from one end to the other and each location would likely be in a different phase at different times. The construction program will be established by the construction contractor during detailed design. Construction of pipelines is likely to occur over the whole 36-month construction phase. Open trench construction will progress at a rate of 12-24 m per day and have a duration of between 8-10 weeks in one given area. Tunnelling construction will have a duration of between 1-6 months depending on the location and depth of bore.

2.3.4 Proposed construction compounds

Compound sites will be required for the construction of the project and are expected to be used for the following purposes:

- Site offices, amenities and parking
- Delivery and storage of stockpiles, materials, equipment and structural elements
- Fabrication and assembly
- Establishment of entry or exit shaft for tunnelling.

Table 2-3 provides a summary of the compound sites for the project, with the location of these facilities shown in Figure 2-1.

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Table 2-3 Summary of the compound sites

Compound type	Key activities and description	Compound site	Duration
Main	• Large compound sites that will be active for the entire construction of the project • Temporary buildings such as offices and meeting rooms, amenities and first aid facilities • Stockpiling and sorting of waste material prior to disposal or re-use • Storage of site equipment, including bunded storage for any chemicals such as fuel.	• C5 - 1 Park Rd, Wallacia • C6 - 344 Park Rd, Wallacia (260 Park Road, Wallacia (alternative location)) • C8 - AWRC site • C10 - Liverpool reservoir, Cecil Hills • C12 - East Parade, Fairfield	Entire 36-month construction period of the project
Satellite	Smaller compound sites that will be active for the entire construction of the project. They will have similar activities as main compound sites. Duration will be shorter compared to main compounds largely dependent on the duration of works in the area.	• C3 - Treated water release location near Wallacia Weir at Nepean River (Nortons Basin) • C7 - Elizabeth Drive between The Northern Road and Luddenham Road • C9 Western Sydney Parklands, near Liverpool Offtake Reservoir – multiple small compound sites, including M7 tunnelling (also trenchless) • C11 - Plan DP262454 Lot 419, Bonnyrigg • C14 - Lansvale Park, Lansdowne - west of Henry Lawson Drive and Prospect Creek (also trenchless)	About 3 – 12 months
Tunnelling	• Only identified for larger trenchless construction locations where an increased construction presence will be required • Include the launch and receival pits for sections of pipeline constructed by tunnelling • Accommodate activities associated with drilling such as the drill rig, spoil management and pipe placement • Only required during tunnelling.	• C1 - Warragamba River via Core Park Road • C2 - Bent Basins Road, Wallacia • C4 - West of Wallacia and Nepean River • C9 Western Sydney Parklands, near Liverpool Offtake Reservoir – multiple small compound sites, including M7 tunnelling (also satellite) • C13 - Cabravale Park • C14 - Lansvale Park, Lansdowne - west of Henry Lawson Drive and Prospect Creek (also satellite) • C15 - Lansdowne east of Henry Lawson Drive	About 3 – 12 months

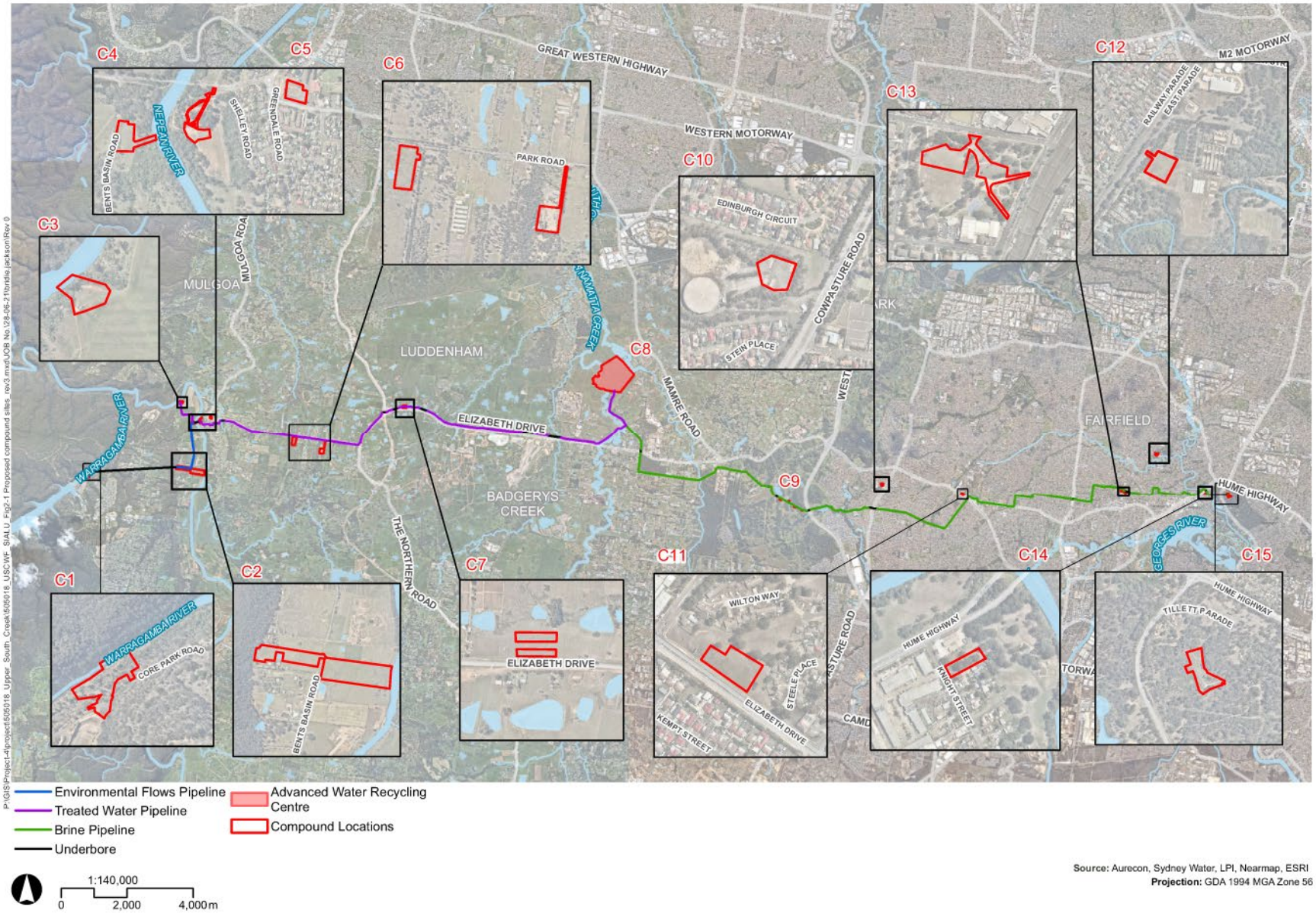

Figure 2-1 Proposed compound sites

3 Legislation and Secretary's Environmental Assessment Requirements (SEARS)

This section identifies legislation that sets out statutory requirements for the socio-economic and land use impact assessment of the project.

3.1 Legislation

The socio-economic and land use impact assessment is guided by the objectives of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and environmental planning instruments including State Environmental Planning Policies and Local Environmental Plans (LEPs) of the relevant local government areas (LGAs). These statutory instruments determine the socio-economic and land use considerations required to be addressed by the project and to be considered as part of the socio-economic and land use impact assessment.

In addition to legislation and statutory requirements, a range of Government plans and policies also influence the assessment of socio-economic and land use impacts. These are outlined in Section 5.

3.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the statutory instrument that guides strategic land use planning and development assessment in NSW.

The objectives of the EP&A Act (Section 2.1) set out the purpose of the legislation and what it aims to achieve. Object (b) of the EP&A Act is *"to facilitate ecologically sustainable development*[3] *by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment"*, which identifies the importance of socio-economic considerations in the construction and operation of the project.

The SEARs (Section 3.2) identify the specific requirements that must be addressed in this socio-economic and land use impact assessment of the project.

3.1.2 State Environmental Planning Policies

State Environmental Planning Policies (SEPPs) can provide policy guidance on planning matters and/or guide planning decisions for specific places. The project traverses land covered by the *State Environmental Planning Policy (Western Sydney Parklands) 2009* and *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* (Aerotropolis SEPP). The project is also located adjacent to land covered by the *State Environmental Planning Policy (Western Sydney Employment Area) 2009*.

[3] Defined in Australia's National Strategy for Ecologically Sustainable Development (1992) as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.'

These SEPPs guide the land use constraints, and future land use plan for the area, and provide an important input into the land use impact assessment element of this socio-economic and land use impact assessment. These SEPPs also aim to facilitate the *"sustainable, orderly and transformational development"* of Western Sydney, to promote development that is compatible with long-term growth expirations, provide world-class innovation in employment and housing, while recognising and supporting the cultural, heritage and environmental importance of the area.

3.1.3 Local Environmental Plans

Local Environmental Plans (LEPs) guide planning decisions at a local government area level. Clause 1.2 of an LEP identifies the aims of the plan. All LEPs generally identify economic and social considerations as aims. The LEP also identifies land use zoning identifies permissible and prohibited development.

The project is located in Western Sydney in NSW, spanning across five local government areas. The five local government areas and their corresponding LEPs are:

- Wollondilly Shire Council – Wollondilly Local Environmental Plan 2011
- Penrith City Council – Penrith Local Environmental Plan 2010
- Liverpool City Council – Liverpool Local Environmental Plan 2008
- Fairfield City Council– Fairfield Local Environmental Plan 2013
- Canterbury-Bankstown Council – Canterbury Local Environmental Plan 2012 and Bankstown Local Environmental Plan 2015.

The AWRC is the main feature of the project, located in the suburb of Kemps Creek in the Penrith City Council LGA. Further detail on land use zoning and other key elements from the LEPs is provided in Section 6.

3.2 Secretary's Environmental Assessment Requirements for the project

This socio-economic and land use impact assessment responds to requirements set out within the project SEARs. Table 3-1 outlines the SEARs that relate to socio-economic and land use impact and identifies where they are addressed in this report. The list of guidelines to be followed attached to the SEARs references use of the *Department of Planning, and Environment's (DPE) Social Impact Assessment Guideline* (2017) – referred to as DPE's Social Impact Assessment Guideline.[4] [5] This assessment has therefore been undertaken in accordance with the DPE Social Impact Assessment Guideline.

[4] This was the department name at the time of publication. The department is now known as the Department of Planning, Industry and Environment (DPIE).

[5] It is noted that DPIE has recently published a draft update to the Social Impact Assessment Guideline (2020). It is likely a final version will be published in 2021. Noting the updated guideline remains in draft, this assessment aligns with the existing adopted 2017 guideline. While regard has been given where possible to the content of the draft updated guideline, it is understood that if the updates are adopted, the 2017 guideline will continue to apply to the assessment in line with the SEARs.

Table 3-1 Secretary's Environmental Assessment Requirements (SEARs) relevant to this assessment

Relevant SEAR	Reference in this report
Agricultural Land – including:	
27. Identify potential impacts of the proposed development on the operations of impacted agricultural industries and detail the mitigation measures to enable the agricultural industries to continue to operate. This could be detailed in a Land Use Conflict Risk Assessment (LUCRA) in consultation with DPI Agriculture.	Sections 8.2.1 and 8.3.1 summarise the potential land use and property impacts of the project. Further detail on potential land use conflicts is provided in a LUCRA, in Appendix A.
28. Consult with the owners / managers of affected and adjoining neighbours and agricultural operations in a timely and appropriate manner about the project, the likely impacts and suitable mitigation measures or compensation.	The LUCRA, in Appendix A, provides a summary of the consultation undertaken by Sydney Water with agricultural agencies and neighbouring landowners for the Project. Further detail on engagement and consultation is provided in the EIS.
Social – including a Social Impact Assessment, that:	
42. Identifies and assesses the potential social impacts of the project, from the points of view of the affected community/ies and other relevant stakeholders, i.e. how they expect to experience the project.	Section 8 and 9 of the report assesses the potential social impacts of the project during construction and operation.
43. Assesses the significance of positive, negative and cumulative social impacts considering likelihood, extent, duration, severity/scale, sensitivity/importance, and level of concern/interest.	Sections 8.2, 8.3 and 8.4 summarise the potential cumulative social impacts of the project during construction and operation.
44. Includes mitigation measures for likely negative social impacts and any proposed enhancement measure.	Section 10 provides detail of the mitigation and engagement measures proposed to respond to identified social impacts.
45. Provides details of how social impacts will be adaptively monitored and managed over time.	Section 10 provides detail of how the identified social impacts, and mitigation and engagement measures with be monitored over time.
Public Domain and Recreation – including:	
49. Assessing project impacts to the Western Sydney Parklands including: a) addressing the relevant objectives, strategic directions, land use opportunities and key management priorities of State Key Issues Environmental Planning Policy (Western Sydney Parklands) 2009, the Western Sydney Parklands Plan of Management 2030, the Western Sydney Parklands Southern Parklands Framework and the Western Sydney Parklands Design Manual. b) consulting with the Western Sydney Parklands Trust on the appropriate route, maintenance and access requirements for the project within the Parklands.	Sections 8.1, 8.2.2 and 8.3.3 consider the impacts of the project upon land use and land use zoning, including that associated with the Western Sydney Parklands. Sections 9.2.3 and 9.3.3.1 consider the impacts of the project upon social infrastructure, including the Western Sydney Parklands. Further detail on the relationship between the project and the Western Sydney Parklands, including engagement outcomes from discussions with the Western Sydney Parklands Trust, are summarised in the EIS.

3.2.1 Agency letters

Alongside the SEARs, the project also received letters from relevant agencies. These referenced important considerations, including impacts on ecology, traffic and transport, and wider amenity. The social impacts associated with these considerations are covered in Sections 8 and 9 of this assessment. Those agency comments of particular relevance to the socio-economic and land use impact assessment are summarised in Table 3-2.

Table 3-2: Summary of key relevant agency letters

Stakeholder and SEAR	Reference in this report
Wollondilly Council Consider the opportunity provided by the project for agribusiness and agritourism	This is addressed in Section 9.2.1 and 9.3.1 of this report
Western Sydney Planning Partnership Address how the project will be integrated and interface with both the Wianamatta-South Creek and Kemps Creek precincts identified within the Aerotropolis SEPP, noting the former will be rejuvenated into a high-quality central green spine, whereas the latter will not be planned for many years to come, and once planned, will provide for mixed commercial development such as smaller innovative and creative industries	This is addressed in Section 8.2.3 and 8.3.3 of this report
Fairfield Council Consider the impact of construction of the brine pipeline on business areas, due to the loss of trade from partial road closures while building and maintaining the pipeline, noting concern that current trading conditions are difficult over the short and medium term in our area and further impacts will result in economic decline and unemployment	This is addressed in Section 9.2.1 and 9.3.1 of this report
Fairfield Council Assess the impacts of the project on agricultural land and agricultural land uses in the locality, including cumulative impacts on agricultural enterprises, and impacts on support services and processing (to include a LUCRA)	This is addressed in Section 8.2.2 and 8.3.2 of this report, and Appendix A - LUCRA.

4 Methodology

This section outlines the methodology and approach used to assess the socio-economic and land use impacts of the project. Further detail on the methodology undertaken is provided in Chapter 13. As required in the SEARs, the methodology for the socio-economic component has been designed to align with the former *Department of Planning, and Environment's (DPE) Social Impact Assessment Guideline* (2017) – referred to as DPE's Social Impact Assessment Guideline.[6] [7] While still under development, this study has also taken into account the recently published draft update, *the Social Impact Assessment Guideline (2020).* Noting the 2020 document remains in draft, this assessment aligns with the existing adopted 2017 guideline, but regard has been had to the content of the draft updated guideline where appropriate and relevant.

In line with guideline requirements, this assessment has been undertaken by suitably qualified authors, with proven experience in undertaking socio-economic impact assessment. Section 13 provides further detail on the authors.

No dedicated guidelines exist for undertaking land use and property impact assessment in NSW; however, the report has drawn upon industry best practice and examples from similar Sydney Water projects. In alignment with the SEARs, a specific assessment of potential land use conflicts has been undertaken, drawing on the *Land Use Conflict Risk Assessment Guide* (Department of Primary Industries, 2011).

4.1 Study areas

The study area represents the potential area of influence for land use and/or socio-economic impacts resulting from the project. Its extent is dependent on a range of factors, including the likely scope of potential impacts, and the context within and around the project.

For this land use and socio-economic impact assessment, the area of influence has been defined based on several factors, including:

- A review of other technical assessments to understand their distance parameters and likely impact sphere. For the EIS a common impact assessment area has been agreed, representing the area of direct impact from the project
- The nature and scale of the project and scope of the potential direct and indirect land use and socio-economic impacts throughout the construction and operation phases of the project
- The local and characteristics of nearby communities – noting a predominantly rural character surrounding the ARWC and the treated water pipeline, and more urban residential character associated with the brine pipeline area
- Key built and natural features, including local road network, open spaces and waterways, and urban boundaries

[6] This was the department name at the time of publication. The department is now known as the Department of Planning, Industry and Environment (DPIE).
[7] It is noted that DPIE has recently published a draft update to the Social Impact Assessment Guideline (2020). It is likely a final version will be published in 2021. Noting this document remains in draft, this assessment aligns with the existing adopted 2017 guideline, but regard has been had to the content of the draft updated guideline where possible.

- Existing and proposed land use patterns and major infrastructure, including the transition of land use and characteristics of areas as you move from west to east
- Suburb boundaries, as defined by the ABS Census State Suburb (SSC), to enable identification of key statistics.

Three key study areas are used in this socio-economic and land use impact assessment, as follows:

- **Impact assessment area** – this reflects the whole-of-project 'impact assessment area' and this aligns with the area considered in other technical reports and is considered to best represent the direct area likely to be impacted by the project
- **Local influence area –** this represents a 25-metre buffer around the impact assessment area. This shows the area immediately adjacent to the project which is likely to be influenced by particular project impacts, particularly amenity and access impacts during the construction phase. This is specific to the socio-economic impact assessment and acknowledges the socio-economic influence direct impacts may have on the neighbouring community
- **Socio-economic study area (SESA)** – this represents broader communities most likely to interact with and intersect with the project. It is the potential extent of broader scale, and more indirect impacts to communities as a result of the project. It covers a total of 25 State Suburbs (aligned to the ABS State Suburb boundaries), encapsulating large areas of urban, rural and agricultural land. The 25 State suburbs that comprise the SESA have been grouped into three geographical study areas. This is discussed further in Section 4.1.1.

Consideration has also been given to the broader scale of impact the project may have, where relevant to the impacts assessed. This includes:

- Regional – encapsulating the Western Sydney District, and wider Greater Sydney area
- NSW – covering the NSW State area, related to the project's role within the State-wide water management strategy
- National – related to the project's role within the national water management strategy, in providing a solution to the management of water.

The land use component of this assessment focuses predominantly on impacts within the impact assessment area, with reference to wider scales only where relevant. The socio-economic impact assessment has a broader focus with reference to the various scales of impact where relevant. The study areas are shown in Figures 4-1 to 4-9.

4.1.1 Geographical study areas

The current land use and socio-economic characteristics from west to east along the project from the largely agricultural and rural character within the west, to the more urban and mixed-use suburbs in the east. A significant part of the project also runs through areas of Western Sydney which have significant growth planned, including the WSAGA and SWGA developments. These cover much of the land to the west and south of the AWRC.

Taking this into account, the SESA has been further divided into three geographical areas - western, central and eastern. The boundaries of each of these areas are defined by ABS State Suburbs, as shown in Table 4-1.

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Table 4-1 Boundaries of each area

Study Areas	State Suburbs	Current and future character summary	Relevant project elements
SESA-western	Greendale, Mulgoa, Silverdale, Wallacia, Warragamba	**Current:** predominantly rural and agricultural, with smaller rural residential communities and villages. Some major waterways and nature reserves. **Future:** Zoned as part of the Aerotropolis SEPP for agri-business and enterprise uses. Significant change anticipated to more urban character.	The treated water pipeline and environmental flow pipeline are located within and affects this study area.
SESA-central	Badgerys Creek, Cecil Park, Erskine Park, Kemps Creek, Luddenham, Mount Vernon, Orchard Hills	**Current:** Predominantly rural and agricultural. Waterways and native vegetation. Some rural residential uses, particularly around Kemps Creek and Mount Vernon. Erskine Park Industrial Park is also located in the north eastern section of the SESA-central – a significant employment and industrial area with a focus on freight and logistics. **Future:** Significant portion of land is zoned as part of the Aerotropolis SEPP for agri-business and enterprise uses. Erskine Park is also major employment lands / industrial, Freight & logistics etc Significant change anticipated to more urban character.	The AWRC, treated water pipeline and brine pipeline are located within and affect this study area.
SESA-eastern	Bonnyrigg, Bonnyrigg Heights, Cabramatta, Canley Heights, Canley Vale, Cecil Hills, Green Valley, Lansvale, Mount Pritchard, St John's Park, Cabramatta West, Carramar, Lansdowne	**Current and future:** Predominantly urban and residential (low to high density). Parkland and open space along western and eastern edges.	The brine pipeline is located within and affects this study area.

These geographical study areas enable a detailed review of the socio-economic and land use existing environment and potential impacts of the project. Refer to Figure 4-1 to Figure 4-9.

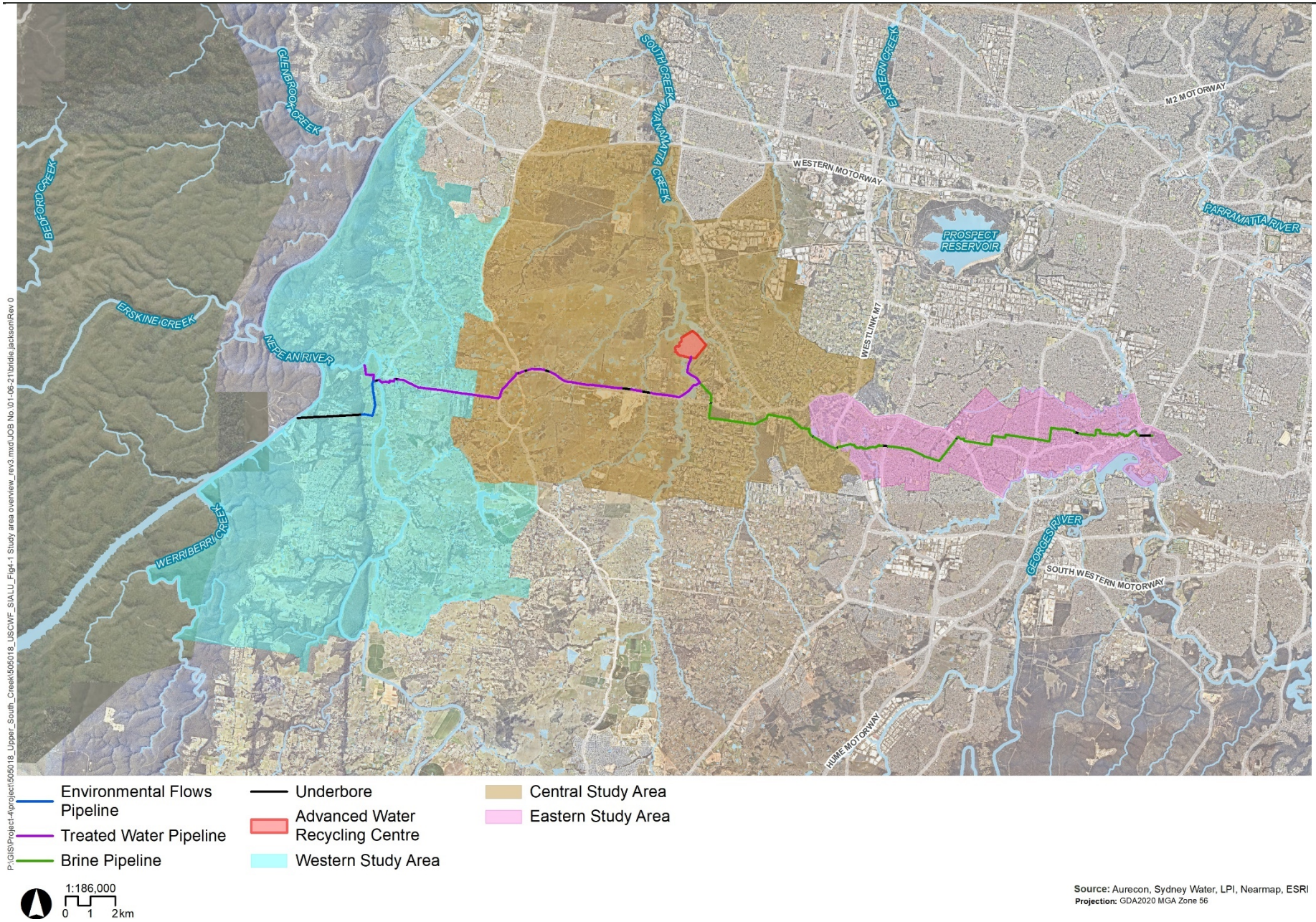


Figure 4-1 Study area overview

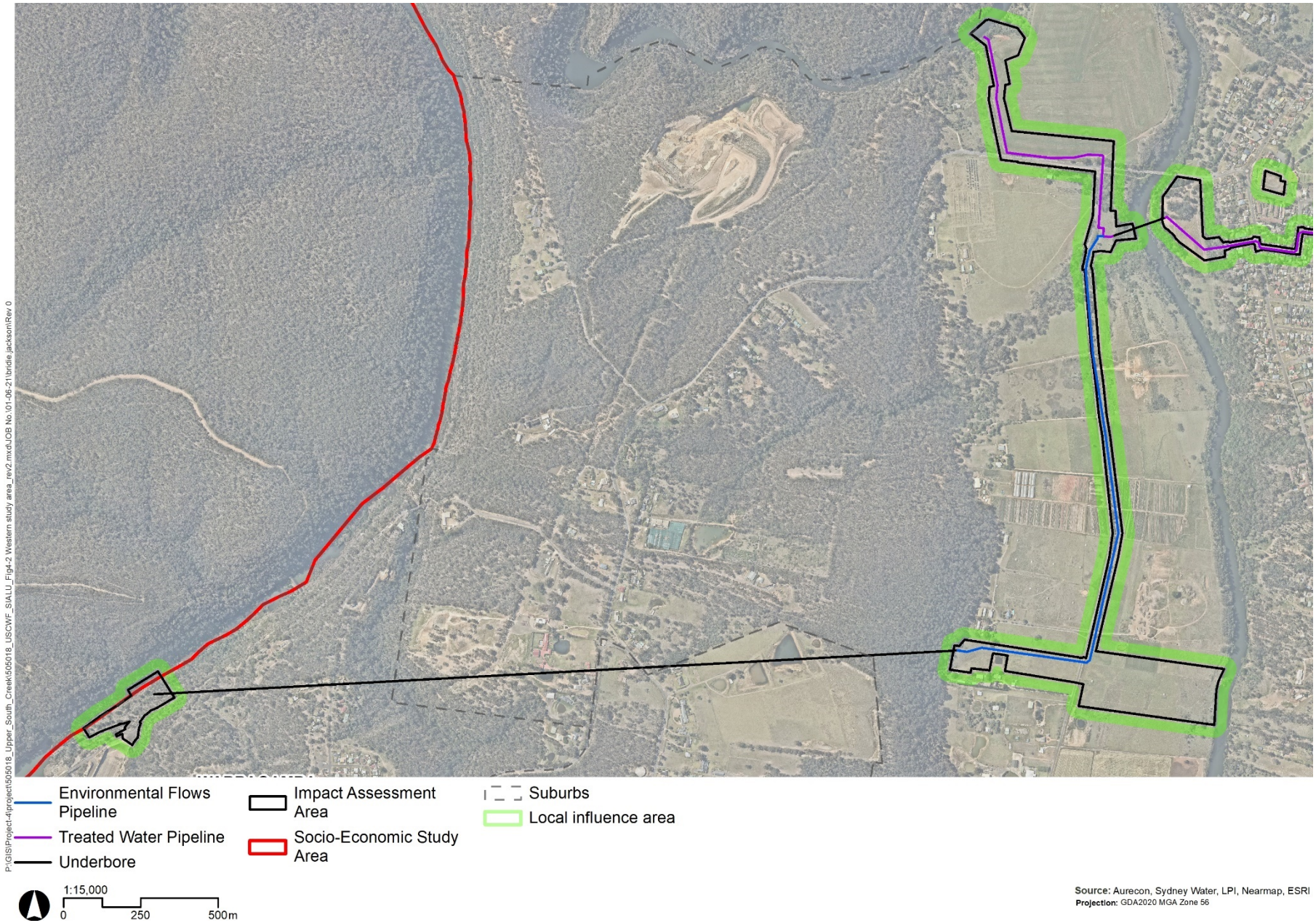


Figure 4-2 SESA-western (map 1 of 2)

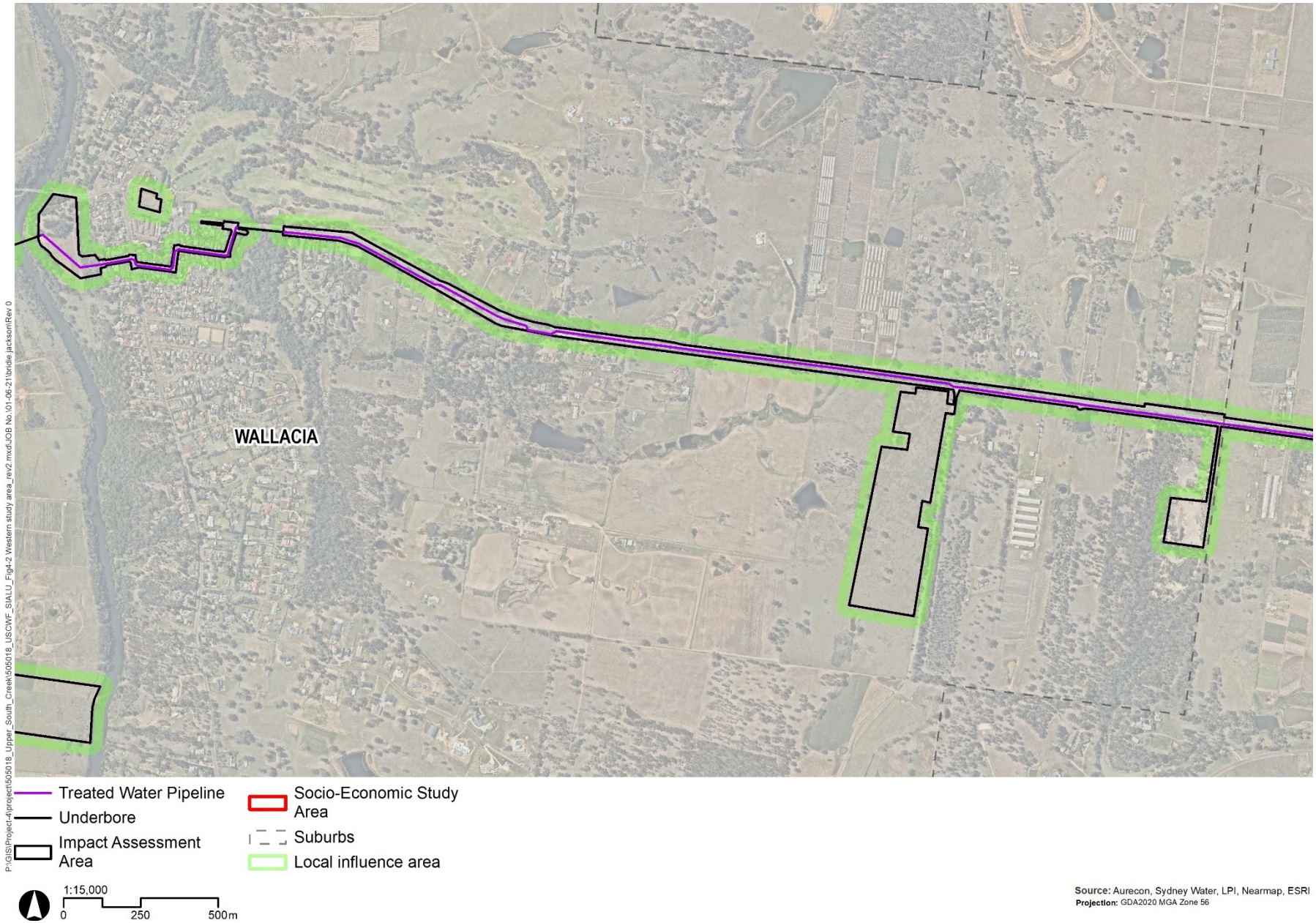


Figure 4-3 SESA-western (map 2 of 2)

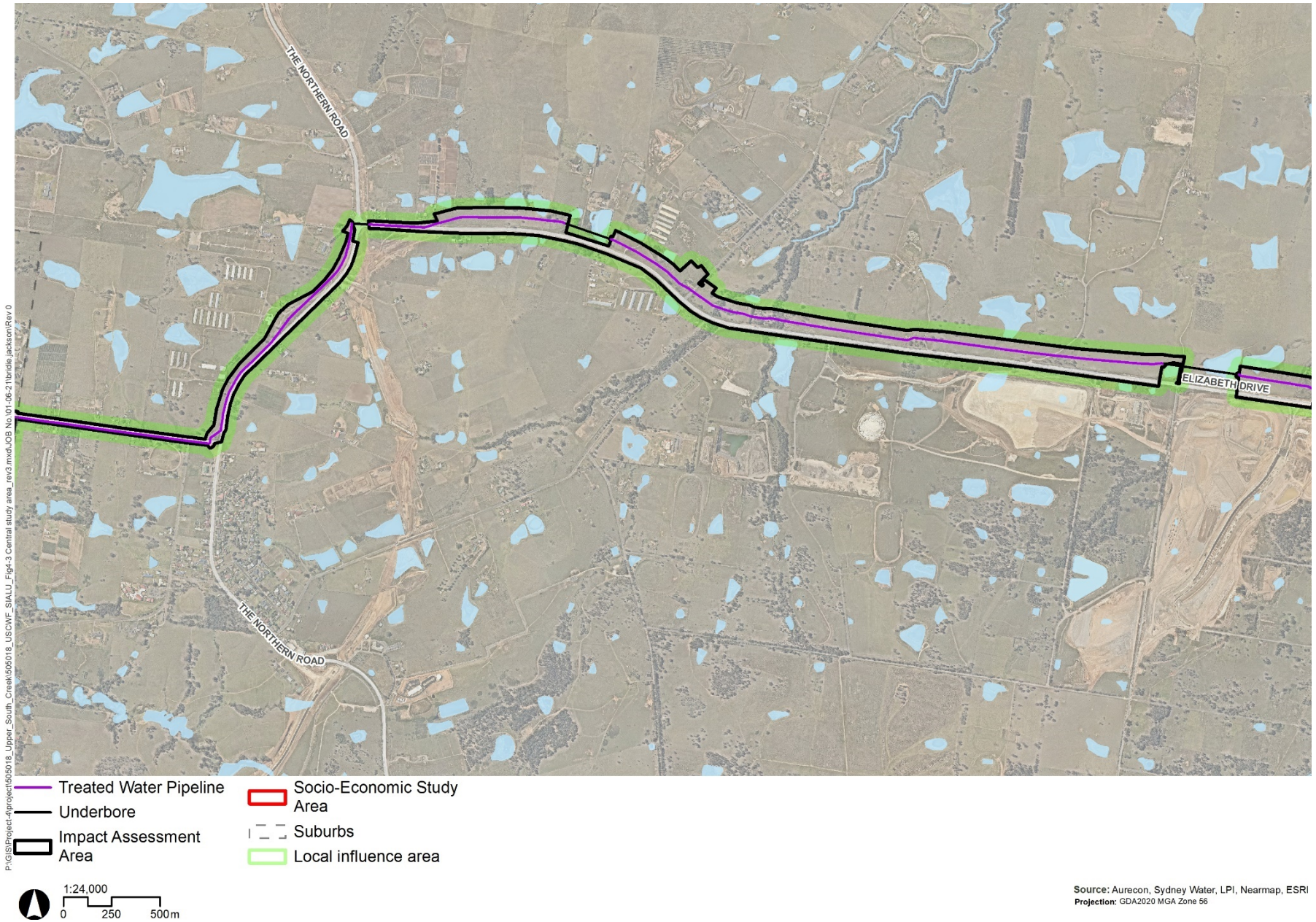


Figure 4-4 SESA-central (map 1 of 3)

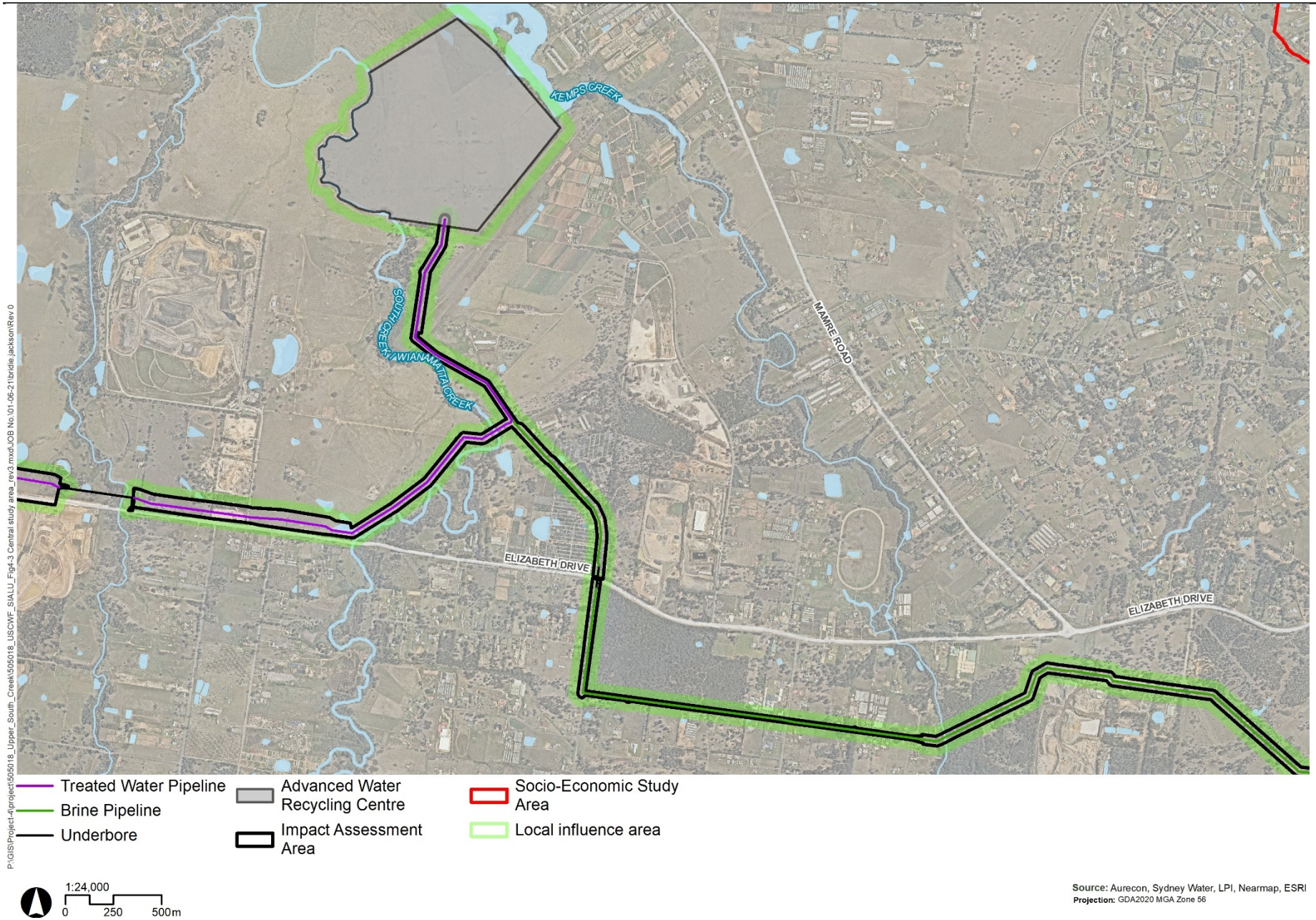


Figure 4-5 SESA-central (map 2 of 3)

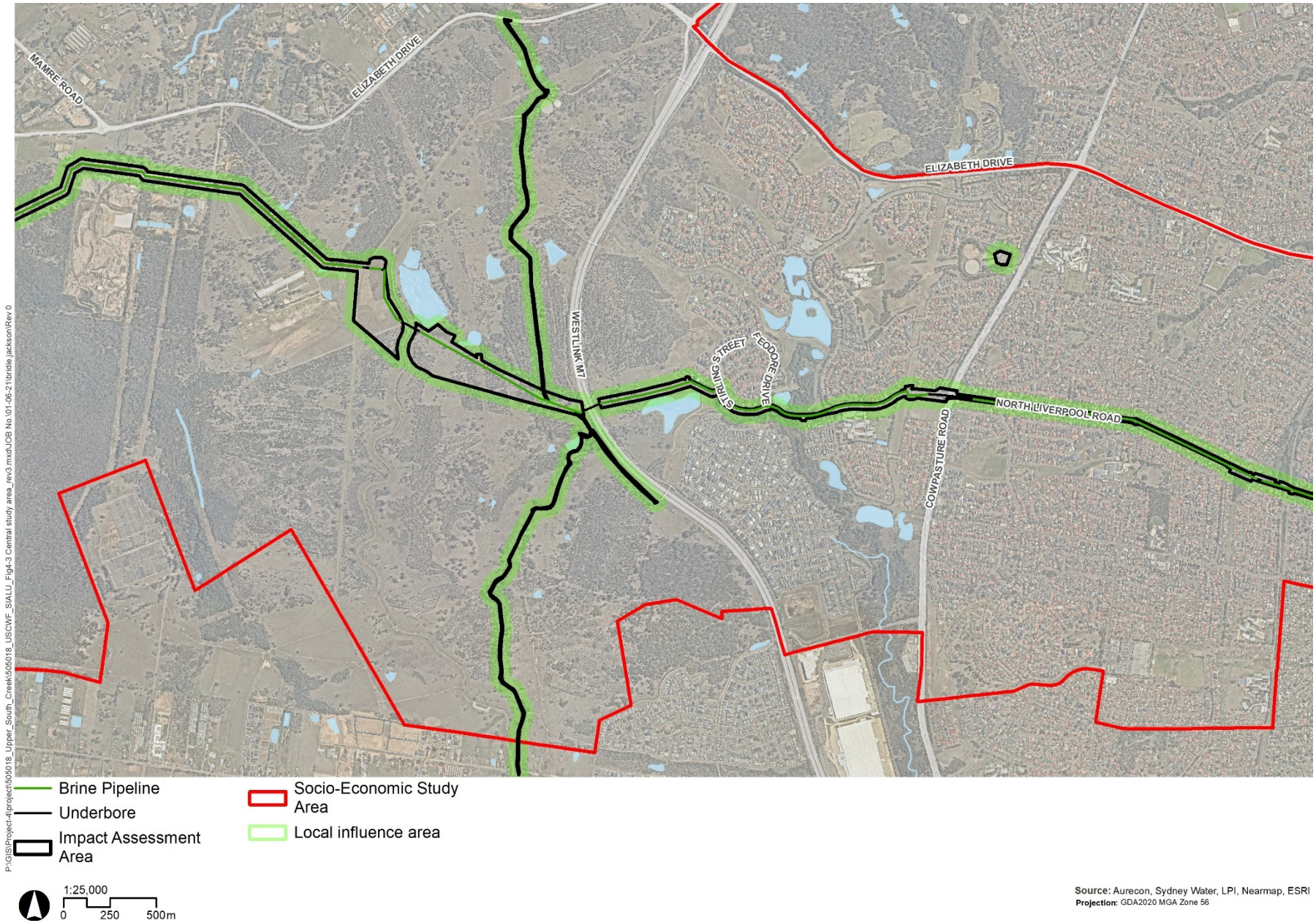


Figure 4-6 SESA-central (map 3 of 3)

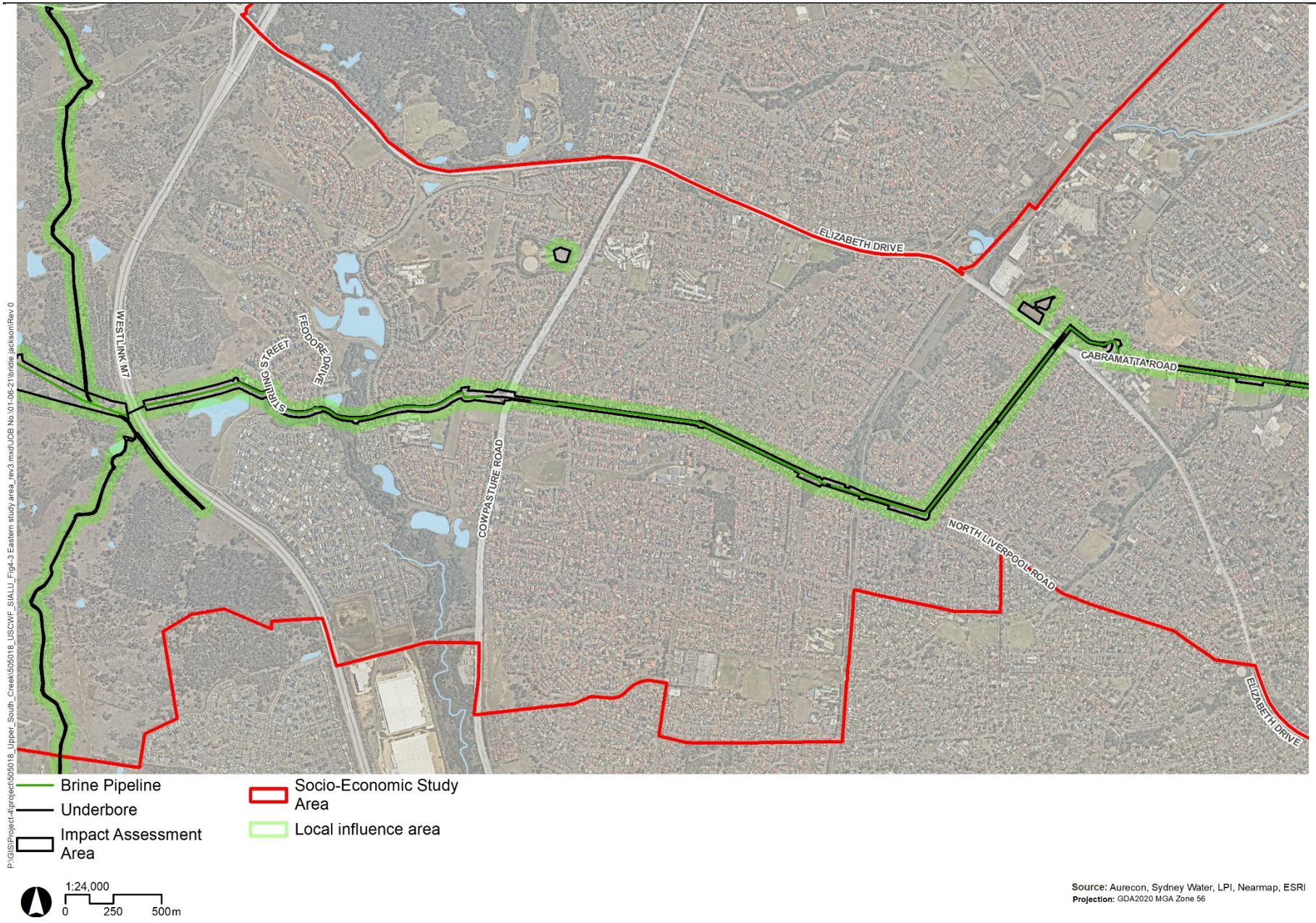


Figure 4-7 SESA-eastern (map 1 of 3)

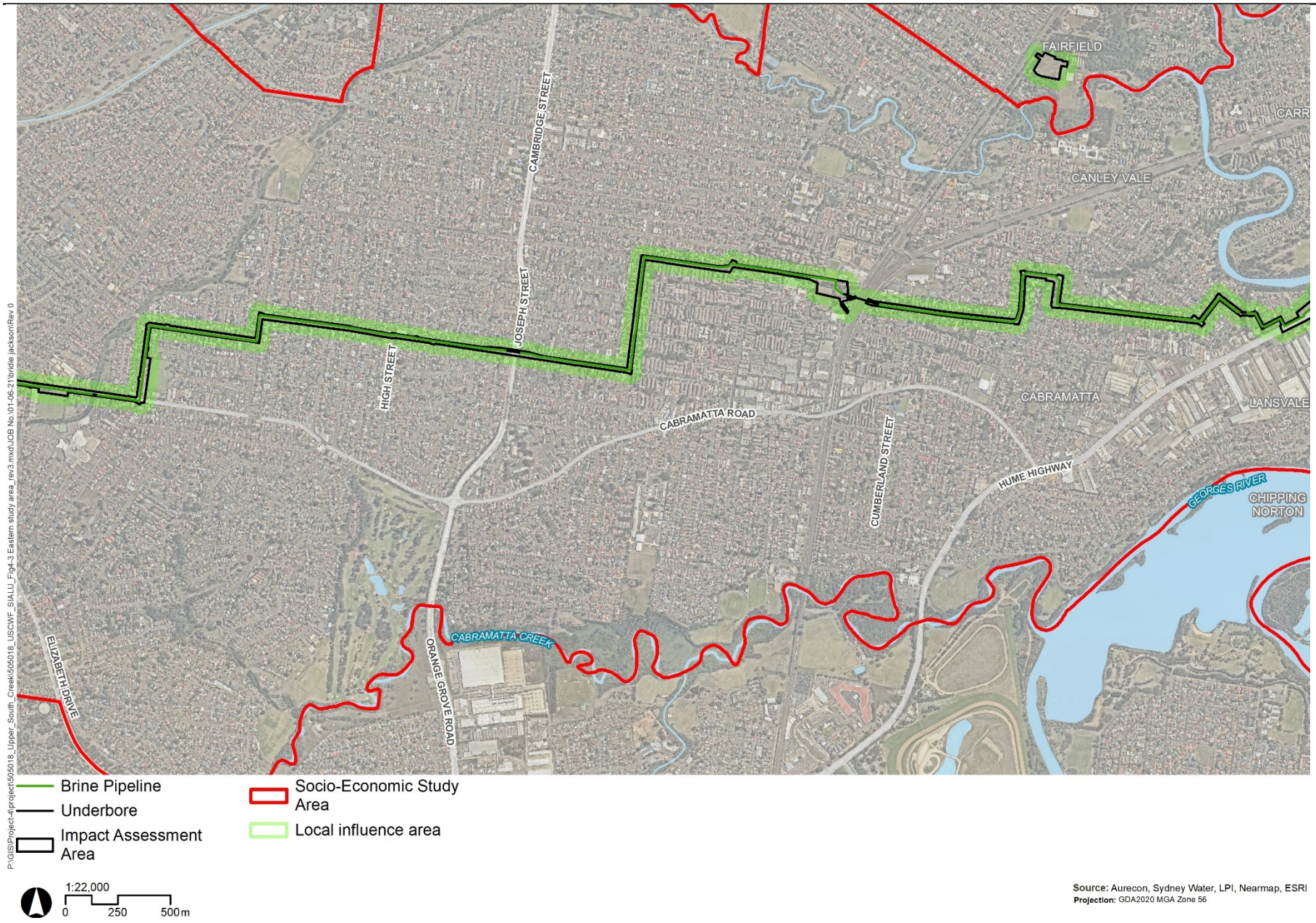


Figure 4-8 SESA-eastern (map 2 of 3)

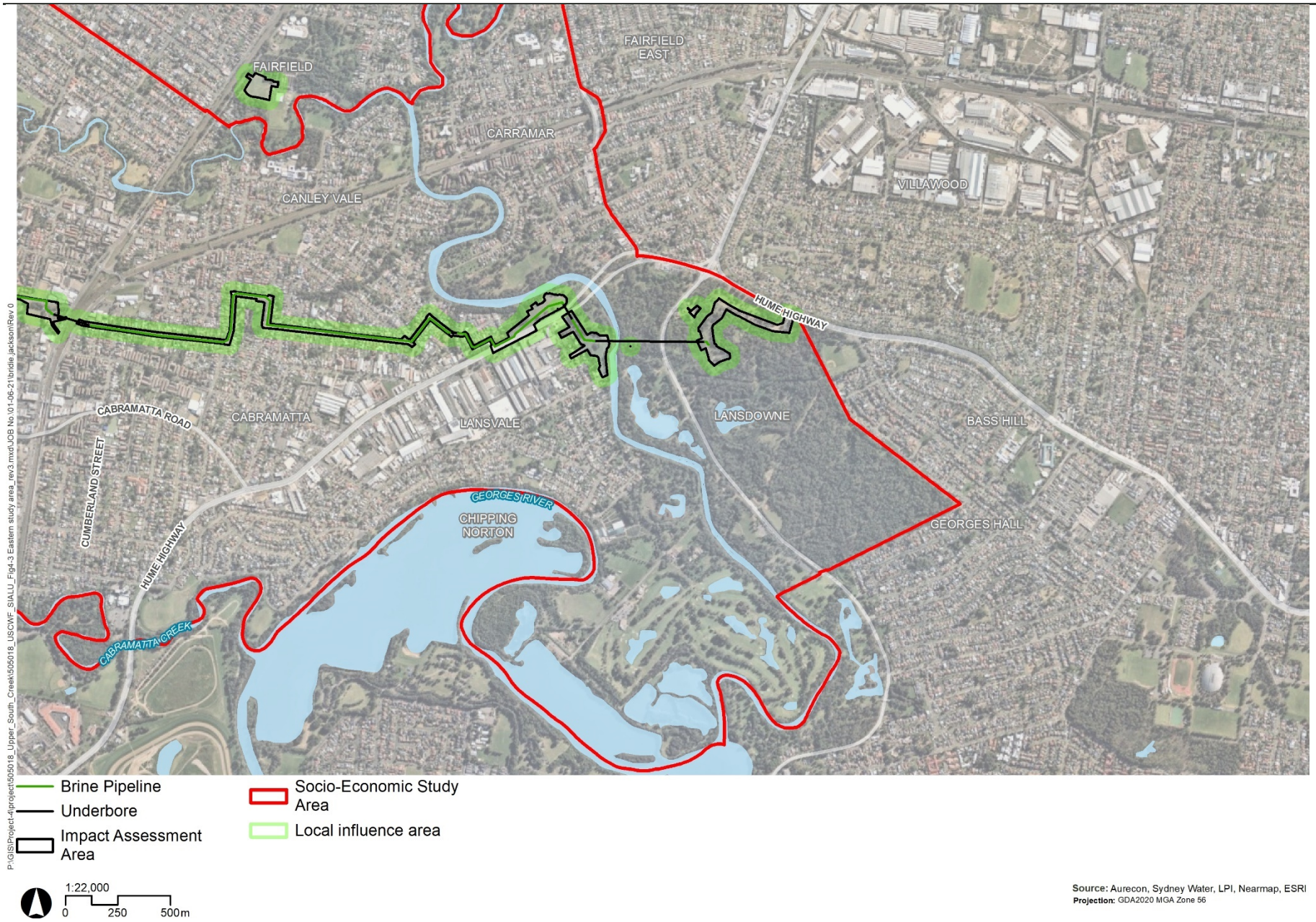


Figure 4-9 SESA-eastern (map 3 of 3)

4.2 Impact assessment methodology

The following steps have been taken in the assessment of land use and socio-economic impacts, in accordance with the Social Impact Assessment Guideline (DPE 2017):

- Establishment of the socio-economic and land use environment, including:
  - A review of strategic planning documents to understand community aspirations and future development objectives
  - Analysis of population, demographic and economic data
  - Desktop review and site visit of existing community infrastructure and businesses (details provided in Section 4.3)
  - A review of community engagement outcomes to identify community values
  - Analysis of aerial photography and land use data to understand existing land uses and future land use zoning
  - Review of available development applications to understand potential future development, and subsequent land use in local influence area
  - Review existing property information to identify land ownership and current acquisition status for the project

  This baseline provides us with a profile of the community, its character, location and values, against which we can understand how the project will positively and negatively impact upon on the community ecosystem, and the people within it
- Identification of impacts through a review of project design and details, and the outcomes of other technical studies and community and stakeholder engagement activities. Land use and socio-economic impacts have been separated to ensure clarity in reporting:
  - Land use impacts cover property and access, existing land use, land use zoning, and future development
  - For the socio-economic component, this is structured using the categories set out in the Social Impact Assessment Guideline (DPE, 2017), including: way of life; community; access to and use of infrastructure; services and facilities; culture; health and wellbeing; surroundings; personal and property rights; decision-making systems; and fears and aspirations
- Evaluation of socio-economic impacts to determine the significance of each potential impact without mitigation. This uses the social risk matrix within the DPE Social Impact Assessment Guideline which ranks impact likelihood (Table 4-2) against consequence (Table 4-3) to provide an indication of the likely social significance (Table 4-4) – ranging from low to extreme
- Development of mitigation, management and enhancement measures for all material impact, having regard to the considerations set out in the DPE Social Impact Assessment Guideline. Where mitigation or enhancement required relates to a technical topic, such as noise or air quality, cross reference has been made to the relevant reports to support the EIS, and this Report focuses only on social, economic and land use specific mitigation and enhancement measures
- Assessment of residual socio-economic impacts, to re-evaluate the significance of potential impacts, taking into account the proposed mitigation, management and enhancement measures.

Alongside direct impacts to land use, a land use conflict risk assessment (LUCRA) has also been undertaken, to determine any potential conflicts between the project and adjoining or nearby surrounding land uses. The methodology for this assessment aligns with the LUCRA Guide (Department of Primary Industries, 2011). Detail on the methodology undertaken for the LUCRA is presented in Appendix A.

Table 4-2: Likelihood of impact

Likelihood of impacts	Risk/benefit probability categories
Rare	May occur only in exceptional circumstances - can be assumed not to occur during period of the project (Probability <10%)
Unlikely	Event is unlikely to occur, but it is possible during period of the project (Probability 10-30%)
Possible	Event could occur during period of the project (Probability 30-70%)
Likely	Event likely to occur once or more during period of the project (Probability 70-90%)
Almost certain	Very likely to occur as a result of the proposed project construction and/or operations; could occur multiple times during relevant impacting period (Probability > 90%)

Table 4-3: Social consequence criteria

Consequence Level	Description
Minimal	No change to the social environment. Impacts are likely to be beneath detection levels.
Minor	Impacts are noticeable but acceptable and tend to be short term, or temporary and at a local scale. The social environment is changed (i.e. decreased amenity) and people who live and work in the area (or its surrounds) may become annoyed by impacts associated with the project. It is expected that the community can/will adapt to changes over time and that negative public perceptions of the project are easily managed.
Moderate	Impacts tend to range from long term to short term and occur over medium scale or localised areas. The social environment is changed (i.e. decreased amenity) and people who live and work in the area (or its surrounds) may be moderately annoyed by impacts associated with the project. It is expected that the community has some capacity to adapt and cope with change and that negative public perceptions of the project can be managed.
Major	Impacts tend to be permanent, or otherwise long to medium term and occur over large or medium scale areas. The social environment is damaged, and people no longer want to live and work in the area (or its surrounds). The community has limited capacity to adapt and cope with change and the public negativity of the project is difficult to manage.
Catastrophic/ transformational	Impacts tend to be permanent, or irreversible, or otherwise long term and occur over large scale areas. People can no longer safely live or work in the region because of impacts associated with the project. The social environment is irrevocably damaged. The community has no capacity to adapt and cope with change and there is a great level of public negativity surrounding the project.

Table 4-4: Impact evaluation matrix adopted for the project (adapted from the risk matrix in DPIE's social impact assessment guideline)

		Consequence				
		Minimal	Minor	Moderate	Major	Catastrophic / Transformational
Likelihood	Almost certain	A1	A2	A3	A4	A5
	Likely	B1	B2	B3	B4	B5
	Possible	C1	C2	C3	C4	C5
	Unlikely	D1	D2	D3	D4	D5
	Rare	E1	E2	E3	E4	E5

Low
Moderate
High
Extreme

For neutral and positive impacts, additional colour coding is provided for clarity.

4.3 Information and data sources

This socio-economic and land use impact assessment is supported by:

- A site visit and study area drive-by undertaken on Friday 3 April 2020. Commencing from the morning, the team began the visit in the SESA-western, making their way across to the SESA-eastern over the course of one day. The site visit consisted of taking photos and observing areas within the five LGAs visited of interest. This included town centres and villages and social infrastructure facilities and businesses along the proposed pipeline routes and near the location of the proposed AWRC. Areas that are expected to experience more substantial impacts, such as Wallacia, Kemps Creek, Luddenham and Cabramatta were focused on during visits to identify specific impacts and where mitigation could be implemented
- A supplementary information report provided by Sydney Water and informed by a detailed site visit focussed on the areas of Wallacia and Cabramatta (noting particular interest in impacts to these areas). This report provides a brief overview of the key characteristics and values of each area and then a more in-depth review of the issues associated with the construction of the project. This has been integrated into the assessment where relevant. This can be found at Appendix B
- Targeted socio-economic consultation activities with Local Councils undertaken by Sydney Water
- Desktop analysis of aerial maps and publicly available datasets, including:
  - ABS Census 2011 and 2016 data
  - Transport for New South Wales, Travel Zone Employment Projections 2019
  - ABS Socio-economic Indices for Areas (2016)
  - Local Council LEP land use zoning and strategic documents (see Section 6)
- Specialist inputs from the EIS to inform the assessment, including:

  - *Upper South Creek Advanced Water Recycling Centre - Landscape and Visual Impact Assessment (Aurecon Arup, 2021b)*
  - *Upper South Creek Advanced Water Recycling Centre – Contaminated land and Soils Impact Assessment (Aurecon Arup, 2021c)*
  - *Upper South Creek Advanced Water Recycling Centre - Hydrology and Flooding Assessment (Aurecon Arup, 2021d)*
  - *Upper South Creek Advanced Water Recycling Centre - Health Risk Assessment (EnRisks, 2021)*
  - *Upper South Creek Advanced Water Recycling Centre - Traffic and transport (Aurecon Arup, 2021e)*
  - *Upper South Creek Advanced Water Recycling Centre - Noise and vibration (Aurecon Arup, 2021f)*
  - *Upper South Creek Advanced Water Recycling Centre - Air Quality (Jacobs, 2021)*
  - *Upper South Creek Advanced Water Recycling Centre – Biodiversity (Biosis, 2021)*
- Outputs from stakeholder and community engagement coordinated with the wider EIS and project team, and summarised in Section 5, and the EIS.

4.4 Limitations and exclusions

This socio-economic and land use impact assessment has been based on information available at the time of writing and has been designed to respond to the SEARs specific to the project. The assessment assumes:

- Background and baseline information reported in this assessment is based on desktop research and engagement undertaken by Sydney Water (and summarised in Section 5 of this report, and the EIS)
- This socio-economic and land use impact assessment is based on project definition, including understanding of construction activity, operations, staging and timing as provided by Sydney Water and as known at time of writing
- The impact assessment in relation to technical topic areas is based on information provided in the specialist technical impact assessments completed for the project. No verification by the socio-economic specialists of the results of these reports has been undertaken
- The impact assessment excludes primary quantitative analysis of economic impacts. In line with the DPIE Social Impact Assessment guideline, the economic assessment focusses on consideration of socio-economic factors such as employment, industry and business impacts of the project
- The COVID-19 pandemic has affected how people live, work and move around. The data and information used to inform the socio-economic baseline within this socio-economic and land use impact assessment may differ because of these changes. At the time of writing ABS was exploring administrative and transactions data to inform official social and economic statistics in response to COVID-19. This information was not available at the time of writing this assessment.

5 Community and stakeholder consultation

This socio-economic and land use impact assessment draws upon the findings of community and stakeholder engagement undertaken for the project, as well as the various investigations described in Section 4. Sydney Water's consultation approach is guided by the *Sydney Water Policy and Guidelines for Community and Stakeholder Engagement* (2014) and is also guided by the core values and codes of ethics of the *International Association of Public Participation* (IAP2). This section provides an overview of consultation and engagement undertaken and proposed for the project. More information about consultation is in the EIS and Community and Stakeholder Engagement Plan.

5.1 Summary of engagement activities to date

Early engagement with key stakeholders and community has been central to the project, and inputs have been sought throughout the preparation of the EIS and specialist studies. For the purposes of this project, community engagement has been integrated across the whole EIS. This approach was taken to avoid consultation fatigue, and to ensure a consistent and collective approach to understanding community needs, concerns and opportunities across all technical reports. The authors of this document have worked closely with the Sydney Water Communications Team to optimise engagement opportunities and fully understand community needs. The outcomes of the project-wide community engagement are integrated throughout this report.

The EIS provides a comprehensive list of all key stakeholders consulted for the project. Sydney Water has undertaken meetings with these stakeholders to discuss project updates, early stage timelines, preliminary potential issues and concerns or suggestions for improvement.

Figure 5-1 provides an overview of consultation and stakeholder engagement activities to March 2021.

Figure 5-1: Summary of engagement activities

Engagement activities undertaken include online and in person community information sessions and pop-ups and social media promotion. In-language focus groups have also been undertaken, in partnership with the Ethnic Communities Council.

In addition to broader community engagement activities, Sydney Water has undertaken direct engagement with landowners within the vicinity of the project, particularly those directly impacted. This has included letters, emails, phone call and ‘door-knocks’ for landowners, as well as landowner meetings for those directly impacted.

Sydney Water representatives undertook targeted engagement with local Councils to inform this socio-economic and land use impact assessment specifically. This included four sessions via Microsoft Teams, summarised in Table 5-1, which aimed to discuss the key challenges and opportunities considered within each Council area, particularly those associated with local infrastructure and services. The key values and concerns arising from this engagement are summarised in Section 7.7.2 and 7.7.3 and integrated throughout.

Table 5-1: Targeted council engagement

Council	Meeting date
Fairfield City Council	16 April 2021
Penrith City Council	22 April 2021
Liverpool City Council	29 April 2021
City of Canterbury-Bankstown Council	6 May 2021
Wollondilly Council	Offer for SIA specific consultation declined.

The outputs from the community consultation and stakeholder engagement undertaken are described in the baseline and impact assessment, particularly in Section 7.7.3.

5.2 Aboriginal engagement

It is important to have a clear understanding of Aboriginal cultural values, and of the potential impacts the project may on these values. Consultation with Aboriginal people has been undertaken in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010b), the requirements of Clause 61 of the National Parks and Wildlife Regulation 2019, and the SEARs for the project. The formal consultation process has included:

- Government agency notification letters
- Advertising for registered stakeholders in local media
- Notification of closing date for registration
- Provision of project information and proposed cultural heritage assessment methodology, allowing for a 28-day review period
- Provision of the draft Aboriginal Cultural Heritage Assessment Report for review, allowing for a 28-day review period
- Ongoing consultation with the local Aboriginal community.

A summary of the key themes and outputs from this engagement, relevant to this land use and socio-economic impact assessment is provided in Section 7.7.4.

5.3 Community and Stakeholder Engagement Plan

Consultation will continue throughout all stages of the project, through design, construction and operation. The next stages of consultation will include:

- **Draft EIS public consultation and exhibition**. This includes:
  - Participation in NSW government collaboration groups including the Western Sydney City Deal Sub-Committee, Utilities Collaboration Group, and Sydney Metro collaboration group

  - One-on-one landowner meetings, letters and phone calls
  - Community information sessions – pop ups (in person) and online
  - EIS displays and virtual engagement room
  - Community newsletter, newspaper advertising and articles, and social media marketing
  - Aboriginal community engagement
  - Project information telephone and emails
  - Stakeholder meetings (in-person and on teams) and minutes
  - Translated fact sheets.
- **Response to public submissions and finalisation of EIS.** Sydney Water will produce a report responding to submissions on Draft EIS and the finalisation of the EIS. They will also prepare the revised draft, with ongoing engagement activities that will extend after publication of the EIS. This includes:
  - Community newsletter
  - Digital copies of the submissions report and preferred infrastructure report available on the DPIE major projects portal and emailed to stakeholders
  - Ongoing engagement with community and landowners
  - Project information line and emails
  - Community and stakeholder meetings (in-person and online)
  - Sydney Water Talk project updates and content.

A longer-term Community and Stakeholder Engagement Plan has been developed by Sydney Water for implementation during future stages of the project. Outcomes from this ongoing engagement will be incorporated into the project throughout detailed design, and into construction.

6 Strategic planning context

6.1 NSW strategic planning

With the WSAGA and SWGA, alongside plans for a new metro line for Western Sydney, Western Sydney is a key strategic area in the land use and infrastructure plans for NSW and Sydney. The project therefore sits in the context of a range of strategies and plans which guide land use and infrastructure planning, as well as social and economic outcomes for the broader Western Sydney area.

The project objectives are reflected in the goals and directions of many of these strategies and plans. In particular, it is highlighted in several documents as key to meeting the need for a balanced approach to infrastructure development to meet the needs of communities. In the *Western Sydney Aerotropolis Plan*, the project is referenced, describing the function of the project and its goal to produce recycled water for agricultural, industrial, open space irrigation and residential dual reticulation, servicing the WSAGA (NSW Government, 2020).

Sustainability and productivity are also focus areas explored in NSW strategic planning, with a focus on liveability and growth. Plans such as Infrastructure NSW's *State Infrastructure Strategy 2018-2038: Building Momentum* provide initiatives and recommendations to guide planning for major projects and development in NSW. A summary of the strategies and plans for the Western Sydney area is provided in Table 6-1. This demonstrates its strong alignment with policy context and aspirations, and importance as a strategic project in achieving those goals.

Table 6-1 NSW strategic planning overview and relevance to the project

NSW strategy/plan description	Alignment with the project
Greater Sydney Region Plan. A Metropolis of Three Cities – connecting people (2018) The *Greater Sydney Region Plan, A Metropolis of Three Cities – connecting people*, sets a 40-year vision for three, integrated and connected cities that will rebalance Greater Sydney. The three cities are: • Eastern Harbour City • Central River City • Western Parkland City. The Plan establishes a 20-year plan to manage growth and change for Greater Sydney integrating land use, transport and infrastructure planning between the three tiers of government and across state agencies. The main objectives of the plan are productivity, liveability, sustainability, providing guidance for socio-economic outcomes. The plan focuses on the 30-minute city to support the co-location of housing and employment in metropolitan and strategic centres with direct public transport, so that people can access services and jobs.	The project is predominately located within the Western Parkland City. The Western Parkland City (the City) is located to the western extent of Greater Sydney between Liverpool and the Blue Mountains. The new international Western Sydney Airport and WSAGA are recognised as an economic catalyst for the area transforming the City into a thriving, productive and sustainable city. Although the project is not specifically mentioned in the plan, planning for new infrastructure is discussed regarding planning for the future of each city. This includes looking for opportunities for cultural, education, health, community and water infrastructure and having a balanced approach to infrastructure development that meets population growth requirements (Greater Sydney Commission, 2018a). The Western City is expected to provide housing diversity around centres and transit nodes and attract globally significant defence and aerospace activities. The Plan identifies urban investigation areas to the north and east of the Western Sydney Airport Growth area which include Orchard Hills (north of the Defence Establishment Orchard Hills and west of St Clair), and Luddenham (between Western Sydney Airport Growth

NSW strategy/plan description	Alignment with the project
	area and the water pipeline), and Horsley Park and Mount Vernon (west of the M7 motorway).
Smart Cities Plan Western Sydney City Deal (2020) The Western Sydney City Deal was signed in March 2018 and provides a three-tier government approach to create world class jobs and a great quality of life. The Deal identifies six commitments: • Connectivity • Jobs for the future • Skills and education • Liveability and environment • Planning and housing • Implementation and governance. The Deal recognises the importance for investment in infrastructure to support new development and establishment of communities. Key features identified for the success of the Deal in meeting its objectives include: North South Rail Link, WSAGA, Western Parkland City Liveability program, and a $30 million Western Parkland City housing package amongst other infrastructure and initiatives.	The Western Sydney City Deal promotes the need for innovative planning for future infrastructure needs (Commonwealth of Australia, 2018). This includes planning for transport and water infrastructure to support growth. The project aligns with the objectives of the Deal as it would support various investments and programs through the provision of water infrastructure across Western Sydney. This includes supporting new housing supply, employment opportunities and surrounding infrastructure projects such as the Western Sydney Airport. The Deal discusses job growth and the role the Western Sydney Airport and WSAGA have in attracting infrastructure development, investment and knowledge-intensive jobs. The flow on effects job growth would have on the community is also discussed, with key features of consideration most relevant to this assessment including: • A high employment agribusiness precinct to leverage the airport by providing new domestic and export opportunities for NSW farmers • Releasing government land to drive economic growth • Targets for Indigenous employment, social employment and procurement.
Western City District Plan (2018) The *Western City District Plan* sets out the planning priorities and actions for the Western Parkland City, within which the project is located, improving the quality of life for residents as the district continues to grow. The Plan is a guide for implementation of the Greater Sydney Region Plan at a district level. The new international Western Sydney Airport and WSAGA is recognised as an economic catalyst for the Western Parkland City area. The Western Sydney Airport and WSAGA are expected to bring together infrastructure, businesses and knowledge-intensive jobs (Greater Sydney Commission, 2018b). The Australian and NSW Governments have come together with local governments and agreed on a set of commitments aimed at unlocking education, business and employment in the Western Parklands City known as the Western Sydney City Deal. In the Plan, there is a focus on the assessment of growth and the need to align land use, infrastructure and community benefits. An integrated approach to growth is explored, with the need to consider city-	The Western City District Plan introduces significant growth and change, focusing on the Western Sydney Airport and the development of the WSAGA which is expected to harness housing and employment growth opportunities as well as major infrastructure to support this new development. Similar to the *Greater Sydney Region Plan: A Metropolis of three cities*, the *Wester City District Plan* discusses the balanced approach to developing infrastructure, including water infrastructure (Greater Sydney Commission, 2018b). The importance of liveability and sustainability is also explored in the Plan, with a strong focus on housing and a place-based approach to planning for growth. The plan promotes integrated water cycle management and investment in sustainable water, wastewater and stormwater infrastructure (Greater Sydney Commission, 2018b). The mixed land uses across the Western City are acknowledged in the Plan, with communities comprised of people ranging from suburban to rural lifestyle types. The Plan discusses the need to acknowledge the diversity of neighbourhoods and communities. This is

NSW strategy/plan description	Alignment with the project
shaping infrastructure in land use planning that allows for major transport investments, enabling infrastructure and supporting infrastructure to meet demand.	fundamental to planning and improving liveability for people. The concept of liveability is explored in the Western City District Plan with the following planning priorities outlined that are of relevance to this assessment: • A city for people - providing services and social infrastructure to meet people's changing needs • Housing the city - providing housing supply, choice and affordability, with access to jobs, services and public transport • A city of great places - creating and renewing great places and local centres and respecting the District's heritage.
State Infrastructure Strategy 2018-2038: Building Momentum (2018) The State Infrastructure Strategy (SIS) sets out a 20-year strategy and provides independent advice on the current state of NSW's infrastructure and the priorities over the 20 years (Infrastructure NSW, 2018). Looking beyond current projects, it identifies infrastructure policies and strategies needed to meet a growing economy and population. By 2056, the Western Parkland City is expected to be home to nearly two million people. The City currently comprises of large areas of light industry and urban agricultural land, with large developable greenfield areas. The largely greenfield nature of the city requires early action from NSW Government to develop strategic plans for the city that address infrastructure needs, protection of environmental corridors, and support a thriving community.	The SIS identifies a number of responses for the Western Parkland City which include prioritising intercity road connections, a mass transit connection north and south, prioritising sustainable and active transport connections, providing social, cultural and recreational infrastructure and encouraging local council and private investment in creation of infrastructure. The following recommendations in the plan are relevant to the project: • Recommendation 92 of the SIS recommends that Sydney Water develop a 20-year Strategic Capital Plan for Sydney's water and wastewater systems by early 2019 for consideration by the NSW Government (Infrastructure NSW, 2018) • Recommendation 94 states that Sydney Water should consider a portfolio of options for the augmentation of Sydney's water supply, including the findings of the South Creek strategic business case, and provide advice to the NSW Government for its consideration by early 2019 (Infrastructure NSW, 2018). The SIS also highlights the importance in identifying the major water infrastructure investments required for the Western Parkland City within the context of rapidly changing land use. The project responds to this through the provision of an AWRC and associated pipeline infrastructure to meet the changing and growing Western Sydney area.
Western Sydney Aerotropolis Plan (2020) and Aerotropolis SEPP (2020) The Western Sydney Aerotropolis Plan sets a vision for the WSAGA. It informed the Aerotropolis SEPP in providing the planning framework for land around the Western Sydney International Airport. The Aerotropolis (SEPP) aims to facilitate the orderly and economic use and development of land in the	In the Western Sydney Aerotropolis Structure Plan, the project is shown as 'Upper South Creek Advanced Water Cycling Centre'. In the Kemps Creek Precinct, the project is in the north quadrant and is labelled as 'Critical Utility/Infrastructure'. Proposed land use zones surrounding the project include: • Parkland to the north, west and east • Transport infrastructure to the south (M12 motorway and rail stabling yards)

NSW strategy/plan description	Alignment with the project
Aerotropolis and provide a statutory framework to implement the Western Sydney Aerotropolis Plan. The Western Sydney Aerotropolis Structure Plan is shown in **Error! Reference source not found.** and provides a spatial representation of high-level land uses, infrastructure and environmental corridors. The project is shown in the structure plan, which is located primarily within the Kemps Creek Precinct subject to future planning and release for development (Kemps Creek Structure Plan shown in **Error! Reference source not found.**). It is unlikely that land use zones and development surrounding the project will change during construction period and/or early operation periods. Councils, part of the Western Sydney Planning Partnership, will be making planning decisions as directed by the Western Sydney Aerotropolis Plan. Further detail on land use zoning in and around the project is provided in Section 7.1.	• Flexible employment land further to south (expected to be industrial land use). In the Western Sydney Aerotropolis Plan, the project is discussed in reference to Sydney Water's planning, financing and delivery of the Upper South Creek AWRC (NSW Government 2020). The Western Sydney Aerotropolis Plan describes the function of the project and its goal to produce recycled water for agricultural, industrial, open space irrigation and residential dual reticulation, servicing the aerotropolis (NSW Government, 2020).
Draft Place-based Infrastructure Compact (PIC) Report (2020)[8] The PIC Program was established to create great places using the Greater Sydney Commission's new PIC model. In the Draft PIC Report, the PIC model is defined as 'a highly collaborative model that looks holistically at a place to identify the most effective way of sequencing growth aligned with the provision of infrastructure over time' (Greater Sydney Commission, 2019). The PIC is made up of three main areas, which are: • Greater Penrith to Eastern Creek – the area north of the Airport which is proposed to support urban renewal, new land releases and a health, education and innovation hub • WSAGA – the area around the Airport including the western edge of the Western Sydney Employment Area. This area is forecast to support an increase in jobs and skills across a breadth of industries • Austral to Glenfield Corridor – the area to the east of the WSAGA, planned to support new communities around existing rail stations and transit corridors The Draft PIC Report discusses the following key findings: • Opportunities and choices to consider - the PIC process found that the scale of developable land,	The AWRC is discussed throughout the Draft PIC Report and is identified as key piece of 'city building' infrastructure. Place based planning considerations relating to investment in the full water cycle in the development of the Western Parkland City is explored in the report. The location of the AWRC is defined as potentially being the start of an urban services and circular economy hub for the Western Parkland City, and spark innovation near the industrial land in the surrounding area. A key concept explored in the Draft PIC Report is the transition to a circular economy which aims to reduce consumption and keep resources in use. This can be achieved through resource recovery, remanufacturing and recycling, water recycling and water sensitive urban design, transport sharing (ride/car/bike share), and renewable energy generation and storage (Greater Sydney Commission, 2019). As stated in the Draft PIC Report, developing a circular city would include: • supporting and developing local, regional and state circular economy hubs, renewable energy, water sensitive urban design as part of achieving a more resilient city • regional wastewater treatment plants, resource recovery facilities including for construction materials, recycling facility and alternative waste treatment facilities

[8] The PIC including public feedback will now be incorporated into the Western Parkland City Authority's framework

NSW strategy/plan description	Alignment with the project
the demand for new jobs and housing, the cost of creating great places and the uncertainty of global trends results in the need for a strategic approach to managing growth • Rebalancing jobs – there are community benefits and better equity for people living in the Western Parkland City through the delivery of a successful Airport and WSAGA • Investment – considerations for the cost of infrastructure and land required to develop whilst conserving the environment • Cost contributions – provision of infrastructure aligned with growth and responsibility associated with funding and contributing • Decision making – the need to determine the future use of land and alignment of growth with infrastructure and services in collaboration • Problem solving – searching for opportunities and finding solutions using new and traditional ways.	• creating new job opportunities, improving environmental efficiency and contributing to a more resilient economy • innovation and collaboration across the private and public sector, institutions and the community. The project would support the transition to a circular city, through the provision of the AWRC and associated infrastructure, developing job opportunities during construction and operation of the project and contributing the economy and the community.

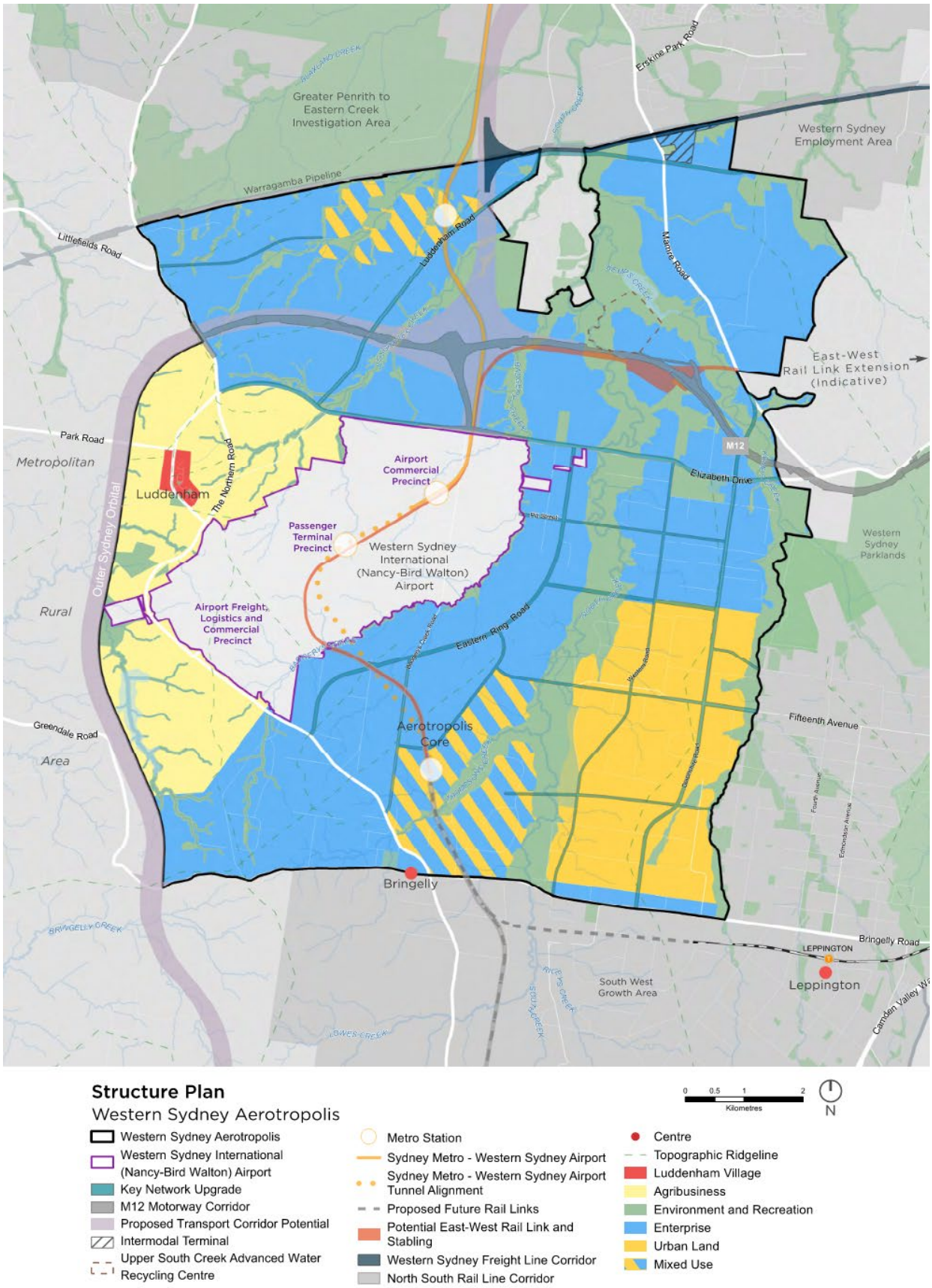


Figure 6-1: Western Sydney Aerotropolis Structure Plan (Source Western Sydney Aerotropolis Plan (2020))

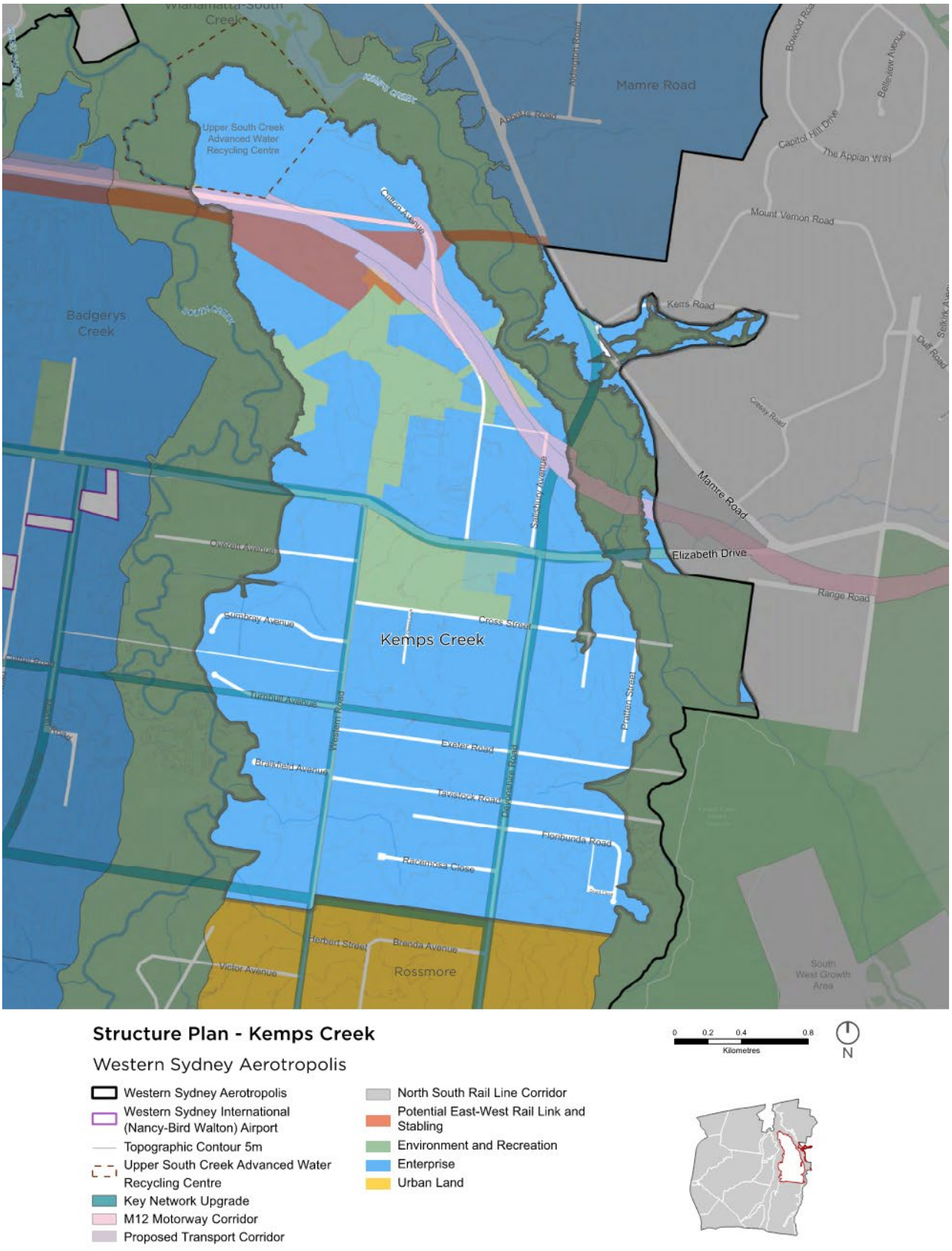


Figure 6-2: Kemps Creek Structure Plan (Source Western Sydney Aerotropolis Plan (2020))

6.2 Local strategic and community plans

As stated in Section 4 and shown in Figure 6-3, the project is located across five LGAs. Council Local Strategic Planning Statements (LSPS) set out the 20-year vision for land use, identification of special character and values in the local area, and guide management of future change. The following sections provide a summary of the LSPS and the key themes and values identified in the Community Strategic Plans (CSPs) of each LGA included in each of the LGAs.

In addition, the Community Strategic Plans for each LGA provide insight into the values and needs of the community. An overview of key values across the LGAs includes:

- The importance of investing in new and upgraded infrastructure whilst maintaining a well-balanced approach to planning for community wellbeing, places and infrastructure
- Collaboration and the promotion of inclusion and access for all members of the community
- Liveability and creating programs and community facilities to support healthy living
- Productivity and the effective management of growth and development
- Community appreciation and value in preserving and maintaining spaces for recreation and wellbeing is explored in most LSPS and CSPs. This includes the importance of protection of natural and green spaces, including balancing development with protection of natural areas.

6.2.1 Penrith City Council

6.2.1.1 Local strategic planning statement – Planning for a Brighter Future

Penrith City Council's LSPS – *Planning for a Brighter Future* (Penrith City LSPS) provides a framework for land use over the next 20 years in Penrith in alignment with Greater Sydney's strategic planning vision. Penrith is recognised as the northern gateway to the new international airport and WSAGA. Penrith is a central hub for many areas including western NSW and has connections to the North West and South West Growth Areas, as well as Liverpool, Blacktown and Wollondilly.

New economic opportunities to leverage off the Western City Airport and WSAGA are identified for Penrith's economy in areas such as agribusiness, manufacturing, freight and logistics, as well as high technology jobs, education, and research and development. New transport connections will also deliver faster and more accessible connections for the community unlocking new places and neighbourhoods.

The Penrith LSPS identifies 21 planning priorities addressing a variety of social, economic, infrastructure, liveability and environmental categories. Of those, several intersect with this project, or have the potential to be impacted by it:

- **Planning Priority 1** Align development, growth and infrastructure. Part of this Priority is ensuring the provision of water from Sydney Water to facilitate planned growth
- **Planning Priority 5** Facilitate sustainable housing. Linked to the focus of Priority 1, this Priority intends that infrastructure delivery is timely and meets the needs of the new community
- **Planning Priority 8** Recognise and celebrate our heritage, which aims to protect and manage Aboriginal cultural heritage in the area. The project's potential to impact heritage has been detailed in an assessment as part of this EIS which will ensure that the project does not impact on Council's ability to deliver this strategic priority

- **Planning Priority 14** Grow our tourism, arts and cultural industries. With 9 million visitors in 2016-2017 alone, this has a focus on amplifying links with the Blue Mountains and Hawkesbury areas and ensuring planning controls maximise the opportunities for tourism
- **Planning Priority 16** Protect and enhance our high value environment lands which includes waterways and biodiversity
- **Planning Priority 19** Create an energy, water and waste efficient city which includes the Cooling Our City Strategy.

6.2.1.2 Community Strategic Plan – Penrith Community Plan 2017

Penrith City Council's CSP - *Penrith Community Plan 2017* (Penrith City Council CSP) promotes strategies and goals for Penrith City Council focusing on the actions needed to achieve successful outcomes. Outcomes and strategies identified in the Penrith City Council CSP of relevance to the project, include:

- **Outcome 1:** Working close to home and supporting local job opportunities and specifically
  - Strategy 1.1 Attract investment to grow the economy and increase the range of business operating in the region
- **Outcome 2:** Planning for future growth with a focus on services and infrastructure and specifically
  - Strategy 2.1 Facilitate development ion the City that considers the current and future needs of our community
  - Strategy 2.2 Protect the City's natural areas, heritage and character
  - Strategy 2.3 Ensure services, facilities and infrastructure meet the changing needs of our City
- **Outcome 4:** Having safe and vibrant places and specifically
  - Strategy 4.3 Work with our community to improve wellbeing and infrastructure in their neighbourhoods
- **Outcome 5:** caring for the environment and protecting air, water quality and natural areas and specifically
  - Strategy 5.1 Protect and improve the environment of our city.

6.2.2 Liverpool City Council

6.2.2.1 Local strategic planning statement – Connected Liverpool 2040

Liverpool City Council's LSPS – *Connected Liverpool 2040* (Liverpool City Council LSPS) has been developed to establish future planning objectives for Council and the community of Liverpool. The city of Liverpool is experiencing rapid change and growth with the population expected to increase up to 60% between 2019 and 2036.

Liverpool will be home to the Western Sydney International Airport. The Airport and associated WSAGA are expected to generate significant employment opportunities for the City and opportunities to leverage economic potential for industry and business. While the airport has led to major changes to the western extent of the Liverpool local government area, Council has protected rural lands and ensured biodiversity, sustainability and nature are central to all new developments.

The Liverpool LSPS identifies 16 planning priorities capturing the goals for the city over the next 30 years, which largely address connectivity, liveability, productivity and sustainability. Of those, several intersect with this project, or have the potential to be impacted by it:

- **Planning Priority 11** An attractive environment for local jobs, business, tourism and investment which is largely focused on connectivity but also includes provision of other infrastructure which this project may support. This planning priority also includes supporting tourism and small businesses which this project needs to ensure is not impacted, or that this project does not impact Council's ability to deliver this planning priority
- **Planning Priority 14** Bushland and waterways are celebrated, connected, protected and enhanced which includes catchment management and increasing tree canopy cover
- **Planning Priority 16** Rural lands are protected and enhanced.

6.2.2.2 Community Strategic Plan – Our Home, Liverpool 2027

Liverpool City Council's CSP – Our Home, Liverpool 2027 (Liverpool City Council CSP) provides a guide for the vision and priorities of Liverpool City Council and the community, with a focus on improving the life and wellbeing of residents. Themes such as social cohesion, environmental protection, generating opportunities for people and businesses have been identified.

Four directions were identified and discussed in the CSP, of which the following 3 are of relevance to this project:

- **Direction 1** Creating Connection which includes a commitment to deliver a range of community events and activities. This project needs to take this into account with detailed construction planning so as not to inhibit Council's ability to deliver this commitment
- **Direction 2** strengthening and protecting our environment which includes commitments to manage the disposal of rubbish and protect and enhance bushland, rivers and the visual landscape
- **Direction 3** generating opportunity with commitments from Council including meeting the challenges of Liverpool's growing population, attracting businesses for economic growth and employment opportunities and creating an attractive environment for investment.

6.2.3 Canterbury Bankstown Council

6.2.3.1 Local strategic planning statement – Connective City 2036

Connective City 2036 is the 20-year plan to guide Canterbury-Bankstown's renewal and growth. The plan responds to the City's many places to accommodate a growing population, increase job and business opportunities, and provide a high quality sustainable urban, suburban and natural setting.

The plan sets 10 directions defining strategic initiatives for the local government area (LGA). As Greater Sydney's largest population and most centrally located LGA, Canterbury-Bankstown focus on supporting the broader Eastern City, focused on the Sydney CBD and the Central River City, focused on Paramatta. Five metropolitan directions have been identified in the plan to complement, support and align with the three cities framework, optimising Canterbury-Bankstown as a freight and distribution powerhouse, fulfil inspiration for an interconnected mass transit system, enhance green and blue grids and support the hierarchy of great places. Five city directions also identify the growth of strategic centres within Canterbury Bankstown, activating precincts and identifying a hierarchy of centres to better plan for growth in the LGA.

Canterbury-Bankstown's strategic plan notes that the LGA is *"shaped by its rivers. The City's river systems and tributaries interconnect with its green places and open spaces, creating green and blue webs that interlock with the Greater Sydney Green Grid and combine to provide a vast network of special places that the community, pedestrians and cyclists can easily access and enjoy both now and into the future"* (p28). This is of key interest to this project given that works in the Canterbury-Bankstown LGA take place in Lansdowne Park after under boring Prospect Creek.

6.2.3.2 Community Strategic Plan – 2028 CBCity

The Canterbury Bankstown CSP - *CBCity 2028* (Canterbury Bankstown CSP) was developed using feedback from residents, businesses and government agencies to identify one collaborative vision for to achieve outcomes for all people. The following key community values were identified from the consultation feedback

- The community feel, cohesion and the diverse cultures that our neighbourhood promotes
- Having access to a range of parks and open spaces including natural areas, such as the Cooks and Georges Rivers, Lake Gillawarna, Paul Keating Park
- Well designed and well–managed development, including affordable housing, enough off–street-car parking without the overpopulation of areas
- developing more interesting town centres, businesses and local jobs, including more events such as festivals

The Canterbury-Bankstown CSP provides some more detailed themes of relevance to this project:

- **Destination 1** Safe & Strong A proud inclusive community that unites, celebrates and cares
  - Hold and sponsor community events
  - Protect heritage
- **Destination 2** Clean & Green A clean and sustainable City with healthy waterways and natural areas
  - Protect and enhance bushland biodiversity
  - Increase the tree canopy
  - Keep the streets clean.

6.2.4 Fairfield Council

6.2.4.1 Local strategic planning statement - Fairfield City 2040 – Shaping a diverse city

The Fairfield Draft LSPS – Fairfield City 2040 – Shaping a diverse city (Fairfield City LSPS) identifies 16 planning priorities capturing the goals across 5 related themes which make up the vision of Fairfield. Of those themes and priorities, the following are of direct relevance to the project, in relation to the construction activities that will occur within the area:

- Theme 1 community well-being – healthy & liveable places with Planning Priority 5 Protect the City's heritage
- Theme 5 good governance – advocacy & consultation with Planning Priority 13 Ensure a well-engaged and informed community and Planning Priority 16 Advocate for and represent the Fairfield City community.

Future housing diversity opportunities will focus on accessibility to transport, services, facilities and open spaces. Recreational opportunities will build on current social infrastructure and focus on meeting deficiencies in high residential areas.

Fairfield city experiences a number of social challenges including high social disadvantage, low incomes, poor health outcomes, the highest rates of gambling losses nationally and higher than average unemployment. The city will seek to maximise its location at the crossroads between east and south west Sydney becoming a gateway for the future Western Sydney Airport, as well as higher education and major health care services in adjoining areas to provide employment opportunities for the city.

6.2.4.2 Community Strategic Plan - Our home, our city, our future - 2016-2026 Fairfield City Plan

The Fairfield City CSP – *Our home, our city our future – 2016* – Fairfield City Plan (Fairfield City CSP), was established to promote the goals and priorities for the future of the Fairfield LGA. Fairfield LGA is highly urbanised and so has detailed commitments to key areas that this project may intersect with:

- **Theme 1** Community Wellbeing:
  - Goal 2: Being healthy and active:
    - 2.2 Opportunities to access active, creative leisure and recreational services 2.3 A healthy and safe environment
  - Goal 3: Enjoying a good standard of living and enhanced quality of life:
    - 3.7 Social impacts are considered in all decisions which will affect the community's quality of life
- **Theme 2** places and infrastructure
  - Goal 1: Our city is a clean and attractive place where we take pride in our diverse character:
    - 1.1 Keep our local character and respect the City's heritage and cultural diversity
    - 1.4 A clean City where litter, dumped rubbish and graffiti are minimised
  - Goal 3: Our city is accessible:
    - 3.1 Public transport, footpaths, cycleways and roads are accessible, safe, efficient, convenient, reliable and affordable and connect people with where they want to go
    - 3.2 Effective traffic management that deals with congestion and safety
    - 3.3 There is adequate parking.
- **Theme 3** Environmental sustainability
  - Goal 3: supporting sustainable activities and development
    - 3.2 Improved air quality in our region
    - 3.3 Minimise excessive noise that could impact comfort and health
    - 3.4 Individuals, businesses, industries and governments optimise their environmental performance
- **Theme 4** Local economy and employment
  - Goal 2: Having vibrant, safe and attractive places for shopping and access to services

    - 2.1 Access to a variety of shopping and services including Cabramatta as a significant tourist and Asian food centre

- **Theme 5** Good governance and leadership
  - Goal 2: All have an opportunity to participate, are respected and heard
    - 2.1 Information is available and clearly communicated to our diverse community
    - 2.2 All people in our community are able to contribute.

6.2.5 Wollondilly Shire Council

6.2.5.1 Local strategic planning statement – Wollondilly 2040

The Wollondilly Shire Council LSPS – Wollondilly 2040 (Wollondilly Shire LSPS) sets the vision for a prosperous, sustainability and resilient future for the community. The Wollondilly Shire is identified as a patchwork of agriculture, rural landscape, towns and villages amongst protected national park land and water catchment areas. Wollondilly embraces the values of its natural setting, presenting unique lifestyle opportunities on the outer edge of greater Sydney. The community cherishes the shires heritage, Aboriginal and European, and the visual character provided by the heritage items.

Wollondilly's proximity to the Western Parkland City has presented a number of challenges with growth pressures, loss and fragmentation of rural land, conflicting land uses between urban and rural lands and limited infrastructure, services and employment opportunities.

The Wollondilly Shire Draft LSPS identifies 18 planning priorities to align with local planning strategies to focus on how places can be better for the community. The project enters Wollondilly LGA on the western side of Wallacia and so the HDD out to Warragamba and the release point at the Nepean River both occur within this Council area. Based on this element of the project, from a construction perspective and an operational perspective, the key issues of relevance in the local strategic planning statement are:

- Infrastructure and collaboration, Preserving and Enhancing:
  - Vegetation, open spaces and connections to waterways and natural areas
  - Land for necessary services or infrastructure
- Liveability, Preserving and Enhancing
  - The area's heritage and the scale of its towns and villages
  - Aboriginal and European heritage
- Sustainability, preserving and Enhancing
  - The bushland environment
  - Fresh air and water quality
  - The diverse values of the Shire's culture and rural land
  - Native wildlife and their habitats.

6.2.5.2 Community Strategic Plan – Create Wollondilly Community Strategic Plan 2033

The Wollondilly Shire CSP – *Create Wollondilly Community Strategic Plan 2033* (Wollondilly Shire CSP) identities the strengths, issues and potential opportunities for our Wollondilly Shire to achieve successful outcomes. Of particular relevance to this assessment, include:

- Sustainable and Balanced Growth:
  - Strategy GR7 – Agriculture: Encourage and support agriculture and associated industries so that they continue to be a productive, sustainable and integral part of our economy, community, landscape and environment
- Management and Provision of Infrastructure:
  - Strategy IN1 – Improve the Condition of our Road Network: Manage, maintain and improve our road network to meet the needs of the community, now and into the future
  - Strategy IN4 – Emergency Management: Assist in the planning of the community's response to emergencies such as bushfires and flooding
- Caring for the Environment:
  - Strategy EN1 – Protect and enhance biodiversity, waterways and groundwaters: Maintain and enhance the condition of biodiversity including the condition of water sources (both surface and groundwater).
  - Strategy EN3 – Vegetation management: Achieve a balance between risk-based management and conserving biodiversity and maintaining public and private assets
  - Strategy EN7 – Agricultural Land and Capability: Protect agricultural land and the natural resources which support agricultural capability
- Looking after the Community:
  - Strategy CO1 – Strong Community: Deliver a range of community projects, services, and events (including in partnership with community groups and NGOs) which strengthen our community.

Other features of note include:

- Rural living including rural setting and character, viable agriculture, community lifestyle, diverse environment and heritage
- Wollondilly's natural environment, sensitive water catchment lands, extensive public open spaces and opportunities for rural living are among its greatest assets including National Parks, reserves and protected water catchment lands
- Balancing development and the protection of the natural environment.

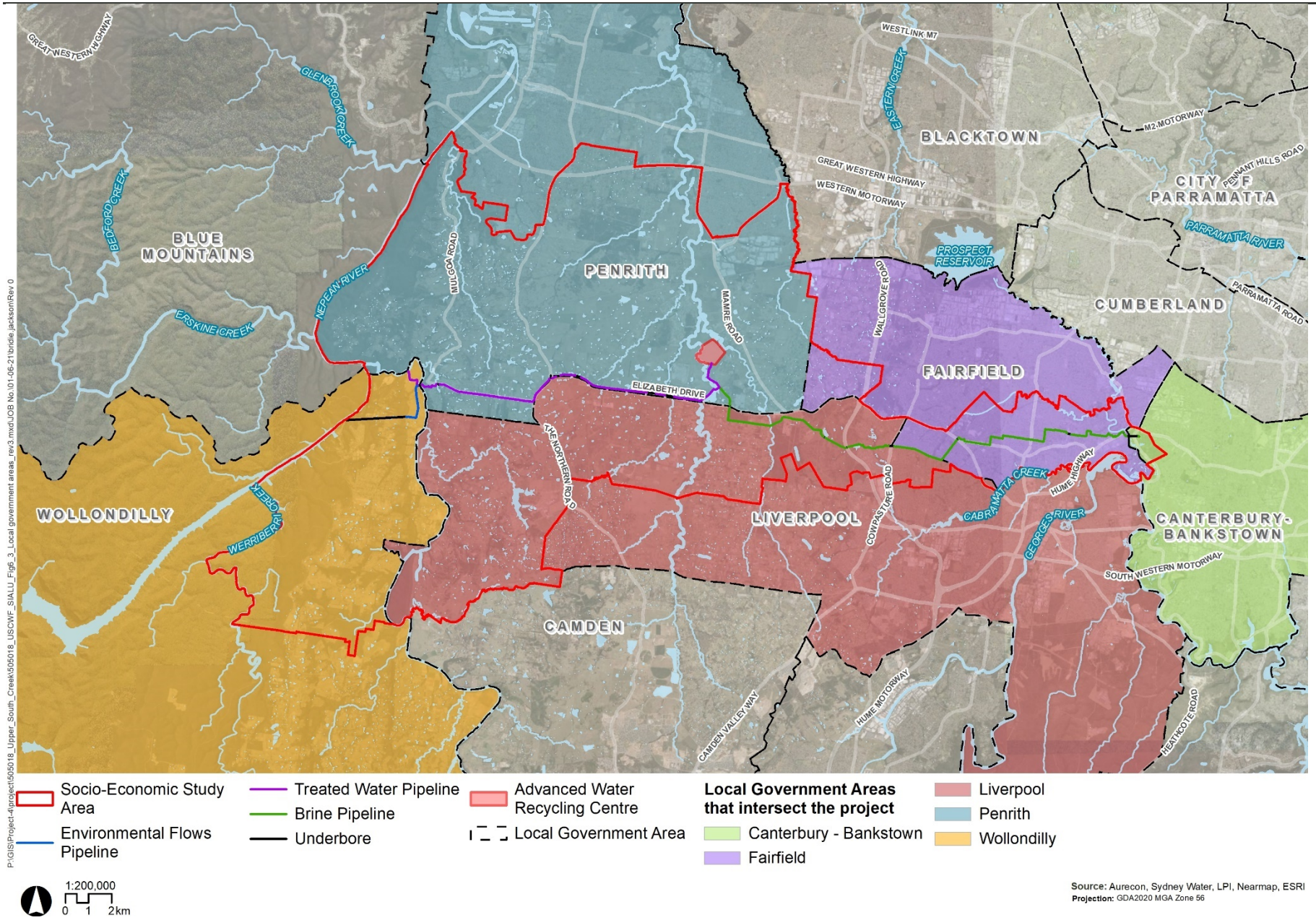


Figure 6-3 Local government areas

7 Existing environment

This section describes the existing socio-economic and land use environment that is likely to be impacted by the project, based on the SESA introduced in Section 4.1.1 and shown in Figure 4-1 to Figure 4-9.

7.1 Land use and property

The SESA-western, SESA-central and SESA-eastern are likely to experience significant future changes to land use. Western Sydney is currently experiencing rapid growth and development and it is recognised that strategic growth across the area will see significant change in land use within key suburbs due to a growing population, job creation, key infrastructure and social infrastructure. While this future change does not represent the existing environment, there is a clear commitment to growth and change in this area, and as such, it is important to consider the changing land use context in order to set a clear picture of the project context.

This includes the WSAGA which will see a significant change to the character and land use within the SESA-central and SESA-western to higher density, mixed-use, urban and industrial uses. Further detail on the WSAGA is provided in Section 6.1. The WSAGA and SWGA developments are not assumed to constitute ‘existing land use’ as it is uncertain to what extent development will be underway or in place when the project is operational. However, there is clear commitment and strong support for this anticipated change in character and development associated with the development plans in the longer term, and impact should be considered in this context.

An analysis of the current and future land use is identified in this section, as well as the identification of major projects and developments planned across the three study areas. Figure 7-1 provides an overview of existing land use character across the SESA. Figure 7-2 shows the location of these major projects in relation to the project.

Details of businesses and social infrastructure within the local influence area are provided in Section 7.3.4 and Section 7.4.

7.1.1 Advanced Water Recycling Centre

Table 7-1 provides a summary of the current and future land use context in and around the AWRC site.

Table 7-1: AWRC land use context

AWRC site	**Existing land use** The land within the site boundary is currently used for research related activities and cattle grazing by the University of Sydney. It is understood not to be in daily use at present. While no buildings exist on the site, there is some evidence of its former structures and uses. The AWRC site is predominantly cleared of native vegetation, with some remaining remnants along its boundaries. South Creek flows along the western edge of the site (partially included within the site boundary). **Future zoned / proposed land use** The AWRC sits within land covered by the Aerotropolis SEPP within the Kemps Creek precinct and Wianamatta-South Creek precinct. The majority of land for the AWRC is identified as within the Kemps Creek Precinct, which while within the Aerotropolis SEPP Boundary is not within the formal Land Application area and the existing RU2 zoning within the Penrith LEP applies. A portion of the western part of the AWRC site (within the Wianamatta-South Creek precinct) is located within the area of the Aerotropolis SEPP zoned for Environment and Recreation. The aims of this land use zone include to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values, and to provide a range of recreational settings and activities and compatible land uses.
Local influence area	**Existing land use** The site is located between South Creek and Kemps Creek (a tributary of South Creek) and close to the confluence with Badgerys Creek. A reservoir body associated with Kemps Creek is located immediately to the north of the site. The Suez Kemps Creek Resource Recovery Centre is located to the south west of the site. Beyond this, the site is predominantly surrounded by agricultural uses including horticulture and grazing. There are existing rural residential and agricultural land uses along Mamre Road and Clifton Avenue to the south and east of the site, with the closest residential dwellings about 300-400 metres from the site. The Twin Creeks residential estate is located about 800-900 metres north-west of the site. **Future zoned / proposed land use** Within the wider local influence area land use zoning is consistent with the site itself and is zoned predominantly as RU2 Rural Landscape and E2 Environmental Conservation under the Penrith City Council LEP. A portion of the neighbouring land also falls within the Aerotropolis SEPP, zoned for environment and recreation, and enterprise uses. This will see a significant shift in land use character from existing agricultural and rural residential uses, to more urban and industrial. **Future developments** • **M12 Motorway:** As the main access route to the AWRC, Clifton Avenue would also be modified for the M12 Motorway. Specifically the M12 Motorway project in this area would include: the development of bridge structures at interchanges and at Clifton Avenue, Elizabeth Drive, Luddenham Road and other local roads to maintain local access and connectivity modifications to the local road network, as required, to facilitate connections across and around the M12 Motorway including the realignment of Clifton Avenue over the M12 Motorway, with associated adjustments to nearby property access • **Sydney Metro** – Western Sydney Airport - The rail line will span across 23 kilometres and include metro stations in St Marys, Orchard Hills, Luddenham, two stations within the airport site and one station in the commercial centre of the WSAGA. The current proposed

	alignment runs north-south to the west of the AWRC site (outside of the local influence area) (Department of Infrastructure, Transport, Regional Development and Communications, 2020) • **Elizabeth Drive upgrade project – upgrade of** Elizabeth Drive to support WSAGA development is located to the south of the AWRC. The pipeline also proposed to run next to the Elizabeth Drive road corridor.

7.1.2 Treated water pipeline

Table 7-2 provides a summary of the current and future land use context in and around the treated water pipeline.

Table 7-2 Treated water pipeline land use context

Treated water pipeline	**Existing land use** The treated water pipeline runs to the west of the AWRC, through the SESA-central and SESA-western. It will be located on largely cleared land within or adjacent to existing road corridors along Elizabeth Drive and Park Road. The predominant land uses for this land is road infrastructure, with rural residential uses or grazing along the road edges. Some native vegetation remains within this land, including in road verges, with larger areas around Wallacia and Warragamba, near the Nepean River. In the very westernmost point of the project, the pipeline passes through two public nature reserves – Blaxland Crossing and Fowlers Reserve. The pipeline crosses waterways including South Creek, Badgerys Creek, Oaky Creek, Cosgroves Creek, Nepean River and Megarritys Creek. The treated water release location is on the Nepean River at Wallacia weir. **Future zoned / proposed land use** A large proportion of the treated water pipeline is proposed on land within the Aerotropolis SEPP and will therefore be subject to significant land use change in the future. Within the SESA-western, the predominant land use zone is AGB AgriBusiness, which aims to encourage diversity in agribusiness, encourage sustainable and high technology agribusiness, enable sustainable agritourism, encourage development that is consistent with the character of Luddenham village, and maintain the rural landscape character and biodiversity of the area. This will see a significant change to the character and land use within the SESA-central and SESA-western to higher density, mixed-use, urban and industrial uses – this is considered likely to occur with or without the project (although the project is required to support some of this growth). Within the SESA-central, land use zones include: • Land zoned for infrastructure (either under the SEPP or as S2 under LEP zoning). This largely aligns with Elizabeth Drive. This zone aims to provide infrastructure to support the area. • Land zoned for enterprise under the Aerotropolis SEPP, with aims to encourage employment and businesses, encourage development that promotes the efficient use of resources, ensure an appropriate transition from non-urban land uses and environmental conservation areas in surrounding areas to employment uses in the zone, and provide facilities and services to meet the needs of businesses and workers. • Land zoned for agribusiness (as above) The westernmost part of the treated water pipeline is located on land covered by the Wollondilly Shire Council LEP (Wollondilly Shire Council , 2011). This land is predominantly zoned as RU2 Rural Landscape and RU1 Primary Production, which aims to encourage sustainable primary production and maintain and enhance the natural resource base.

Local influence area	**Existing land use** Land uses within the surrounding area are largely consistent with the land uses along the treated water pipeline alignment – predominantly road infrastructure, rural residential uses or native vegetation grazing. The Blue Mountains National Park and World Heritage area is downstream of the water release location at Wallacia weir, on both sides of the Nepean River. The treated water pipeline passes through existing road infrastructure within the village of Wallacia (1,700 people) and passes to the north of Luddenham (1,828 people), both home to a range of residential properties and local services. **Future zoned / proposed land use** All land use zones within the project site are also identified within neighbouring land – both within the Aerotropolis SEPP and Wollondilly Shire Council LEP. **Future development** • **Northern Road Upgrade -** The Northern Road Upgrade project includes the upgrade of 34 kilometres of the Northern Road between Narellan and Penrith. It is located to the west of the project • **Sydney Metro** – Western Sydney Airport - The rail line will span across 23 kilometres and include metro stations in St Marys, Orchard Hills, Luddenham, two stations within the airport site and one station in the commercial centre of the WSAGA. The current proposed alignment runs north-south through the SESA-central, intersecting with the treated water pipeline at Elizabeth Drive, around the Western Sydney Airport site (Department of Infrastructure, Transport, Regional Development and Communications, 2020).

7.1.3 Environmental flows pipeline

Table 7-3 provides a summary of the current and future land use context in and around the environmental flows pipeline.

Table 7-3 Environmental flows pipeline land use context

Treated water pipeline and environmental flow	**Existing land use** The environmental flows pipeline runs north-south through the westernmost part of the impact assessment area, within the SESA-western. The pipeline will be located on the existing road corridor, running through agricultural land in Wallacia. The predominant land uses for this land is road infrastructure, with rural residential uses, market gardens or grazing along the road edges. Some native vegetation remains within this land, including in road verges, with larger areas around Wallacia and Warragamba, near the Nepean River. The environmental flows release location is on the Warragamba River upstream of the weir. **Future zoned / proposed land use** The environmental flows pipeline is located on land covered by the Wollondilly Shire Council LEP (Wollondilly Shire Council , 2011). This land is predominantly zoned as RU1 Primary Production, which aims to encourage sustainable primary production and maintain and enhance the natural resource base.

Local influence area	**Existing land use** Land uses within the surrounding area are largely consistent with the land uses along the environmental flows pipeline alignment – predominantly road infrastructure, rural residential uses or native vegetation grazing. **Future zoned / proposed land use** All land use zones within the project site are also identified within neighbouring land – both within the Aerotropolis SEPP and Wollondilly Shire Council LEP. **Future development** • No relevant development

7.1.4 Brine pipeline

Table 7-4 provides a summary of the current and future land use context in and around the brine pipeline.

Table 7-4 Brine pipeline land use context

Brine pipeline	**Existing land use** The brine pipeline runs to the east of the AWRC, through the SESA-central and SESA-eastern. The brine pipeline links into the Malabar wastewater network in Lansdowne. The brine pipeline will be located on largely cleared land within or adjacent to existing road corridors. Within the SESA-central, the predominant land uses are road infrastructure, rural residential (around Kemps Creek), or grazing along the road edges. Some native vegetation remains within this land, including in road verges. Within the SESA-eastern, the predominant land uses along the brine pipeline's alignment are road infrastructure or residential (predominantly low density, but ranging to high density). Across much of the pipeline route, the land is heavily disturbed by existing residential development in suburbs such as Cecil Hills, Bonnyrigg, Mount Pritchard, Cabramatta, Canley Vale and Canley Heights. Across SESA-central and SESA-eastern, the project will cross some parkland areas including Western Sydney Parklands (areas of bushland and open space of landscape and recreational value), Lansdowne Reserve, Cabra Vale Memorial Park**,** Mirambeena Regional Park, Shortland Brush and Lansvale Park. **Future zoned / proposed land use** The brine pipeline is proposed on land predominantly zoned under the Penrith City Council, Liverpool City Council and Canterbury-Bankston Council LEPs as R2 Low Density Residential (10km), alongside smaller areas of R1 General Residential (0.4km), and R4 High Density Residential (0.5km). The aspirations for these areas are to provide residential development and supporting uses, of varying densities. The other predominant land use zones are RU4 Primary Production Small Lots and RU2 Rural Landscape, which focus on sustainable primary production and maintain and enhance the natural resource base. A number of smaller areas covered by the brine pipeline are zoned as: • SP2 Infrastructure • RE1 Public Recreation. The brine pipeline also passes through the Western Sydney Parklands, and is covered by the State Environmental Planning Policy (Western Sydney Parklands) 2009 (NSW Government, 2009). As identified in the Western Sydney Parklands Plan of Management 2030, the area

	intersects with Cecil Park and Cowpasture Precincts (Western Sydney Parklands Trust, 2018). Future aspirations for these areas are to continue current uses around bushland habitat and recreation and landscape open space. A very small portion of the western most part of the Bribe Pipeline falls within the Aerotropolis SEPP, zoned as ENZ Environment and Recreation and SP2 Infrastructure.
Local influence area	**Existing land use** Surrounding land uses largely mirror those along the brine pipeline's alignment. The surrounding land within the SESA-central is predominantly rural residential land uses and grazing of native vegetation. Within the SESA-eastern, the surrounding land uses are largely residential suburbs ranging from low density to high density apartments. The Western Sydney Parklands runs either side of the brine pipeline, including Cecil Park and Cowpasture precincts. This also includes the Sydney International Shooting Centre, a key recreational asset. There is also a range of major transport infrastructure immediately adjacent to the pipeline alignment, including the M7 motorway, Liverpool to Parramatta transitway and T2, T3 and T5 rail lines. **Future zoned / proposed land use** Land use zoning is relatively consistent between neighbouring sites and the project site. The local influence area contains land predominantly zoned as R2 Low Density Residential, R1 General Residential and R4 High Density Residential. Within the SESA-central at the primary neighbouring land use zone is RU4 Primary Production Small Lots and RU2 Rural Landscape. Other land use zones include: • RE1 Public Recreation • B1 Neighbourhood Centre • RE2 Private Recreation. The local influence area also contains further land within the Western Sydney Parklands, which includes the Precinct of Cecil Park North – an area for bushland and rural residential uses. **Future development** • **Mamre Road upgrade:** upgrade of Mamre Road between the M4 Motorway, St Clair and Erskine Park Road, Erskine Park to reduce congestion and improve safety and travel times on Mamre Road. Mamre road is located to the east of the AWRC site. While the upgrade project does not reach as far south as the project, it will enable greater accessibility to the area, and links to Elizabeth Drive.

7.1.5 Compound sites

Table 7-5 provides a summary of the land use context in and around the proposed compound sites.

Table 7-5 Compound sites land use context

Compound sites	**Existing land use** The proposed compound sites are distributed across the SESA-western, SESA-central and SESA-eastern Study Areas. Land uses vary across each of the compound site, and include: • Existing water and wastewater supply infrastructure – C1, C10, C11 • Rural village (Wallacia) – C2

	• Primary production and agriculture – C3, C4, C5, C6 • Rural landscapes - C7 • The Western Sydney Parklands – C9 • Public recreation spaces – C10, C12, C13. The AWRC is also identified as compound site C8 (see Table 7-5 for more detail on land uses).
Local influence area	Land use surrounding the compound sites, both existing and future are similar to those experienced within the wider pipeline locations (see Sections 7.1.1 to 7.1.4.).

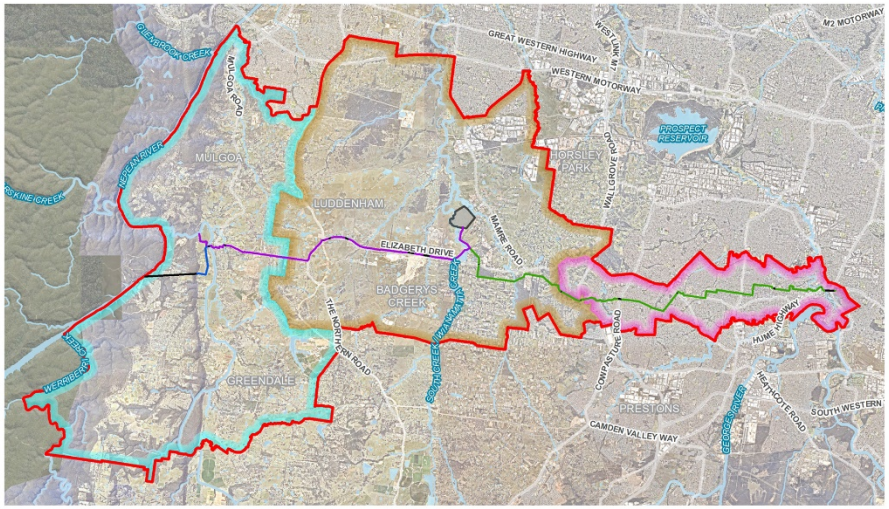
The Napean River

Residential property in central study area

Western Sydney Parkland (near shooting range): Google maps, July 2020

Social infrastructure in Mount Prichard: Google maps, Nov 2020

Residential properties in Wallacia



Park in Bonnyrigg: Google maps, Nov 2020

Rural agriculture in western study area

Residential property in Canley Vale: Google maps, April 2014

Existing pipeline and agricultural land in western study area

Rural land in proximity to the AWRC site

Agricultural land in proximity to the AWRC site

Residential property in Lansvale: Google maps, Oct 2020

Figure 7-1 Land use character across the SESA

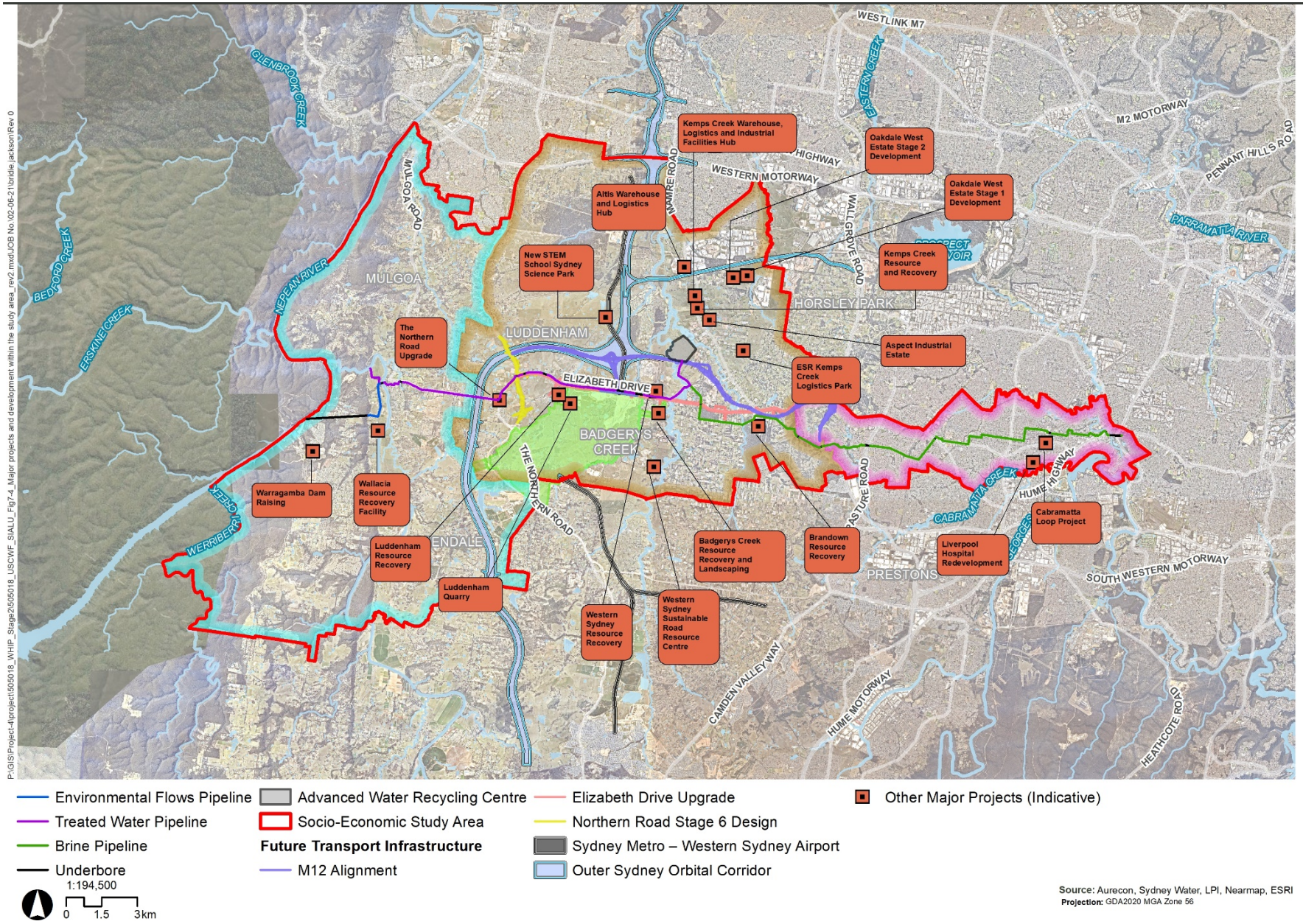


Figure 7-2 Major projects and development in the SESA

7.1.6 Property

The AWRC requires the permanent acquisition of property currently within the ownership of University of Sydney.

Permanent land easements during operation are required to provide Sydney Water with access to property for pipeline maintenance, across 71 properties. During construction, temporary access arrangement will also be required for 60 properties. In the most part, this will only affect a small portion of the whole lot. Sydney Water is in discussions with the property owners within the impact assessment area to discuss and agree the approach to this. In addition to the above ground requirements, the project would require subsurface access arrangement to some properties to accommodate for under bore activities.

It is understood no permanent acquisition is required in relation to the pipelines, and that land subject to construction access requirements will be restored to enable existing and proposed land uses to continue.

A summary of land ownership and acquisition requirements is provided in Table 7-6. Section 8.2.1 and Section 8.3.1 of this assessment explore the potential property impacts associated with this.

Table 7-6: Overview of property acquisition and easements within the impact assessment area

Acquisition / easement type	Property owner type	Number of properties
Temporary construction property access	Government	20
	Private	40
Permanent acquisition	Government	0
	Private	2 (same landowner)
Permanent easement	Government	30
	Private	41

7.2 Socio-demographic profile

This section provides an overview of relevant population and demographic characteristics for communities within the SESA-western, SESA-central and SESA-eastern. This is focused on the SESA-west, SESA-central and SESA-eastern, drawing on ABS State Suburb boundaries.

7.2.1 Population

7.2.1.1 Existing population

There is a total number of 131,306 residents currently living across the SESA-western, SESA-central and SESA-eastern. Table 7-7 shows the residential population breakdown across each study area, as at the 2016 Census.

Table 7-7 Resident population for the SESA-western, SESA-central and SESA-eastern

	Western	Central	Eastern	Greater Sydney
Number of persons	8,796	14,597	107,913	4,823,991
Total number of persons	131,306 (2.7% of Greater Sydney population)			

Source: ABS Census, 2016

The residential population in the SESA-eastern is larger and residential population density in this study area is higher, when compared to the SESA-western and SESA-central.

7.2.1.2 Population projections

Table 7-8 outlines the population projections for each local government areas (LGAs) that intersect with the SESA-western, SESA-central and SESA-eastern and the average for the Western City District (encompassing many areas of the SESA-western and SESA-central) and NSW.

2019 NSW population projections show that the SESA-central is anticipated to experience significant population growth, with Liverpool witnessing over 100% population growth, higher than the Western Sydney average of 78%. The Western City District population (incorporating the SESA-western and SESA-central) is expected to be double the rate for the NSW average. This is reflective of the planned growth stimulated by construction of the new Western Sydney Airport, the WSAGA and the SWGA (as outlined in Section 6).

Table 7-8 Population projections

	Study area (predominately within)	2016	2021	2026	2031	2036	2041	2016 to 2041 (% change)
Wollondilly LGA	Western	49,854	54,140	58,482	66,381	73,477	82,513	66%
Penrith LGA	Western	201,597	230,289	248,577	292,019	350,906	369,246	83%
Liverpool LGA	Central	211,983	251,322	291,187	328,447	380,085	441,427	108%
Campbelltown LGA	Central	161,566	180,051	194,039	212,366	227,946	249,262	54%
Fairfield LGA	Eastern	205,675	209,983	216,693	232,681	254,821	264,588	29%
Canterbury-Bankstown LGA	Eastern	361,862	396,288	432,566	463,956	482,222	514,653	42%
Western City District		1,056,120	1,199,187	1,310,725	1,467,354	1,680,844	1,878,133	78%
Greater Sydney		4,688,255	5,252,611	5,746,821	6,211,970	6,661,720	7,103,091	51.5%

	Study area (predominately within)	2016	2021	2026	2031	2036	2041	2016 to 2041 (% change)
NSW Total		7,732,858	8,414,978	9,011,010	9,560,567	10,077,964	10,572,696	37%

Source: NSW Department of Planning, Industry and Environment, 2019 NSW population projections, 2019

7.2.1.3 Age distribution

Figure 7-3 shows the age distribution of the residential population across the SESA-western, SESA-central and SESA-eastern and comparison with the Greater Sydney average.

The residential population across the three study areas is generally younger than the Greater Sydney average. There is generally a greater proportion of children and teenagers (people aged from 5 to 19 years old) and middle aged people (people aged 45 to 64 years old) across the three study areas, when compared to the Greater Sydney average, and also a lower proportion of older persons (aged 65 years and over) when compared to the Greater Sydney average.

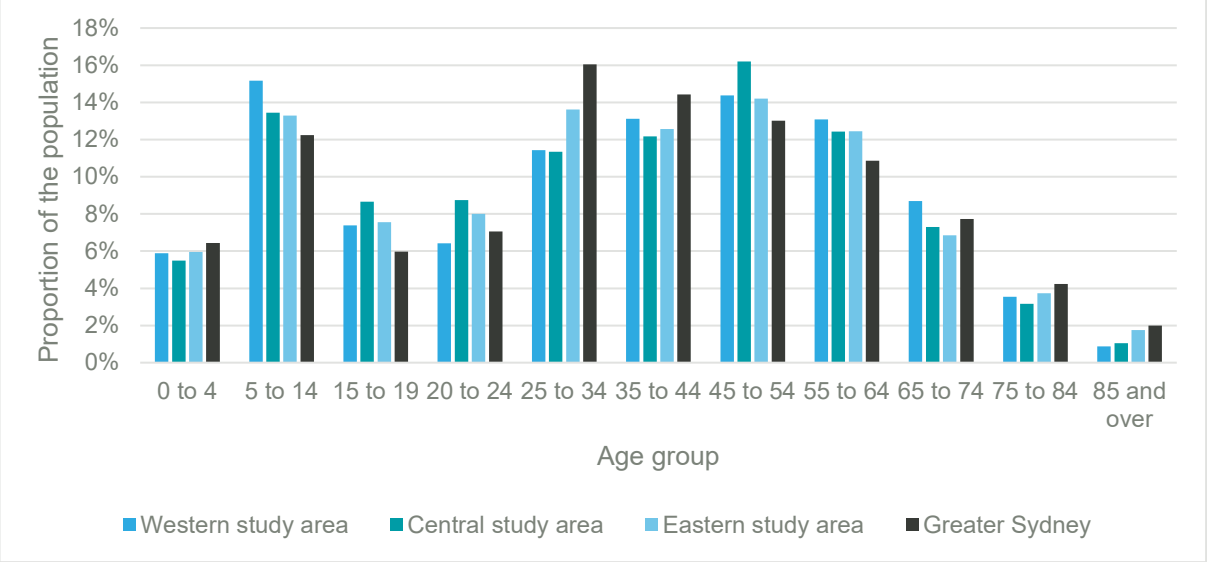


Figure 7-3 Age distribution of the population in SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

All three study areas, in particular the SESA-western and SESA-central, have a significantly lower proportion of young workers (people aged 25 to 34 years old) when compared to the Greater Sydney average.

The SESA-western has a greater proportion of children aged from 5 to 14 years old, when compared to the Greater Sydney average. The SESA-central and SESA eastern have a higher proportion of young adults (aged 20 to 24 years old) when compared to the Greater Sydney average.

The assessment of the project needs to consider impacts to all groups in the community. The impacts on children, teenagers and young adults need to be considered in particular, as these age groups represent a significant proportion of communities across all three study areas.

7.2.1.4 Indigenous population

Table 7-9 shows the number of people in the population that identify as Aboriginal or Torres Strait Islander across the three study areas and compared with the Greater Sydney average. There is a greater proportion of the population that identifies as Indigenous in the SESA-western and SESA-central, when compared to the Greater Sydney average.

Table 7-9 Indigenous population for the SESA-western, SESA-central and SESA-eastern and comparison to the Greater Sydney average

Study area	Western	Central	Eastern	Greater Sydney
Number of persons (total population)	8,796	14,597	107,913	4,823,991
Indigenous population	275	258	821	70,135
Indigenous population (percentage)	3%	2%	1%	1%

Source: ABS Census, 2016

7.2.1.5 Languages spoken at home

There is a significantly high proportion of the residential population in the SESA-eastern that speaks a language other than English at home (72% of the SESA-eastern population when compared to 36% of the population across Greater Sydney).

Of the population that speak another language other than English at home in the SESA-eastern, a large proportion (33% of those that speak another language) speaks English either not well or not at all (refer to Table 7-10). In particular, the suburb of Cabramatta has a significantly higher number of residents that speak another language other than English. There is also a higher concentration of people that speak English either not well or not at all in the suburb of Cabramatta, representing 10% of all residents that have poor English-speaking skills across the entire SESA-eastern.

Table 7-10 Proportion of population that speak another language at home that speak English not well or not at all in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Study area	Western	Central	Eastern	Greater Sydney
Percentage of population that speaks another language other than English	9%	26%	72%	36%
Percentage of population that speaks another language – and speaks English not well or not at all	10%	11%	33%	18%

Source: ABS Census, 2016

The higher proportion of residents that were born overseas in the SESA-eastern (60% of all residents) may explain the high proportion of residents that speak another language other than English at home. Figure 7-4 shows the porportion of residents born overseas across the three study areas and comparison with Greater Sydney. Both the SESA-western and SESA-central have a lower number of people born overseas when compared to the SESA-eastern and the Greater Sydney average. In the SESA-eastern, key languages include Vietnamese, Chinese Mandarin, Cantonese, Khmer (Cambodian), Arabic and Assyrian Neo-Aramaic. For the SESA-central there is a greater mix across European and other languages; key languages being Arabic, Italian, Croatian and Cantonese. The SESA-western is predominantly European languages, including Italian, Maltese, Spanish and Greek.

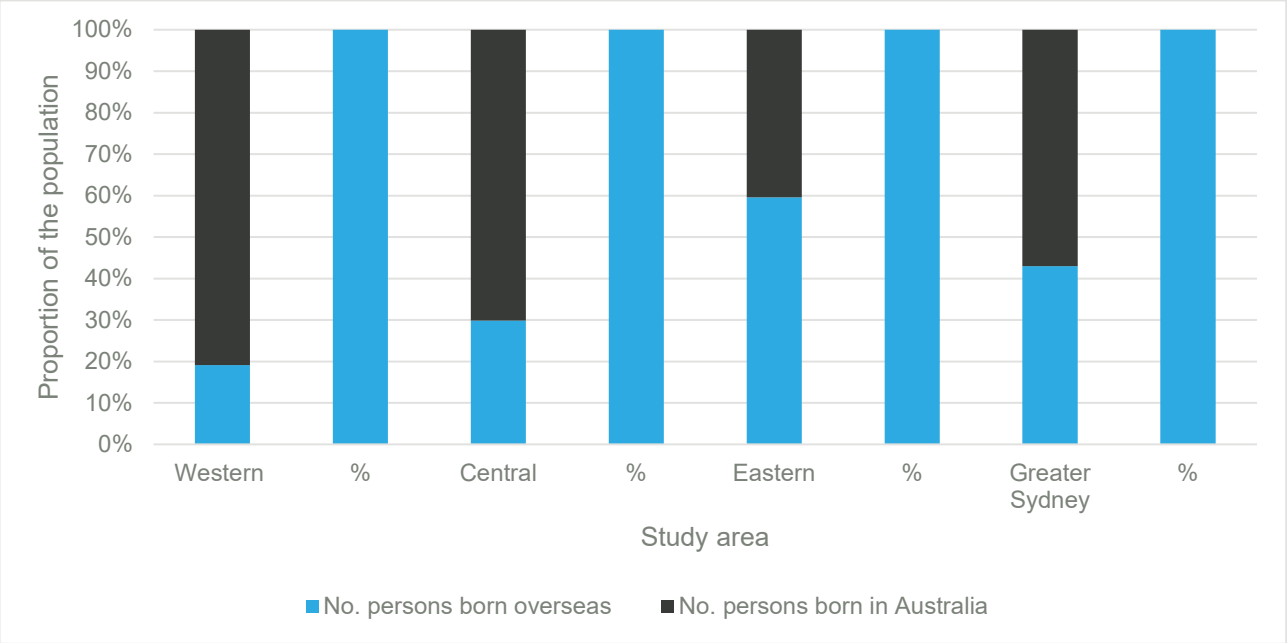


Figure 7-4 Proportion of residents born overseas in SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

Assessment of the project needs to consider the higher proportion of multi-lingual residents in the SESA-eastern and the needs of certain groups that are limited in their ability to communicate in English – noting that these groups may be more vulnerable to particular impacts (e.g. impacts to community services and cohesion) and may require tailored mitigation and management approaches. It is noted that engagement and consultation to date (and planned) has involved several sessions in languages other than English (as summarised in Section 5).

7.2.1.6 Need for assistance

Table 7-11 shows the number of people in each study area that require assistance with core activities, and this number as a percentage of the total population. This dataset counts people that need help or assistance in at least one core activity area including self-care, mobility and communication due to either a disability, long term health condition or old age. There is a higher proportion of people that require assistance living in the SESA-eastern (8% of residents) when compared to an average of 5% across the Greater Sydney area.

Table 7-11 Number of people that require assistance with core activities in SESA-western, SESA-central and SESA-eastern and Greater Sydney

Study area	Western	Central	Eastern	Greater Sydney
Total number of persons that require assistance with core activities	331	630	8,147	236,139
Percentage of population in SESA that require assistance with core activities	4%	4%	8%	5%

Source: ABS Census, 2016

Typically, older people (aged 65 years and over) are more likely to require assistance due to old age and higher prevalence of health conditions impacting these age groups. Figure 7-5 shows the age groups that require assistance. The profile of people requiring assistance is slightly younger in the western, SESA-central and SESA-eastern when compared to the Greater Sydney average. There is a greater proportion of people in the 55-64 years and 65-74 years age group that require assistance in the SESA-western and SESA-eastern when compared to the Greater Sydney average.

Children and teenagers (5-14 years and 15-19 years) represent a greater proportion of people requiring assistance in the SESA-western and SESA-central when compared to the Greater Sydney average.

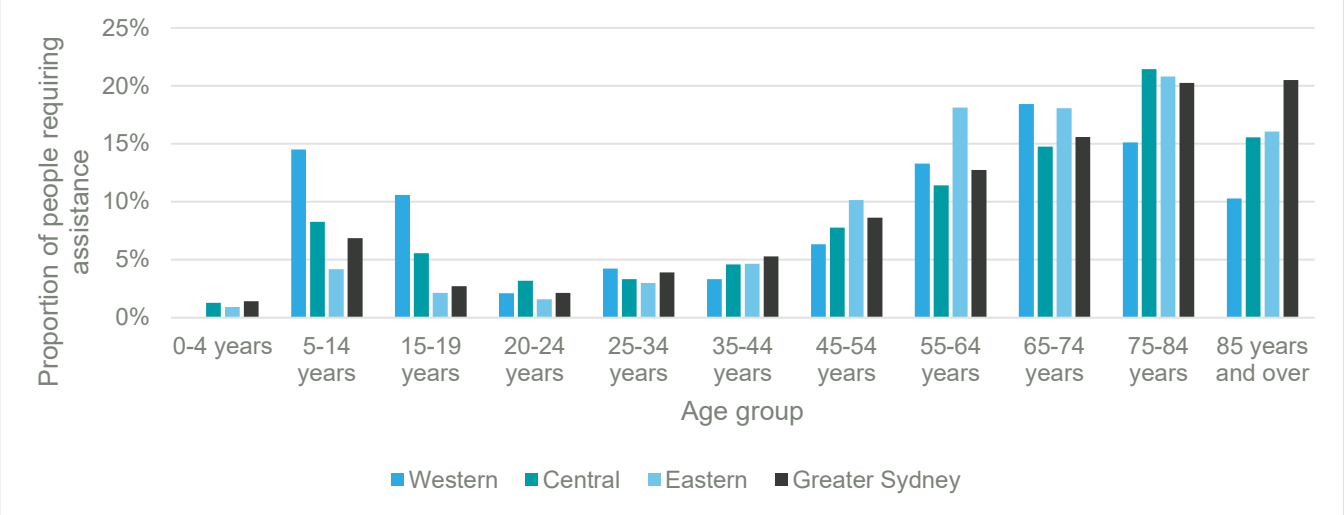


Figure 7-5 Age groups that require assistance in SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

The needs of people that require assistance, and carers providing that assistance, is important to consider in how the project may impact on these groups. These groups can be more vulnerable to amenity impacts such as noise and air quality, as well as transport and mobility impacts. As such it will be important to consider the different impacts felt by these groups.

7.2.2 Housing and households

7.2.2.1 Dwellings

There are 37,140 dwellings across the SESA-western, SESA-central and SESA-eastern. This equates to the same number of households as there is one household per dwelling.

Table 7-12 Number of dwellings or households in the SESA-western, SESA-central and SESA-eastern

Study area	Western	Central	Eastern
Number of dwellings or households	2,656	4,055	30,429
Total number of dwellings or households	37,140		

Source: ABS Census, 2016

Separate houses represent the most common type of dwelling across the SESA-western, SESA-central and SESA-eastern study areas (refer to Figure 7-6). In the SESA-western and SESA-central in particular, over 95% of dwellings are separate houses, which is significantly higher than the Greater Sydney average of 57% of dwellings. There are more semi-detached, terrace and townhouse dwellings and flats and apartments in the SESA-eastern. The SESA-eastern is more densely developed than the SESA-central and SESA-western, however the profile of dwellings in the SESA-central is expected to change in the future as discussed in Section 7.1.

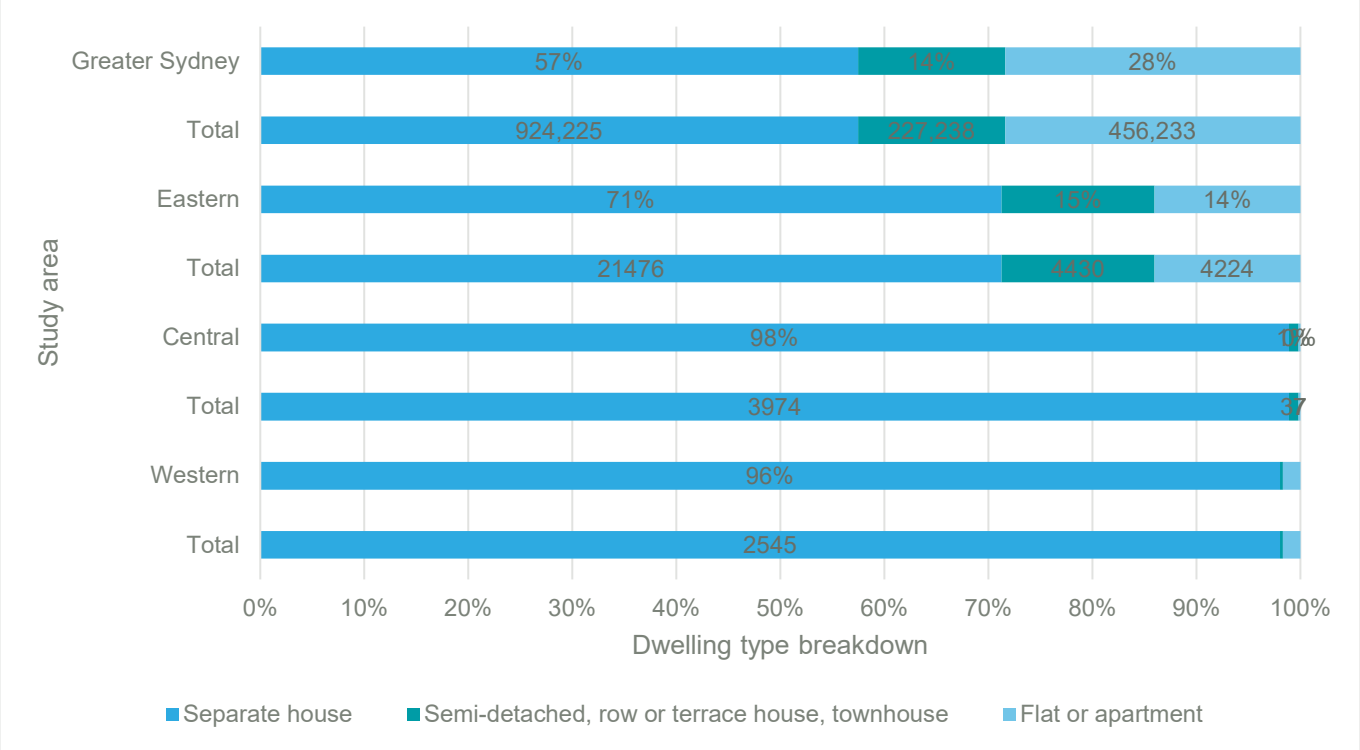


Figure 7-6 Breakdown of dwelling types in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

The assessment will consider that the project is located within both rural, suburban and more urban residential areas. These areas may experience impacts differently noting their varied densities, characters and landscapes – and this will need to be considered when exploring the impacts.

7.2.2.2 Household size and composition

Family households with children (couples with children and one parent families) represent 55% to 64% of all households across the SESA-western, SESA-central and SESA-eastern. Across Greater Sydney, families with children represent a lower 48% of all households (refer to Figure 7-7).

The SESA-western, SESA-central and SESA-eastern therefore have a lower proportion of lone person households than the Greater Sydney average.

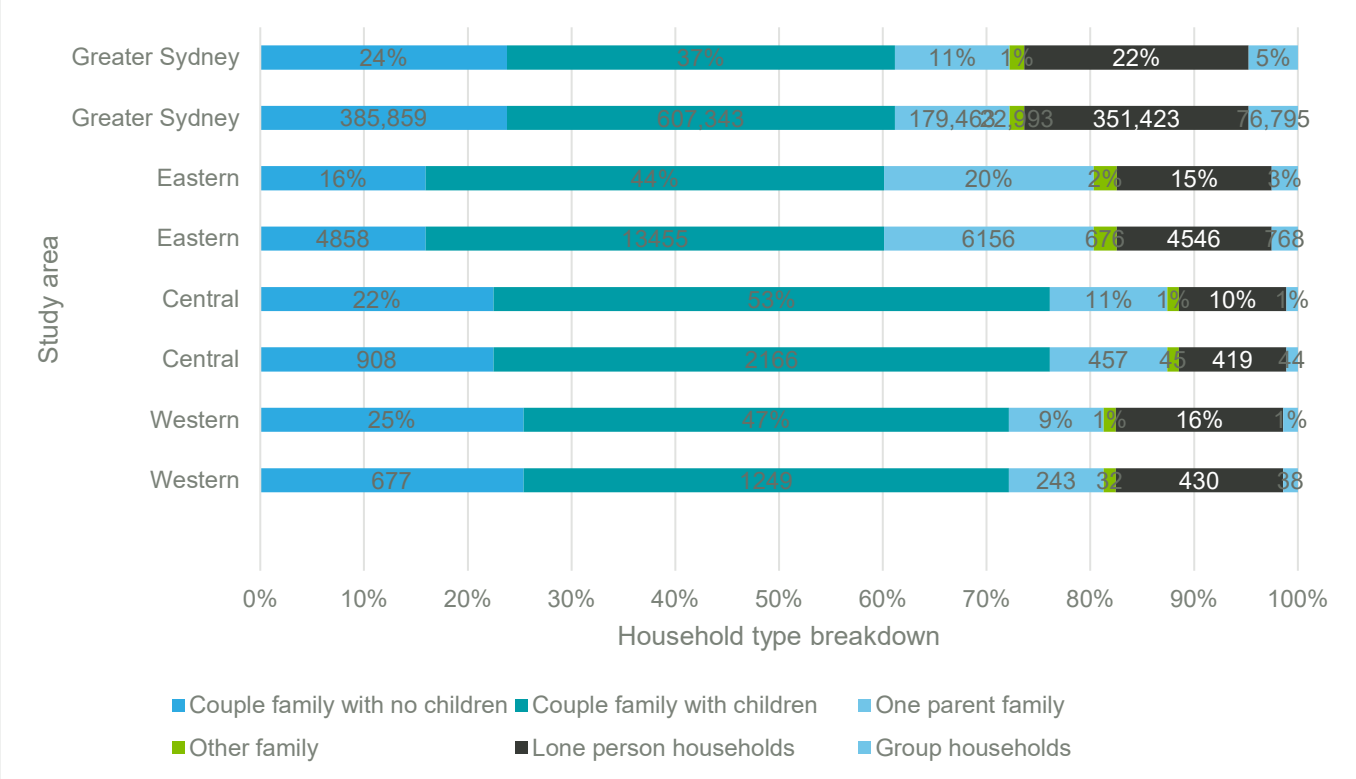


Figure 7-7 Breakdown of household types across the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

Household sizes are also typically larger in the SESA-western, SESA-central and SESA-eastern when compared to the Greater Sydney average (refer to Figure 7-8). This is consistent with the high proportion of family households and families with children that are in the SESA-western, SESA-central and SESA-eastern.

In particular, the SESA-central and SESA-eastern have a greater proportion of households that have three or more people when compared to the Greater Sydney average and the SESA-western which has a higher proportion of households with one or two people.

The SESA-eastern has a significantly higher proportion of households with six or more people (11% of all households). This is double the average for Greater Sydney where six or more person households represent only 5% of households.

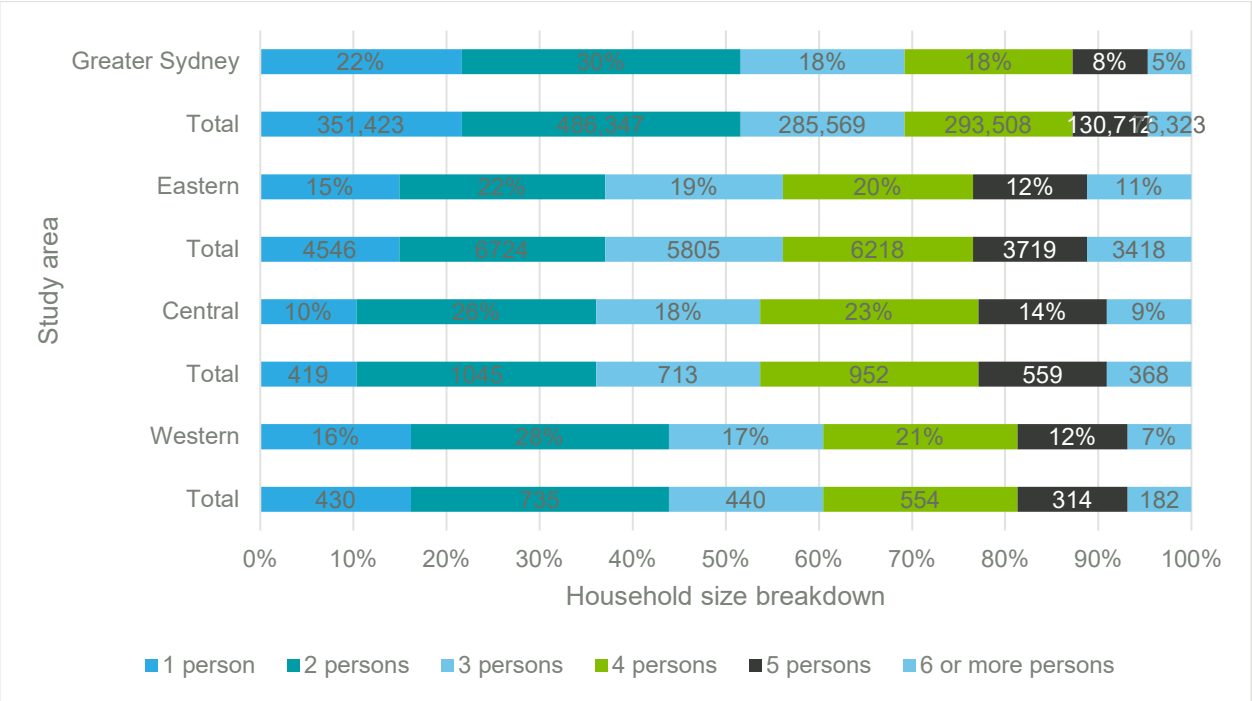


Figure 7-8 Household size in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

The assessment of the project needs to consider the types of households in communities in the SESA-western, SESA-central and SESA-eastern, and in particular that families with children represent a large proportion of communities living in these areas. Younger people and families can be more vulnerable to particular impacts such as noise, air quality and transport challenges. As such, there is potential for these groups to experience stronger impacts, which will need to be considered in the impact assessment.

7.2.2.3 Housing tenure

The majority of households in the SESA-western, SESA-central and SESA-eastern own their homes, either under full ownership or under mortgage (refer to Table 7-13). There is a higher proportion of households that either fully own their homes or have a mortgage in the SESA-western and SESA-central than compared to the Greater Sydney average. The SESA-eastern has a comparable proportion of households that are renting as the Greater Sydney average.

Table 7-13 Breakdown of housing tenure in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Study area	Western	Central	Eastern	Greater Sydney
Fully owned – number of households (percentage of all households)	896 (34%)	1,457 (36%)	9,357 (31%)	472,635 (29%)
Mortgage – number of households (percentage of all households)	1,301 (49%)	1,767 (44%)	9,513 (31%)	539,249 (33%)

Study area	Western	Central	Eastern	Greater Sydney
Renting (includes private rental and social housing) – number of households (percentage of all households)	365 (14%)	707 (17%)	10,332 (34%)	553,249 (34%)

Source: ABS Census, 2016

The assessment of the project needs to consider that a significant proportion of residential properties in the SESA-western and SESA-central owner-occupied, which means people have made significant investments on their properties and indicates that people have either lived in the area for a long time and/or are invested to stay in the area.

7.2.2.4 Household income

The SESA-western and SESA-central are relatively wealthy, with a slightly higher proportion of households earning incomes that place them in the medium highest and highest income quartile groups when compared to the Greater Sydney average. Refer to Figure 7-9 for a comparison of households within each income quartile group for each study area and Greater Sydney.

The SESA-eastern has a greater proportion of lowest income households, when compared to the Greater Sydney average.

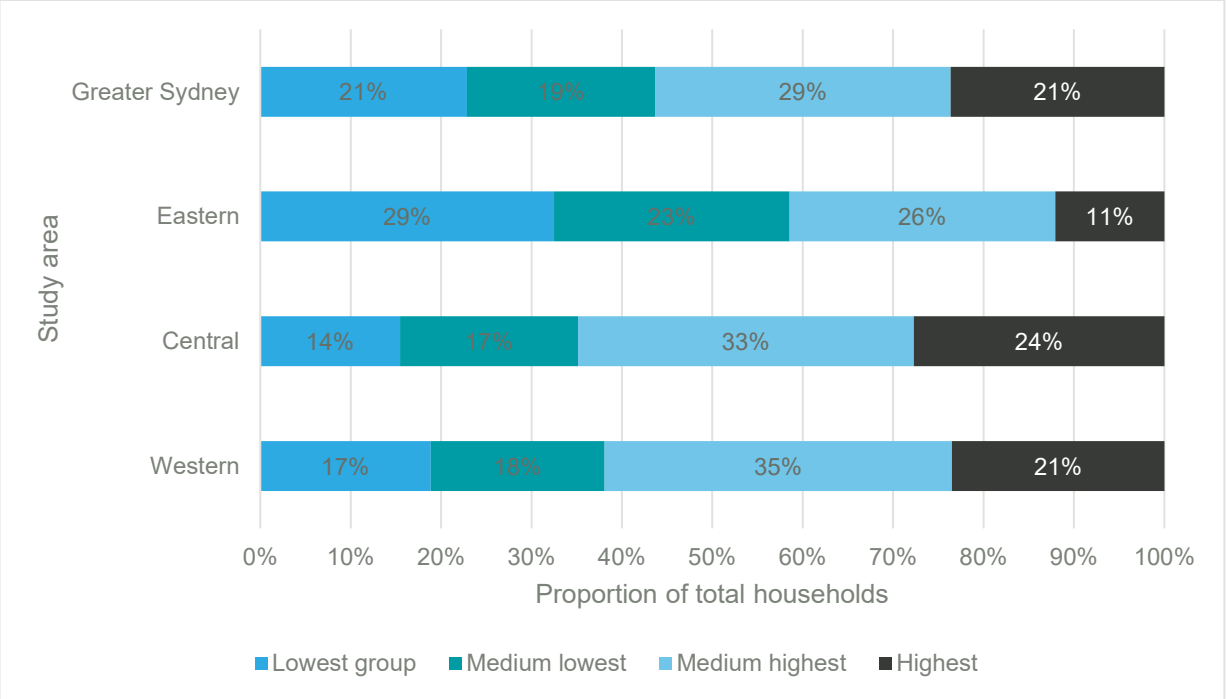


Figure 7-9 Comparison of household income levels in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 20169

[9] The assumptions that inform the groupings of household income quartiles are adapted from quartiles applied by profile id. to enable comparison across NSW. The lowest group includes household incomes of $0 to $799. Medium lowest group includes household incomes of $800 to $1,499. Medium highest group includes household incomes of $1,500 to $2,999. Highest group includes household incomes of $3,000 or more.

Lower income households can be the most vulnerable groups in the community. They can be particularly vulnerable to impacts on transport options, housing affordability and community services, while also providing a key community for employment opportunities and educational benefits. This needs to be considered in the assessment of the project – taking into account the potential differential impacts for this group.

7.2.3 Socio-economic profile of residents

This section summarises the socio-economic context and profile of those living within the SESA-eastern, SESA-central, SESA-western. It is noted that this does not reflect people working within the area, and some of this employment may be outside of the SESA (see Section 7.3 for detail of the economic profile of the three geographical study areas as places of work).

7.2.3.1 Employment and unemployment

Table 7-14 outlines the different rates of employment and unemployment across the three study areas and comparison to Greater Sydney. There is a greater proportion of unemployment in the SESA-eastern when compared to the Greater Sydney average and compared to the SESA-western and SESA-central.

Table 7-14 Rate of employment and unemployment in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

	Western	Central	Eastern	Greater Sydney
Unemployment – percentage of population	4.2	4.4	10.8	6.0
Labour force participation – percentage of population	63.9	65.6	51.4	61.6

Source: ABS Census, 201610

Employment and unemployment can influence household income and socio-economic outcomes. Unemployment can also mean that people spend more time at home during the day. The higher rate of unemployment in the SESA-eastern may influence the impact of the project in this area – for example resulting in a higher impact of project related employment opportunities, than in the rest of SESA.

7.2.3.2 Industry of employment

Key industries of employment for residents across the SESA-western, SESA-central and SESA-eastern include construction, retail trade, manufacturing, and health care and social assistance.

In the SESA-western, there is a high proportion of residents employed in construction. The top ten industries that SESA-western residents are employed in are shown in Table 7-15.

[10] The ABS Census provides the percentage of unemployment and employment for each suburb. What is presented in the table is the median for all the suburbs within each study area to enable a comparison across the three study areas and to the rate of unemployment and employment for Greater Sydney.

Table 7-15 Top ten industries of employment in the SESA-western

Industry of employment	Number of people employed	Percentage of people employed
Construction	802	18%
Retail trade	394	9%
Health care and social assistance	378	9%
Manufacturing	353	8%
Education and training	318	7%
Transport, Postal and Warehousing	292	7%
Inadequately described/Not stated	236	5%
Other Services	228	5%
Public Administration and Safety	217	5%
Accommodation and Food Services	208	5%

Source: ABS Census, 2016

In the SESA-central, there is similarly a high proportion of residents employed in construction. The top ten industries that SESA-central residents are employed in are shown in Table 7-16.

Table 7-16 Top ten industries of employment in the SESA-central

Industry of employment	Number of people employed	Percentage of people employed
Construction	1,145	15%
Retail Trade	753	10%
Health Care and Social Assistance	656	9%
Manufacturing	632	8%
Transport, Postal and Warehousing	545	7%
Education and Training	515	7%
Inadequately described/Not stated	412	5%
Public Administration and Safety	406	5%
Other Services	405	5%
Accommodation and Food Services	400	5%

Source: ABS Census, 2016

In the SESA-eastern, there is a high proportion or residents employed in manufacturing and also retail trade. This reflects the more. The top ten industries that SESA-eastern residents are employed in are shown in Table 7-17.

Table 7-17 Top ten industries of employment in the SESA-eastern

Industry of employment	Number of people employed	Percentage of people employed
Manufacturing	5,321	13%

Industry of employment	Number of people employed	Percentage of people employed
Retail Trade	4,580	11%
Construction	3,888	10%
Inadequately described/Not stated	3,678	9%
Health Care and Social Assistance	3,659	9%
Accommodation and Food Services	2,828	7%
Transport, Postal and Warehousing	2,745	7%
Other Services	2,023	5%
Education and Training	1,887	5%
Professional, Scientific and Technical Services	1,680	4%

Source: ABS Census, 2016

Assessment of the project needs to consider the impacts on the local workforce and their skills.

7.2.3.3 Socio-economic advantage and disadvantage

Communities in the SESA-eastern experience a relatively greater socio-economic disadvantage in comparison to other suburbs in NSW (refer to). Analysis of socio-economic disadvantage demonstrates that:

- There is a greater concentration of socio-economic disadvantage in the SESA-eastern when compared to the SESA-western and SESA-central
- Within the SESA-western, the community in Warragamba experiences a relatively greater socio-economic disadvantage than other suburbs within SESA.

Communities in these areas can be particularly vulnerable to impacts on transport options, housing affordability and community services, while also providing a key community for employment opportunities and educational benefits. This needs to be considered in the assessment of the project – taking into account the potential differential impacts for this group.

7.2.3.4 Crime statistics

A review of crime rates in the SESA reveals the following patterns and trends:[11]

- Crime rates in the SESA-western are generally lower than the SESA-central and SESA-eastern. This is likely due to the SESA-western's lower population suburbs, and less concentration of people.
- Among all study areas, Cabramatta in the SESA-eastern has the highest rate of theft incidents, having about 3000 cases per 1000,000 persons (NSW Bureau of Crime Statistics and Research, 2020)

[11] Including the rate of theft, drug offences and assault from January 2019 to December 2020

- Most of SESA had a stable rate of theft incidents between 2019 to 2020. However, Mount Pritchard and Green Valley in the SESA-eastern experienced a fall of 30% of incidents from 2019 to 2020, while Luddenham in the SESA-central recorded an increase of incidents for 24% (NSW Bureau of Crime Statistics and Research, 2020)
- The crime rate of drug offences across all study areas is between low and moderate levels
- Among all suburbs, Cabramatta in the SESA-eastern has the highest rate of 1300 to 2000 cases per 1000,000 persons (NSW Bureau of Crime Statistics and Research, 2020). The incident rate in Cabramatta also shows a significant rise of 52.5% from 2019 to 2020, suggesting this high rate may be an anomaly
- Canley Vale in the SESA-eastern also presented an increase of 65% in drug offences (NSW Bureau of Crime Statistics and Research, 2020)
- All study areas had a low rate of assault between 2019 to 2020
- Kemps Creek in the SESA-central had the highest rate of assault among all study areas, indicating about 260 to 1160 cases per 1000,000 persons (NSW Bureau of Crime Statistics and Research, 2020)
- Meanwhile, Cabramatta West in the SESA-eastern had a rapid growth of assault rate with a 108% increase from 2019 to 2020(NSW Bureau of Crime Statistics and Research, 2020).

Overall, this demonstrates a low to moderate level of crime across the SESA, with limited variation across the SESA-west, SESA-central and SESA-eastern – although some pockets of higher crime rates in 2019-20 particularly, around Cabramatta, Kemps Creek and Canley Vale.

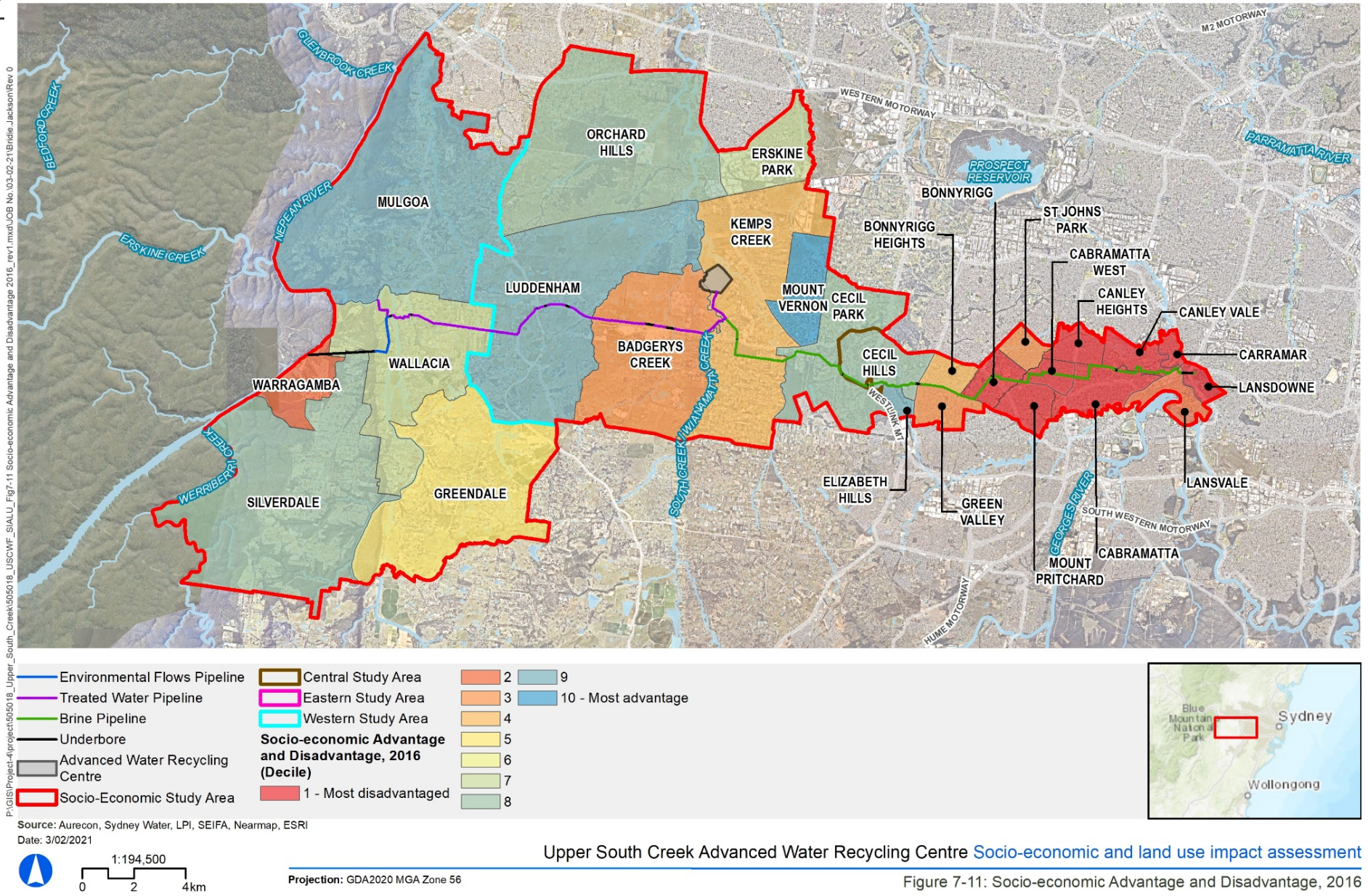


Figure 7-10 Socio-economic advantage and disadvantage

7.3 Economic, industry and employment profile

Approximately 124,500 people are employed within the SESA[12]. The WSAGA is expected to generate over 200,000 additional jobs within the area around the project. Further development associated with other future growth such as the Sydney Metro extension will also serve to significantly increase employment in the area. This is anticipated to be long term and beyond the life of the project. Assessment of the project needs to consider the impacts on the local workforce and their continued ability to work and develop skills, alongside residential communities.

7.3.1 Industry of employment

Key industries of employment for those working within the SESA, differ slightly than those industries in which residents work. The top ten industries that SESA workers are employed in are shown in Table 7-18. In particular, they include:

- A high prevalence of Health Care and Social Assistance jobs within the SESA – likely representing the presence of health care facilities within the more urban areas of Fairfield and Canterbury-Bankstown
- A strong manufacturing industry employment – consistent with residential employment within the SESA, particularly within the SESA-eastern and representing the industrial character of the western Sydney area
- A consistently strong trend of employment in retail across the shopping centres and more urban retail hubs across the SESA
- Less jobs in construction within the SESA than evidence through the industries in which residents are employed. This suggests that there are a number of people living in the SESA working in construction jobs, outside of the area.

Table 7-18 Top ten industries of employment in the SESA

Industry of employment	Number of people employed	Percentage of people employed
Health Care and Social Assistance	16,127	12.96%
Manufacturing	14,068	11.30%
Retail Trade	13,402	10.77%
Education and Training	11,560	9.29%
Construction	10,831	8.70%
Transport, Postal and Warehousing	8,001	6.43%
Public Administration and Safety	7,957	6.39%
Accommodation and Food Services	7,797	6.26%
Inadequately described	6,123	4.92%
Wholesale Trade	5,717	4.59%

[12] It is noted that census place of work data is not recorded at the State Suburb level, and as such for the purposes of this element of the baseline, the SA4 area of Sydney – South West has been used, as the statistical area which most closely aligns with the SESA.

Source: ABS Census, 2016

7.3.2 Industry and output

7.3.2.1 Manufacturing and industry

Approximately 11.3% of the jobs within the SESA are in manufacturing. There are a range of industrial precincts across the SESA. This includes large industrial hubs located in the SESA in the suburbs of Silverdale, Erskine Park, Kemps Creek/Horsley Park and Lansvale. There are also some manufacturing and industrial precincts further outside of the SESA that are likely to employ residents within SESA including areas such as Wetherill Park and Moorebank and Penrith.

Retail

A high proportion of employment in retail (10.8% of all jobs) may be attributed to the frequency of shopping areas and shopping centres. In the SESA-western and SESA-central, there are various shopping villages and town centres. The suburb of Penrith also hosts a range of shopping centres and larger retail stores. Moving from west to east, the population becomes denser, with a higher volume of services, shopping precincts and connectivity to other suburbs.

Construction

Construction is a key employer in the SESA (8.8% of all jobs). The high proportion of people employed in construction can be attributed to the high volumes of development within the Western Sydney area. With continuing infrastructure and major development, in particular for the Western Sydney Airport, employment opportunities in construction are likely to continue in the Western Sydney area – this presents an available, local workforce for the project.

Agriculture

The South West of Sydney is important to the agricultural industry in Sydney. While agriculture in the SESA only employs approximately 1,413 people (1.14% of all jobs), the same area contributed to 31% of gross value delivered by Agricultural activity in Urban-Rural Sydney, which represents 4% of total NSW State output. The primary commodities produced are:

- Livestock – primarily poultry (50% of total Gross Value of commodities produced in the region)
- Vegetables – lettuce, mushrooms, tomatoes and miscellaneous market garden vegetables (27%)
- Nurseries and cut flowers (12%)
- Livestock products – primarily chicken eggs (10%).

The agricultural economy within the SESAs is primarily focused within the SESA-western, around Penrith and Wollondilly.

Tourism

Over the last five years, the Western Sydney visitor economy has experienced strong growth. Key elements of the current tourism economy include:

- Approximately 12.4 million visitors to Western Sydney in 2016, 33 per cent of all visitors to the Greater Sydney region (Destination NSW, 2017)

- Key attractors include the Blue Mountains National Park and Warragamba Dam in the SESA-western, Cabramatta town centre in the SESA-eastern, as well as various local events and festivals attract visitors and contribute to the tourism economy in Western Sydney (see Section 7.7.2 for more detail on events)
- With the significant infrastructure developments, especially the new Western Sydney Airport at Badgerys Creek by 2026, many opportunities are expected to be created for the growth of visitor economy in Western Sydney.

In *Western Sydney Visitor Economy Strategy,* the NSW Government and Destination NSW draws out nine strategic directions for the future tourism development in Western Sydney (Destination NSW, 2017). Directions cover infrastructure development, product and experience, destination awareness, major and business events, educational and medical tourism. In particular, Liverpool and Penrith are planned to develop new medical precincts for medical related tourism.

7.3.3 Future industry and employment growth

Significant growth in industry and employment is anticipated across the Wester Sydney.

Table 7-19 provides an overview of the key industries of growth over the next 30 years to 2046. This supports this expected trend with a shift towards more professional, high-tech and commercial industries, and away from more traditional manufacturing and agricultural economies.

Table 7-19 Projected industry of employment to 2046

Industry of employment	2016 employees	2046 employees	Employment growth
Information Media and Telecommunications	774	3,974	3,200 (412%)
Professional, Scientific and Technical Services	4,744	20,012	15,268 (322%)
Financial and Insurance Services	1,739	6,265	4,525 (260%)
Beverage and Tobacco Product Manufacturing	90	320	231 (257%)
Arts and Recreation Services	1,278	4,147	2,869 (224%)
Transport, Postal and Warehousing	10,497	33,114	22,617 (215%)
Rental, Hiring and Real Estate Services	2,202	5,910	3,708 (168%)
Health Care and Social Assistance	19,020	50,648	31,628 (166%)
Public Administration and Safety	9,027	23,612	14,585 (162%)
Accommodation and Food Services	9,163	21,816	12,653 (138%)

Source: Transport for New South Wales, Travel Zone Projections 2019 (TZP19), released September 2020

Agriculture

Agricultural land is undergoing change as urban development in Western Sydney intensifies. A *Metropolis of Three Cities* recognises that with growth in Greater Sydney and expansion of urban development will see a reduction in agriculture over time.

The LUCRA (Appendix A) provides a more detailed summary of the agricultural context surrounding the project.

7.3.4 Commercial operations and businesses

Table 7-20 describes the businesses within each study area, identifying characteristics and commercial operations. There are also a number of businesses within the local influence areas listed in Appendix C. While it is noted that the SESA-central and SESA-western are the subject of significant development aspirations, with a focus on employment and industry, this section explores existing businesses. The WSAGA and SWGA are not assumed to constitute 'existing business' as it is uncertain to what extent development will be underway or in place when the project is operational.

Table 7-20 Commercial operations and businesses within the SESA

Study area	Description
SESA-western	Businesses within the SESA-western are mainly local businesses centred around local facilities such as council chambers and educational facilities, forming small business villages/town centres within suburbs. There are strips of shops in these areas consisting of local shops and offices, including cafes, restaurants, post offices, veterinaries, trade type businesses such as dentists and hairdressers. It is likely that the separate suburbs within the SESA-western travel to surrounding town centres to access various businesses. There are no large shopping centres in the SESA-western, however there is a cluster of industrial/warehouse facilities in the south of Warragamba and the suburb of Silverdale. There are also various accommodation facilities, retreats and reception businesses throughout the SESA-western. It is likely that these businesses may also cater to tourists visiting the Blue Mountains National Park. In particular, the suburb of Wallacia is identified as a destination village, likely to be visited by tourists, with a large hotel, camping and caravan parks. In addition, Wallacia is also known for being a desirable wedding destination, with several churches, reception venues and accommodation nearby to facilitate weddings and other events.
SESA-central	The SESA-central has a prominent home-based business presence, with large agricultural properties and residential homes in town centres providing services from home. These include home based florists, grocers, kennel accommodation and trades. There are also local businesses in small sections along local roads such as Elizabeth Drive, Kemps Creek, including an express IGA supermarket, cafes and a post office. Along Mamre Road and Elizabeth Drive, there are a range of industrial type businesses, quarries, plant equipment hire and maintenance yards, waste and recycling facilities, farms including livestock traders and produce sellers and nurseries. Luddenham is noted as being a destination for residents of Greater Sydney to visit to purchase local produce. Erskine Park Industrial Park is also located in the north eastern section of SESA in Erskine Park. It is accessed by trucks and large freight vehicles for warehousing and storage, closely located to the M4 Motorway and M7 Motorway.

Study area	Description
SESA-eastern	Businesses in the SESA-eastern vary across its extent. Majority of the suburbs in the SESA-eastern have strips of local businesses and shops dispersed throughout. Some areas of clustered businesses are comprised of larger commercial chains such as fast-food outlets and supermarkets. Examples of these areas throughout the study include Cecil Hills Shopping Village Green Valley Shopping Village, Brown Road shops, Bonnyrigg, Rigg Place Plaza, Canley Vale shops. Bonnyrigg Plaza is the only large shopping centre complex in SESA. It hosts retail shops as well as Bonnyrigg Library and Bonnyrigg Youth and Community Centre. Cabramatta has the largest town centre in regard to facilities, shops and services clustered together. Areas located in close proximity to public transport, such as bus stops and train stations, have a broad range of speciality shops, arcades/plazas, supermarkets and businesses in the vicinity. The businesses in eastern part of SESA in Lansvale along the Hume Highway are large manufacturing/industrial type businesses, including car dealerships, wholesalers, mechanical, furniture and material storage premises.

7.4 Social infrastructure

Social infrastructure refers to community facilities and services which a community values for social needs and community wellbeing. Social infrastructure throughout the local influence area includes:

- Primary, secondary and tertiary education facilities, including childcare and day care facilities
- Health and emergency facilities
- Recreational facilities, including sporting venues and open space
- Religious and cultural facilities
- Parks and reserves, including areas of passive recreation
- Community facilities and spaces, including council chambers and halls.

A representative list of social infrastructures across the SESA is included in Section 9.3 of this report[13]. This is also shown on Figure 7-28 to Figure 7-39.

7.4.1 SESA-western

Social infrastructure in the SESA-western is centred around residential areas and community villages. This includes schools such as Mulgoa Public School in Mulgoa, Warragamba Public School in Warragamba and Wallacia Public School in Wallacia, which are both located within community villages, close to other facilities such as local shops, places of worship and childcare facilities. It is likely that the educational facilities and childcare facilities located within the SESA-western are accessed by a range of students, including those that live outside the main community village centre.

[13] Note the list and figure are representative only, based on desktop investigations and the businesses identified during the site visit undertaken for the assessment. Due to the changing and large scale of SESA, some businesses may have changed or may not represented in the list or figure

A key feature of the SESA-western is the Blue Mountains National Park. The Blue Mountains National Park is a world heritage item and an area of both passive and active recreation. Amidst its densely vegetated environment, there are scenic lookouts, campsites and swimming spots along the Nepean River and some of its smaller creeks and waterfalls. These include Nortons Basin and Wallacia Weir. Recreational fishing also occurs in some areas along the confluence of the Warragamba River and Nepean River. The Blue Mountains National Park has a range of walking and cycling trials. Cycling clubs within the SESA-western include the Wollondilly Macarthur Mountain Bike Club and Penrith Cycling Club.

In addition, there are a range of reserves and parks in the SESA-western that are used for camping and recreational activities, including Blaxland Reserve and Fowler Reserve in Wallacia. Majority of the suburbs in the SESA-western have a community club (bowling club, sports club or RSL). Recreational facilities are limited throughout the SESA-western, with the suburb of Warragamba providing a sportsground, football oval and swimming pool. These facilities have not been identified in other parts of the SESA-western.

There are emergency facilities such as Wallacia Rural Fire Brigade, Warragamba Fire Station and Warragamba Police Station. There are medical centres located within community villages in most suburbs, with the closest hospitals to the SESA-western being Nepean Hospital in Kingswood, north of the SESA-western, Campbelltown Hospital in Campbelltown south-east of the SESA-western and Liverpool Hospital in Liverpool to the east of the SESA-western.

Figure 7-11 to Figure 7-16 show some of the facilities located in the SESA-western.

Figure 7-11: Blue Mountains National Park and the Nepean River, photo taken from "The Rock Lookout", Mulgoa

Figure 7-12: Blue Mountains National Park walking trails and wayfinding signage

Figure 7-13: Kipara Reserve, Warragamba

Figure 7-14: Blaxland Crossing Reserve/Caravan Park, Wallacia

Figure 7-15: Club Wallacia (Bowling Club), Wallacia

Figure 7-16: Warragamba Preschool Inc., Warragamba (Source: https://www.warragambapreschool.com.au/)

7.4.2 SESA-central

The SESA-central has limited social infrastructure amongst its dispersed properties. It is likely that residents that live within the SESA-central would travel outside of SESA to access social infrastructure.

Recreational facilities within the SESA-central include:

- Luddenham Horse-riding Lodge in Luddenham
- Luddenham Raceway in Luddenham
- Sydney International Shooting Centre in Kemps Creek
- The Luddenham Showground, in Luddenham, which also hosts the Luddenham Show annually. The Luddenham Show was first established in 1891, originally as a country show. It has since developed, including animal shows and displays, rodeos and rides, market stalls and entertainment

- Twin Creeks Golf and Country Club and Workers Hubertus Country Club. These facilities form part of the Twin Creeks Estate, which is a relatively new development within the Western Sydney area. The Estate also provides facilities such as a swimming pool and tennis courts that would be used by the residents of Twin Creeks Estate.

Sydney University agricultural teaching facilities including, McGarvie Smith Farm and Fleurs Farm are also located within the SESA-central – on the AWRC site. Clusters of social facilities are located in Erskine Park and Kemps Creek, which include schools, aged care facilities and places of worship. This is particularly evident along Bakers Lane in Kemps Creek (accessed from Mamre Road) which provides access to Emmaus Catholic College (high school), Trinity Primary School, Emmaus Retirement Village, Mamre Anglican School and Little Smarties Early Learning Centre. There would be a lot of people accessing Bakers Lane during the school term, with people likely travelling from surrounding residential areas including areas outside of the SESA-central such as St Marys, St Clair and Horsley Park.

Emergency services are located within the SESA-central, including Luddenham Rural Fire Brigade, Orchard Hills Rural Fire Brigade, and Erskine Park Rural Fire Brigade in Luddenham. The closest hospitals to the SESA-central are the Nepean Hospital in Kingswood, north-west of the SESA-central, Mount Druitt Hospital in Mount Druitt to the north of the SESA-central and Liverpool Hospital in Liverpool to the east of the SESA-central.

Parks and reserves are predominately located in the south of the SESA-central, around creek lines such as the South Creek and Kemps Creek. The Western Sydney Parklands form the border between the SESA-central and SESA-eastern. The Western Sydney Parklands cover an area of 5,250 hectares and have over 17 following major facilities including the Sydney International Shooting Centre, Sydney International Equestrian Centre, Sydney International Dragway, nature reserves, Wet'n'Wild, Sydney Zoo, Horsley Park Business Park, Calmsley Hill City Farm, Sydney Zoo and Wylde Mountain Bike Trail (Western Sydney Parklands, 2018).

Figure 7-17 to Figure 7-20 provide an overview of some of the facilities located throughout the SESA-central.

Figure 7-17: Western Sydney Parklands, Cecil Hills

(Source: https://www.westernsydneyparklands.com.au/about-us/parklands-news/western-sydney-parklands-arts-and-cultural-accelerator-2020/)

Figure 7-18: Fire and Rescue NSW Emergency Services Academy, Orchard Hills

(Source: https://www.fire.nsw.gov.au/page.php?id=9286

Figure 7-19: Luddenham Raceway
(Source: https://luddenhamraceway.com/about-us/)

Figure 7-20: The Luddenham Show
(Source: https://luddenhamshow.com.au/gallery/)

7.4.3 SESA-eastern

The SESA-eastern has multiple social infrastructure facilities located in each suburb to service in the higher density population of SESA-eastern. Most of these facilities are dispersed throughout each suburb, with some facilities clustering around main shopping areas and transport networks. Examples of clustered facilities include:

- Facilities in Bonnyrigg which are located near Rigg Place Plaza, including Red Stars Basketball Club, Bonnyrigg High School, the unnamed park near Tarlington Parade
- Facilities in Mount Pritchard near the Humphries Road shopping village and on Cabramatta Road West, including the Indochinese Aged Care Services facility, Mingyue Lay Buddhist Temple, St Vincent De Paul Society, Mount Pritchard Oval, Our Lady of Mount Carmel's Catholic Church, Our lady of Mount Carmel Catholic Primary School and Catholic Care Sydney
- Facilities in Cabramatta which are located around and near the rail corridor, including the Whitlam Library, Sacred Heart Catholic Primary School, PCYC Fairfield-Cabramatta, Core Community Centre and Preschool, Cabravale Memorial Park, the Cabra-Vale Diggers Club, Cabravale Leisure Centre and some religious facilities.

The SESA-eastern also has a more diverse range of facilities. For example, multiple religious facilities, educational precincts and recreational spaces are available throughout the SESA-eastern.

Pocket parks and reserves located throughout the SESA-eastern are mostly scattered throughout residential areas. There are green corridors that surround Green Valley Creek, Orphan School Creek, Prospect Creek and Cabramatta Creek which comprise local parks, reserves and open public space. In some areas, greenspaces, parks and reserves are limited, particularly where there are dense residential blocks. In some areas parks and open spaces are used by a range of groups. For instance, Cabravale Memorial Park is used by people of all ages for activities such as Tai Chi, play group, organised exercise groups, local school groups and other recreational activities. In addition, Cabravale Park is also used by the community for memorial events and services such as the Cabravale Diggers RSL which use the memorial bandstand and park of war memorials. These spaces would be important to people surrounding those areas due to the limited alternative spaces available for use.

Towards the eastern most part of the SESA-eastern there are large reserves including Lennox Reserve, Lansvale Reserve and Mirambeena Regional Park. These are large, biodiverse areas that are used frequently by the community for walking, cycling and other activities. There is also a range of bicycle clubs throughout the SESA-eastern that use the shared user pathways and fire trails within the reserves including the Western Sydney Cycling Network Inc. (based in the Fairfield LGA), Bike South West Inc. (based in the Canterbury-Bankstown LGA), the Liverpool Bicycle User Group Inc, Neo Cycling Club, Bankstown Sports Cycling and Waratah Masters Cycling who use the local bike paths within their LGAs.

Emergency services in the SESA-eastern which include Bonnyrigg Heights Fire Station, Cabramatta Fire, Cabramatta Police Station, and Green Valley Police Station. The closest hospitals to the SESA-eastern include Fairfield Hospital in Prairiewood and Liverpool Hospital in Liverpool. There are multiple medical centres and medical specialist facilities throughout the SESA-eastern in each suburb.

There are no emergency services located within the local influence area

Figure 7-21 to Figure 7-26 provide an overview of some of the facilities located throughout the SESA-eastern.

Figure 7-21: Western Sydney Parklands in Elizabeth Hills

Figure 7-22: Newgate Park, Elizabeth Hills

Figure 7-23: Cabra Vale Memorial Park and bandstand
(Source**:**https://www.warmemorialsregister.nsw.gov.au/content/cabra-vale-park-memorial-bandstand**)**

Figure 7-24: Green Valley Islamic College
(Source: http://www.gvic.nsw.edu.au/gallery-2/)

Figure 7-25: Cabramatta Plaza
(source: https://cabramattaplaza.com.au/directory/)

Figure 7-26: Summitcare Canley Vale
(source: https://www.summitcare.com.au/residential-care/canley-vale/)

7.5 Local infrastructure

The SESA contains a large range of other infrastructure which supports the lives of the community. This includes utilities infrastructure across a range of services. This includes waste management – most notably at the Kemps Creek Resource Recovery Park which neighbours the advanced water recovery centre.

As part of the SIA, consultation was undertaken with Penrith, Liverpool, Fairfield and Canterbury-Bankstown Councils to seek information in relation to local infrastructure and social facilities. The key questions asked were:

- Are there particular areas that are currently under pressure that the AWRC project could potentially negatively impact further? (e.g. waste services, community services)
- Are there localities (ego roads or particular geographic pinch points) or services that you are concerned may be vulnerable to impact?

- Are there any future plans for infrastructure, programs or events that you feel the USC AWRC project could impact during its construction?

Council officers attended the meetings, which included representation from a variety of Council areas including social infrastructure, infrastructure delivery and waste services, asset management, open space and community facilities and environmental planning.

A variety of issues were raised in relation to impacts to parking, impacts to open space (particularly in the Cabramatta area) and construction impacts, which are discussed in sections 9.2.3 and 9.3.3. Concerns were raised with respect to the area's social infrastructure and in particular pressure on Cabravale Park as it represents both event-based locus of activity (such as Anzac Day) as well as providing much needed green space.

Fairfield Council noted several concerns with respect to traffic pinch points, particularly with respect to concurrent construction projects within an area that is densely populated and under enormous pressure. Fairfield highlighted the local streets that experience high levels of traffic and will become blockages areas during construction or 'pinch points' include Bartley Street, John Street, McVale Street, Boundary Street and Park road. Social impacts associated with traffic and transport are considered in Section 9.2.1.3 and 9.3.1.3. No concerns were raised with respect to waste and other local infrastructure.

7.6 Access and connectivity

7.6.1 Transport infrastructure

Detailed descriptions of the local road network and transport within each study area is provided in Table 7-21 to Table 7-23.

Table 7-21 Transport in the SESA-western

SESA-western	Description
Road network	The local road network in the SESA-western is relatively quiet around residential areas of each suburb. There are predominately two-lane roads (one lane for traffic in travelling in each direction) and kerb side parking. Main roads connect each of the suburbs within SESA. These include: Mulgoa Road, Greendale Road, Farnsworth Avenue, Warradale Road, Silverdale Road, and Park Road.
Public transport	There are limited public transport options in the SESA-western. The only form of public transport in the SESA-western is by bus. Transport for NSW provides some local services and Wollondilly Shire Council also offers a community bus for residents and community groups. The Transport for NSW buses that service SESA-western provide access to other transport networks, including Penrith Station. Warragamba and Silverdale (Route 795 - Warragamba to Penrith).
Active transport	Many properties in the SESA-western have large grassed verges between fence lines and the road, without footpaths. Majority of footpaths are located within the town centre and are discontinuous. There are limited cycling facilities located throughout the SESA-western with most cyclist required to cycle on the road.

SESA-western	Description
Freight	Freight vehicles would travel through the SESA-western to access the industrial precincts in Silverdale and the south of Warragamba. It is likely that they would use The Northern Road to connect to the M4 and M7 Motorways.

Table 7-22 Transport in the SESA-central

SESA-central	Description
Road network	The local road network in the SESA-central is relatively quiet along most of the roads that travel through the centre of Luddenham and Orchard Hills. There are various unnamed roads that lead to various large properties. The busiest areas in the SESA-central road network are along the main roads of Mamre Road, Elizabeth Drive and The Northern Road. There are few traffic lights in SESA-central, with most intersections having multilane roundabouts. There are predominately two-lane roads (one lane for traffic in travelling in each direction) with some vehicles parked on the grassed verges outside properties.
Public transport	There are limited public transport options in the SESA-central with the only of public transport being travel by bus. Transport for NSW provides some local services. The Transport for NSW buses that service SESA-central provide access to other transport networks, including Penrith Station.
Active transport	There are very limited areas in SESA-central that have footpaths and cyclist paths, with the main pathed areas being residential areas, including the suburb of Kemps Creek and Orchard Hills. The Western Sydney Parklands provides a range of walking and cycling paths. As stated in the Traffic and Transport Assessment, future active transport infrastructure improvements are proposed as part of the Northern Road Upgrade Project, potential future upgrades of Mamre Road and along the South Creek-Wianamatta corridor.
Freight	There is a high presence of freight vehicles that travel through the SESA-central to access the industrial precinct in Erskine Park and in Kemps Creek. It is likely that they would use Mamre Road, Elizabeth Drive and The Northern Road to connect to the M4 and M7 Motorways.

Table 7-23 Transport in the SESA-eastern

SESA-eastern	Description
Road network	The M7 Motorway is located in the SESA-eastern, providing connection to the M4 Motorway, M5 Motorway and the M2 Motorway. The SESA-eastern has many urbanised areas that are connected by the following main roads: Cowpasture Road, Elizabeth Drive, Liverpool Road, St Johns Road, and Cabramatta Road. Many of these roads have traffic lights and pedestrian crossing facilities. Parking is not permitted in areas along some of these roads, with many of the smaller suburban roads having kerb side parking.

SESA-eastern	Description
Public transport	The following train stations are in SESA-eastern: • Cabramatta Train Station, servicing the T2, T3 and T5 lines • Canley Vale Train Station, servicing the T2 and T5 lines • Crammar Train Station, servicing the T3 line. There are commuter car parks at all stations in the SESA-eastern, with bike racks available at Cabramatta Train Station. Various buses also service the SESA-eastern, including public buses and school buses provided by Transport for NSW. The Liverpool–Parramatta T-way traverses through SESA-eastern in a north south which is a continuous route of bus lanes between Parramatta and Liverpool in Western Sydney. There are also some community buses for the various facilities that are located in throughout SESA-eastern, including club courtesy buses.
Active transport	The SESA-eastern has pockets of greenspace, including parks and reserves that would be used for walking and cycling. There are also shared use paths throughout SESA-eastern, including those alongside Green Valley Creek, Clear Paddock Creek, Hinchinbrook Creek and Cabramatta Creek. The Traffic and Transport Assessment provides details about the main cycling routes which are primarily located within the Fairfield City Council LGA.
Freight	The industrial precincts along the Hume Highway in Lansvale and Cabramatta are accessed by large freight vehicles including car carriers. Vehicles would also travel through SESA-eastern on the M7 and other main roads to access broader Western Sydney and other industrial centres including Liverpool, Parramatta Fairfield and Wetherill Park.

7.6.2 Travel patterns

7.6.2.1 Vehicle ownership

There is high vehicle ownership in the SESA-western and SESA-central. In particular more households in the SESA-western and SESA-central own multiple vehicles when compared to the Greater Sydney average. Refer to Figure 7-27 for a breakdown of number of vehicles per dwelling.

Assessment of the project needs to consider that communities in the western and central areas may have a greater reliance on driving to get around.

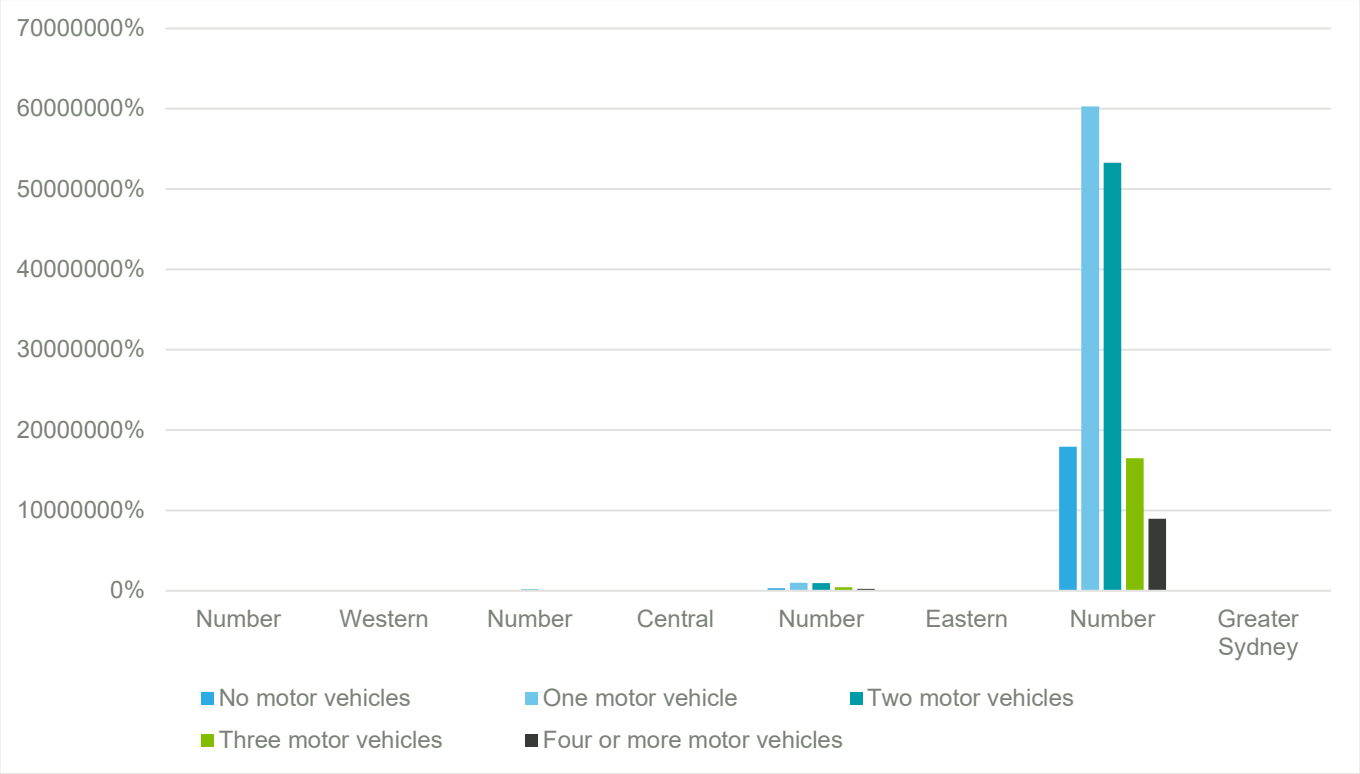


Figure 7-27 Percentage of household that own multiple vehicles in the SESA-western, SESA-central and SESA-eastern and Greater Sydney

Source: ABS Census, 2016

7.6.2.2 Method of travel to work

Table 7-24 outlines the different methods of travelling to work and highlights the reliance on driving in the SESA-western and SESA-central

Table 7-24 Methods for travelling to work in the SESA-western, SESA-central and SESA-eastern

Study area	Western	Central	Eastern	Greater Sydney
One method: - Train - Bus - Ferry - Tram (includes light rail) - Taxi - Car, as driver - Car, as passenger - Truck - Motorbike/scooter - Bicycle - Other - Walked only	82% - 1% - 0% - 0% - 0% - 0% - 71% - 4% - 4% - 0% - 0% - 0% - 1%	82% - 3% - 0% - 0% - 0% - 0% - 68% - 5% - 3% - 0% - 0% - 1% - 1%	85% - 8% - 2% - 0% - 0% - 0% - 63% - 7% - 1% - 0% - 0% - 0% - 2%	80% - 11% - 6% - 0% - 0% - 0% - 53% - 4% - 1% - 1% - 1% - 1% - 4%
Two methods	3%	3%	6%	6%

Study area	Western	Central	Eastern	Greater Sydney
Three methods	0%	0%	1%	1%
Worked at home	7%	6%	2%	4%
Did not go to work	7%	7%	5%	8%

Source: ABS Census, 2016

The majority of people travelled to work using one mode of transport only. For those that relied on two methods or more, the car was typically used for part of those trips.

Some areas of the SESA-eastern is serviced by the rail network and therefore explains the slightly higher share of people that travel to work by train in this area. Only a small portion of the SESA-western and SESA-central are serviced by the rail network. This shows that the reliance on driving is high in the SESA-western, SESA-central and SESA-eastern and that assessment of the project needs to be considerate of impacts to the road network.

7.7 Community values

This section draws upon a range of known sources to provide an overview of the common values held by communities across the project social-economic study area. It should be noted that values are innately personal, and challenging to summarise or quantify – as such some individual values may not be captured.

7.7.1 Social and community cohesion

Social cohesion refers to the positive social relationships in communities. It is difficult to measure community cohesion. One proxy metric often used is a community's level of participation in voluntary work, which can be an indicator of community cohesion as community bonds can be strengthened and it involves giving help and provides opportunities for community engagement.[14] Services provided in the community by groups, clubs, and charitable organisations can also provide support to communities, provide opportunities for community interaction, and create bonds. Social infrastructure in the local influence area is described in Section 7.4.

7.7.1.1 Voluntary work and participation

In the ABS 2016 census, about 10% of the overall study area's local scale population reported doing voluntary work for an organisation or group. This varied between 9% in the SESA-eastern, to 10% in the SESA-western and 13% in the SESA-central. This is lower than the participation rate in Greater Sydney more widely (17%). This suggests a lower than average level of community cohesion and participation within the SESA.

7.7.1.2 Diversity

There is evidence that ethnic diversity can be regarded as having a detrimental impact on social cohesion. A 2014 study on *Ethnic Diversity and its impact on Community Social Cohesion and Neighbourly Exchange* found that social cohesion and social interaction among community residents is

[14] Australian Bureau of Statistics 2015, *Family, Community and Social Cohesion.* Accessed online at https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1383.0.55.001Main+Features252009

reduced in ethnically diverse suburbs in Australia.[15] The SESA-eastern in particular has a very high proportion of the population who speak a language other than English at home (72% of the population), compared to 36% in Greater Sydney (and around 10% in the SESA-western and SESA-central). Similarly, the proportion of people born overseas is also higher in the SESA-eastern, at 60% compared to 43% in Greater Sydney. This reflects a relatively ethnically diverse environment, and as such suggests there may be potential for lower social cohesion.

However, while levels of spoken English may be low, large parts of the SESA-eastern (particularly around Canley Vale and to the north around Fairfield) are home to Australia's largest Assyrian community, and there are other significant language groups such as Vietnamese and Khmer (Cambodian). This is reflected through the number of Assyrian and South East Asian businesses, and the number of international events celebrated in the local community. Common language, culture and history can be a key factor in strong social cohesion (Daley, 2009). As such, intra-community cohesion is likely to be strong across different cultural groups.

With four of the five LGAs (excluding Wollondilly) being Refugee Welcome Zones, cultural diversity is clearly welcomed and anticipated to continue in the area. As both an opportunity and a challenge, this social impact assessment will explore how the project will impact upon existing levels of cohesion and community collective identity.

7.7.2 Overarching community values

Table 7-25 summarises the community values and Strategic Planning aspirations for the LGAs within the SESA, as informed by a review of recent local newspaper articles, local websites and Council Community Strategic Plans (see Section 6.2).

Table 7-25: Local community values

Penrith	• Property and land use, and the impacts of major development proposals, including the WSAGA and SWGA development. Balance between growth and local character. A mixed-use area with jobs and homes in close proximity • Transport and infrastructure, and government improvement and investment • Crime and road safety • Protection and celebration of the natural environment, heritage and culture • Recreation, sports and local events. Penrith Council organises events to celebrate its demographical diversity within the LGA. These include Luddenham Easter Festival in the SESA-central, and Reimagine Ageing Festival, pop up community cafes, workshops, art exhibitions and talks in the broader LGA.
Liverpool	• Property and land use, and the impacts of major development proposals. Generating opportunity with council support for economic growth including employment and investment opportunities • Health and wellbeing of the local community • Crime and road safety • Community cohesion and embracing diversity • Strengthening and protecting environment to create "a great place to live, work and play" • Recreation, sports and local events. Liverpool City Council hosts a variety of major events and festivals throughout the year within the LGA. These include food markets, art exhibitions,

[15] Wickes, R. While, G. Zahnow, R. and Mazerolle, L. (2014) Ethnic Diversity and Its Impact on Community Social Cohesion and Neighborly Exchange, *Journal of Urban Affairs 36(1)*

	workshops and community events. No significant events have been identified within the local influence area.
Fairfield	• Community identity and belonging, a family friendly area that supports the vulnerable in the community • Community cohesion, and celebrating a multicultural and diverse area • Protecting and celebrating green and open spaces, and the natural environment • A place of high amenity, focus on hospitality, restaurants, recreation and food • Recreation, sports and local events. There are many cultural events organised in Fairfield to celebrate multiculturism in the LGA. They include New Year celebrations, Fairfield Easter Show, Volunteer Day, food markets. In particular, Moon Festival in Cabramatta every year attracts more than 90,000 residents and visitors to embrace Vietnamese and Chinese cultures.
Canterbury-Bankstown	• Events, sports and recreation, crime and safety, health and wellbeing, food and drink, environment, traffic and transport, floods and natural hazards • Community cohesion and collective identity, including a diverse community • Health and wellbeing of the community, and active transport • A place of high amenity, focus on restaurants, recreation and food • Protecting and celebrating green and open spaces, and the natural environment • A place with a mix of uses and activities/events – focused on centres • Recreation, sports and local events. Many cultural events are organised in Canterbury-Bankstown LGA to celebrate multiculturism. They include New Year celebrations, Ramadan, food markets, Seniors Festival, Christmas and Australia Day celebration.
Wollondilly	• Events, sports and recreation, transport and road safety, local arts and culture, safety, crime, transport and infrastructure, health and wellbeing, investment and upgrades, agriculture and rural landscapes • Rural living including rural setting and character, viable agriculture, community lifestyle, diverse environment and heritage – especially around Wallacia • Caring for Wollondilly's natural environment, sensitive water catchment lands, extensive public open spaces and opportunities for rural living • Focus on a strong local economy, and balancing development and the protection of the natural environment • Transport and infrastructure, and government improvement and investment • Health and wellbeing of the community, crime and safety • Recreation, sports and local events. Wollondilly Shire Council organises events and festivals to promote community cohesion and local history, they include, Australia Day celebration, light festival, Christmas markets and Thirlmere Festival of Steam.

7.7.2.1 Attitude to growth

As previously noted, Western Sydney is undergoing significant growth and change – from its agricultural and rural roots to a more urban and industrial employment area. This includes a number of major infrastructure projects and wider urban development plans as summarised in Section 7.1.

There has already been a significant amount of change in the area. As such, there is likely to be an existing level of acceptance and familiarity regarding growth and change within the already established community. This may lead to greater acceptance that short-term negative impacts can lead to positive impacts in the longer term, now communities are experiencing the benefits of that growth. On the other hand, there is likely to be some development fatigue within some segments of the communities, which may provide a mixture of those supportive, and those opposed to substantial growth and change. A review of recent media articles from local communities also suggest there are some community members who wish to retain the rural and historical character of the area.

7.7.3 Project-related opportunities, concerns and value

Community values associated with the project specifically have been drawn from stakeholder and community engagement undertaken, as summarised in Section 5, and the EIS. These cover a number of key themes, which highlight potential concerns and opportunities, and indicate certain factors that are valued by the community. These can be summarised as follows:

7.7.3.1 Growth and servicing

Consultation and engagement suggest that some parts of the community strongly value the rural character of the Western Sydney area. Other community members hold great value on growth and investment, and the opportunities for change in their area. Particular opportunities and concerns specific to the project in relation to this value include:

- Mixed perspectives associated with growth and change in Western Sydney (including the scale historic and future change):
  - Some concern and frustration about the rapid pace of planning and development, perception of lack of planning and coordination between agencies and utilities
  - Some concern about cumulative impact of industrial and infrastructure development in Western Sydney, and perceived lack of local consideration
  - Some interest and excitement about plans for Western Sydney, and acceptance of short-term impacts for long-term gains.

7.7.3.2 Agriculture and land use

Consultation and engagement suggest that some parts of the community hold strong value in the agricultural use and productivity of the SESA. Particular opportunities and concerns specific to the project in relation to this value include:

- Concern about impacts of land acquisition/access and easements on activities and land uses within the area
- Request for identifying suitable mitigation measures for neighbours of the centre and pipelines
- Some concerned business owners e.g. in the Wianamatta precinct regarding impacts to their business and surrounding areas such as Western Sydney Parklands
- Queries about the impacts of project construction and operation on neighbouring agricultural businesses and activities, and overall agribusinesses in the area.

7.7.3.3 Social infrastructure and open space

Consultation and engagement suggest that some parts of the community strongly values its open spaces – used for community gathering, active lifestyles and to provide much needed services to the community. Particular opportunities and concerns specific to the project in relation to this value include:

- Concern about impacts on key community facilities and services, particularly parks and public spaces which are used regularly by the community
- Concern about direct impacts to particular community facilities, for example Cabra-vale Memorial Park and impacts to access to and use of this space.

7.7.3.4 Traffic and transport

Consultation and engagement suggest that some parts of the community strongly value ease of access and travel within their area, including short travel time and availability of parking. Particular opportunities and concerns specific to the project in relation to this value include:

- Concern about impacts to local and regional roads during construction and operations and queries about capacity and design of current roads to cope with construction and operational influx
- Concern about temporary impacts of the project on local parking provision, particularly in key centres.

7.7.3.5 Natural environment and biodiversity

Consultation and engagement suggest that some parts of the community strongly value the biodiversity and environmental significance of land within the area. This in particular covers the local rivers and creeks, as well as the World Heritage Area, nature reserve and protected parklands. Particular opportunities and concerns specific to the project in relation to this value include:

- Concern that any discharges into natural watercourses should be of the highest quality and have no adverse impact on river and creek quality
- Concerns about mature tree loss, and impacts to threatened species, ecological communities and migratory species
- Concern about impacts to the World Heritage Area, and broader heritage and managing direct and visual impacts
- Concerns around the water treatment process and impacts on water quality – particularly regarding existing waterways
- Concern about cumulative impacts of releases on already flood prone areas, especially Wallacia and South Creek.

7.7.3.6 Sustainability

Consultation and engagement suggest that some parts of the community strongly value sustainability and climate change resilience. Particular opportunities and concerns specific to the project in relation to this value include:

- Opportunities for sustainable and resilient water management, and to increase Western Sydney's resilience

- Opportunities for uses of recycled water, including for irrigation, household use and non-drinking uses, to help create healthy waterways, and for cooling and greening the landscape.

7.7.4 Aboriginal heritage values

As summarised in Section 5.2, consultation with Aboriginal communities has been undertaken to support the project. Some of the broader Aboriginal cultural heritage values expressed by stakeholders include:

- Strong association with the land
- Responsibility to look after the land, including the heritage sites, plants and animals, rivers, creeks and the land itself
- Aboriginal culturally modified trees
- Artefact sites and landscape features
- Waterways, particularly the Nepean River, Georges River, Wianamatta / South Creek and tributaries
- Indigenous plants and animals
- General concern for burials, as their locations are not always known, and they can be found anywhere.

The Aboriginal Cultural Heritage Assessment Report provides further detail on Aboriginal engagement and the outcomes.

7.8 'No project' future conditions

The socio-economic and land use existing environment provided in Sections 7.1 to 7.7 describes the existing context for the local influence area and its surrounds (the SESA). These represent the baseline, and the likely conditions that would continue in absence of the project.

As noted in Section 7.2.1, projections show that the population Western Sydney is anticipated to experience significant growth and change, of 74% in 2041. This is reflective of the planned growth stimulated by construction of the new Western Sydney Airport, WSAGA and SWGA (as outlined in Section 6). Employment growth is also expected, associated with these developments and with the Western Sydney Employment Area's focus on industry and employment in the area, immediately to the north of the project.

In addition, the land use and character within the SESA is anticipated to change significantly as a result of this future planned development. Particularly, the SESA-western will see a change from the currently rural and agricultural character, towards an urban, mixed use and residential land use, accompanied by industrial and employment activities associated with a new international airport.

Local communities are expected to experience potential positive and negative impacts associated with this projected growth, which might include (but not be limited to):

- Disruption to daily routine and increased congestion as a result of increased construction and operational traffic in the area
- Construction impacts to amenity associated with noise, air quality and landscape and visual impacts
- Longer-term visual, and land use impact associated with significant changes to local character and land use

- Significant reduction in land available for agriculture and impacts to local agricultural industry, and regional food production
- Increase in provision of housing, including choice and range of tenure and type to support Sydney's growing population
- Provision of new jobs across a range of industries and improved access to employment, recreation, retail, health and social services.

This growth is anticipated to occur independently of the project, and these impacts will be experienced in the no project future. However, growth relies upon sufficient infrastructure to support development and in a no project scenario, there is anticipated to be a significant gap in infrastructure provision to support this population growth.

Regarding land use and property, in the absence of the project, the proposed area for pipelines and AWRC would likely retain its existing land use in the short term. However, as noted, much of the land falls within the land subject to the Aerotropolis SEPP and will therefore likely experience a change to more urban land uses in the longer term.

It is understood that many of the properties potentially impacted by the project (as summarised in Section 7.1) are also in discussion with developers associated with projects previously mentioned. As such, there is potential for these properties to experience impacts associated with acquisition, access and / or amenity during construction and operation of these other developments, regardless of the project.

Overall, in the absence of the project, it is anticipated that the local influence area and SESA would experience similar social and economic conditions to those set out in the existing environment for this socio-economic and land use impact assessment – however, in the context of significant urban and employment growth, it is expected that there will be significant growth in population, and a change in associated demographic, socio-economic and land use indicators. The project is required to support this change, and gaps in wastewater infrastructure provision, and increased amenity and access impacts could be expected – particularly in the SESA-central and SESA-eastern.

7.9 Considerations for the impact assessment

Based on the existing environment summarised in this section, consideration has been given to the potential impacts that should be considered within the socio-economic and land use impact assessment. This includes:

- The changing nature of the SESA, particularly in the SESA-central
- The broad scale transition of receivers between the SESA-western, SESA-central and SESA-eastern, with varying characteristics based on location and access
- The significantly young population within the whole SESA, and ageing population within the SESA-western
- The ethnic diversity of the local community, particularly in the SESA-eastern, which is home to a significant Assyrian and South East Asian population in particular
- The strong community around agricultural land uses across the SESA, particularly in the SESA-western and SESA-central
- The anticipated growth in knowledge intensive, professional and high-tech industries

- The high reliance on private motor vehicles for travel across the SESA, with more transport opportunities (i.e. active transport and cycling facilities) available in the SESA-eastern
- The distribution of social infrastructure facilities and businesses in the SESA, with the SESA-western and SESA-central having clusters of residential dwellings around town centres. The SESA-eastern is densely populated, with social infrastructure facilities and businesses scattered throughout its extent. Larger precincts are also located throughout the SESA-eastern, around transport corridors such as railway lines and major roads
- The low-density of emergency facilities across the whole study area including hospitals, police stations and fire brigades with most facilities located outside of the SESA
- The community values across the whole SESA with the key themes being agriculture and rural character (SESA-western and SESA-central), mixed views on the scale of growth in the area (all study areas), desire to protect and enhance the natural environment and waterways, and opportunities for re-use of water from the facility.

7.9.1 Sensitive receivers

Based on this summary, the following sensitive receivers have been identified. Some of these groups are likely to experience impacts differently from other community groups, as summarised in Table 7-26.

Table 7-26: Socio-economic sensitive receivers

Sensitive receiver	Detail of sensitivities
Agricultural properties	• Access and land use • Amenity impacts • Business and economic impacts.
Young population	• Health impacts • Amenity impacts • Access to community infrastructure.
SESA-western ageing population	• Health impacts • Amenity impacts • Access to community infrastructure • Community cohesion.
Diverse ethnicity	• Cultural impacts associated with heritage and values • Community cohesion.
Existing residential	• Access and property • Amenity impacts.
Future residential	• Perceived economic impacts • Perceived wellbeing and way of life.
Unemployed	• Economic impacts • Access to community infrastructure • Community cohesion.
Community facilities	• Access and land use • Amenity impacts.

Figure 7-28 to Figure 7-39 provide an overview of the considerations for the impact assessment with a focus on the areas surrounding the local influence area.

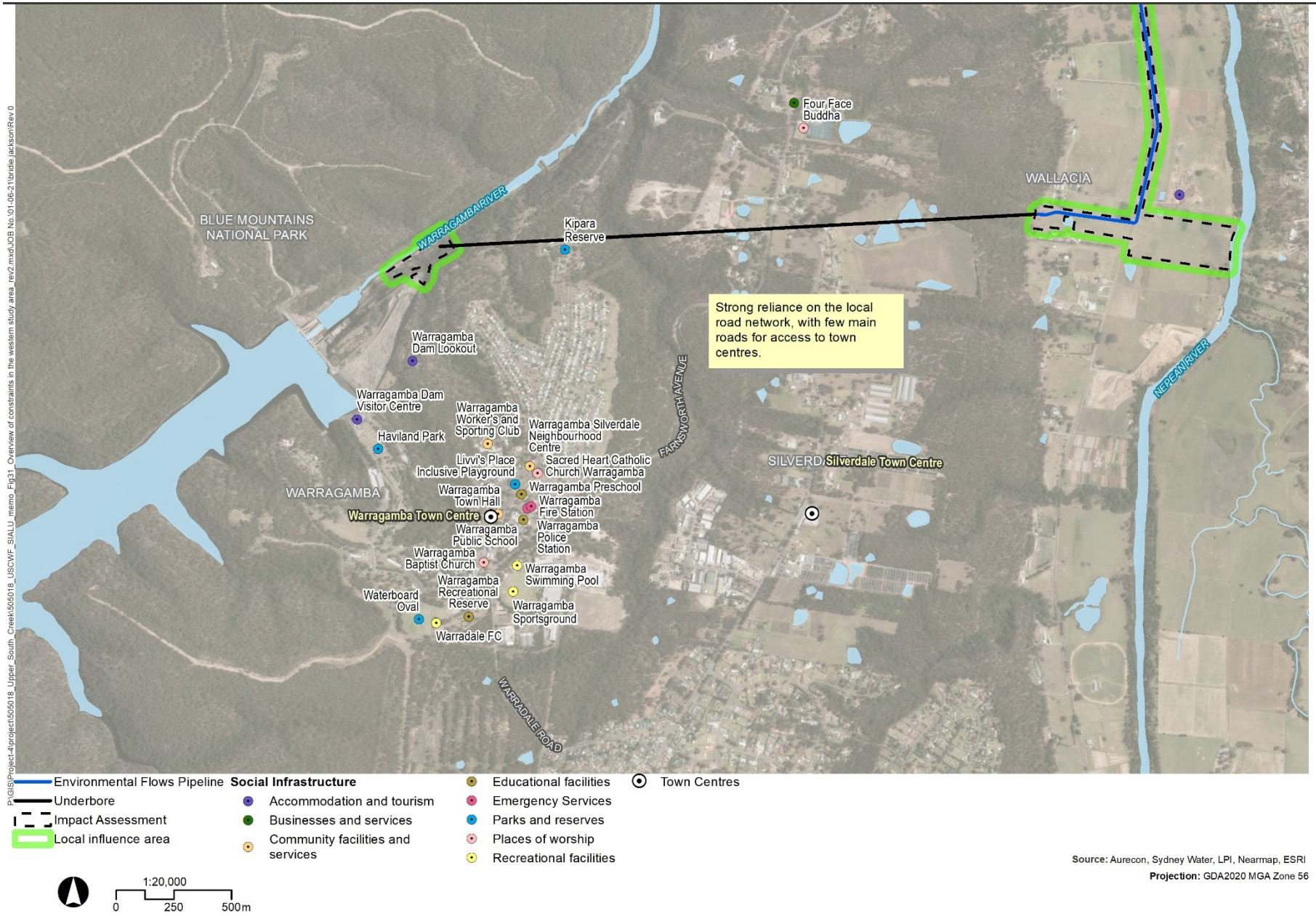


Figure 7-28: Constraints in SESA-western (map 1 of 3)

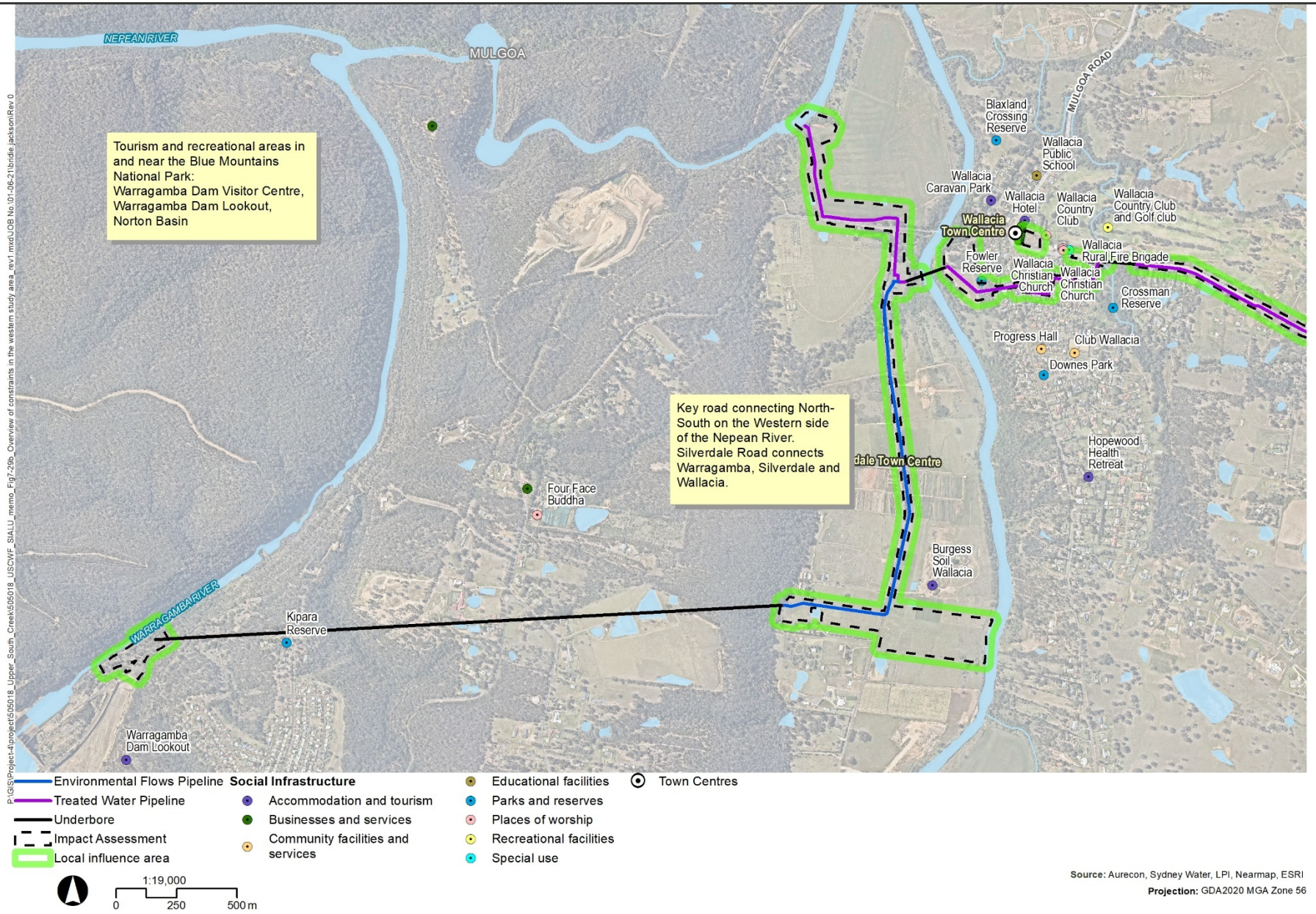


Figure 7-29: Constraints in SESA-western (map 2 of 3)

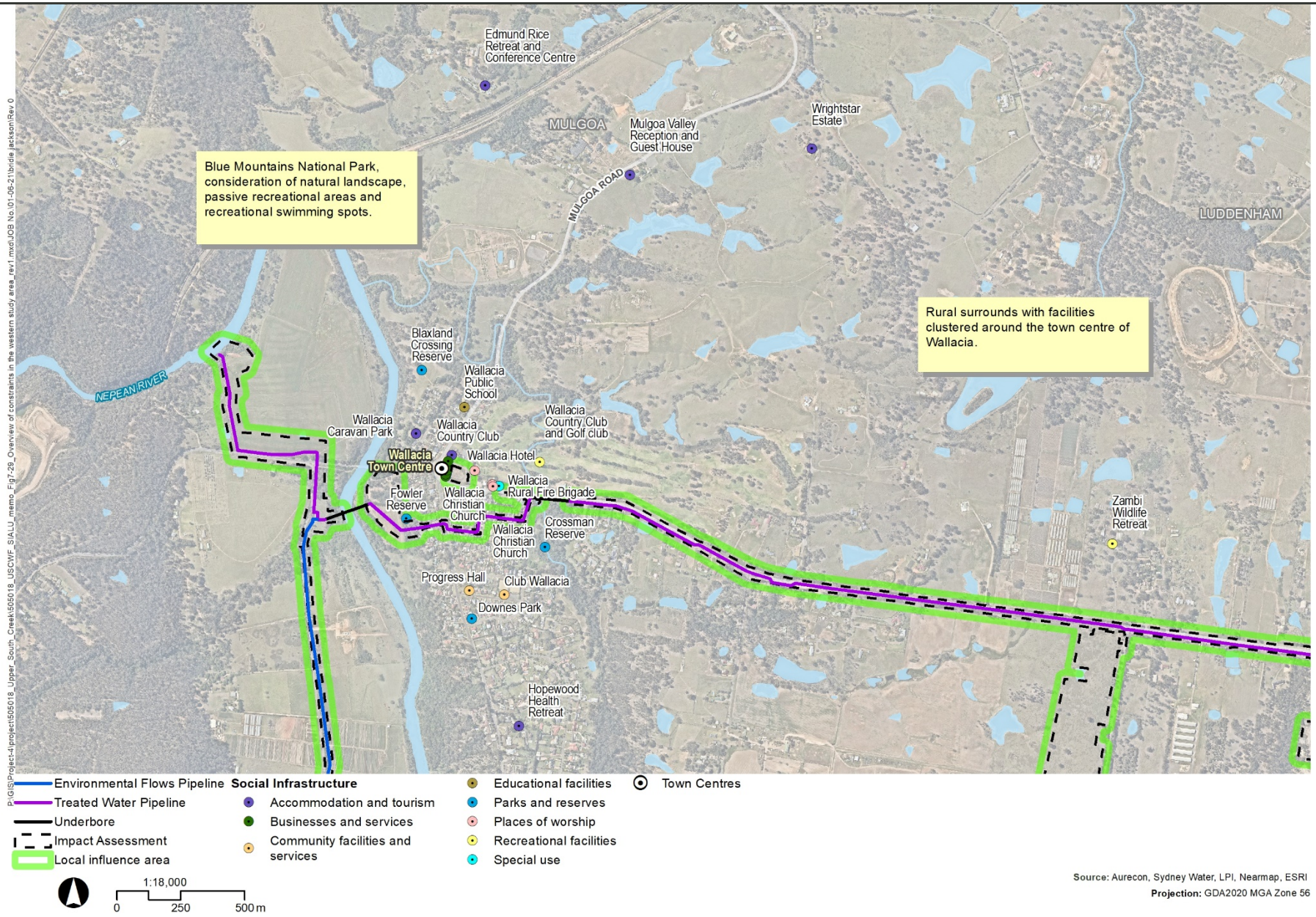


Figure 7-30: Constraints in SESA-western (map 3 of 3)

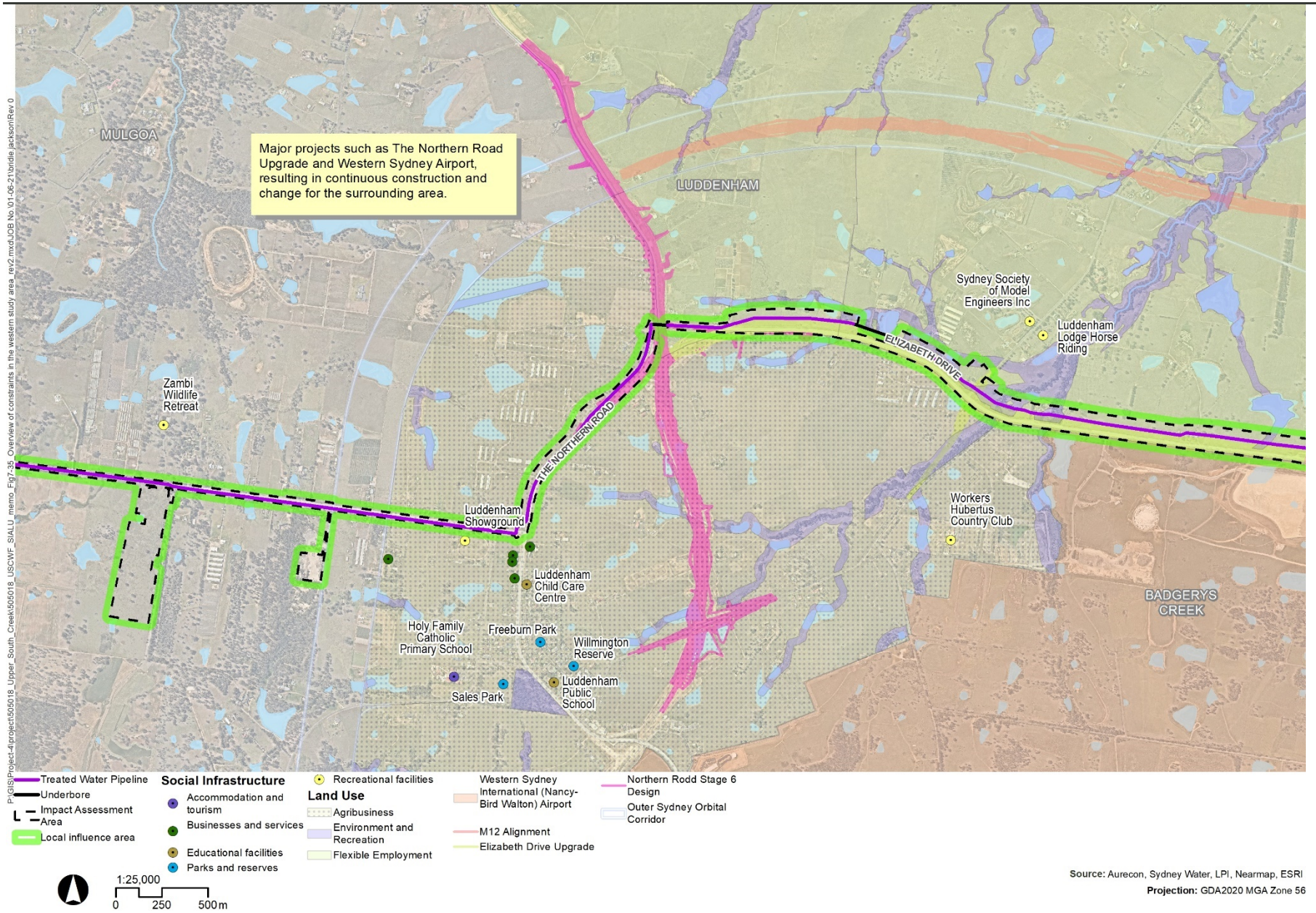


Figure 7-31: Constraints in the SESA-central (map 1 of 5)

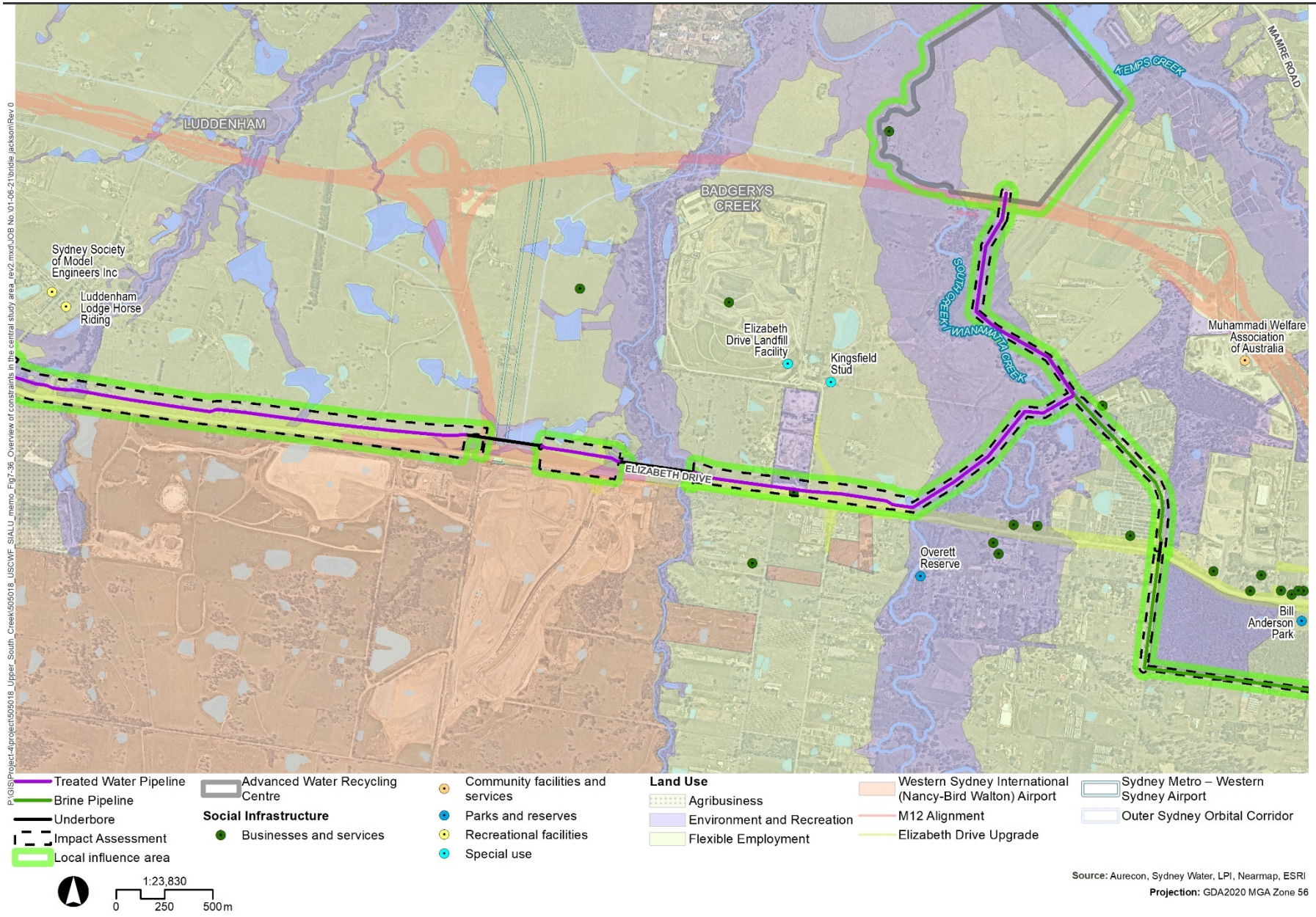


Figure 7-32 Constraints in SESA-central (map 2 of 5)

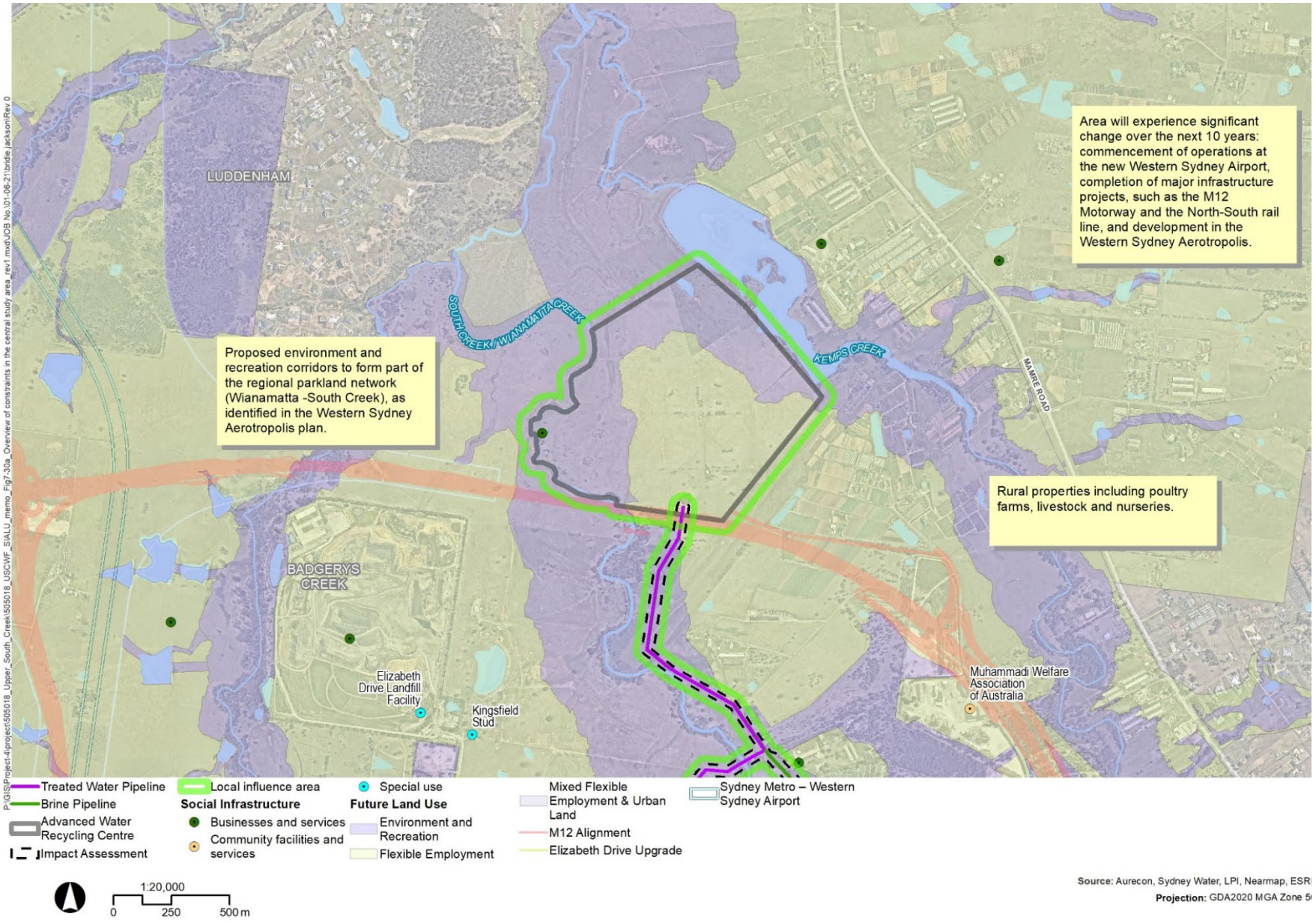


Figure 7-33: Constraints in SESA-central (map 3 of 5)

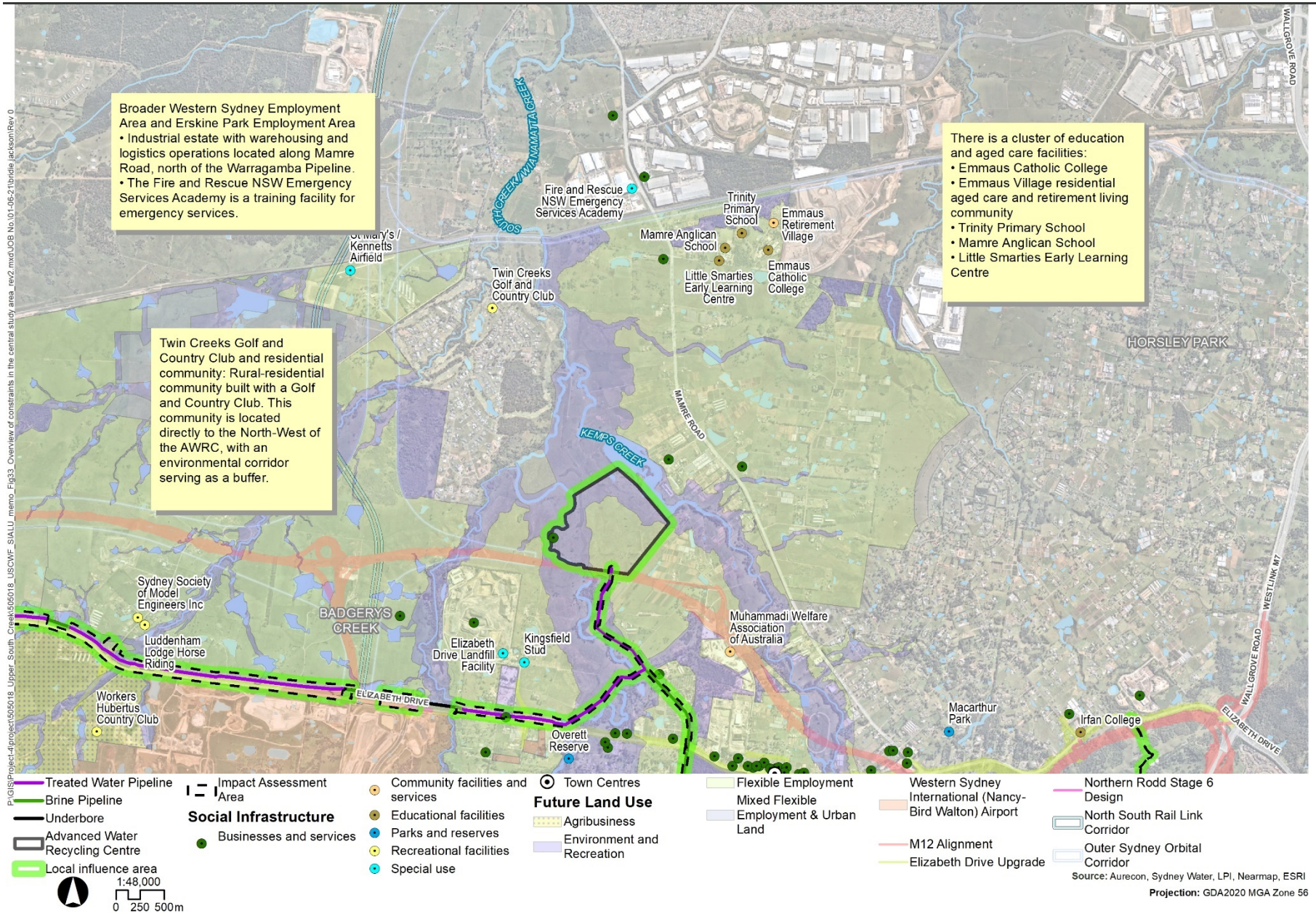


Figure 7-34 Constraints in SESA-central (map 4 of 5)

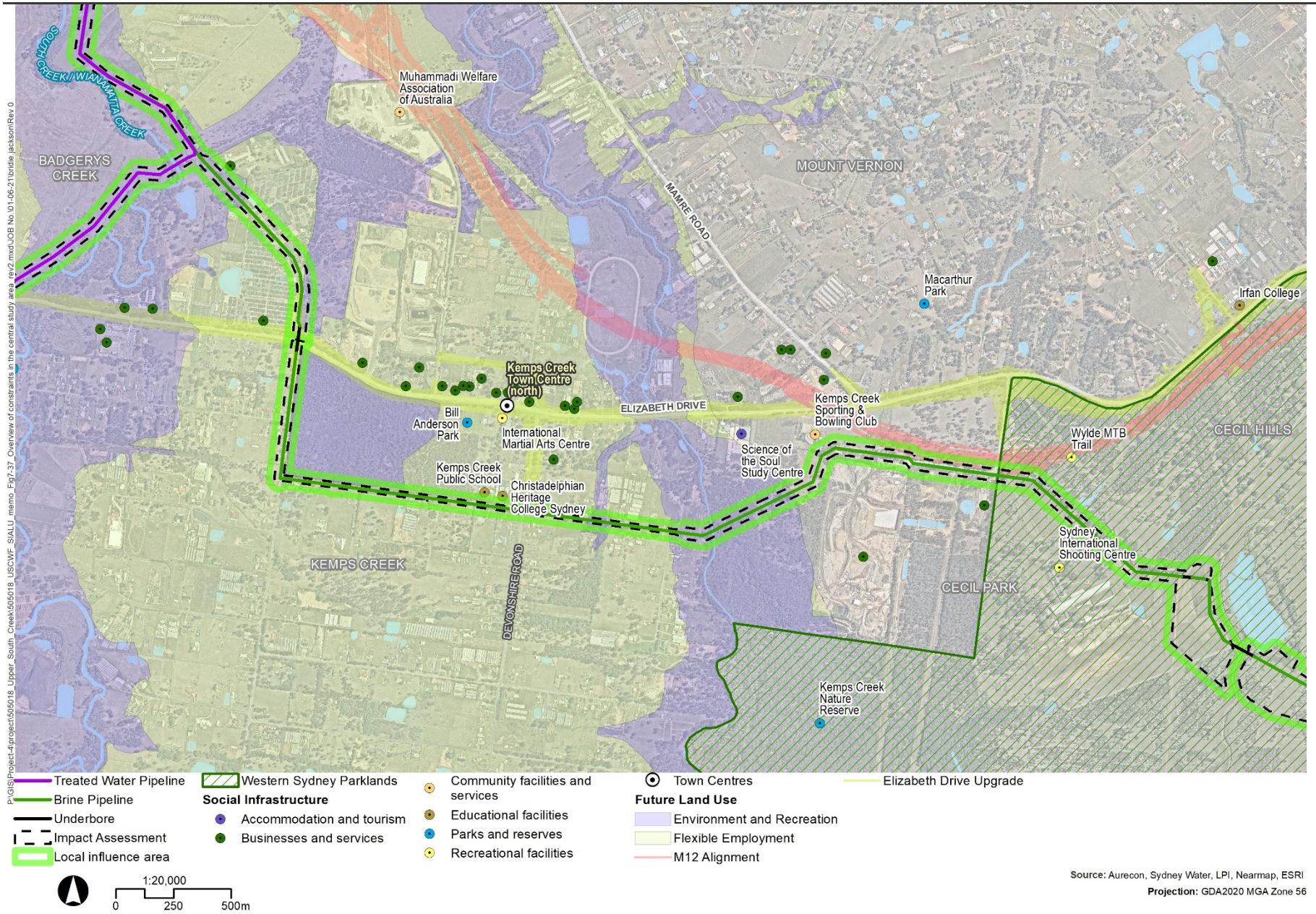


Figure 7-35: Constraints in in SESA-central (map 5 of 5)

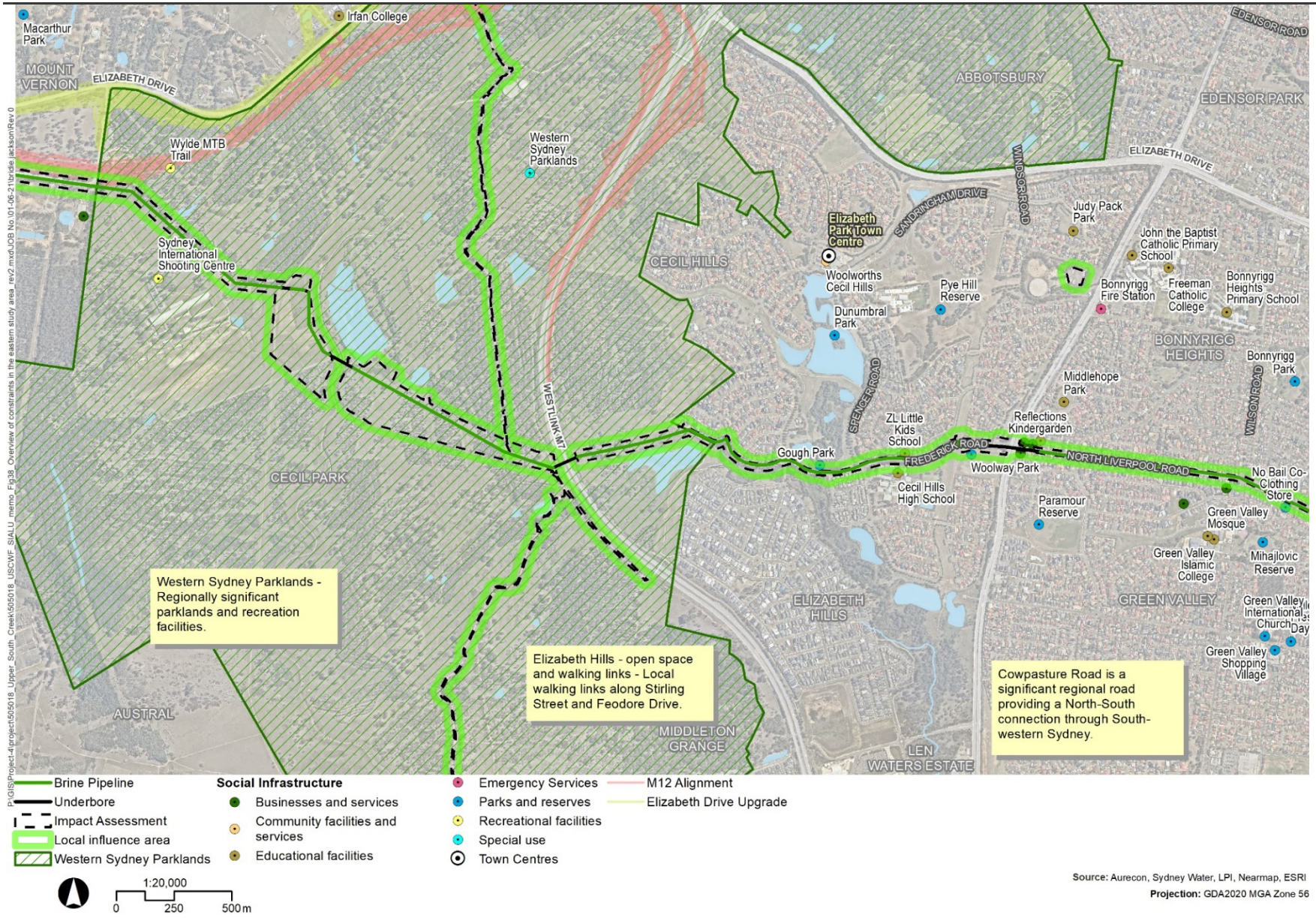


Figure 7-36: Constraints in SESA-eastern (map 1 of 4)

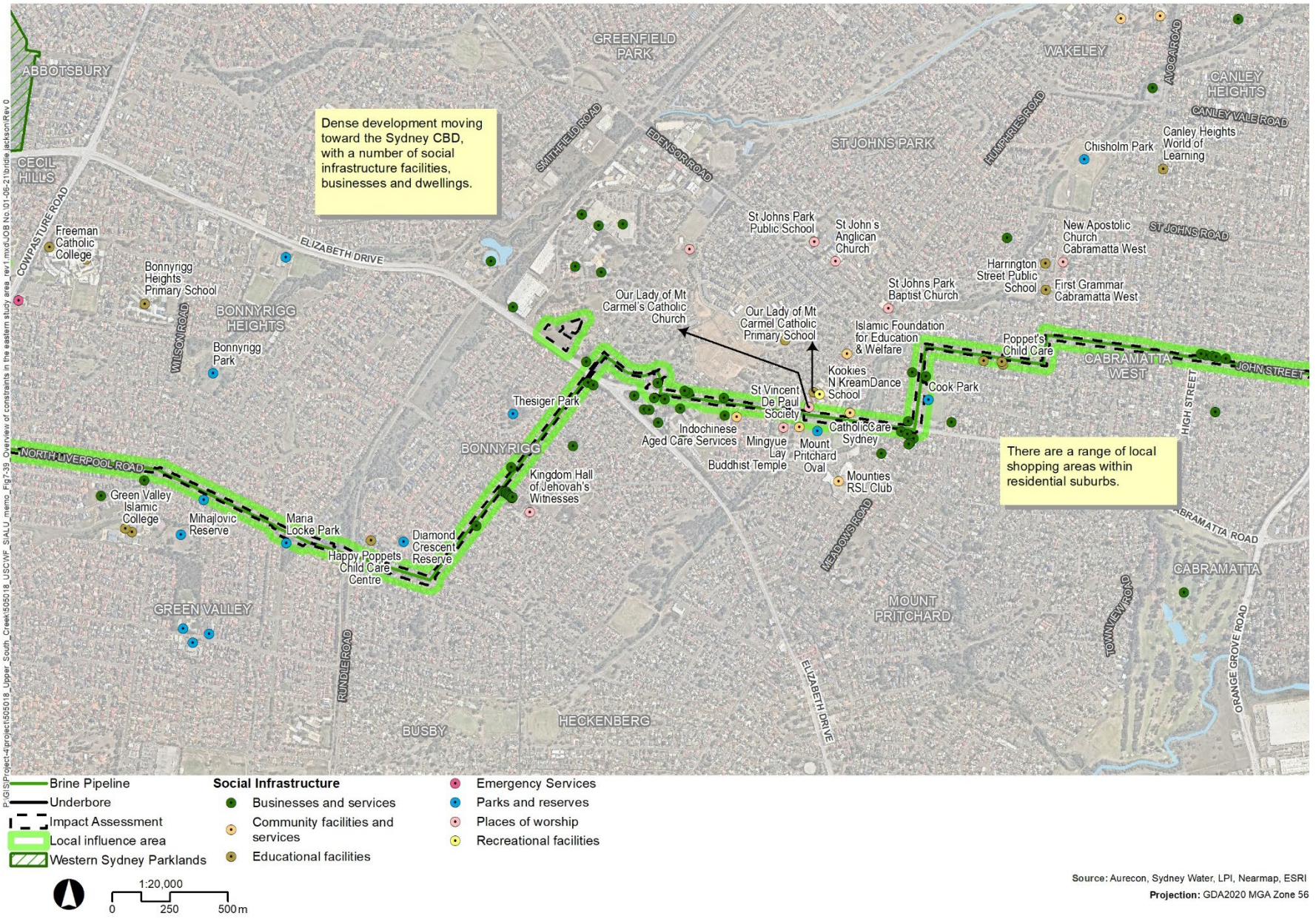


Figure 7-37: Constraints in SESA-central (map 2 of 4)

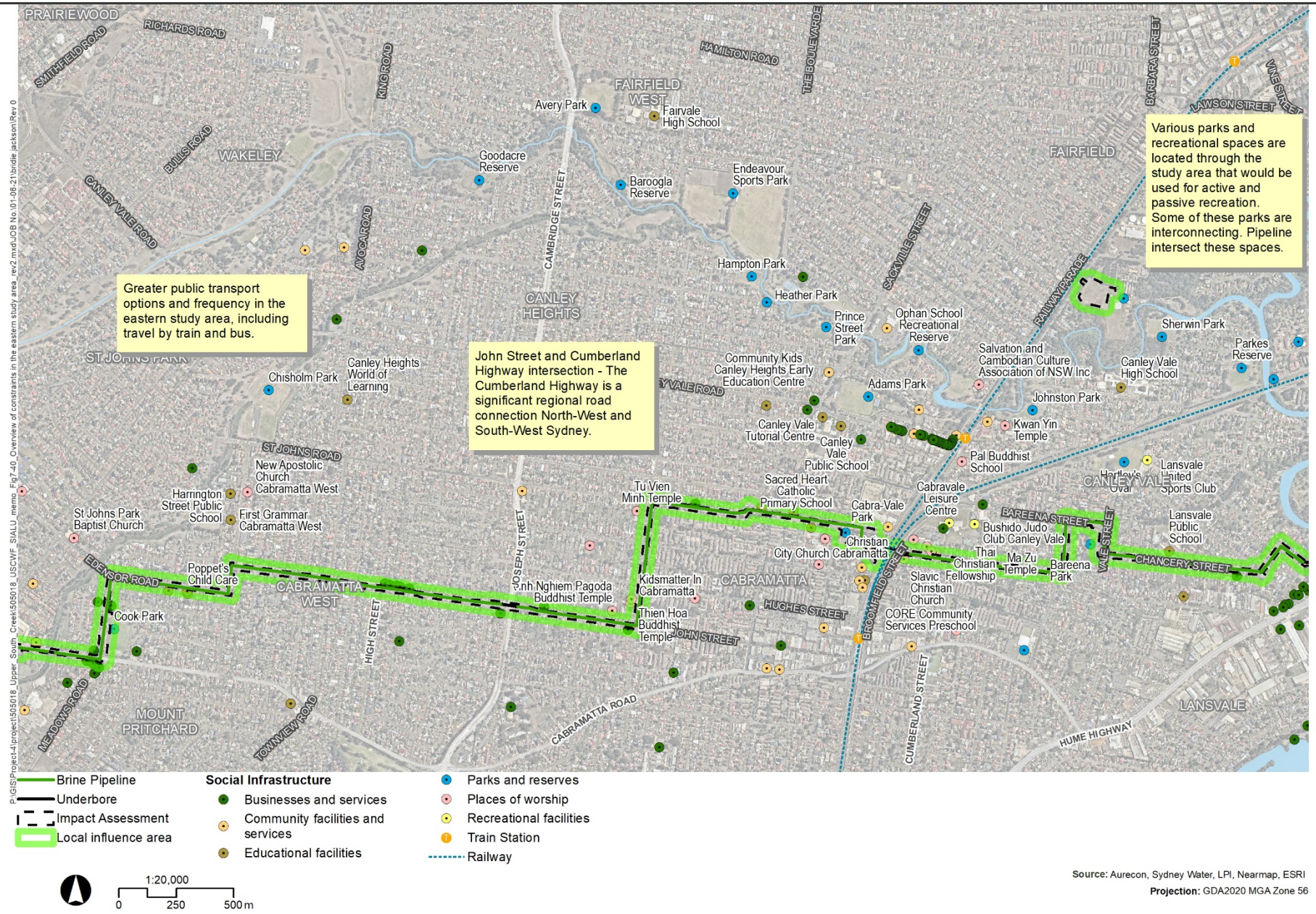


Figure 7-38: Constrains in SESA-central (map 3 of 4)

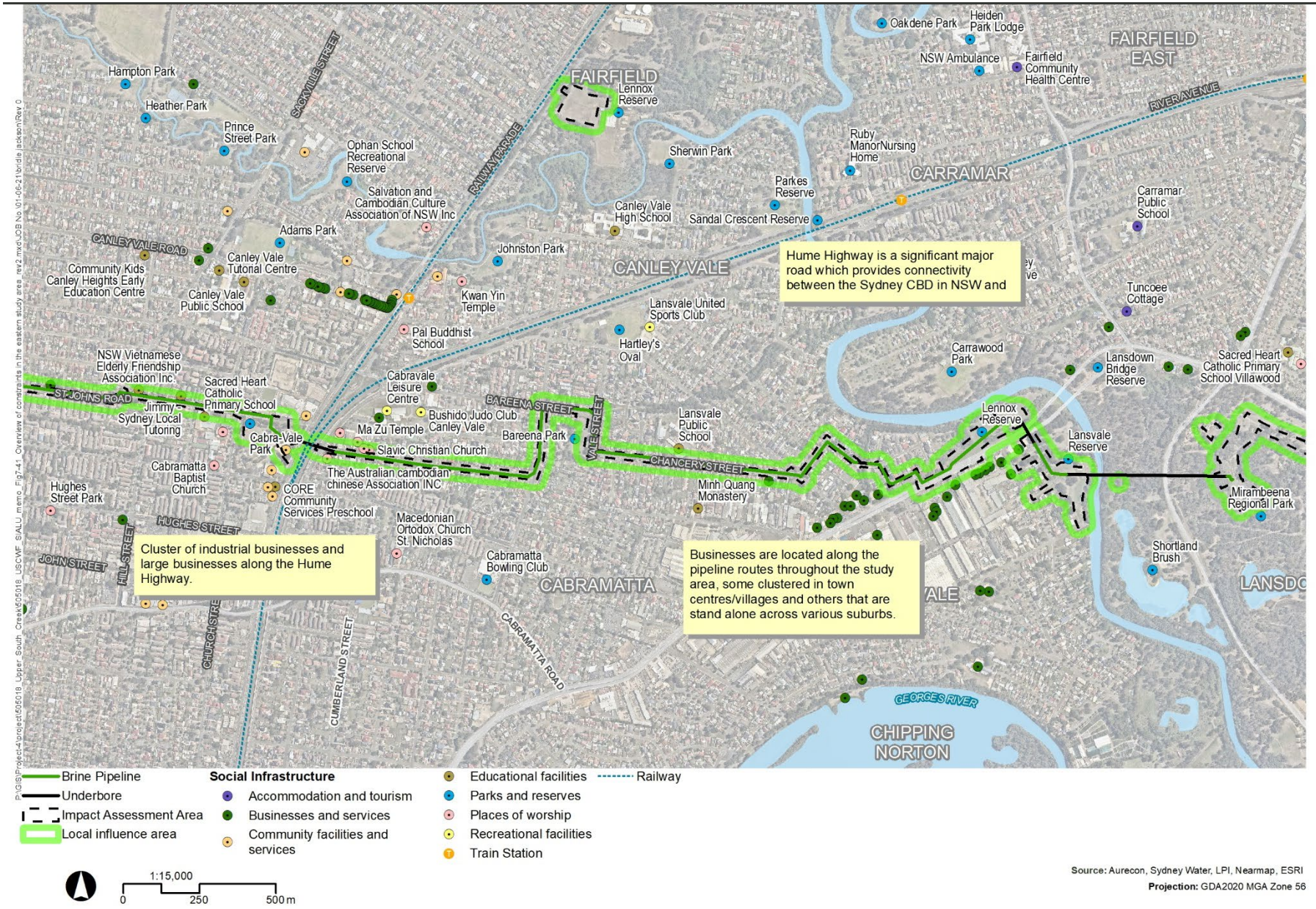


Figure 7-39 Constraints in the SESA-eastern (map 4 of 4)

8 Land use impact assessment

This section outlines the anticipated impacts of the project in relation property and land use, based on the assessment methodology outlined in Section 4. It considers the requirements for property acquisition and direct impacts to property, as well as changes to existing and future land use as a result of the project. This section does not cover the socio-economic impacts associated with property acquisition and land use change, which are covered in Section 9. This section summarises the findings of the LUCRA (Aurecon Arup, 2021a), provided in Appendix A.

8.1 Design impacts

As there will be no physical works or changes as part of the design phase, no land use and property impacts are expected during design. There may be minor impacts associated with geotechnical investigations to inform design, which would be managed through standard mitigation measures, and consultation and engagement with impacted parties.

8.2 Construction impacts

8.2.1 Property

A total of 62 properties will be impacted by the project (within the impact assessment area). Of these properties, two will be subject to permanent land acquisition for the AWRC – with permanent acquisition of a total of approximately 20% of their total lot area.

The remaining property impacts will be through partial, temporary impacts to 60 properties. For the period of construction, property owners will be unable to undertake existing land uses in those directly impact areas – however, these are largely only a small proportion of the large property area, and these properties will be subject to temporary access agreements for the duration of construction required only. Access will be managed through consultation with residents and in accordance with Traffic Management Plan.

Table 8-1 summarises the key property impacts for the construction of the project, by project element and property type. Compound sites have been incorporated into their relevant sections of the impact assessment area. Impacted properties will be restored to their previous use following construction.

Engagement has been undertaken with the potentially impacted properties, including letters, calls and house visits where required. Council engagement sessions also highlighted particular properties in need of notification around impacts. Associated land use impacts are addressed in Section 8.2.2. Socio-economic impacts relating to these property impacts are discussed in Section 9.2.7.

Table 8-1: Property impacts during construction

Property type	Impacts
AWRC	
Agriculture and rural properties	Approximately 78 hectares of land will be permanently impacted by construction of the AWRC. This land is in the process of being permanently acquired from University of Sydney.
Treated water pipeline and environmental flows pipeline	
Agriculture and rural uses	A total of 28 rural and agricultural properties are anticipated to be impacted by temporary access arrangement and construction impacts. This equates to approximately 34.0hectares of land, which is less than approximately 8% of the total lot area. A number of these properties are identified in planning policy as part of the WSAGA development, and therefore may have different uses in the future.
Recreation	One recreational property required for tunnelling is anticipated to be impacted by temporary access arrangement and construction impacts.
Infrastructure	One infrastructure properties is anticipated to be impacted by temporary access arrangement and construction impacts. This equates to approximately 0.7 hectares of land, and approximately 3.2% of the total lot area.
Brine pipeline	
Agriculture and rural properties	Four rural and agricultural properties are anticipated to be impacted by temporary access arrangement and construction impacts. This equates to approximately 6.5 hectares of land, and approximately 4.6% of the total lot area.
Recreation	A total of 14 park, open space and recreational properties are anticipated to be impacted by temporary access arrangement and construction impacts. This equates to approximately 20.2 hectares of land, and approximately 24.9% of the total lot area. Of this, 2.5 hectares of land is within the Western Sydney Parkland (less than 0.25% of the total lot area).
Residential	Three residential properties are anticipated to be impacted by temporary access arrangement and construction impacts. These are not anticipated to impact on any homes or structures. This equates to approximately 12.8 hectares of land, and approximately 6.4% of the total lot area.
Environmental areas	Two predominantly environmental zoned properties are anticipated to be impacted by temporary access arrangement and construction impacts. This equates to approximately 1.4 hectares of land, and approximately 4.9% of the total lot area.
Infrastructure	Four infrastructure properties, some required for tunnelling, are anticipated to be impacted by temporary access arrangement and construction impacts.

8.2.2 Land use

Drawing on existing land use data (reference) and the SEPP and LEP land use zoning, which is considered in the most part to accurately reflect the existing land use context, this section summarises the current land uses impacted by the project during construction, within the impact assessment area. In some cases, this current land use differs significantly from the future proposed land use identified in growth plans for Western Sydney, and as such impacts need to be considered on potential to realise these future ambitions also.

8.2.2.1 Advanced water recycling centre

The AWRC will directly impact on approximately 78 hectares of land currently used for research related activities and cattle grazing by the University of Sydney. This use will cease as a result of the project, with the land use changing to infrastructure and services. Approximately 8 hectares of the land on the site is environmentally protected vegetation and waterway (and is zoned as environment and recreation within the Aerotropolis SEPP). Construction will largely avoid impacting on this area, which will be integrated into the 42-hectare green space area proposed as part of the project.

The land within the site boundary falls within the Aerotropolis SEPP. While the majority of the AWRC site is not identified as a precinct for short-term development, this demonstrates an aspiration for the site to form part of the wider redevelopment of the area. Consultation with Council also identifies that the project site is in an area of focus for dedicated employment land uses. The AWRC site is also adjacent to land zoned for Enterprise within the Aerotropolis SEPP. Construction work on the AWRC site is unlikely to result in land use impacts.

8.2.2.2 Pipelines and associated compound sites

The treated water, environmental flows and brine pipelines and associated compound sites mostly impact on existing road infrastructure uses and land currently used for agricultural and rural purposes (treated water pipeline and environmental flows pipeline) and urban residential uses (brine pipeline). Land use impacts as a result of pipeline construction works would be temporary and minor.

8.2.2.3 Tunnelling

Tunnelling activities would take place on and below the following land uses:

- Agricultural and rural landscape areas
- Existing infrastructure
- Residential uses
- Recreational open space
- Environmental areas and waterways.

Apart from launch and receival pit locations, tunnelling activities are not expected to result in any land use conflicts.

8.2.2.4 Land use impacts to the impact assessment area

Table 8-2, Table 8-3 and Table 8-4 provide a summary of the quantitative land use impacts across SESA, split across the SESA-western, SESA-central and SESA-eastern study.

The impacts reported here are over and above the AWRC impacts summarised.

Table 8-2: SESA-western construction land use impacts

Land use	Impacts
Road infrastructure	Approximately 12.6 hectares of land currently used for road infrastructure will be directly impacted as a result of construction. This largely represents verge, rather than existing road and as such it is anticipated that the roads will continue to be used throughout construction.

Land use	Impacts
Residential and village uses	Approximately 4.4 hectares of land currently used for residential purposes will be directly impacted as a result of construction. This land will no longer be available for residential purposes during construction, but will be returned to existing use following construction.
Agriculture and rural landscapes	Approximately 29.9 hectares of land currently used for agricultural purposes will be directly impacted as a result of construction. This land will no longer be available for agricultural purposes during construction but will be returned to existing use following construction.
Environmental areas and waterways	Approximately 2.7 hectares of land currently used for environmental conservation and waterways will be directly impacted as a result of construction. It is understood that much of this land will be subject to tunnelling activities, and as such land use impacts will be limited. However, where impacted above ground, this land will no longer be available for these purposes during construction but will be returned to existing use following construction.
Open space	Approximately 3.1 hectares of land currently used for open space and recreation purposes will be directly impacted as a result of construction. This land will no longer be available for these purposes during construction but will be returned to existing use following construction.

The majority of the SESA-western falls within the Aerotropolis SEPP, as land use zone AGB Agribusiness, which aims to encourage diversity in agribusiness, encourage sustainable and high technology agribusiness, and enable sustainable agritourism. The westernmost part of the treated water pipeline is located on land covered by the Wollondilly Shire Council LEP zoned as RU2 Rural Landscape and RU1 Primary Production, which aims to encourage sustainable primary production and maintain and enhance the natural resource base. Construction in the SESA-western will be temporary and only for the period of construction therefore aspirations for the area are not expected to be significantly compromised.

Table 8-3 SESA-central construction land use impacts

Land use	Impacts
Road infrastructure	Approximately 33.9 hectares of land currently used for road infrastructure will be directly impacted as a result of construction. This largely represents verge, rather than existing road and as such it is anticipated that the roads will continue to be used throughout construction.
Residential & services uses	Approximately 2.1 hectares of land currently used for residential purposes will be directly impacted as a result of construction. This land will no longer be available for residential purposes during construction but will be returned to existing use following construction.
Agriculture and rural landscapes	Approximately 10.8 hectares of land currently used for agricultural or rural purposes will be directly impacted as a result of construction. This land will no longer be available for these purposes during construction but will be returned to existing use following construction.

Land use	Impacts
Environmental areas and waterways	Approximately 4.5 hectares of land currently used for environmental areas and waterways will be directly impacted as a result of construction. It is understood that much of this land will be subject to tunnelling activities, and as such land use impacts will be limited. However, where impacted above ground, this land will no longer be available for these purposes during construction but will be returned to existing use following construction.
Open space	Approximately 12.6 hectares of land currently used for open space purposes will be directly impacted as a result of construction. This land will no longer be available for these purposes during construction but will be returned to existing use following construction. This includes approximately 0.5 hectares of land within the Western Sydney Parklands
AWRC site	Approximately 78 hectares of land currently used for research related activities and cattle grazing by the University of Sydney. This use will cease as a result of the project, with the land use changing to infrastructure and services.

A substantial portion of the SESA-central falls within the Aerotropolis SEPP, as land use zone Agribusiness or Enterprise. The remainder of SESA's zoning largely reflects existing land use. Construction in the SESA-central will be temporary and only for the period of construction therefore aspirations for the area are not expected to be significantly compromised.

Table 8-4 SESA-eastern construction land use impacts

Land use	Impacts
Road infrastructure	Approximately 14.8 hectares of land currently used for road infrastructure will be directly impacted as a result of construction. This largely represents verge, rather than existing road and as such it is anticipated that the roads will continue to be used throughout construction.
Residential and services uses	Approximately 15.4 hectares of land currently used for residential purposes will be directly impacted as a result of construction. This land will no longer be available for residential purposes during construction, but will be returned to existing use following construction.
Agriculture and rural landscapes	Approximately 0.5 hectares of land currently used for agricultural or rural purposes will be directly impacted as a result of construction. This land will no longer be available for these purposes during construction, but will be returned to existing use following construction.
Environmental areas and waterways	Approximately 2.8 hectares of land currently used for environmental conservation and waterways will be directly impacted as a result of construction. It is understood that much of this land will be subject to tunnelling activities, and as such land use impacts will be limited. However, where impacted above ground, this land will no longer be available for these purposes during construction, but will be returned to existing use following construction.
Open space	Approximately 14.1 hectares of land currently used for open space purposes will be directly impacted as a result of construction. This land will no longer be available for these purposes during construction, but will be returned to existing use following construction. This includes approximately 0.5 hectares of land within the Western Sydney Parklands

The SESA-eastern cover land predominantly zoned under the Penrith City Council, Liverpool City Council and Canterbury-Bankston Council LEPs as R2 Low Density Residential (10km), alongside smaller areas of R1 General Residential (0.4km), and R4 High Density Residential (0.5km). The aspirations for these areas are to provide residential development and supporting uses, of varying densities. Construction in the SESA-western will be temporary and only for the period of construction therefore aspirations for the area are not expected to be significantly compromised.

8.2.3 Neighbouring land use conflicts

The LUCRA summarises the potential for land use conflicts with neighbouring properties as a result of the project. This demonstrates that during construction:

- There is potential for some temporary impacts to neighbouring transport and access, with localised congestion particularly for those properties sharing access with the project. In particular, rural residential properties on the access road to the AWRC, and the SUEZ Resource Recovery Centre may result in some conflicts with construction vehicles. Impacts are also anticipated along the pipeline routes, to local businesses with regard to access – although these would be temporary for approximately 6 weeks at a time
- No significant amenity impacts are anticipated, however, there may be some minor noise and air quality (dust) impacts to neighbouring properties and agricultural operations associated with construction activities.
- It will support the future land uses for the region as proposed in the SWGA and WSAGA by mid-2025. This may act as a catalyst for further investment in the area
- The land use impacts and requirements for property access and construction on some productive land, has the potential to impact on the agricultural industry and economy. The project covers a small area of Biophysical Strategic Agricultural Land (BSAL) and intersects with a number of agricultural properties. Impacts are predominantly on the edge of agricultural lands, and do not fragment land to an extent that significant impacts are anticipated.

Further detail can be found in Appendix A, LUCRA.

8.3 Operational impacts

8.3.1 Property

During operation a total of 71 permanent easements will be required to enable access to Sydney Water to maintain the pipelines. Table 8-5 summarises the properties that will be subject to permanent easements for the operation of the project.

Table 8-5: Property impacts during operation

Property type	Impacts
AWRC	
Agriculture and rural properties	N/A – no further impacts anticipated

Property type	Impacts
Treated water pipeline and environmental flows pipeline	
Agriculture and rural uses	A total of 30 rural and agricultural properties are anticipated to be impacted by permanent easements. This equates to approximately 8.55 hectares of land, which is less than approximately 0.001% of the total lot area. A number of these properties are identified in planning policy as part of the WSAGA development, and therefore may have different uses in the future, including: • 17 properties zoned for enterprise use, totally an area of 4.23 hectares • Two properties zoned for agribusiness use
Recreation	One recreational property at Shelley Road required for tunnelling is anticipated to be impacted by permanent easements.
Infrastructure	Two infrastructure properties are anticipated to be impacted by permanent easements. This equates to approximately 0.040 hectares of land, and approximately 0.13% of the total lot area.
Brine pipeline	
Agriculture and rural properties	Three rural and agricultural properties are anticipated to be impacted by permanent easements. This equates to approximately 0.91 hectares of land, and approximately 2.8% of the total lot area.
Recreation	A total of 28 park, open space and recreational properties are anticipated to be impacted by permanent easements. This equates to approximately 7.2 hectares of land, and approximately 19.8% of the total lot area. Of this, 2.5 hectares of land for easement is within the Western Sydney Parkland (less than 0.25% of the total lot area).
Residential	One residential property is anticipated to be impacted by permanent easements. This equates to approximately 0.13 hectares of land, and approximately 5.2% of the total lot area.
Environmental areas	Two predominantly environmental zoned properties are anticipated to be impacted by permanent easements. This equates to approximately 0.66 hectares of land, and approximately 2.1% of the total lot area.
Infrastructure	One infrastructure property, required for tunnelling, is anticipated to be impacted by permanent easements.

8.3.2 Existing land use

8.3.2.1 Advanced water recycling centre

No further impacts to land use for the AWRC are anticipated during operation beyond those reported during construction in Section 8.2.1. The AWRC will be used for water recycling activities as per the project description.

8.3.2.2 Pipelines and compound sites

The pipelines will be located below ground. As such, on operation, the land will no longer be required for the project, and land would be returned to the previous land use, with no long-term land use impacts expected. Land used for compound sites will be returned to the previous land use with no long-term land use impacts expected.

8.3.3 Future land use

There would be no additional direct impacts upon land use or property associated with future development, beyond those identified during the construction phase.

No further impacts to land use zoning are anticipated during operation beyond those reported during construction in Section 8.2.2. Direct impacts from the construction phase would be removed, as land used for pipelines and compound sites will be returned for possible future development post-construction.

Indirectly, the project will enable wastewater services to support the policy aspirations for growth and change of land use in Western Sydney (including the WSAGA and SWGA). Noting this alignment with strategic policy and land use aspirations (as outlined in Section 6) a strong positive impact is anticipated.

8.3.4 Neighbouring land use conflicts

The LUCRA summarises the potential for land use conflicts with neighbouring properties as a result of the project. This demonstrates that:

- The project is not expected to impact the local road network during operation.
- Some exceedances of noise criteria associated with the AWRC may be experienced during the night-time period – particularly affecting neighbouring residents in Badgerys Creek and Kemps Creek – although these are not expected to impact on the continued land use of these area.
- Drawing on the Wildlife Hazard Assessment for aviation and bird strike risk (Avisure, 2020), an assessment of the potential wildlife hazards and risks associated with the AWRC has been undertaken. This suggests a risk of birdlife and other animal attraction given the availability of open water as part of the green space area of the project. Stakeholder engagement with both agricultural landowners and DPI Agriculture has suggested that there is potential for a biosecurity risk associated with this. This risk comes in the context of existing poultry farms in close proximity to the site, and the risk that visiting birds to the AWRC will bring pests and disease which will affect farming activities.
- There is potential for concern among neighbouring properties, particularly agricultural properties with regard to the change from an established rural landscape and lifestyle, to more infrastructure focused urban development (particularly around the facility itself). This is however unlikely to result in conflicts or risks that impact on neighbouring land uses.

Further detail can be found in Appendix A, LUCRA, including proposed mitigation.

8.4 Cumulative impacts

Potential cumulative land use and property impacts from the project include:

- It is understood that alongside property acquisition, access arrangements and easements for the project, a number of the properties are also part of acquisition strategies for other future development. There is, therefore, a potential for a cumulative impact which results in greater land take from the impacted properties that just for this project. The project has engaged directly with impacted landowners, and where possible sought to understand inter-relationships with other projects. Through this, Sydney Water has been able to optimise the route and minimise acquisition and reduce any potential land take and easements. This impact is expected to affect a small number of properties – particularly agricultural and rural properties in the SESA-central and SESA-western. For the purposes of this project, impacts will be largely temporary, but with other projects possibly requiring longer term acquisition, there is potential for overall impacts to be substantial
- In addition, as summarised in Section 8.3.3 while the project alone will not result in significant long-term land use impacts, it will provide essential infrastructure to both support the local community, and future planned development and growth within the area. It is understood that the current approach to wastewater servicing cannot continue beyond 2025 without substantial upgrade. The project will therefore support the delivery of new homes and jobs to meet strategic growth aspirations for the region and facilitate the transformation of Western Sydney into a key hub of business, industry and residential activities for the Sydney. Further detail on these benefits is provided in Section 9.3.1.

9 Socio-economic impact assessment

9.1 Design impacts

Limited socio-economic impacts are anticipated resulting from the design of the project. Table 9-1 summarises the potential impacts.

Table 9-1: Socio-economic design impacts

Category	Potential impact
Way of life	No anticipated impacts during design
Community	Potential for impacts to community cohesion resulting from differing views on the project within local communities. While much of the community is understood to be supportive of, and resilient to change and growth in the area, Sydney Water is aware of some community voices with opposition to the project (similar to impacts described during construction (see Section 9.2.2).
Access to and use of infrastructure, services and facilities	No anticipated impacts during design.
Health and wellbeing	Potential for increased anxiety and stress during design associated with the anticipation and concern around potential future impacts that could occur during construction or operation.
Surroundings	No anticipated impacts during design.
Culture	Potential for Aboriginal voices to not be adequately integrated into design and project development – to be managed through ongoing engagement with local Aboriginal community. The Cultural Heritage Assessment Report for the EIS provides further detail.
Personal and property rights	Potential for anxiety associated with uncertainty and anticipated impacts regarding property acquisitions or access impacts (similar to impacts described during construction (see Section 9.2.7)).
Decision-making systems	No anticipated impacts during design. Through the proposed engagement approach (summarised in the EIS), Sydney water seeks to achieve a two-way discussion and develop a long-term relationship with the local community. Sydney Water has worked to engage with the community and inform them of the impacts of the project, encourage input to the preparation of the EIS and to support the making of submissions regarding the EIS.
Fears and aspirations	The design has been developed and should continue to be developed in consultation with the community and stakeholders, to understand values and how the project may beneficially and/or adversely impact particular groups.
Cumulative impacts	Potential for mixed positive and negative impacts associated with multiple developments, including negative impacts of consultation fatigue and increased stress and anxiety about change, and positive impacts of increased resilience to change and acceptance of benefits of ongoing change in the community as summarised in Section 5.

9.2 Construction impacts

This section summarises the socio-economic impacts anticipated through construction of the project. It is structured to align with the DPIE Social Impact Assessment Guideline. Many socio-economic impacts fall within multiple different themes. To avoid double-counting of impacts and benefits, impacts have been covered within one of the identified themes, and cross-references added where relevant.

9.2.1 Way of life

This section considers the potential impacts of the project's construction on communities' way of life, including how they live, work, move and interact with one another. This section covers access to housing and employment, as well as broader business and commercial impacts, and transport and movement.

Broader aspects impacting liveability and way of life include access to services and opportunities, amenity of surrounding, health and wellbeing and other factors. To avoid duplication, these topics are addressed in other sections of this impact assessment.

9.2.1.1 Access to housing

There are no impacts anticipated to housing affordability and availability, during the construction phase. The project will take place primarily within existing roadways, and at some distance from any significant residential settlements. There will be no changes to existing residential buildings or services, no permanent residential land acquisition, and only a very minimal amount of land requiring access to residential property as part of construction. As such, there are expected to be no significant impacts to people's ability to access housing (see Table 9-2). Construction works can result in impacts to property and land values, as a result of reduced amenity and access. However, noting the short duration of construction in any one residential area, this not considered a significant risk for the project.

Table 9-2: Summary of construction access to housing impacts

Evaluation of impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Access to housing	All scales	No impact	N/A	N/A	N/A

9.2.1.2 Access to employment

There is a positive impact anticipated as a result of employment provision during the construction phase. It is understood that approximately 400 construction jobs will be created through construction of the project, including approximately 200 for pipeline construction, and 200 for the AWRC. The majority of these jobs are expected to be filled by staff local to the Sydney area – tying into the key strategic planning ambitions to provide jobs within 30 minutes of homes in Western Sydney. Approximately 15% of these jobs are expected to require particular skills or experience and may need to be filled by workers from outside of Greater Sydney.

As shown in Section 7.2.3, while unemployment is lower than average in the SESA-western and SESA-central, the SESA-eastern has a high unemployment of almost 11%. Construction is also the largest employer for residents in the western and centre study areas and employs 8.7% of the people working in the whole SESA. Provision of employment opportunities targeted at local people, therefore, will contribute to improving unemployment rates. In the current context of challenges in finding locally based employment this will have particular benefits for the community. This could lead to improved employment status, which could also improve financial status and potentially mental and emotional health and wellbeing. More local jobs could also enhance people's way of life by reducing the need to commute to other employment areas located further away, which would provide more time for other activities such as recreation. Councils have identified the project as an excellent opportunity to boost local employment, business and economy.

Table 9-3 draws on the analysis above to assess the likelihood, consequence and overall anticipated impact of the project. It differentiates between the local impact to the SESA, and the lesser impact to the wider Sydney area.

Table 9-3 Summary of construction access to employment impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Access to employment	SESA	Positive	Almost certain	Minor	High Positive
	Sydney	Positive	Almost certain	Minimal	High positive

9.2.1.3 Commercial operations and businesses

The project is expected to temporarily impact local businesses, particularly those located within the local influence area. A list of businesses that are likely to be impacted by the project within the local influence area is provided in Appendix C. This section provides a high-level summary of potential impacts.

Businesses within and surrounding the local influence area would also experience impacts to amenity. This includes visual, noise and air quality impacts during construction as a result of construction activities and construction traffic. Business activity such as interactions with customers/clients, office and restaurant environments and the productivity of workers may be impacted during construction due to noise and vibration impacts. Similarly, the reduction in visual and noise amenity may also result in customers being less inclined to visit businesses such as restaurants and cafés.

Compounds would be used between 3 to 36 months depending on the compound type. Compounds that would be used for the longest duration would include C10 (Liverpool Reservoir) and C12 (East Parade) are both the main compound sites and would be used for the complete 36 months, with all other compound sites in the eastern study area being used for between 3 to 12 months.

Noting that construction will occur on a progressive basis (i.e. on different sections of the pipelines for short periods), impacts are not anticipated for the full length of construction. For example, businesses may be subject to impacts for a short duration, such as noise and visual impacts, then be subject to minor to no impacts as the construction of the project moves further along the pipeline route. Consultation indicated that various businesses across the SESA are recovering from impacts to businesses during COVID-19. Therefore, some businesses may be more vulnerable to impacts during construction than others. Mitigation measures including consultation, timing of noisy works and use of respite periods is included in Chapter 10.

Some businesses may also experience impacts to the visibility of their business from the local road network due to construction. Businesses that rely on passing trade such as takeaway food shops and service stations may be impacted by a reduction in visibility during construction. Access to these businesses would be maintained to allow patrons to continue to visit these premises.

It is possible that some businesses surrounding the project may benefit from construction worker expenditure during construction. In addition, the project may also provide opportunities to source local supplies and materials from surrounding businesses near the AWRC and associated pipelines.

Potential impacts to businesses and business operations for each study area are described in the following sections. In the list of businesses that are likely to be impacted by the project within the local influence area in Appendix C, there is also discussion regarding the potential impacts to each business.

SESA-western

In the SESA-western, there are a range of agricultural properties and businesses that may be impacted by the construction of the project. In the western-most part of SESA in Warragamba, underboring for the pipeline would be used to limit impacts on agricultural properties. Agricultural properties along the pipeline route where trenching would occur in Wallacia, such as those along Bents Basin Road and Park Road would be impacted. Trenching would impact access to properties in instances where the pipeline route is located across driveways and access roads. In addition, inter-property access impacts may also occur in areas where the pipeline route spans across sections of agricultural/business properties. Consultation undertaken for the project has identified that agricultural properties having varying requirements for the operation of their businesses. Some examples include:

- Movement of livestock between multiple/neighbouring properties
- Livestock considerations including breeding and quarantine requirements
- Crop requirements including produce growth areas
- Supplier access.

In most instances, the impact assessment area in Warragamba and Wallacia follows the property boundary closely, reducing potential impacts to the central part of properties. The trenching depth would range from 1.5 metres to seven metres. Sydney Water would continue to consult with agricultural businesses to mitigate potential impacts.

Businesses in Wallacia at the Park Road / Silverdale Road / Mulgoa Road intersection would be impacted during construction due to the proximity of the C5 compound site on Park Road, Wallacia to surrounding businesses. The compound site would occupy the car parking area behind the local shops, Wallacia Country Club and Wallacia Hotel. The use of the compound site would result in parking, visual and noise impacts for these businesses. As the C5 compound site is a ‘main’ compound site (as defined in Section 2) this would be needed for the duration of construction, during all hours of work, including out of hours works periods. As stated in the Noise and Vibration Impact Assessment, noise criteria are predicted to be exceeded at some receivers near the compound site during the use of the C5 compound site under high noise generating scenarios. The Wallacia Hotel also serves as an accommodation facility. Should the compound site be active during the evening, mitigation for overnight guests and patrons of the local shops, hotel and club would be required.

As mentioned in Chapter 7, tourism in the SESA-western is of importance to local industry. There are camping grounds such as the Wallacia Caravan Park near Blaxland Reserve and accommodation facilities in Wallacia and Mulgoa which accommodate tourists who visit the area. Construction could impact tourists' enjoyment of the SESA-western, particularly those visiting the Nepean River, Nortons Basin in the Blue Mountains National Park. Tourists may experience visual and noise impacts within the local influence area, as well as potential traffic and access impacts during construction of the pipeline routes in Wallacia. Impacts to tourism are expected to be minor due to the progressive nature of construction.

SESA-central

In the SESA-central, various businesses located on Park Road, The Northern Road, Clifton Avenue and Elizabeth Drive would also be impacted during the trenching works. A combination of trenching and underboring would be used in the SESA-central to limit impacts on the local road network. As mentioned in Section 7, the SESA-central is reliant on private vehicle use and has a range of home based, industrial and agricultural businesses. The AWRC would be located at the end of Clifton Avenue and is expected to experience a significant volume of construction movements (400 light vehicle movements and 302 heavy vehicle movements per day). Businesses such as Andreasens Green Wholesale Nurseries and 'CR and M Ash and Sons Poultry Farm' would experience construction traffic increases on Elizabeth Drive/Clifton Avenue, particularly during the AM and PM peak which are already under stress due to the baseline flows on the surrounding road network, and the cumulative impacts of other nearby projects. Modelling undertaken in the Traffic and Transport Impact Assessment suggests that the project will have a high impact the functioning of Clifton Avenue and Elizabeth Drive as a result of the expected traffic associated with construction.

Construction of the AWRC would be undertaken during standard hours, where practical, for the complete duration of the construction phase (36 months). Construction of the pipelines would be undertaken during both standard hours and 'out of hours' hours. Open trench construction would progress at a rate of about 12 metres to 24 metres per day and will have a duration of between eight to 10 weeks in any given area. Tunnelling construction will have a duration of between one to six months depending on the location and depth of bore. Businesses near the AWRC, including agricultural businesses and nursery on Clifton Avenue are likely to experience noise, visual and access impacts a result of the development of the AWRC, and trenching for the pipeline along Clifton Avenue. The Noise and Vibration Impact Assessment has indicated that construction works are likely to be above noise management levels, for receivers located near the construction pipelines. Some receivers may experience noise levels above the highly affected noise management levels.

SESA-eastern

In the SESA-eastern, trenching works would directly impact businesses in on the following roads:

- Liverpool Road, Bonnyrigg/Green Valley
- Montgomery Rd, Bonnyrigg
- Cabramatta Road West, Bonnyrigg / Mount Pritchard
- Meadows Road, Cabramatta West
- John Street, Cabramatta West / Cabramatta
- Bartley Street, Cabramatta
- Hume Highway, Canley Vale / Lansvale.

Businesses located on these roads would be directly impacted during construction (more detail about potential impacts to these businesses is provided in Appendix C). Primarily, businesses would be directly impacted by changes in access for both customers and service/business vehicles. Changes in access may impact patronage for some customers. Consultation has indicated that parking in the SESA-eastern is important for local residents, businesses and visitors. Customers may have to park further away to access businesses or may avoid visiting due to the presence of construction plants and machinery. This would have a moderate to high impact on these businesses. Vehicles that require frequent deliveries and heavy vehicle access may be impacted due to the restricted use of the road corridor for trenching during potential temporary partial road closures. Impacts to these businesses are expected to be substantial but temporary in nature as the construction of pipeline routes progresses along the impact assessment area. Construction of the pipeline in the SESA-eastern along busy roads is likely to be undertaken at night or by tunnelling, which may reduce the potential impact on businesses.

Noise impacts during construction are also expected to impact these businesses during the construction of the pipeline. As stated above, construction of the pipelines is likely to be above noise management levels for receivers located near the construction pipelines and that some receivers might experience noise levels above the highly noise affected noise management levels.

Table 9-4 Summary of construction commercial operations and business impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Business and commercial operations – amenity, access and operation	SESA-western	Negative	Likely	Moderate	High negative
	SESA-central	Negative	Likely	Moderate	High negative
	SESA-eastern	Negative	Likely	Moderate	High negative
Business and commercial operations – supply chain benefits	All scales	Positive	Possible	Minor	Moderate positive

9.2.1.4 Access, movement and connectivity

Local road network and access

The project would result in some temporary changes in access and connectivity throughout the SESA. Construction would require some partial road closures and temporary access changes to surrounding properties for trenching and trenchless pipe installations (tunnelling). Sections of the local road network, including pedestrian pathways would be partially and/or completely closed to allow for construction activities to take place. This would result in the requirement for detours and disruption to traffic in some areas. This may cause delays and confusion for some road users. It is understood that the SESA-western and SESA-central have a stronger dependence on private vehicle use for travel due to the limited public transport options within these areas. Changes to the local road network could result in high impacts for these road users, due to the lack of alternative travel options. Traffic management would be required to avoid safety impacts and maintain access where possible for motorists, cyclists and pedestrians. Trenchless pipe installations would be used in areas that have busy roads and intersections to reduce impacts in these areas. These areas are discussed in more detail in the project EIS and the Traffic and Transport Assessment.

Most of the construction works in the SESA-western would be able to occur without interacting with surrounding main road networks, however as the project alignment moves east, more local roads would be impacted. For example, in Wallacia, the project would be located through Fowler Reserve and less busy residential streets rather than Silverdale Road which is the main access road to the suburbs of Warragamba and Silverdale and where the pipeline could impact the intersection of Silverdale Road/Greendale Road/Park Road/Mulgoa Road in this location. In the SESA-eastern, impacts to the local road network become more difficult to avoid, with most trenching required throughout residential streets, parks and open spaces. Land occupiers and property owners in the SESA-eastern are expected to be impacted most during this stage of the project due to the constrained and highly developed nature of the SESA-eastern.

The SESA-eastern is subject to more traffic due to its high population density. Population density is higher in SESA-eastern, than in the SESA-western and SESA-central, meaning that access impacts would be experienced by more receivers. Pedestrian access to properties would be maintained during the project. In areas with more facilities clustered together, such as Cabramatta (i.e. Bartley Street and St Johns Road), traffic and access impacts are expected to be more substantial. However, out of hours work, partial closures and temporary detours, especially along the brine pipeline route, may be required to reduce the impacts on traffic in the SESA-eastern. Consultation with impacted property owners would occur prior to the commencement of construction to mitigate potential access impacts.

Parking arrangements would be temporarily altered in some sections of the local influence area during construction. This would include parking restrictions along road corridors which require trenching and trenchless pipe installations to allow for safe construction vehicle movements around construction areas and space for construction equipment and machinery. The temporary loss of parking spaces during construction may result in commuters having to park further away from their destination causing minor inconvenience.

Construction traffic

It is expected that there would be up to 200 construction workers staff required to construct the proposed AWRC during peak construction periods. The highest peak traffic volumes would be between The Northern Road and the AWRC which would generate 400 light vehicle movements and 302 heavy vehicle movements during standard construction hours (two-way movements). Due to the limited public transport options in the SESA-western and SESA-central, it is assumed that most construction staff would drive to the AWRC site. Construction vehicles would also be required for plant delivery, soil and equipment delivery, concrete/fill delivery and waste removal. There would be additional vehicle movements in all study areas for workers travelling to and from the AWRC site. Construction vehicles would be noticeable to surrounding receivers, particularly in the SESA-western which is comprised of quieter suburbs.

Up to 200 construction worker staff would be required to construct the pipelines for the project (noting that this would fluctuate across the construction program). For construction of the pipeline routes:

- Majority of construction work in the SESA-western and part of the SESA-central would be required during standard hours (predominately for the treated water pipeline and environmental flows pipeline) with peak volumes being between 180 light vehicle movements and 34 heavy vehicle movements daily
- Some construction work would be required during standard hours in the SESA-eastern with peak volumes between 115 to 140 light vehicle movements and 29 to 51 heavy vehicle movements daily

- Nightworks would be required for all pipeline routes (mainly for the brine pipeline in the SESA-eastern) with peak movements between 70 to 75 light vehicle movements and 25 to 26 heavy vehicle movements daily across the western, central and SESA-eastern.

Construction vehicles are expected to be absorbed by the local road network in the SESA-eastern as it is subject to the more frequent presence of construction/heavy vehicles from surrounding development, major roads and industrial areas (The Northern Road, the M4 and M7 Motorways and industrial precincts discussed in Section 7.3.4). As stated in the EIS and Traffic and Transport Assessment, construction traffic volumes generated by the project, while having a high impact in some areas (i.e. SESA-central) would not be the main cause of road capacity exceedances due to pre-existing high volumes of traffic during peak hour periods. Based on the findings of the Traffic and Transport Assessment, Elizabeth Drive, Cowpasture Road and the Hume Highway are expected to experience the most congestion related traffic exceedances during construction. Overall construction traffic impacts along the pipeline routes would be temporary and transient across the impact assessment area of the project.

Construction workers would be encouraged to travel together in smaller light vehicles and trucks from compound sites to reduce potential additional traffic on the road network and parking impacts. Construction workers may also use the public parking available on the local road network. Mitigation measures such as offering compound sites where available to avoid the reduction of publicly available parking should be considered. Impacts to parking would be limited to the construction phase of the project.

Public and active transport

The project would impact some public transport routes during construction. This would include some changes in access if streets are temporarily closed for construction. This would impact local bus routes, pedestrians and cyclists. Bus stops would be relocated if they are impacted during the construction phase, including the installation of adequate signage and temporary bus shelters. As stated in the Traffic and Transport Assessment, most impacts are likely to be experienced in the SESA-eastern where a large number of bus routes operate. Alternations to public and active transport has the potential to affect travel durations, movement patterns and accessibility during construction.

The temporary closure or adjustment of pathways and the local road network may affect accessibility, community cohesion and some resident and visitor enjoyment of public spaces in the local influence area. This would mostly be experienced around the trenching and trenchless pipe installation works (tunnelling). Changes to these networks would result in temporary moderate impacts to public and active transport users.

There would not be any impacts to any rail corridors during the construction phase of the project.

Table 9-5 Summary of construction access, movement and connectivity impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Local road network and access	SESA (all)	Negative	Almost certain	Minor	High negative
Parking	SESA-eastern	Negative	Likely	Minor	High negative
Construction traffic	SESA (all)	Negative	Likely	Moderate	High negative

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Public and active transport	SESA (all)	Negative	Likely	Minor	High negative

9.2.2 Community

9.2.2.1 Socio-demographic profile

There is expected to be a very minor impact on the socio-demographic profile of the community within the SESA as a result of project construction. As noted, the project is expected to generate approximately 400 jobs predominantly in construction and 15% or 60 jobs are expected to be from outside of Sydney – this will result in small, temporary fluctuations in the population of the area, which may result in the following:

- Given the duration of the construction program (around 3 years), some of the construction workforce may choose to relocate to the SEIA study area in order to be close to their work, resulting in a small increase in people employed in the construction industry moving into the socio-economic and local influence area
- Given the spatial distribution and size of the population of the local influence area and SESA, it is unlikely that the small scale of changes as a result of the construction workforce would substantially shift the socio-demographic profile
- It is not considered that the additional workforce would result in any significant adverse impacts on availability of housing or rental accommodation (noting only 15% are expected to be non-local) – workforce studies for significantly larger projects have found minimal impacts in this regard (Complete, 2016)
- While some increase in population may occur, the jobs created would also be considered to bring employment opportunities for existing locals within the area. This is particularly in the context of a large level of existing employment in construction in the SESA (see Section 9.2.1).

Table 9-6 Summary of construction socio-demographic profile impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Socio-demographic profile	All scales	Neutral[16]	Rare	Minimal	Low neutral

9.2.2.2 Community cohesion

As identified in Section 7.7.1, there may be some existing challenges with social cohesion within the SESA – particularly noting lower than average voluntary work participation. This might include:

[16] It is noted that demographic change can be considered to be both a positive and a negative impact, dependent on the community and their individual and collective perspectives. As such, this has been recorded as neutral in impact, but a rating still applied.

- Some potential for the project to physically detract further from social cohesion, particularly in the SESA, in disrupting community connections temporarily during construction. For example, making it more challenging for communities south of Cabramatta Road from access to northern communities, and vice versa – these communities share facilities and services and this disruption may cause nuisance or impact upon their way of life. This severance is expected to be temporary for the period of construction (8-10 weeks in any particular area). Alternative routes will need to be provided to limit problems of accessibility
- Some potential for the project to impact on social cohesion more generally, through the generation of differing views and opinions on the project. This is most likely between those members of the community who support the project, and those who are opposed. While much of the community is understood to be supportive of, and resilient to change and growth in the area, with strong voices in support, Sydney Water is aware of some community voices with opposition, including social media and a local campaign to prevent the project
- Whilst opposing voices are noted, there is evidence that when a community is familiar with development and change, this can lead to a heightened level of resilience to, and acceptance of further change (Bertotti, 2012). Noting the SESA experienced significant historic and future change, the opposition or concerns around growth may be more limited. This impact is also likely to be limited to a relatively small group of community members with strong views on the project. In addition, this is anticipated to predominantly occur for the period of construction, and lessen over time throughout operation – as opponents become aware of realities of the impacts of the project, and the longer-term benefits it can bring
- Given the project does not include any community uses and is not anticipated to impact on demographic make-up of the SESA, it is not anticipated to impact on community cohesion associated with ethnic diversity during either construction. Sydney Water is planning to undertake engagement with a number of these language groups as part of the EIS engagement, in partnership with the Ethnic Communities Council. It will be important that this continues, and materials etc are translated to maximise community engagement and listening
- It is not considered that the project will substantially impact on the regular activities or events that take place within the SESA – noting these are at some distance from the project. It is understood that Cabravale Park (which is directly impacted by the project) is a location for Anzac Day dawn services and other important local activities, and as such, it will be important to minimise potential for construction to impact on this activity (further detail on community infrastructure impacts in 9.2.3).

Table 9-7 Summary of construction community cohesion impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Community cohesion – physical	Local influence area	Negative	Likely	Minor	High negative
Community cohesion – social	Local influence area SESA	Negative	Likely	Minor	High negative

9.2.3 Access to and use of infrastructure, services and facilities

9.2.3.1 Social infrastructure

As discussed in Section 7.4, SESA is comprised of a variety of social infrastructure located within the local influence area.

Natural areas, open spaces, parks and reserves

The Blue Mountains National Park, Western Sydney Parklands, public open spaces and local parks and reserves are located within the SESA. This assessment and consultation undertaken for the project has indicated the following:

- In the SESA-western, people use the Blue Mountains National Park, Warragamba River, Nepean River and surrounding bushland for walking, swimming, camping and other outdoor recreation activities. As mentioned in Section 7.4, some areas within the local influence area may be used for passive recreation in informal spaces. Individuals and communities can often create areas of informal place making that would need to be considered during construction. This includes areas with heritage meaning, memorial or commemorative areas, formal plantings and use of publicly accessible spaces
- In the SESA-central, parks and reserves are limited, with most areas available for use being vegetated reserves and bushland alongside creeks and closer to the Western Sydney Parklands. The Western Sydney Parklands are an important feature of the SESA-central as it provides a range of facilities used by the growing community of Western Sydney
- In the SESA-eastern, there are a range of parks and reserves, including unnamed parks and greenspaces located within residential areas. Parks within the SESA-eastern are used for a range of activities, including sports and recreational activities by the local community including schools that require open space not available within school property. In addition, parks and reserves are also used for community events such as memorial services. Cabravale Memorial Park is an example of a park within the SESA-eastern that is used by the community for various activities, including local school sport, recreation and learning, for Anzac Day memorials by the local RSL Diggers Club, events and wider community.

Natural areas, open spaces, parks and reserves would be impacted by noise, air quality and visual impacts. Trenching, underboring and compound sites would be required for the project, resulting in impacts to surrounding receivers and people who use these areas. Trenching may restrict access into or within these areas, particularly in some instances where trenches are located over pathways and central sections of parkland. It is anticipated that main area of most parks, reserves and open space will be able to remain open. In most sections of the local influence area where trenching is required, impacts to parks, reserves and natural areas are localised to the boundary of the park, either on the grassed verge near the road or on the road itself. There are some exceptions to this e.g. Cabravale Memorial Park and the Western Sydney Parklands, where a more substantial portion of these areas will be impacted. Construction activities would result in a reduction in amenity to parks, reserves and open spaces, which are typically identified as quiet and natural spaces. This may impact people's wellbeing and behaviour as people may avoid using these areas during construction.

As mentioned in Section 7.7 communities across SESA value health and wellbeing and the natural environment. The SESA-central is currently undergoing substantial change and development, therefore maintaining vegetation and greenspaces would be valued by the community. Similarly, in the SESA-eastern, there is increasing pressure for urban spaces to have green spaces. Impacts during construction that impact majority of an open space or park in the SESA-eastern are likely to have a substantial impact on the community (discussed further in Table 9-8, Table 9-9 and Table 9-10).

Community facilities including clubs, recreational facilities and places of worship

The project would also impact on areas of local shops and facilities such as community centres, community clubs, sporting/leisure centres and places of worship. Impacts to these facilities would include access, dust, noise and visual impacts. Delays and disruptions to the local road network would increase travel time which may also impact access to community services and facilities. Some of these facilities are destination type places, therefore construction is not expected to substantially impact patronage/usage. However, in areas where construction impacts are most noticeable, such as the central and SESA-eastern, this may deter people from visiting particular facilities. For instance, the Mingyue Temple in Cabramatta is described as a place of sanctuary and cultural significance, bringing together Buddhists from Taiwan, Malaysia, Singapore and Vietnam (Mingyue Temple, 2013). Construction may impact the enjoyment and peaceful context associated with the temple, which may result in impacts to the use of the facility.

Although access would be maintained for most properties during construction, perceived safety risks may result in more vulnerable individuals (e.g. elderly people and youth) within communities that rely on these services avoiding areas entirely. This may result in feelings of disconnection and isolation for these individuals. The potential temporary relocation of essential services and centres should be considered. Impacts would be temporary and works would occur along the extent of the local influence area during different periods of the overall construction period. This means that access impacts to facilities would only be short term in nature in certain sections of the local influence area.

Educational facilities

The project would impact some educational facilities such as schools and childcare centres. Construction routes and movements should avoid areas too close to these facilities where possible, to reduce perceived air quality impacts of the project. In addition, noise and visual impacts due to the presence of construction plant and machinery would also impact educational facilities. Childcare centres with varying daytime sleep requirements would need to be considered. Depending on the age groups that the facility would cater for, it is likely that daytime sleeping periods would occur throughout the day (i.e. babies under 12 months are likely to sleep two to three times during the day). Construction should be timed so as to not interfere with school hours and exam periods for primary and secondary schools closest to the local influence area. School hours are generally between 8am and 4pm (bearing in mind pick up, drop off and extra circular activity periods). Noisy construction works may result in decreased amenity for school attendees and staff. Access to these facilities would need to be maintained, particularly during morning school pick up and drop off periods. Consultation with educational facilities that would be impacted by the project would be required to discuss construction periods and potential noise impacts, access arrangements and traffic management.

The following tables (Table 9-8, Table 9-9 and Table 9-10) provide an overview of the social infrastructure in the local influence area in the SESA-western, SESA-central and SESA-eastern. Each table provides an indication of the types of impacts and features of the project that may impact these facilities. The following tables are representative only.

Table 9-8 Social infrastructure in the local influence area (SESA-western)

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Warragamba Dam Lookout, Warragamba	C1 compound site	The compound site (C1) may be visible from the lookouts and scenic viewpoints which are elevated above the ground level at the Warragamba Dam Lookout. The operation of the construction compound site may result in amenity impacts in the form of visual and noise impacts.
Kipara Reserve, Warragamba	Pipeline route (underbore)	The underbore would be located to the north of the reserve, about 100 m below ground level, with the local influence area encroaching on the reserve area. This includes some open space and vegetated areas which may be used as recreational spaces within the reserve near the play equipment. As underboring would be used in this area, surface impacts would not occur, with some vibration impacts expected.
Blue Mountains National Park and Drive	Impact assessment area of the pipeline and compound sites	Impacts to the operation and use of the Blue Mountains National Park and Nortons Basin are not expected. However, some indirect impacts to the amenity of the basin and National Park during construction may occur in the form of noise and visual impacts. This could impact the enjoyment of the areas closest to the project particularly if people are walking and cycling in areas on the other side of the Nepean River near the impact assessment area. Additionally, people undertaking 'the Greater Blue Mountains Drive' which circulates around the Blue Mountains National Park may be impacted by construction traffic and movements, particularly on Silverdale Road and Mulgoa Road in Wallacia. More information is in Section 9.2.1.3.
Fowler Reserve, Wallacia	Pipeline route, compound site, access routes and impact assessment areas associated	The pipeline trench would be required in Fowler Reserve to accommodate the pipeline route. A portion of the reserve would also be used for access roads and form part of the impact assessment area around the pipeline route. This would impact mostly open space and vegetated areas that boarder the reserve which may be used as recreational spaces and picnic areas. The use of this area would be impacted during construction. Should other areas of the reserve be open to the public during construction, people may experience amenity impacts near construction areas in the form of visual and noise impacts. This could impact the enjoyment and attractiveness of the reserve for use, particularly for people picnicking or using the reserve for recreational activity. It is likely that people would also use the Nepean River for recreational activities such as swimming, kayaking and fishing. Underboring will be used under the Nepean River to mitigate any potential impacts. The use of the compound sites on either side of the River (this includes the C4 Compound Site to the west of the river), access roads and construction of the pipeline would result in amenity impacts for recreational users of the river.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Wallacia Country Club and Golf Club, Wallacia	C5 compound site and pipeline route	The C5 compound site and local influence area associated with the compound site would encroach the Wallacia Country Club and car park. Visual and noise impacts may be experienced by the club during the use of the compound site. This is likely to impact people using the golf club for functions or during restaurant operating hours. Consultation with the golf club would be required to mitigate potential impacts to patrons of the club. Pipeline route which is proposed to be trenched along Park Road would be visible from the course which may have visual and noise for people using the golf course. As the pipeline would be on the southern section of Park Road and the local influence area is located close to the boundary of the golf course, impacts to the operation of the golf course are considered to be negligible.
Wallacia Rural Fire Brigade	Impact assessment area of the pipeline	The front and entrance of the Wallacia Rural Fire Brigade is located within the local influence area. The impact assessment area of the pipeline would be located opposite the fire brigade in the grassed area between Golfview Drive and Park Road in Wallacia. Access to and from the fire brigade would be maintained during construction, however the proximity of the C5 compound site, impact assessment area of the pipeline and trenching works further east on Park Road may impact access due to potential traffic and delays associated with construction. Consultation with the Wallacia Rural Fire Brigade would be required to mitigate potential impacts.
Wallacia Christian Church	Impact assessment area of the pipeline	Although not directly within the local influence area, the Wallacia Christian Church would be located near the impact assessment area of the pipeline between Golf View Drive and Park Road in Wallacia. There are expected to be traffic, noise and visual impacts associated with the impact assessment area, use of the C5 compound site and the construction of the pipeline in this area. Construction works during standard hours are likely to coincide with times of worship. Construction works may also impact access to the church.
Crossman Reserve, Wallacia	Pipeline route (with some underbore)	The pipeline would be trenched along Golfview Drive before entering into an underbore along Park Road. This would avoid the densely vegetated sections of the reserve. It is unlikely that the reserve is used for open recreational activities due to the dense vegetation within the reserve.
Zambi Wildlife Retreat	Pipeline route, C6 compound site and impact assessment area of the pipeline and compound site	The pipeline trench would be located on the southern side of Park Road, with the associated local influence area located through the southern section of the property. In addition the C6 compound site and Impact assessment area of the pipeline would also be located opposite the facility. Note that the local influence area is not located within the main area of the retreat, therefore impacts to the operation of the facility are not expected to be substantial. Impacts may occur in the form of noise and visual impacts due to the potential sensitivity of animals at the facility. There may be some traffic impacts to the Zambi Wildlife Retreat during pipe laying along Park Road, which could result in delays for staff and visitors.

Table 9-9 Social infrastructure in the local influence area (SESA-central)

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Luddenham Showground, Luddenham	Pipeline	The pipeline trench and associated local influence area would be located through the northern section of the showground, where there is some informal car parking. Note that the local influence area boarders the main showground area (show ring). Potential impacts to parking would impact people visiting the showground, particularly during events. In addition, construction activities would result in noise and visual impacts for people using the showground. Construction should be timed to avoid event periods to mitigate potential impacts to stall holders, performers and recreational users of the space.
Luddenham Lodge Horse Riding, Luddenham	Pipeline and impact assessment area of the pipeline	The pipeline trench and associated local influence area would be located through the southern section of the property, where some horse-riding activities may take place. Note that the local influence area is not located within the main area of the horse-riding facility, therefore impacts to the operation of the facility are not expected to be substantial. Impacts may occur in the form of noise and visual impacts which may impact horse riding activities due to the potential sensitivity of horses at the facility.
Sydney University McGarvie Smith Farm and Fleurs Farm	AWRC	The AWRC would be located on the Sydney University McGarive Smith Farm/Fleurs Farm facility. This site would no longer be available for use by the university (see Section 8.2.1 for more information). Consultation has been undertaken and would continue to be undertaken between Sydney Water and Sydney University as the project develops.
Christadelphian Heritage College Sydney, Kemps Creek	Pipeline	The pipeline trench would be located along Cross Street opposite Christadelphian Heritage College and Kemps Creek Public School The associated local influence area would be located through the southern section of both schools. Both schools would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur for both schools due to the trenching works required in Cross Street and at the intersection of Cross Street/Devonshire Road.
Kemps Creek Public School, Kemps Creek	Pipeline	
Kemps Creek Sporting & Bowling Club, Cecil Park	Pipeline	The pipeline trench would be located south of the bowling club, with the local influence area encroaching on the car park of the club. There are not expected to be any direct impacts to the club, however some noise impacts could be experienced during construction works. This is likely to impact people using the bowling club for functions or during restaurant operating hours. Consultation with the bowling club would be required to mitigate potential impacts to patrons of the club.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Sydney International Shooting Centre	Pipeline and impact assessment area of the pipeline	The pipeline trench would be located to the east of the Sydney International Shooting Centre, with a section of impact assessment area of the pipeline also located in this area. The pipeline trench and local influence area are not directly within the main part of the facility; however the local influence area does encroach on the eastern side which appears to be near a carparking/storage area. Construction may result in noise and visual impacts to the operation of the facility due to the close proximity of the works. This may impact events and competitions at the centre. Construction should be timed to mitigate potential impacts to people competing and using the club.
Wylde MTB Trail, Cycling Park, Cecil Park	Pipeline	The Wylde MTB Trail forms part of the Western Sydney Parklands. The pipeline trench would be located along the western border of the cycling park, with the local influence area encroaching on the park. There are cycling trails located alongside the proposed trench and within the local influence area. This would result in impacts to the use of this section of the park. The other sections of the park would remain available for use; however people may experience noise and visual impacts due to the proximity of the construction works. The Wydle MTB Trail Cycling Park would be redeveloped as part of the works required for the development of the M12 Motorway near Elizabeth Drive. Consultation with the Western Sydney Parklands in regard to the relocated facility would be required to mitigate potential impacts during construction.
Western Sydney Parklands, Cecil Park	Pipeline route with some under bore, C9 compound sites, impact assessment area of the pipeline and access roads	The Western Sydney Parklands are used for recreation, picnics and exercise in the local influence area, with other facilities located throughout the parklands further north and south. The pipeline trench and small compound sites that form part of the C9 compound site would be located in the parklands. The project would also require access roads through the Western Sydney Parklands to access the trench, compounds and the impact assessment area of the pipeline (if required). Noise and visual impacts would occur as a result of trenching works, the use of the compound sites and the use of the access roads which would impact the amenity of the parklands. The trench would intersect the parklands in an east-west direction which would impact access between the northern and southern section of the area on either side of the M7 Motorway. This could impact access for people walking and cycling through the park and could impact the enjoyment of the park for people using the park. In addition, the use of the access roads may also impact people using the park due to the presence of heavy vehicles travelling through the parklands. The Western Sydney Parklands are identified as a place that is used by the growing community of Western Sydney, providing a natural space and range of facilities amongst the development being undertaken across the Western Sydney region. Other areas of the parklands would still be available for use by the community during construction.

Table 9-10 Social infrastructure in the local influence area (SESA-eastern)

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Gough Park, Elizabeth Hills	Pipeline route	The pipeline route would be trenched to the south of Gough Park along Feodore Drive. The local influence area would encroach on the park on either side of the road. The trenching works would result in noise impacts for people using the park, including those that would be using the footpaths within the parks near the road. Noise impacts are not expected to impact the use of other sections of the park during construction.
Cecil Hills High School, Cecil Hills	Pipeline route	The pipeline trench would be located along Frederick Road opposite Cecil Hills High School. The associated local influence area would be located through the northern section of the school encroaching on the carparking area and the vegetated boundary of the school. The school would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur due to the trenching works required in on Frederick Road and at the intersection of Frederick Drive, Lascelles Street and Spencer Road.
ZL Little Kids School, Cecil Hills	Pipeline route	The pipeline trench would be located along Frederick Road south of the ZL Little Kids School. The associated local influence area would be located through the southern section of the school encroaching on the outdoor area of the facility and some of the building. The trenching works are likely to result in noise impacts for the facility, which may impact students behaviour, particularly during daytime rest periods and outdoor activities.
Woolway Park, Cecil Hills	Pipeline route and partial underbore	The pipeline trench would be located within the northern section of the park through the vegetated area along Frederick Road. The local influence area would veer off the road into the park in this area before going below ground into an underbore. There are likely to be visual and noise impacts associated with the construction of the pipeline in this area. Impacts are expected to be localised to the area of construction and would not impact the operation of other areas of the park.
Pye Hill Reserve, Cecil Hills	C10 Compound site	The C10 compound site would be located within the Liverpool Reservoir to the east of Pye Hill Reserve. As the compound site would be located to the east of the reserve, within the fenced reservoir, impacts to the operation of Pye Hill Reserve are not expected. However, noise impacts may be experienced at Pye Hill Reserve during the use of the C10 compound site, which would impact the amenity of the reserve.
Reflections Kindergarten, Bonnyrigg Heights	Pipeline route (partial underbore)	The pipeline underbore and trenching in this area would be located on the southern side of Liverpool Road. The local influence area would encroach on the southern section of the carpark located, with pipeline route located on opposite side of the road. Construction works are likely to result in noise impacts for the facility, which may impact students behaviour, particularly during daytime rest periods and outdoor activities. Impacts to access may also occur during construction.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Maria Locke Park, Green Valley	Within the local influence area (near the pipeline route)	The pipeline route would be located on Liverpool Road to the north of the Park. The local influence area would be located in the northern section of the park. There are likely to be visual and noise impacts associated with the construction of the pipeline in this area. Impacts are expected to be localised to the area of construction and would not impact the operation of other areas of the park.
Unnamed greenspace (near Bonnyrigg Avenue and Elizabeth Drive)	C11 Compound site and impact assessment area of the pipeline	The C11 compound site and impact assessment area associated with the compound site would be located within the unnamed greenspace in Bonnyrigg between Elizabeth Drive and Upton Place. The greenspace would not be able to be used by the public as both the compound site and impact assessment area of the compound site would occupy majority of the space. This may result in impacts to surrounding residents and people walking and cycling that use the greenspace for access to and from Upton Place and Elizabeth Drive. This would result in people having to travel further distances to avoid the compound site and impact assessment area. In addition, the greenspace would not be available for public use and recreational activity. This would impact community values, particularly values associated with access, connectivity and the appreciation of natural spaces in close proximity to residential areas. People would need to use other greenspaces dispersed throughout the surrounding area which are accessible from Bradfield Crescent.
Unnamed park in Bonnyrigg (near Tarlington Parade and Cabramatta Road West)	Pipeline route	Pipeline route would be located through the centre of the park from Hebblewhite Place connecting back onto Cabramatta Road West. It would cut across the shared user path in the park and open greenspace. This may sever north-south access through the park. The local influence area also occupies a large portion of the southern section of the park. As the main facilities of the park, including the basketball court, are located in the northern section, the construction of the pipeline is not expected to impact the operation of the park. There are expected to be visual and noise impacts as a result of construction.
Bonnyrigg High School, Bonnyrigg	Pipeline route and impact assessment area of the pipeline	The pipeline trench would be located along Cabramatta Road West adjacent to Bonnyrigg High School. The associated local influence area would be located through the northern section of the school encroaching on the carparking area, some buildings and the vegetated boundary of the school. The school would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur due to the trenching works required in on Cabramatta Road West.
Indochinese Aged Care Services, Bonnyrigg	Pipeline route	The pipeline trench would be located along Cabramatta Road West adjacent to the facility. The associated local influence area would be located through the northern section of the property encroaching on the carparking area. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. In addition, impacts to access would occur as the pipeline trench would traverse across the driveway accesses into the facility.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Mingyue-Lay Buddhist Temple, Bonnyrigg	Pipeline route	The pipeline trench would be located along Cabramatta Road West adjacent to the temple. The associated local influence area would be located through the northern section of the property encroaching on the gardens and one of the temple buildings. There are expected to be traffic, noise and visual impacts associated with the construction of the pipeline in this area. Construction works during standard hours are likely to coincide with times of worship. Construction works may also impact access to the temple.
St Vincent De Paul Society, Bonnyrigg	Pipeline route	The pipeline trench would be located along Cabramatta Road West near the St Vincent De Paul facility. The associated local influence area would be located through the northern section of the building. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area.
Mount Pritchard Oval, Mount Pritchard	Pipeline route	The pipeline trench would be located along Cabramatta Road West adjacent to the oval. The associated local influence area would be located through the northern section of the oval encroaching on the playing area. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area which may impact the use of the facility during training and games.
Our Lady of Mount Carmel's Catholic Primary School, Bonnyrigg	Pipeline route	The pipeline trench would be located along Cabramatta Road West opposite the school. The associated local influence area would be located through the southern section of the school. Our Lady of Mount Carmel's Catholic Primary School would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur due to the trenching works required on Cabramatta Road West and at the intersection of Cabramatta Road West and Humphries Road.
CatholicCare Sydney, Cabramatta	Pipeline route	The pipeline trench would be located along Cabramatta Road West opposite the facility. The associated local influence area would be located through the southern section of the facility. There would be noise and visual impacts associated with construction. In addition, impacts to access may occur as a result of trenching works required on the opposite site of the road.
Cook Park, Cabramatta West	Pipeline route	The pipeline trench would be located along Meadows Road adjacent to the park. The associated local influence area would be located through the western section of the oval encroaching on the playing field. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area which may impact the use of the park during training and games.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Edensor Rd Pre-School Centre, Cabramatta West	Pipeline route	The pipeline trench in this area would be located on the southern side of Edensor Road. The main building of the preschool is located within the local influence area. Construction works are likely to result in noise impacts for the facility, which may impact student's behaviour, particularly during daytime rest periods and outdoor activities. Impacts to access would also occur during construction as the trench would be located across the driveway access to the facility.
Vinh Nghiem Pagoda Buddhist Temple, Cabramatta	Pipeline route	The pipeline trench would be located along John Street adjacent to the temple. The associated local influence area would be located through the southern section of the property encroaching on the one section of the temple building. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. If construction works are likely to coincide with times of worship.
Thien Hoa Buddhist Temple, Cabramatta	Pipeline route	The pipeline trench would be located along Gladstone Street adjacent to the temple. The associated local influence area would be located through the eastern section of the property encroaching on the one section of the temple building. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. If construction works are likely to coincide with times of worship.
Kidsmatter In Cabramatta, Cabramatta	Pipeline route	The pipeline trench in this area would be located on the eastern side of Gladstone Street. The car parking area of the preschool is located within the local influence area. Construction works are likely to result in noise impacts for the facility, which may impact students behaviour, particularly during daytime rest periods and outdoor activities. Impacts to access would also occur during construction as the trench would be located across the driveway access to the facility.
NSW Vietnamese Elderly Friendship Association Inc, Canley Vale	Pipeline route	The pipeline trench would be located along Bartley Street adjacent to the centre. The associated local influence area would be located through the southern section of the property encroaching on some of the centre building and the car parking area. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. Impacts to access would occur during construction as the trench would be located across the driveway access to the centre.
Sacred Heart Catholic Primary School, Cabramatta	Pipeline route	The pipeline trench would be located along Bartley Street opposite Sacred Heart Catholic Primary School. The associated local influence area would be located through the northern section of the school encroaching on some buildings and the outdoor recreational spaces of the school. The school would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur due to the trenching works required in on Bartley Street.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Sacred Heart Catholic Church, Cabramatta	C13 compound site	The C13 compound site would be located opposite the church in Cabra Vale Park. Although not directly within the local influence area, there are expected to be traffic, noise and visual impacts associated with the use of the C13 compound site and the construction of the pipeline in this area. Construction works during standard hours are likely to coincide with times of worship. Construction works may also impact access to the church, particularly along Park Road and Bartley Street.
Cabravale Park, Cabramatta	Pipeline route and underboring, C13 compound site and impact assessment area of the pipeline and compound site	Cabravale Memorial Park has been identified as a primary place for community cohesion, referred to by the local community as “the most significant park in the whole city”. The pipeline route would be partially trenched and would be subject to underboring through the park. The trench would be located through the northern half of the park where there is a pathway and other features. The C13 compound site, access roads and impact assessment area of the pipeline and compound site would also be located in this area, close to the memorial bandstand which is used for events, such as Anzac Day, Victory in Europe Day, Armistice Day, Battle of Long Tan and the Vietnamese War Memorial. The park is also used by a range of community groups and stakeholders, including Sacred Heart Catholic Primary School which uses the park for school events and recreational activities. It is anticipated that southern half of the park, will be able to remain open. Two access points will remain in use for the local community; however, users of the park would be subject to noise and visual impacts during construction. As a highly used area with a range of stakeholders, impacts to Cabravale Memorial Park during construction would be substantial.
Cabra-Vale Diggers Club (RSL Club), Canley Vale	Pipeline route	The pipeline trench would be located south of the diggers club, with the local influence area encroaching on the southwestern section of the club building. Some noise and visual impacts could be experienced during construction works. This is likely to impact people using the diggers club for functions or during restaurant operating hours. Consultation with the diggers club would be required to mitigate potential impacts to patrons of the club.
PCYC Fairfield, Cabramatta	Impact assessment area of the pipeline and compound site	The PCYC Fairfield facility is slightly within the local influence area. The facility borders Cabra Vale Park towards the south-west and would be subject to noise and visual impacts during construction. As the facility can be accessed from McBurney Road to the south, access is not expected to be impacted.
Ma Zu Temple, Cabramatta	Pipeline route	The pipeline trench would be located along Curtin Street adjacent to the temple. The associated local influence area would be located through the southern section of the property encroaching on the parking area of the facility. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. Construction works are likely to coincide with times of worship.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Thai Christian fellowship, Cabramatta	Pipeline route	The pipeline trench would be located along Curtin Street adjacent to the temple. The associated local influence area would be located through the southern section of the property encroaching on the grassed area of the facility. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. If construction works are likely to coincide with times of worship.
Slavic Christian church, Cabramatta	Pipeline route	The pipeline trench would be located along Curtin Street adjacent to the temple. The associated local influence area would be located through the southern section of the property encroaching on the grassed area of the facility. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area. If construction works are likely to coincide with times of worship.
Bareena Park, Canley Vale	Pipeline route	The pipeline trench would be located along Bareena Street and Vale Street adjacent to the park. The associated local influence area would be located through the northern and eastern of the park encroaching on the open green space and some vegetated areas. There are expected to be noise and visual impacts associated with the construction of the pipeline in this area which may impact the amenity of the park. Although majority of the park would still be available for use, the presence of construction plant and machinery may change people's use of the park during construction.
Lansvale Public School, Canley Vale	Pipeline route	The pipeline trench would be located along Chancery Street adjacent to Lansvale Public School. The associated local influence area would be located through the southern section of the school encroaching on some buildings and the two car parking areas. The school would experience noise and visual impacts during construction, particular if construction works occur within standard hours. Impacts in access would also occur due to the trenching works required in on Chancery Street.
Lennox Reserve, Canley Vale	Pipeline route and impact assessment area of the pipeline	The pipeline would be trenched through the centre of Lennox Reserve. Some additional areas within the reserve would also be part of the impact assessment area of the pipeline, occupying a large portion of the greenspace. This would result in most of the reserve being used during construction making it unusable for public recreation and access. This is likely to result in impacts to residents located to the west of Lennox Reserve who would need to travel further to access alternative parks/reserves. In this instance, as Lansvale Reserve would also be used during construction, alternative places would be on the other side of Prospect Creek or further south in Lansvale. This may result in impacts to the health and wellbeing of the community, who may view travelling to alternate areas as inconvenient or difficult.

Social infrastructure	Feature of the project	Relationship with the project/proposed design impact
Lansvale Reserve, Lansvale	Pipeline route, underbore, C14 compound site and impact assessment area of the pipeline and compound site s	The pipeline would be located through Lansvale Reserve using trenching. The C14 compound site (which includes the compound for the underbore) and impact assessment area of the pipeline and compound site would also be located in the reserve. The northern section of the reserve that has pathways and a playground would remain available for use by the public. However, construction works that would be undertaken throughout a large portion of the reserve are likely to result in noise, visual and perceived air quality impacts. These activities would impact the enjoyability of the reserve, particular due to the presence of construction machinery and equipment within a predominately natural area.
Lansdowne Reserve, Landsvale	Underbore, C15 compound site and impact assessment area of the pipeline of compound site	The pipeline would be located within Lansdowne Reserve using trenching. The C15 compound site (which includes the compound for the underbore) and impact assessment area of the pipeline and compound site would also be located in the reserve. Construction activities required within the reserve would result in impacts to amenity to not only Lansdowne Reserve but the wider Miraambeena Regional Park, in the form of noise and visual impacts. This may impact the quiet and peaceful context of the reserve and may change people's use of the reserve during construction, to avoid noisy areas near construction.
Miraambeena Regional Park, Lansvale	Underbore, C15 compound site and impact assessment area of the pipeline of compound site	The pipeline would be underbored under Mirambeena Regional Park with a small section of trenching within the Lansdowne Reserve within the park. The C15 compound site and impact assessment area of the pipeline and compound site would also be located in the Lansdowne Reserve. Construction activities required within the reserve would result in impacts to amenity, in the form of noise and visual impacts. This may impact the quiet and peaceful context of the reserve, which would impact people walking and cycling. This may change people's use of the reserve during construction, to avoid noisy areas near construction.

Table 9-11 Summary of construction social infrastructure impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Natural areas, open spaces, parks and reserves	Impact assessment area	Negative	Almost certain	Minor	High negative
	Local influence area, SESA/ Sydney	Negative	Possible	Minor	Moderate negative
Community facilities	Local influence area	Negative	Likely	Minor	High negative
Educational facilities	Local influence area	Negative	Likely	Minor	High negative

9.2.3.2 Other infrastructure

Council officers engaged to inform this assessment identified no significant concerns regarding waste and other practical infrastructure and utilities. The exception to this was Liverpool Council, who noted that construction on roads may impact waste collection locally as the centres are only open during certain times of day. As summarised in Section 9.2.1, there is potential for local roads to experience some congestion associated with construction traffic from the AWRC and pipelines. This may require Council waste trucks to sit idle, and they could miss their disposal opportunities during open hours. The Suez Kemps Creek Resource Recovery Park which takes Council waste is on the same road as the future Upper South Creek AWRC and this in particular may experience temporary, periodic impacts.

Table 9-12 Summary of construction other infrastructure impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Other infrastructure	Local influence area	Negative	Possible	Minimal	Low negative

9.2.3.3 Utilities

The project has been designed to avoid any impact upon utilities infrastructure and service provision during construction. Should this alter, any disruptions to services due to utility adjustments would be discussed with key stakeholders and communities would be notified of outages in advance of works.

Table 9-13 Summary of construction utilities impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Utilities	Local influence area SESA	No impact	N/A	N/A	N/A

9.2.4 Culture

9.2.4.1 Non-Aboriginal heritage

The Statement of Heritage Impact for the project reports that heritage items within the impact assessment area include: ten (10) local heritage items, one (1) state heritage item, and nine (9) potential heritage items.

The SOHI reports that construction of the AWRC on the site of 'Fleurs Radio Telescope Site' will have a major impact on the heritage significance of this item. There is potential for this to impact on the cultural values of the local community, who have cited the importance of heritage as a key value. However, while the project will involve the removal of buildings and impressions in the landscape that visually communicate the former use of the site, archival recording will be undertaken, with the opportunity to retain key features of the site and interpret the significance of the site.

Beyond the AWRC, minor and inconsequential impacts on heritage items impacted by tunnelling and open trenching are anticipated. However, the works required to construct the pipelines will, where possible, see the remediation of the landscape on a like-for-like basis – resulting in a temporary impact.

9.2.4.2 Aboriginal cultural heritage

As articulated in the Aboriginal Cultural Heritage Assessment undertaken for the project, 16 Aboriginal archaeological sites and three areas of potential archaeological deposit were originally identified as impacted within the Impact assessment area. Sydney Water has accommodated design changes to avoid and minimise impacts to Aboriginal objects, which has resulted in the reduction in sites impacts, but not all impacts could be avoided.

Early identification of Aboriginal heritage allowed refinement of the direct area of impact to avoid one Aboriginal archaeological site (TNR AFT 16) and one area of potential archaeological deposit (Wylde MTB PAD2). Refinement has also reduced the area of impact at sites Elizabeth Precinct AS 02, PP-F3 and GLC1 (including Artefact Scatter PAD 2023-846).

Of those sites remaining impacted by the project, three will experience low impact and 12 moderate impact. A partial loss of value is anticipated for 12 of these sites. This is likely to have some social impacts in compromising the values reported to be important to many groups within the community. In particular, these features have been referred to in consultation with the Aboriginal community. The implications of this Aboriginal Cultural Heritage impact are summarised in the Aboriginal Cultural Heritage Assessment.

For more information, see the EIS, and the Aboriginal Cultural Heritage Assessment.

Table 9-14 Summary of construction culture – non aboriginal heritage impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Culture – non-Aboriginal heritage	Impact Assessment Area	Negative	Likely	Minor	High negative

9.2.5 Health and wellbeing

9.2.5.1 Human health

Human health is an important factor in socio-economic wellbeing. No significant impacts to human health are expected as a result of the project, during construction. The Human Health Impact Assessment for the project considered a range of potential health impacts, and found:

- No significant human health impacts associated with soil contamination, noting legal requirements to appropriately manage potential risks (e.g. potential for asbestos sheeting in earthwork locations)
- No significant human health impacts associated with safety and hazard risks, including use of chemicals, with the site layout designed to minimise potential hazards
- Potential for some manageable health impacts from traffic congestion on Elizabeth Drive, Cowpasture Road and Hume Highway (noted to be cumulative due to all projects in the area, not just this project) – including increased anxiety, noise and air quality impacts, and sense of safety
- An inability to completely avoid health impacts associated with waste, if poorly managed.

Management of these impacts is highlighted as essential to ensuring no, or limited health impacts are experienced (see Section 10).

In addition to these reported impacts, it is noted that disruptions to public open spaces (as summarised in Section 9.2.3) may have some minor impacts on the ability of the community to access spaces and partake in activities that support local health and wellbeing. In particular, Councils have noted the importance of public open space: *"Green space is precious" and extremely value to the community, particularly with regard to health and wellbeing.* They have also noted increasing pressure on these green spaces, and the concern about any loss of public open space.

While there will be some impacts to these public open spaces, as noted in the assessment, these spaces will not be entirely impacted. Construction activities such as trenching and tunnelling will be temporary for the duration of a particular section of the pipeline (8 - 10 weeks in one given area). Trenching and tunnelling is expected to happen concurrently to minimise the period of impact also. It is also noted that a number of community facilities and open spaces will remain unimpacted, and as such overall this health impact is expected to be limited and temporary.

No health impact associated with water quality are anticipated. Impacts associated with this are assessed in Section 9.2.9.

Table 9-15 Summary of construction human health and wellbeing impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Human health and wellbeing	Local influence area SESA	Negative	Unlikely	Minor	Low negative

9.2.5.2 Air quality impacts

Social impacts as a result of air quality may occur during the project construction. Possible social impacts associated with the increased dust could be slight nuisance and annoyance caused to nearby the local community, possibly resulting in the need to change routines e.g. close windows and doors to reduce internal dust.

While the scale of dust impacts is currently unknown, It is expected that any dust impacts would be limited to the local influence area. Laydown areas have also been planned and located to avoid community, and environmental constraints, and works are proposed to predominantly take place during standard working hours to minimise impacts on residential receivers. These impacts are also anticipated to occur for only a limited period – with construction locations shifting along the alignment throughout the construction period. The Air Quality Impact Assessment provides further detail on these impacts.

Table 9-16 Summary of construction air quality impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Air quality impacts	Local influence area	Negative	Possible	Minor	Moderate negative

9.2.6 Surroundings

9.2.6.1 Visual impacts

The *Upper South Creek, Advanced Water Recycling Centre - Landscape and Visual Impact Assessment* was developed for the project to assess the construction and operational impacts to landscapes and viewpoints (Aurecon Arup, 2021b). Construction of the AWRC would impact the rural amenity within the local influence area as well as certain viewpoints from residential dwellings in close proximity to the AWRC. This may prompt a sense of loss of valued character and impact on surrounding receiver's ability to enjoy the rural and vegetated areas surrounding their residences and across their suburbs. There would also be active construction sites required for the construction of the pipelines, which will be located throughout the impact assessment area (noting there may be several areas being worked on at any one time) (Aurecon Arup, 2021b). These construction sites would be mostly within the road corridor, predominately surrounded by residential areas including residences and businesses.

In addition, a series of compound sites would be required for the construction of the project. These sites have been strategically located to minimise community and environmental impacts; however, impacts would still occur, particularly in places frequented by the public regularly such as parks and shopping areas. This may impact the visual amenity of residential suburban areas, particularly quieter suburbs such as Warragamba, Wallacia and Cecil Hills. Impacts are expected to be limited along pipeline routes and near compound sites during construction, as the visual impacts associated with construction would be temporary with construction equipment being removed upon completion.

Table 9-17 Summary of construction visual impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Visual impacts	Local influence area SESA	Negative	Likely	Minor	High negative

9.2.6.2 Noise impacts

As stated in the *Upper South Creek, Advanced Water Recycling Centre - Noise and Vibration Impact Assessment*, the AWRC is to be located in a rural residential and relatively open area dominated by rural sound (Aurecon Arup, 2021f). For the construction of the AWRC, the assessment identified that construction noise impacts are likely to be above noise management levels (NMLs) during construction of Stage 1, however would not exceed the highly noise affected NMLs (above 75dBA) during standard hours (during the day) with mitigation measures applied. The expected noise levels experienced would be generally low and are not likely negatively impact on people's health and wellbeing.

Noise impacts are also expected to be experienced by businesses that are operating during the day (discussed further in Section 8.2.2.1). Noisy works could potentially cause annoyance (e.g. causing people to keep windows and doors closed to reduce internal noise while particularly noisy works are taking place), particularly if noisy works are continuous and over a period of time.

Within the SESA-eastern, the pipelines would predominately run through residential areas across the local influence area. There are residences, businesses and social infrastructure immediately adjacent to the road corridor where construction of the pipeline is to occur. Construction traffic that is directed onto busier main roads is expected to have negligible noise impacts, whereas construction traffic diverted onto local roads would have noise impacts, particularly at night (Aurecon Arup, 2021b).

For the construction of the pipelines, construction works are likely to be above NMLs for receivers located near construction areas. Some receivers might experience noise levels above the highly noise affected NMLs. Operation of some of the compound sites are also expected to be above the highly noise affected NMLs at receivers near C6, C10b, C12 and C13. Works that are expected to be undertaken outside of standard hours in the evening and night time are likely to impact residents, businesses such as restaurants and service stations and social infrastructure such as places of worship with evening events and 24-hour operational community centres closest to construction.

There are not expected to be vibration impacts during construction of the AWRC. There may be some vibration impacts experienced by residents and businesses during the construction of the pipelines in some areas.

Table 9-18 Summary of construction noise impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Noise impacts	Local influence area	Negative	Likely	Minor	High negative

9.2.7 Personal and property rights

Property impacts during construction, including details of property acquisitions and access arrangements are discussed in Section 8.2.1. This section assesses the socio-economic implications of these property impacts on the community, businesses and social infrastructure, as follows:

- The only permanent acquisition required as part of the project is of land from the University of Sydney for the AWRC for which purchase negotiations are underway
- The majority of properties impacted will involve temporary access arrangements on a very small portion of the overall lot size, and will not impact on any structures or buildings.
- Where the pipelines are not located in the road reserve, the predominant land uses/owners impacted by property impacts will be rural and agricultural landowners. In a handful of cases, this land will experience some minor severance as a result of requiring access, but will still be a small proportion of overall lot size
- Some social impacts associated with property impacts and temporary access arrangements are anticipated as a result of these property impacts from project – impacting of way of life of landowners. The requirement to allow access to their land may cause anxiety and stress for the affected residents, and result in time being spent considering options and worrying about potential impacts. This is particularly noting the fact raised in Section 7 that many residents have lived in the area for a long time. This demonstrates that there is likely to be a social impact associated with concern and stress regarding potential future impacts
- Vulnerable members of the community, including the young, elderly and those with families, may be more adversely impacted in such situations. The SESA-western is home to a higher than average proportion of older residents, and therefore this may be a particularly high risk, also noting the large areas of agricultural land
- Consultation activities suggest some concern among local communities regarding the rezoning of agricultural land and rural landscapes for infrastructure, and the cumulative effects of planning and construction on property and community amenity.

Table 9-19 Summary of construction personal and property rights impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Personal and property rights – impacts to way of life	Impact Assessment area	Negative	Likely	Minor	High negative

9.2.8 Decision making systems

The project is not anticipated to impact on existing decision-making systems in place during construction. Sydney Water recognises the importance of a legitimate community engagement process, and of support by a government policy framework, and acknowledges the concerns of all opponents in achieving a genuine dialogue. This echoes the sentiments raised during community consultation, which stressed the need for evidenced decision-making and strong governance and collaboration to ensure the best outcomes for the area, including:

- *"While the decisions are difficult and there are many future uncertainties, it's vital that we have this difficult process because we are seeking to maximise the benefit of this valuable resource…"*
- *"Lots to consider including water balance, servicing needs, community and stakeholder expectations"*
- *"Collaboration between all levels of government is necessary…"*
- *"Sydney Water thus far have continuously included stakeholders as part of the project process."*

Table 9-20 Summary of construction decision making systems

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Decision making systems	All scales	No impact	N/A	N/A	N/A

9.2.9 Fears and aspirations

The fears and aspirations of the various communities within the SEIA study area support assessment of the impact of the project's construction on the values of particular importance to the community. It is noted that community raised a number of concerns (as summarised in Section 7.7), relating to amenity (Section 9.2.5 and 9.2.6) and transport impacts (Section 9.2.3), as well as impacts to local businesses and surveys (Section 9.3.2). Having been covered already and to avoid duplication, only additional experienced or perceived impacts are summarised in this section.

9.2.9.1 Biodiversity and natural environment

The review of community values in Section 7.7 shows a passion in the local community for the natural and natural landscapes in SESA, particularly in the western and central areas. As such, any significant impacts to biodiversity would result in social impacts through affecting a feature of value to the community. The Biodiversity Development Assessment Report (BDAR) (Biosis, 2021) shows that several threatened species and ecological communities will be impacted by the project, but on a relatively small scale. The BDAR concluded that biodiversity impacts would not be significant, serious or irreversible.

From a social perspective, while biodiversity impacts are anticipated to be 'acceptable' there is potential for a greater perceived impact among members of the local community who are passionate about the natural environment, flora and fauna. This is demonstrated through concerns raised by the local community and Councils, with sensitive vegetation along the pipeline routes, and Biobanking reserves (e.g. at Lansdowne) highlighted for concern.

As a result, social impacts associated with perceived biodiversity impacts are expected to be minor but possible.

Table 9-21 Summary of construction biodiversity and natural environment impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – environment & biodiversity	Local influence area	Negative	Likely	Minor	High negative
Fears and aspirations – water quality	All scales	No impact	N/A	N/A	N/A

9.2.9.2 Agricultural impacts

One significant concern raised during consultation and engagement has been the impact of the project on neighbouring agricultural land uses. Overall, there is potential for some conflicts with neighbouring land uses, including:

- Potential noise, odour, dust and air quality impacts to agricultural land uses
- Direct impacts to around 3km of BSAL and some impacts directly on agricultural land.

In addition, there may be a concern among agricultural neighbours with regard to the change from an established rural landscape and lifestyle, to more infrastructure focused urban development (particularly around the facility itself). This impact is expected to be limited to a small number of properties in the immediate vicinity of the pipelines. Engagement has and will continue to occur with impacted landowners and agricultural users to explore this potential impact. Further detail on these potential impacts is considered in the LUCRA, Appendix A.

Table 9-22 Summary of construction agricultural impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – agricultural impacts	Impact assessment area	Negative	Likely	Minimal	Moderate negative
	All other scales	See *LUCRA*	N/A	N/A	N/A

9.3 Operational impacts

9.3.1 Way of life

9.3.1.1 Access to housing

There are no direct impacts anticipated to housing affordability and availability, during operation. The operational AWRC site is located at some distance from significant residential areas, and the pipelines will be sub-surface, and will not impact of access to housing or residential services.

Table 9-23 Summary of operational housing impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Access to housing	All scales	No impact	N/A	N/A	N/A

9.3.1.2 Access to employment

There is a small positive impact anticipated as a result of employment provision during the operational phase. The project is expected to directly employ up to 10 people on site in an ongoing capacity to operate the AWRC, during early stages. This is likely to be supplemented with additional (likely part time) employment associated with maintenance, inspection and repair of the pipelines and associated facilities. As noted in Section 9.2.1, this will help to somewhat support reduction of the high unemployment in the SESA-eastern in particular and provide job opportunities for the existing and projected population.

Opportunities to support employment of priority groups should be explored, such as the long-term unemployed, those with families (which represent a large proportion of people in SESA) and those from diverse backgrounds, particularly noting the multicultural character of the population.

Table 9-24 Summary of operational access to employment impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Access to employment	Sydney	Positive	Rare	Minimal	Low positive

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Access to employment	Local influence area SESA	Positive	Almost certain	Minimal	High positive

9.3.1.3 Commercial operations and businesses

The project is expected to provide benefits to businesses by providing essential wastewater infrastructure and services to support their ongoing operation. The AWRC is also expected to compliment proposed future business and employment areas of the Western Sydney area. This includes the potential indirect benefit the project may have on the tourism industry through the provision of water infrastructure to support surrounding areas.

. Although there are plans for the surrounding areas to change as Western Sydney continues to develop, the agricultural properties surrounding the AWRC may be impacted by potential air quality impacts and odours, human health impacts and biosecurity risks. Appendix A, the LUCRA, provides further analysis of impact on neighbouring agricultural businesses. Mitigation to avoid and reduce potential impacts are provided in Section 10 and the project EIS.

Table 9-25 Summary of operational commercial operations and business impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Business and commercial operations	Local influence area – SESA-central	Negative	Possible	Minor	Moderate negative
	Local influence area SESA	Positive	Possible	Minor	Moderate positive

9.3.1.4 Access and connectivity

Local road network and access

The operation of the AWRC would result in up to eight heavy vehicle trips per day (biosolids removal, screening removal, grit removal, other deliveries and maintenance requirements) and 20 light vehicle trips per day (staff trips) (Aurecon Arup (2021e). This would be most noticeable on Clifton Avenue and Elizabeth Drive where operational traffic relating to the AWRC will significantly increase traffic on Clifton Avenue. This is expected to have a negligible impact on the surrounding roads as the vehicles would be able to be absorbed by the network. During operation, the pipelines may require some routine maintenance, inspections and repairs which may generate some additional infrequent traffic movements.

Public and active transport

The operation of the project is not expected to impact the travel time of buses or the operation of strategic bus corridors in the vicinity of the project (Aurecon Arup (2021e). The Traffic and Transport Assessment provides mitigation measures for the use of public and active transport including recommendations for the integration of public and active transport in the local influence area to encourage usage.

Table 9-26 Summary of operational access and connectivity impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Local road network and access	Local influence area	Negative	Likely	Minor	High negative
Public and active transport	Local influence area	No impact	N/A	N/A	N/A

9.3.1.5 Long-term liveability and choice

As described previously, the SESA is subject to significant historic and future growth plans, particularly around the WSAGA, SWGA and future employment and mixed-use growth. The project will provide essential infrastructure to both support the local community, and future planned development and growth within the area. Beyond the direct impacts explored, therefore, operation of the project is likely to have sustained, indirect positive social impacts on liveability, including housing availability and choice, employment provision, and access to services, recreation and opportunities which enhance way of life. Particular impacts include:

- Provision of updated wastewater servicing for both existing and new populations, to support the delivery of new homes and jobs to meet strategic growth aspirations for the region and facilitate the transformation of Western Sydney into a key hub of business, industry and residential activities for Sydney
- A key element of the proposed planning framework for the WSAGA and SWGA focuses on provision of a range of housing types and densities, including affordable housing options. The new development in the area will also include significant recreational space and investment in place-making and transport and connectivity
- Existing infrastructure capacity would not be sufficient to support this level of population growth, and therefore the project provides a means to unlock the potential for this future growth – by providing additional wastewater capacity. As such, there is likely to be a significant indirect impact associated with the project, in supporting future liveability benefits.

This positive impact is supported by many stakeholders with the current and future population, which express general excitement and interest about plans for Western Sydney and the investment in their area. In the context of significant historic development and change already, much of the community is understood to be accepting of the benefits of long-term development, and familiar with and resilient to the short-term impacts required.

However, support for this longer-term change is not universal. A number of other stakeholders have expressed concern and frustration about the rapid pace of planning and development, perception of lack of planning and coordination between agencies and utilities.

Overall, there is potential for a positive change regarding liveability and housing choice for Sydney residents as a whole, and for many within the local community. However, this impact may be mixed with some people within SESA, perceiving this change to be an adverse impact – associated with the wider proposed significant change in local character. This is considered further in Section 9.4 on Cumulative Impacts.

Table 9-27 Summary of operational long term liveability and choice impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Long-term liveability – growth and development	All scales	Positive	Likely	Transformational	Extreme positive
Long-term liveability – growth and development (perceived)	SESA-western and SESA-central	Negative	Possible	Minor	Moderate negative

9.3.2 Community

9.3.2.1 Socio-demographic profile

The project is anticipated to create up to 10 new jobs locally at the AWRC, primarily in wastewater management and utilities servicing (as well as ad hoc maintenance and servicing jobs along the pipelines), providing employment opportunities in the Western Sydney region. Noting the small scale of operational employment relative to the size of the working labour force, this is considered unlikely to impact on the demographic composition of the local influence area or SESA.

The project does however provide support for indirect population growth and demographic shift, associated with the planned development and growth for Western Sydney, as summarised in Section 7.2.1.2. It is anticipated that the new growth will result in a demographic shift towards a more urban population, particularly in the currently rural characterised SESA-western and SESA-central. This is likely to include a greater diversity of population, including more young professionals, a reduced household size, people with greater mobility aspirations and higher density living requirements. As such, there is likely to be an indirect impact associated with the project, in supporting a demographic shift in the area.

Table 9-28 Summary of operational socio-demographic profile impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Socio-demographic profile	All scales	Neutral	Rare	Minimal	Low neutral

9.3.2.2 Community cohesion

As identified in Section 9.2.2, there may be some existing challenges with social cohesion within the SESA. This might include different perspectives regarding support for, or opposition to growth and change in the area. During operation, impacts to this social cohesion are likely to be lower than during construction as opponents become aware of lack of experienced negative impacts of the project, and begin to see the longer-term benefits of the project, and wider development. As such, no operational impacts are anticipated with regard to community social cohesion. The operational project is also not anticipated to physically contribute to social cohesion challenges, or impact on local events or activities.

Table 9-29 Summary of operational community cohesion impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Community cohesion	Local influence area SESA	Negative	Rare	Minimal	Low negative

9.3.3 Access to and use of infrastructure, services and facilities

9.3.3.1 Social infrastructure

The project is not expected to impact social infrastructure during operation, with areas used during construction restored to their former use, including parks, reserves and recreational spaces. As stated in the *Scoping Report - Upper South Creek Advanced Water Recycling Centre*, through the project Sydney Water seeks to provide opportunities to enhance the parkland landscape along the upper reaches of South Creek and contribute to the 'greening of the west' (Sydney Water, 2020).

Consultation with communities has suggested concern about the potential impacts of the project on recreational uses of the waterways around the project, including the Nepean River. This is considered in Section 9.3.9, Fears and Aspirations.

In addition, areas within parks, reserves and open spaces that were cleared for trenching works and compound sites may have some temporary visual impacts where replanting/revegetation has been undertaken. Vegetation would need time to re-establish/grow resulting in some temporary/minor impacts. Along pipeline routes, particularly in open and greenspaces, areas could potentially be used by the community and stakeholders for passive recreation.

In the long-term, outside of the scope of this EIS, the project may have an indirect benefit on open public spaces through the supply of recycled water for non-drinking purposes for irrigation of public open space such as playing fields and parks.

Table 9-30 Summary of operational social infrastructure impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Social infrastructure	Local influence area - Western	Negative	Possible	Minor	Moderate negative

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
	Local influence area - Central	No impact	N/A	N/A	N/A
	Local influence area - Eastern	No impact	N/A	N/A	N/A

9.3.3.2 Other infrastructure

There are no impacts to other local infrastructure anticipated during operation.

Table 9-31 Summary of operational infrastructure impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Other infrastructure	Local influence area	No impact	N/A	N/A	N/A

9.3.3.3 Utilities

Once operational, the project will result in a significant improvement to wastewater utilities infrastructure through the provision of the AWRC and associated pipelines. The project will help to meet capacity gaps in the water infrastructure network for Western Sydney and prepare for the future development needs of the area. There are not anticipated to be any on-going impacts on other public utilities and services. More information about impacts to utilities is provided in the project EIS.

Table 9-32 Summary of operational utilities impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Utilities	Local influence area SESA	Positive	Almost certain	Transformational	Extreme positive

9.3.4 Culture

No further Non-Aboriginal heritage impacts are expected during operation of the project.

Table 9-33 Summary of operational cultural non-Aboriginal heritage impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Culture – non Aboriginal heritage	Impact Assessment Area	No impact	N/A	N/A	N/A

9.3.5 Health and wellbeing

Health impacts associated with noise and air quality are covered in the relevant sections within Section 9.2.6 surroundings.

9.3.5.1 Human health

No significant impacts to human health are expected as a result of the project, during operation. The Human Health Impact Assessment for the project considered a range of potential health impacts, and found:

- No significant human health impacts associated with soil contamination, noting legal requirements to appropriately manage potential risks
- No significant human health impacts associated with safety and hazard risks, including use of chemicals, with the site layout designed to minimise potential hazards
- Negligible health impacts from traffic congestion on Elizabeth Drive, Cowpasture Road and Hume Highway (noted to be cumulative due to all projects in the area, not just this project)
- An inability to completely avoid health impacts associated with waste, if poorly managed.

No health impact associated with water quality are anticipated.

Beyond this predicted lack of experienced impacts, consultation suggests that there is a perceived impact regarding impacts to health associated with the quality of the water supply. This is considered in further detail in Section 9.3.9.

Table 9-34 Summary of operational human health and wellbeing impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Human health and wellbeing (experienced)	Local influence area SESA	No impact	N/A	N/A	N/A
Human health and wellbeing (perceived)	Local influence area SESA	Negative	Possible	Moderate	High Negative

9.3.5.2 Air quality impacts

The project is unlikely to have any significant social impacts associated with air quality during operation. The Air Quality Impact Assessment found that that emissions and odour impacts of the AWRC are expected to be at acceptable levels and not expected to adversely affect any sensitive receivers, based on conservative, worst-case modelling results. Emissions from any key odour generating sources will also be ducted to the proposed odour control facility, treated and exhausted via a stack. This arrangement is consistent with best practice for odour management at wastewater treatment plants. As such, no social impact associated with nuisance or health from air emissions are anticipated. There is potential for the western side of the AWRC site to be opened up for transient recreational users, who may experience some odour impacts in close proximity to the facility. This may impact on how the space is used, and people's ability to enjoy the landscaped parkland area provided. However, this space is not expected to experience frequent use, and low numbers of people and short durations mean that impacts would be unlikely.

Noting that pipelines will be located below the ground they will have no air quality impacts.

As such, no significant socio-economic impacts associated with air quality are anticipated as a result of the operation of the project.

Table 9-35 Summary of operational air quality impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Air quality impacts	Local influence area – Western and Eastern	No impact	N/A	N/A	N/A
	Local influence area - Central	Negative	Possible	Minimal	Low Negative

9.3.6 Surroundings

9.3.6.1 Visual impacts

The project would have ongoing impacts to landscape character and visual amenity. This would be predominately experienced from the introduction of new infrastructure in the existing rural locality of Kemps Creek (Aurecon Arup, 2021b). The change in rural landscape may impact on resident's appreciation of the area and their property. The AWRC would be a dominant built structure in a relatively undeveloped setting. This is likely to change over time as the Western Sydney area develops, however following construction, the visual impact of the AWRC would be substantial. The associated vegetation removal required for the project would also contribute to visual impacts during operation. Vegetation removal may change the recreational and scenic qualities of areas across the SESA and impact the community's enjoyment of places.

The pipeline infrastructure associated with the AWRC would be located below the ground, however in some areas this would be more noticeable, particularly where vegetation removal has been required. Where possible, the vegetated areas will be rehabilitated to previous conditions where practical, however growth and establishment of these areas may take time.

Table 9-36 Summary of operational visual impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Visual impacts	Local influence area – Western and eastern	No impact	N/A	N/A	N/A
	Local influence area - Central	Negative	Possible	Moderate	Moderate Negative

9.3.6.2 Noise impacts

The operational noise assessment undertaken for the project indicated that exceedances in the surrounding areas of the AWRC can be mitigated using the application of reasonable noise mitigation measures.. Some minor noise exceedances are also predicted during following periods:

- During the night-time period when the project is operational (standard weather conditions) - noise predictions indicate minor exceedances during some activities for surrounding residential receivers in Badgerys Creek.
- During the night-time period when the project is operational (during noise enhancing weather conditions) – noise predictions indicate minor exceedances during some activities for residents in Kemps Creek and along Mamre Road (Aurecon Arup, 2021f).

Noise impacts can lead to sleep disturbance, irritation and stress. Increases in noise may lead to changes in people's behaviours and day to day activities, having an impact on their health and wellbeing. Mitigation measures are proposed in the *Upper South Creek, Advanced Water Recycling Centre - Noise and Vibration Impact Assessment* to reduce noise levels at the receivers and meet the proposed noise and vibration criteria required for the operation of the (Aurecon Arup, 2021f).

Operational noise has been assessed for the project to determine potential impacts from the additional operational traffic traveling to the AWRC. Road traffic noise levels associated with the operation of the AWRC are predicted to be negligible (Aurecon Arup, 2021f).

Table 9-37 Summary of operational noise impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Noise impacts	Local influence area – Western and Eastern	No impact	N/A	N/A	N/A
	Local influence area - Central	Negative	Possible	Minor	Moderate Negative

9.3.7 Personal and property rights

As highlighted in Section 8.3.1 no additional property acquisition or access impacts are anticipated as part of the operational project, over and above the permanent construction impacts summarised in Section 9.2.7.

Table 9-38 Summary of operational personal and property rights impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Personal and property rights	Local influence area	No impact	N/A	N/A	N/A

9.3.8 Decision making systems

There is not expected to be an impact on decision-making systems once the project is operational. the EIS identifies plans to communicate future operations and management information, as well as a clear process for future contact during operation. Systems would be put in place to enable community feedback on operations and impact experienced. Overall, the operational project is assessed to have no socio-economic impacts associated with decision making processes.

Table 9-39 Summary of operational decision making systems impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Decision making systems	All scales	No impact	N/A	N/A	N/A

9.3.9 Fears and aspirations

The fears and aspirations of the various communities within the SEIA study area support assessment of the impact of the project's operation on the values of particular importance to the community. It is noted that community raised a number of concerns (as summarised in Section 7.7), relating to amenity (Section 9.3.5 and 9.3.6) and transport impacts (Section 9.3.3), as well as impacts to local businesses and services (Section 9.3.2 and 9.3.3), and ongoing change and development in Western Sydney (9.3.1). Having been covered already and to avoid duplication, only additional experienced or perceived impacts are summarised in this section.

9.3.9.1 Biodiversity and natural environment

There is a positive impact anticipated as a result of the 42-hectare green space area proposed as part of the AWRC. This 42-hectare green space will integrate existing environmentally protected vegetation and waterways and may enhance existing biodiversity, through the provision of additional habitats and vegetation. No additional biodiversity impacts are envisaged as a result of the project during operation, other than those recorded during construction. Rehabilitation and landscaping will occur prior to operation.

Table 9-40 Summary of operational biodiversity impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – environment	Local influence area	No impact	N/A	N/A	N/A

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – environment	All scales	Positive	Almost certain	Major	Extreme positive

9.3.9.2 Water quality and health

Experienced impacts

Several stakeholders have expressed concerns around the impact of treated water outflows upon water quality within the surrounding waterways – including the Nepean River and Warragamba. Consultation identified that local people value local rivers and creeks very highly, and therefore any discharges into natural watercourses should be of the highest quality and have no adverse impact on river and creek quality. In addition, as highlighted in Section 7.4, the community makes use of the waterways for recreation, including boating, swimming and fishing, and as such water quality is of importance:

- *"A lot of users and visitors use the area above the Penrith Weir. Water quality and value is very important"*
- As the Proposed project area is situated closely to waterways, these area [sic] would have been highly value for their natural resources. And used by both Durug Aboriginal People and neighbouring Aboriginal people of the past… [Aragung Aboriginal Cultural Heritage Site Assessments stated (letter dated 5/05/2020)].

Water quality modelling undertaken as part of the project (see the EIS) shows that the environmental impacts on South Creek from the wet weather releases are considered to be not significant and unlikely to affect long term ambient water quality and/or ecosystem health. This is predominantly a result of the assumed release conditions including: timing in wet weather, low discharge frequency, limited release duration and also the assumed release conditions (flow volumes and quality of the recycled water). There are likely to be highly infrequent releases of water to South Creek (two to three days per year).

Similar modelling undertaken for the Nepean River and Warragamba suggest that there will be predominantly negligible impacts of the project upon flow regime and habitat of the waterway, and no significant changes in water quality at the large river scale. In the vicinity of the Wallacia release area there may be some localized effects, however these disappear quickly downstream.

Several stakeholders have expressed concerns around the potential for increase flood risk associated with outflows to the Nepean River in particular. It is understood that the project is not anticipated to result in any adverse impacts to flooding during construction or operation.

As such, no significant negative impacts to water quality, or use of the waterways for recreation are anticipated.

Perceived impacts

However, there is likely to remain potential for a perceived impact relating to this concern – noting the community views expressed. Consultation has shown that there is some concern among a section of the community with regard to the impact of the project on the potable water supply, and the potential that treated wastewater would be used as drinking water…"One stuff up and a glass full of bacteria."

Without the project, there is potential for the wastewater system to become overloaded, and water quality to be significantly impacted in the long term.

Table 9-41 Summary of operational water quality and health impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Experienced Fears and aspirations – water quality	All scales	No impact	N/A	N/A	N/A
Perceived Fears and aspirations – water quality	All scales	Negative	Possible	Minor	Moderate negative
Experienced Fears and aspirations – water quality	All scales	Negative	Possible	Minimal	Low negative

9.3.9.3 Future uses for recycled water

A significant recurrent theme in consultation and engagement on the project has been the future use of recycled water generated by the project, and there is generally significant support from Councils and community members for the use of recycled water:

- *"Below the weir there is a lot of agriculture and extraction. There are opportunities for water to be used for industrial purposes, irrigation purposes and saving drinking water"*
- *"We are always looking for opportunities to put water back into landscape (watering playing fields, etc.) …Could water be used to return water to the landscape rather than substituting other existing water supplies"*
- "Would like to see recycled water for important uses – for irrigation, agriculture, car washing, sports fields. For gardening, cleaning teeth, pets, washing car, flushing toilets and showering. "Practical use" of recycled water"
- "Recycled water is the way to go".

While the future use of recycled water does not form part of this project EIS, the project will provide the opportunity for future consideration of this topic. This therefore has the potential to generate a perceived positive benefits of recycled water use. The three most supported uses among communities are:

- Use in the waterways for cooling and greening
- Use for irrigation
- Using recycled water to offset drinking water use.

There are no current plans for the recycled water to be used a drinking water, however, there is potential for a perceived negative impact regarding this potential use.

Table 9-42 Summary of operational future uses for recycled water impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – use of	All scales	Positive	Possible	Moderate	High positive

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
treated water (perceived)					
Fears and aspirations – use of treated water (perceived)	All scales	Negative	Possible	Moderate	High negative

9.3.9.4 Community values and education on sustainability

Sustainability has been identified in Section 7.7 as important to the community. Consultation with the community, and targeted Council engagement has demonstrated a keen focus on climate change, sustainable operation, and strategies such as urban cooling and energy efficiency.

Through this project Sydney Water has asserted its commitment to "*deliver a world-class water system that enables sustainable, efficient, and affordable reuse of resources that is appropriate for the future*." This has been demonstrated through a range of key commitments to ensure the responsible use of energy and reduction in emissions; embed circular economy principles; address sustainable water management, climate resilience and urban heat island impacts; and to support developing sustainable communities.

Sustainable solutions for the Water Recycling Centre also include:

- Retaining water in the landscape to mitigate urban heating (landscaping and including Water Sensitive Urban Design)
- Circular Economy approaches to waste management by explicitly adopting renewable energy solutions and resource re-use (co-generation and biosolids for beneficial re-use) – aligning with key aspirations for the transition to a circular economy in NSW planning policy and strategy, including the draft PIC
- Installation of roof-mounted and ground mounted solar photovoltaics
- Adaptation measures to improve climate resilience, ensuring the project can adapt to increasing risks from flooding and bushfires.

These will be developed further through detailed design.

Alongside supporting sustainability, the centre will also have a range of broader sustainability related community, social and environmental benefits. These include increased opportunity for community sustainability education, engagement with local businesses and social enterprises, improved connectivity, and the creation of active transport (walking and cycling) corridors due to green and blue infrastructure, and the opportunity to (re) create valuable ecological habitats. The Sustainability Assessment for the EIS provides further detail.

Table 9-43 Summary of operational community values and education on sustainability impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations –	All scales	Positive	Possible	Minor	Moderate positive

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
education and sustainability					

9.3.9.5 Agricultural impacts

One significant concern raised during consultation and engagement has been the impact of the project on neighbouring agricultural land uses. Overall, there is potential for some conflicts with neighbouring land uses, including risks of biosecurity associated with nearby poultry farms, and potential attraction of bird life to parkland on the AWRC site. This impact is expected to be limited to a small number of properties in the immediate vicinity of the AWRC. Sydney Water is engaging with impacted landowners and agricultural users to explore this potential impact. Further detail on these potential impacts is considered in the LUCRA, Appendix A.

In addition, there may be a concern among agricultural neighbours with regard to the change from an established rural landscape and lifestyle, to more infrastructure focused urban development (particularly around the facility itself). However, it is noted that the wider plans for redevelopment and change in Western Sydney will result in a change in character within the local area, both with and without the project.

Table 9-44 Summary of operational agricultural impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – agricultural impacts	All scales	See LUCRA	N/A	N/A	N/A

9.4 Cumulative socio-economic impacts

The project is located within a region covered by the Aerotropolis SEPP. This indicates significant development and therefore land use changes for the region. Some development activities are likely to be underway during construction. By the time future stages of the AWRC are being built or operational it is likely some of the precincts outlined in the SEPP will have been developed. Alongside the WSAGA and SWGA, other future developments have also been investigated to acknowledge future land use changes and explore potential cumulative impacts. This section summarises potential cumulative impacts.

9.4.1 Construction

Cumulative impacts would occur during construction, particularly in the SESA-western and SESA-central. Projects such as the Western Sydney Airport, M12 Motorway development and other industrial, residential and transport infrastructure upgrade projects are likely to coincide with the construction of the project. The following cumulative impacts are anticipated during construction of the project:

- Potential for the project, alongside other urban development and change, to help communities in demonstrating the benefits and opportunities of the large-scale development of the area, including greater access to services and infrastructure. In turn this might support with community acceptance and understanding of short-term impacts for long term gains

- Potential for consultation fatigue because of multiple consultation and engagement exercises with the local community on various projects. Consultation for this project showed some confusion among the local community – with people making comments about WSAGA, SWGA and other development. This potential impact was reinforced by Councils through consultation
- Concern, expressed by some stakeholders, that the Western Sydney area is being disproportionately targeted for industrial and infrastructure development that is not desired elsewhere in the city: …is it to go beside the toxic incinerator they are also trying to force on us in Western Sydney?" "forget about us locals". There is potential for this to be exacerbated by the project, in the context of significant other major projects
- Amenity and traffic and transport impacts from the project are likely to be increased as a result of cumulative development. In particular, the additional construction traffic in the area will have significant impacts on congestion, as well as traffic pollution and noise. Many of the areas impacted have been subject to the effects of construction projects previously (and ongoing) – and there is potential that cumulative impacts will increase annoyance and disturbance to local communities. Vulnerable groups, such as young children would need to be particularly considered in planning for construction as they may be subject to more substantial impacts particularly being impacted by multiple construction projects over a period of time. For example, children subject to noise and amenity impacts could experience impacts to their school environment and learning ability if works occur over long periods of time. Similarly, people in aged care facilities and retirement villages could be impacted in a similar way, with ongoing impacts to amenity impacting their stay/lifestyle in these facilities.

9.4.2 Operation

The following cumulative impacts are anticipated during operation of the project:

- While the project alone will not result in significant land use impacts, it will provide a supportive environment for the growth and development of the area – this will catalyse a significant change in land use character from the rural and agricultural use to a more urban and industrial character. In particular in the SESA-western and SESA-central. While the project is just one small part of this, it has the potential to contribute to this broader cumulative impact. This change will result in both positive and negative impacts including negative impacts to agricultural economy and land use, and concerns from the local community regarding the local character that they value. Positive impacts might include the provision of greater access to employment, housing choice and other services and opportunities for local and future residents. This is explored further in Section 9.3.1 regarding indirect liveability and growth impacts
- In addition, there is potential for a cumulative impact on the existing local community through the process of urban growth and change, and the resultant increase in land and property values – while not a direct impact of the project, in supporting ongoing urban development and growth, the project will facilitate the wholescale redevelopment of the SESA-western and SESA-central. This may push existing locals out of the area to be replaced by young professionals and other typical urban dwellers.

9.5 Overview and evaluation of socio-economic impacts

Table 9-45 provides an evaluation of the identified socio-economic impacts, having regard to the methodology set out in Section 4.

The evaluation uses the impact evaluation matrix provided in DPIE's Social Impact Assessment Guideline. This assesses risk based on likelihood and consequence of the impact from a **social perspective** only. As such, it is noted that some of the impacts outlined may differ from the impacts set out in the relevant technical reports, as these may use a different impact evaluation methodology to those technical reports. Impacts are categorised using broad level rankings, meaning that although an impact rating may seem low or high, it may fall within a lower bracket of that ranking category. This section should be read in conjunction with Section 9.1, 9.2, 9.3 and 9.4 to understand the level of potential impacts associated with the construction and operation of the project.

In instances where no potential impacts are expected, ratings are identified as not applicable or "N/A". Aboriginal cultural impacts have not been given a likelihood and consequence score.

Table 9-45: Evaluation of impacts

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Construction					
Access to housing (section 9.2.1.1)	All scales	No impact	N/A	N/A	N/A
Access to employment (section 9.2.1.2)	SESA	Positive	Almost certain	Minor	High Positive
Access to employment (section 9.2.1.2)	Sydney	Positive	Almost certain	Minimal	High positive
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-western	Negative	Likely	Moderate	High negative
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-central	Negative	Likely	Moderate	High negative
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-eastern	Negative	Likely	Moderate	High negative
Business and commercial operations – supply chain benefits (section 9.2.1.3)	All scales	Positive	Possible	Minor	Moderate positive

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Local road network and access (section 9.2.1.4)	SESA	Negative	Almost certain	Minor	High negative
Parking (section 9.2.1.4)	SESA-eastern	Negative	Likely	Minor	High negative
Construction traffic (section 9.2.1.4)	SESA	Negative	Likely	Minor	High negative
Public and active transport (section 9.2.1.4)	SESA	Negative	Likely	Minor	High negative
Socio-demographic profile (section 9.2.2.1)	All scales	Neutral[17]	Rare	Minimal	Low neutral
Community cohesion – physical (section 9.2.2.2)	Local influence area	Negative	Likely	Minor	High negative
Community cohesion – social (section 9.2.2.2)	Local influence area SESA	Negative	Likely	Minor	High negative
Natural areas, open spaces, parks and reserves (section 9.2.3.1)	Impact assessment area	Negative	Almost certain	Minor	High negative
Natural areas, open spaces, parks and reserves (section 9.2.3.1)	Local influence area, SESA/ Sydney	Negative	Possible	Minor	Moderate negative
Community facilities (section 9.2.3.1)	Local influence area	Negative	Likely	Minor	High negative
Educational facilities (section 9.2.3.1)	Local influence area	Negative	Likely	Minor	High negative
Other infrastructure	Local influence area	Negative	Possible	Minimal	Low negative
Utilities (section 9.2.3.3)	Local influence area SESA	No impact	N/A	N/A	N/A
Culture – non Aboriginal heritage (section 9.2.4.1)	Impact Assessment Area	Negative	Likely	Minor	High negative

[17] It is noted that demographic change can be considered to be both a positive and a negative impact, dependent on the community and their individual and collective perspectives. As such, this has been recorded as neutral in impact, but a rating still applied.

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Human health and wellbeing (section 9.2.5.1)	Local influence area SESA	Negative	Unlikely	Minor	Low negative
Air quality impacts (section 9.2.5.2)	Local influence area	Negative	Possible	Minor	Moderate negative
Visual impacts (section 9.2.6.1)	Local influence area SESA	Negative	Likely	Minor	High negative
Noise impacts (section 9.2.6.2)	Local influence area	Negative	Likely	Minor	High negative
Personal and property rights – impacts to way of life (section 9.2.7)	Impact Assessment area	Negative	Likely	Minor	High negative
Decision making systems (section 9.2.8)	All scales	No impact	N/A	N/A	N/A
Fears and aspirations – environment & biodiversity (section 9.2.9.1)	Local influence area	Negative	Likely	Minor	High negative
Fears and aspirations – water quality (section 9.2.9.1)	All scales	No impact	N/A	N/A	N/A
Fears and aspirations – agricultural impacts (section 9.2.9.2)	Impact assessment area	Negative	Likely	Minimal	Moderate negative
Fears and aspirations – agricultural impacts (section 9.2.9.2)	All other scales	See *LUCRA*	N/A	N/A	N/A
Operation					
Access to housing (section 9.3.1.1)	All scales	No impact	N/A	N/A	N/A
Access to employment (section 9.3.1.2)	Sydney	Positive	Rare	Minimal	Low positive
Access to employment (section 9.3.1.2)	Local influence area SESA	Positive	Almost certain	Minimal	High positive

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Business and commercial operations (section 9.3.1.3)	Local influence area – central	Negative	Possible	Minor	Moderate negative
Business and commercial operations (section 9.3.1.3)	Local influence area SESA	Positive	Possible	Minor	Moderate positive
Local road network and access (section 9.3.1.4)	Local influence area	Negative	Likely	Minor	High negative
Public and active transport (section 9.3.1.4)	Local influence area	No impact	N/A	N/A	N/A
Long-term liveability – growth and development (section 9.3.1.5)	All scales	Positive	Likely	Transformational	Extreme positive
Long-term liveability – growth and development (perceived) (section 9.3.1.5)	SESA-western and SESA-central	Negative	Possible	Minor	Moderate negative
Socio-demographic profile (section 9.3.2.1)	All scales	Neutral	Rare	Minimal	Low neutral
Community cohesion (section 9.3.2.2)	Local influence area SESA	Negative	Rare	Minimal	Low negative
Social infrastructure (section 9.3.3.1)	Local influence area - western	Negative	Possible	Minor	Moderate negative
Social infrastructure (section 9.3.3.1)	Local influence area - central	No impact	N/A	N/A	N/A
Social infrastructure (section 9.3.3.1)	Local influence area - eastern	No impact	N/A	N/A	N/A
Other infrastructure? (section 9.3.3.2)	Local influence area	No impact	N/A	N/A	N/A
Utilities (section 9.3.3.3)	Local influence area SESA	Positive	Almost certain	Transformational	Extreme positive
Culture – non Aboriginal heritage (section 9.3.4)	Impact Assessment Area	No impact	N/A	N/A	N/A

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Human health and wellbeing (experienced) (section 9.3.5.1)	Local influence area SESA	No impact	N/A	N/A	N/A
Human health and wellbeing (perceived) (section 9.3.5.1)	Local influence area SESA	Negative	Possible	Moderate	High Negative
Air quality impacts (section 9.3.5.2)	Local influence area – western and eastern	No impact	N/A	N/A	N/A
Air quality impacts (section 9.3.5.2)	Local influence area - central	Negative	Possible	Minimal	Low Negative
Visual impacts (section 9.3.6.1)	Local influence area – western and eastern	No impact	N/A	N/A	N/A
Visual impacts (section 9.3.6.1)	Local influence area - central	Negative	Possible	Moderate	Moderate Negative
Noise impacts (section 9.3.6.2)	Local influence area – western and eastern	No impact	N/A	N/A	N/A
Noise impacts (section 9.3.6.2)	Local influence area - central	Negative	Possible	Minor	Moderate Negative
Personal and property rights (section 9.3.7)	Local influence area	No impact	N/A	N/A	N/A
Decision making systems (section 9.3.8)	All scales	No impact	N/A	N/A	N/A
Fears and aspirations – environment (section 9.3.9.1)	Local influence area	No impact	N/A	N/A	N/A
Experienced Fears and aspirations – water quality (section 9.3.9.2)	All scales	No impact	N/A	N/A	N/A
Perceived Fears and aspirations – water quality (section 9.3.9.2)	All scales	Negative	Possible	Minor	Moderate negative
Experienced Fears and aspirations – water quality (section 9.3.9.2)	All scales	Negative	Possible	Minimal	Low negative

Impact	Extent of impact	Initial impact			
		Positive or negative	Likelihood	Consequence	Impact rating
Fears and aspirations – use of treated water (perceived) (section 9.3.9.3)	All scales	Positive	Possible	Moderate	High positive
Fears and aspirations – use of treated water (perceived) (section 9.3.9.3)	All scales	Negative	Possible	Moderate	High negative
Fears and aspirations – education and sustainability (section 9.3.9.4)	All scales	Positive	Possible	Minor	Moderate positive
Fears and aspirations – agricultural impacts (section 9.3.9.5)	All scales	See LUCRA	N/A	N/A	N/A

10 Mitigation, management and enhancement measures

This section outlines proposed mitigation and management measures in relation to the potential social and economic impacts of the project during construction and operation. This includes mitigation measures for any identified potential negative social impacts, and potential enhancement measures for possible positive impacts identified.

10.1 Technical mitigation, management and enhancement measures

It is noted that construction and operational social impacts within the socio-economic impact assessment relate to broader impacts associated with noise, air quality, visual, and traffic. In such instances, the relevant technical assessments have analysed the potential impacts and identified relevant mitigation and management measures. These are summarised in detail in the relevant technical reports, and in the EIS. These broader mitigation and management measures would reduce socio-economic impacts, associated with the relevant air quality, noise and traffic impacts.

In addition, there will be the opportunity for the project to address some of these impacts through a review of the design of the project during detailed design.

10.2 Land use and socio-economic mitigation, management and enhancement measures

Table 10-1 summarises the proposed management and mitigation measures specific to the socio-economic assessment. These are intended to support maximisation of positive impacts and minimise negative impacts.

Table 10-1: Socio-economic mitigation, management and enhancement measures proposed

ID	Relevant impact	Measure	Detail	Timing
Construction				
SELU1	Access to employment	Social and local procurement and employment strategy	Sydney Water will develop an Australian Industry Participation (AIP) Plan prior to construction, with the aim of increasing workforce capability and capacity across the industry. The plan will consider opportunities for: • Pre-commencement site training to meet minimum competency requirements for commencement on site • Procurement targets for local employment and procurement of local supply chain/contractor businesses within the five LGAs covered by the project (particularly in the context of local policy in Western Sydney) • A program targeted for those in long-term unemployment or underrepresented groups in the workforce • A procurement process which prioritises local knowledge, experience and skills among contractor partners • Working with local apprenticeship programs.	Prior to construction and during construction
SELU2	Commercial operations and businesses	Consultation with local businesses	Sydney Water will coordinate further consultation with impacted businesses within the local influence area to inform them of noisy works and provide sufficient mitigation, particularly businesses that are more sensitive to noise impacts such as medical practices, veterinary practices and personal care services. This will be particularly focussed in the SESA-eastern, where there is a significant concentration of commercial businesses potentially impacted by amenity and access impacts of the project. Potential impacts to access will also be discussed with these businesses, particularly those who require 24 hour access or have critical periods of operation (i.e. refrigerated freight deliveries). In addition consultation will also be undertaken with relevant associations and business societies.	Prior to construction and during construction

ID	Relevant impact	Measure	Detail	Timing
SELU3	Commercial operations and businesses / Fears and aspirations Agricultural Impacts	Consultation with agricultural businesses	Consultation with agricultural businesses in the local influence area will be undertaken to mitigate potential impacts during construction, including access impacts (including inter-property and driveway access requirements), noise and visual impacts to livestock and potential air quality and biosecurity risks to livestock and crops. This will particularly focus on the SESA-western, and SESA-central – where agricultural activities are most common.	Prior to construction and during construction
SELU4	Commercial operations and businesses	Signage and visibility for passing trade	Signage will be installed, where necessary, to maintain visibility of businesses and access to businesses during construction. This will include wayfinding signage and signage to inform people that businesses within the local influence area are operating as usual to mitigate potential impacts of construction of the pipeline trench and use of compound sites next to and in front of businesses.	During construction
SELU5	Access, movement and connectivity	Traffic management for schools and educational facilities	Traffic management including traffic control staff, signage, temporary footpaths around construction areas and alternate traffic arrangements will be implemented, where required – particularly associated with pipeline activities. Changes will be discussed prior to construction activities with impacted schools within the local influence area to mitigate impacts to safety. Construction activities including the delivery of machinery and materials will be scheduled out of peak periods (including drop off and pick up times in the morning and afternoon) and events to avoid impacts to access for students, staff and parents.	Prior to construction and during construction
SELU6	Access, movement and connectivity	Traffic management for stakeholders and the broader community across SESA	As part of the Construction Traffic Management Plan (CTMP) in the project Construction Environmental Management Plan (CEMP), above standard commitments, the following mitigation measures will be included: • Signage mitigation at key locations across the local influence area including Wallacia, and Luddenham to ensure the visitor experience is made as clear and easy as possible. Signage mitigation will also be required throughout busier areas where facilities are clustered together and subject to frequent access such as: – Luddenham Main Street (the Old Northern Road) in Luddenham – Elizabeth Drive in Luddenham and Kemps Creek – Liverpool Road North in Bonnyrigg	Prior to construction and during construction

ID	Relevant impact	Measure	Detail	Timing
			– St Johns Road, Cabramatta Road and Bartley Street in Cabramatta • Planning and consideration of the highly urbanised setting in Cabramatta within the local influence area. This includes planning parking changes to reduce potential impacts and planning traffic diversions in consultation with Council and other relevant bodies to avoid a cumulative impact of multiple road diversions creating additional pressure points in the road network.	
SELU7	Access, movement and connectivity	Temporary relocation of bus stops	People using buses that would be impacted by construction activities within the local influence area will be notified in advance of any changes to bus stop locations through signage at the existing bus stop. This would include schools that have local routes that use bus stops throughout the local influence area. Temporary bus stops would have similar features to existing bus stops, including shelter and rest areas for less mobile and elderly people. Adequate way finding signage would be installed.	Prior to construction and during construction
SELU8	Social infrastructure – Consultation with Councils	Consultation with Councils	Ongoing consultation with the five Councils across SESA will be required to discuss potential noise, visual and accessibility impacts of the project on local social infrastructure, particularly regarding facilities that are likely to be directly impacted by construction of the project within the local influence area. Sydney Water will work with the five Councils during the construction period to minimise impacts to areas within the local influence area during events, such as local events (memorials, festivals etc.) to minimise any adverse impacts on the road network and businesses during these periods. This includes timing events to avoid: • Events at the Luddenham Showground • Events at Cabravale Memorial Park • Public Holidays and school holidays.	Prior to construction and during construction

ID	Relevant impact	Measure	Detail	Timing
SELU9	Social infrastructure – consultation with facilities	Consultation with social infrastructure facilities	Consultation with educational facilities such as child care centres and schools across the local influence area will be undertaken to discuss timing and duration of construction. Construction activities should be timed in consideration of exam periods (i.e. NAPLAN and HSC) and school events to avoid impacts to students and staff. In addition, construction periods during the daytime should also be timed to avoid potential impacts to child care centres sleeping requirements. Consultation with community facilities and places of worship within the local influence area be required to understand potential impacts during times of worship and events/activities including amenity impacts and potential access impacts during trenching works. Construction will be restricted to avoid times of worship and facility activities where possible. This will be particularly centred in the SESA-eastern, where impacts are most significant.	Prior to construction and during construction
SELU10	Social infrastructure – design refinement	Consultation with landowners surrounding compound location details	Additional investigations will be undertaken during detailed design to mitigate potential impacts associated with construction, in particular the specific locations of construction compounds and impact assessment area of the pipelines and compound sites at the following locations: • Fowler Reserve, Wallacia • Western Sydney Parklands, Kemps Creek and Cecil Hills • Cabravale Memorial Park, Cabramatta • Lennox Reserve, Lansvale • Lansvale Reserve, Lansvale.	Detailed design
SELU11	Social infrastructure – emergency services	Consultation with emergency services for access	Continued consultation with emergency services that use the local influence area will be required to understand access requirements so that access can be maintained during construction. This includes consultation with the SES, RFS, Ambulance and Police.	Prior to construction and during construction

ID	Relevant impact	Measure	Detail	Timing
SELU12	Community severance	Temporary crossings and route signage	A strategy for overcoming physical segregation caused by trenching will be developed and implemented during construction. This will minimise impacts to commonly used routes, enabling community members to access services etc on the other side of trenches. This will be particularly focussed in the SESA-eastern, where there are requirements to cross roads to access services and infrastructure e.g. Cabravale Memorial park access for nearby schools.	Prior to construction and during construction
SELU13	Community cohesion	Communications, education and engagement program	Incorporate into the proposed Community and Stakeholder Engagement Plan, a Communications, Education and Education program targeted at providing information to the community and controlling misinformation regarding the potential impacts of the project. To include: • Information on the actual negative impacts that can be expected as a result of the construction of the project and ways in which these will be minimised, managed and mitigated • Information on the positive impacts and long-term benefits of the project • Updates to the Council, developers, local community and businesses on technical management plans (e.g. Construction Noise, Traffic) • Complaints handling procedure & response protocol, to include a 1800 number • Publication of information and holding consultation sessions in a range of languages to reflect the diversity of the community. This would be in addition to the mitigation measures for engagement targeted at specific groups, such as business owners, neighbouring and impacted landowners, social infrastructure and Aboriginal community.	Prior to construction and during construction
SELU14	Personal property	Consultation with impact properties and landowners	Consultation will be undertaken with directly affected residences and properties prior to the commencement of and during work. A Plan should be incorporated into the proposed Community and Stakeholder Engagement Plan setting out: • Impacted properties • A procedure for managing and responding to enquiries and complaints • Procedures for notifying the community of upcoming work and impacts • Procedures for communicating the details of design and construction.	Prior to construction and during construction

ID	Relevant impact	Measure	Detail	Timing
SELU15	Personal and property rights	Management of residual land	A strategy will be developed for the rehabilitation and return of land subject to temporary impacts during construction or used for compound sites. This will include the commitment and approach to returning land to enable it pre-construction uses to continue. Ongoing engagement with affected properties will continue throughout construction and post-construction.	Post construction
Operation				
SELU16	Long-term liveability	Engagement with surrounding developers	Ongoing consultation with Councils and surrounding developers will be undertaken during detailed design to consider future master planning – in particular the WSAGA and SWGA project teams. This will ensure that the benefit of the project is optimised through an integrated approach to development and future growth in the Western Sydney Area.	Detailed design and construction, Prior to and during operation
SELU17	Community cohesion / Health and Wellbeing / Personal and Property Rights / Fears and Aspirations / Culture	Communications, education and engagement program	Development and delivery of a Communications, Education and Education program targeted at providing information to the community, and controlling misinformation regarding the potential impacts of the project. To include: • Education and information sharing around perceived impacts of the AWRC, especially regarding water quality and human health to demonstrate low impacts, as well as positive impacts associated with support for existing and future quality of life • Targeted engagement with vulnerable groups, including families, young and ageing populations to minimise real and perceived impacts, including in languages relevant to the local community • Establishment of a complaints handling procedure and a response protocol, including 1800 number • Delivery of an annual open day to the facility for visitors • Publishing and display of findings from monitoring and management processes transparently for the community. This would be in addition to the mitigation measure targeted as business owners, neighbouring and impacted landowners, social infrastructure and Local Aboriginal groups.	Prior to and during operation

11 Residual impacts

Based on application of the socio-economic specific mitigation measures, and broader technical mitigation and management measures introduced in Section 10, it is considered that the overall impact of the project would alter. Table 11-1 provides a summary of the anticipated residual impacts following mitigation and management. Only those impacts that have altered are shown in the tables. Continued engagement and communications will support in further minimising socio-economic impacts.

The evaluation uses the impact evaluation matrix provided in DPIE's Social Impact Assessment Guideline. impacts are categorised using broad level rankings, meaning that although an impact rating may seem low or high, it may fall within a lower bracket of that ranking category.

Table 11-1: Residual impact assessment

Impact	Extent of impact	Potential pre-mitigation impact rating	Relevant management measures	Potential residual impact after implementation of management measures
Construction				
Access to employment (section 9.2.1.2)	SESA	*Almost certain & Minor* High Positive	SELU1	*Almost certain & Moderate* Extreme Positive
Access to employment (section 9.2.1.2)	Sydney	*Almost certain & Minimal* High positive	SELU1	*Almost certain & Minor* High positive
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-western	*Likely & Moderate* High negative	SELU2 SELU3 SELU4 Noise, air quality and traffic assessment mitigation measures	*Possible & Minor* Moderate negative
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-central	*Likely & Minor* High negative	SELU2 SELU3 SELU4 Noise, air quality and traffic assessment mitigation measures	*Possible & Minor* Moderate negative
Business and commercial operations – amenity, access and operation (section 9.2.1.3)	SESA-eastern	*Likely & Moderate* High negative	SELU2 SELU4 Noise, air quality and traffic assessment mitigation measures	*Likely & Minor* High negative
Business and commercial operations – supply chain benefits (section 9.2.1.3)	All scales	*Possible & Minor* Moderate positive	SELU2	*Likelye & Minor* High positive

Impact	Extent of impact	Potential pre-mitigation impact rating	Relevant management measures	Potential residual impact after implementation of management measures
Local road network and access (section 9.2.1.4)	SESA	*Almost certain & Minor* High negative	SELU5 SELU6 SELU7 SELU12 Traffic assessment mitigation measures	*Likely & minor* High negative
Parking (section 9.2.1.4)	SESA-eastern	*Likely & Minor* High negative	SELU5 SELU6 SELU7 SELU12 Traffic assessment mitigation measures	*Likely & Minimal* Moderate negative
Construction traffic (section 9.2.1.4)	SESA	*Likely & Minor* High negative	SELU5 SELU6 SELU7 SELU12 Traffic assessment mitigation measures	*Likely & Minimal* Moderate negative
Public and active transport (section 9.2.1.4)	SESA	*Likely & Minor* High negative	SELU5 SELU6 SELU7 SELU12 Traffic assessment mitigation measures	*Likely & Minimal* Moderate negative
Community cohesion – physical (section 9.2.2.2)	Local influence area	*Likely & Minor* High negative	SELU14	*Likely & Minimal* Moderate negative
Community cohesion – social (section 9.2.2.2)	Local influence area SESA	*Likely & Minor* High negative	SELU13 SELU15	*Possible & Minor* Moderate negative
Natural areas, open spaces, parks and reserves (section 9.2.3.1)	Impact assessment area	*Almost certain & Minor* High negative	SELU8 SELU10 SELU11	*Almost certain & Minimal* High negative
Natural areas, open spaces, parks and reserves (section 9.2.3.1)	Local influence area, SESA/ Sydney	*Possible & Minor* Moderate negative	SELU5 SELU 6 SELU8 SELU10 SELU11	*Possible & Minimal* Moderate negative

Impact	Extent of impact	Potential pre-mitigation impact rating	Relevant management measures	Potential residual impact after implementation of management measures
Community facilities (section 9.2.3.1)	Local influence area	*Likely & Minor* High negative	SELU5 SELU 6 SELU11 Noise, air quality and traffic assessment mitigation measures	*Possible & Minor* Moderate negative
Educational facilities (section 9.2.3.1)	Local influence area	*Likely & Minor* High negative	SELU5 SELU6 SELU9 Noise, air quality and traffic assessment mitigation measures	*Possible & Minor* Moderate negative
Other infrastructure (section 0)	Local influence area	*Possible & Minimal* Low negative	SELU5 SELU6 SELU7 SELU12 Traffic assessment mitigation measures Air quality impact assessment mitigation measures	*Unlikely & Minimal* Low negative
Culture – non Aboriginal heritage (section 9.2.4.1)	Impact Assessment Area	*Likely & Minor* High negative	Heritage Impact Assessment mitigation measures	*Likely & Minimal* Moderate negative
Human health and wellbeing (section 9.2.5.1)	Local influence area SESA	*Unlikely & Minor* Low negative	SELU8 SELU15	*Unlikely & Minimal* Low negative
Air quality impacts (section 9.2.5.2)	Local influence area	*Possible & Minor* Moderate negative	Air quality impact assessment mitigation measures	*Possible & Minimal* Low negative
Visual impacts (section 9.2.6.1)	Local influence area SESA	*Likely & Minor* High negative	LVIA impact assessment mitigation measures	*Possible & Minor* Moderate negative
Noise impacts (section 9.2.6.2)	Local influence area	*Likely & Minor* High negative	Noise impact assessment mitigation measures	*Possible & Minor* Moderate negative
Personal and property rights – impacts to way of life (section 9.2.7)	Impact Assessment area	*Likely & Minor* High negative	SELU18 SELU19	*Possible & Minor* Moderate negative
Fears and aspirations – environment & biodiversity (section 9.2.9.1)	Local influence area	*Likely & Minor* High negative	Biodiversity Impact Assessment mitigation measures	*Likely & Minimal* Moderate negative

Impact	Extent of impact	Potential pre-mitigation impact rating	Relevant management measures	Potential residual impact after implementation of management measures
Fears and aspirations – agricultural impacts (section 9.2.9.2)	Impact assessment area	*Likely & Minimal* Moderate negative	SELU2 SELU3 SELU6	*Possible & Minimal* Moderate negative
Fears and aspirations – agricultural impacts (section 9.2.9.2)	All scales	See LUCRA	SELU2 SELU3 SELU6 LUCRA mitigation measures	See LUCRA
Operation				
Access to employment (section 9.3.1.2)	Sydney	*Rare & Minimal* Low positive	SELU20	*Unlikely & Minimal* Low positive
Access to employment (section 9.3.1.2)	Local influence area SESA	*Almost certain & Minimal* High positive	SELU20	*Almost certain & Minimal* High positive
Business and commercial operations (section 9.3.1.3)	Local influence area – central	*Possible & Minor* Moderate negative	SELU21 SELU22	*Possible & Minimal* Low negative
Business and commercial operations (section 9.3.1.3)	Local influence area SESA	*Possible & Minor* Moderate positive	SELU21 SELU22	*Likely & Minimal* Moderate positive
Local road network and access (section 9.3.1.4)	Local influence area	*Rare & Minimal* Low negative	SELU21 SELU22 Transport impact assessment mitigation measures	*Rare & Minimal* Low negative
Public and active transport (section 9.3.1.4)	Local influence area	N/A	N/A	N/A
Long-term liveability – growth and development (section 9.3.1.5)	All scales	*Likely & Transformational* Extreme positive	SELU21	*Almost certain & Transformational* Extreme positive
Long-term liveability – growth and development (perceived) (section 9.3.1.5)	SESA-western and SESA-central	*Possible & Minor* High negative	SELU22	*Possible & Minimal* Moderate negative
Community cohesion (section 9.3.2.2)	Local influence area SESA	*Rare & Minimal* Low negative	SELU22	*Rare & Minimal* Low negative

Impact	Extent of impact	Potential pre-mitigation impact rating	Relevant management measures	Potential residual impact after implementation of management measures
Social infrastructure (section 9.3.3.1)	Local influence area - western	*Rare & Minimal* Moderate negative	SELU21 SELU22	*Rare & Minimal* Low negative
Utilities (section 9.3.3.3)	Local influence area SESA	*Almost certain & Transformational* Extreme positive	SELU21 SELU22	*Almost certain & Transformational* Extreme positive
Human health and wellbeing (**perceived**) (section 9.3.5.1)	Local influence area SESA	*Possible & Moderate* High negative	SELU22	*Possible & Minor* Moderate negative
Air quality impacts (section 9.3.5.2)	Local influence area - central	*Possible & Minimal* Moderate negative	Air quality assessment mitigation measures	*Unlikely & Minimal* Low negative
Visual impacts (section 9.3.6.1)	Local influence area - central	*Possible & Moderate* High negative	SELU22 LVIA mitigation measures	*Possible & Minor* Moderate negative
Noise impacts (section 9.3.6.2)	Local influence area - central	*Possible & Minor* Moderate negative	SELU22 Noise assessment mitigation measures	*Possible & Minimal* Low negative
Perceived Fears and aspirations – water quality (section 9.3.9.2)	All scales	*Possible & Minor* Moderate negative	SELU22	*Possible & Minimal* Low negative
Experienced Fears and aspirations – water quality (section 9.3.9.2)	Local waterways	*Possible & Minimal* Low negative	Water quality assessment mitigation measures	*Unlikely & Minimal* Low negative
Fears and aspirations – use of treated water (perceived) (section 9.3.9.3)	All scales	*Possible & Moderate* High positive	SELU22	*Possible & Moderate* High positive
Fears and aspirations – use of treated water (perceived) (section 9.3.9.3)	All scales	*Possible & Moderate* High negative	SELU22	*Possible & Minor* Moderate negative
Fears and aspirations – education and sustainability (section 9.3.9.4)	All scales	*Possible & Minor* Moderate positive	SELU22	*Likely & Minor* High positive

12 Conclusion

The project is likely to result in socio-economic and land use impacts during construction and operation. This includes both adverse and positive impacts to the community and stakeholders. A range of mitigation measures have been included to minimise adverse and enhance positive impacts. Based on the assessment of residual impacts identified in Chapter 11, there would predominately be a low to moderate significance of impact (with some high positive and negative) during construction and operation. In summary, the main impacts during construction would include:

- Land use and property: permanent acquisition of 78 hectares of land for the AWRC, and 60 properties subject to direct impacts (predominantly within rural and agricultural land). The project is not expected to substantially alter land use activities nor compromise future development planning, and the overall proportion of property area is small
- Employment: provision of local employment for up to 400 people per day over the course of construction
- Community: potential for impacts to community cohesion resulting from differing views on the project within local communities, as well as potential for increased anxiety and stress associated with the anticipation of impacts during construction
- Access and connectivity: Construction partial road closures and temporary access changes to properties, delays and short-term parking impacts
- Social infrastructure and places of community value: Educational precincts and community centres that are comprised of passive recreational spaces, community clubs, sporting/leisure centres and places of worship may experience changes in access, impacts to the use of parts of facilities (i.e. sections of open space used for construction) and amenity impacts in the form of dust impacts, noise impacts and visual impacts
- Commercial operations and businesses: temporary amenity impacts (noise, air quality and visual) for businesses closest to the project and associated construction areas. Freight operators, delivery vehicles, patrons of local stores and staff may experience traffic delays around construction areas and alternate parking arrangements.

Impacts during operation would include:

- Anticipated benefits in providing essential infrastructure to support transformation of the area which will in turn bring housing choice, employment, open space, social infrastructure and significant liveability enhancements
- Following construction, the visual impact of the AWRC would be substantial, particularly due to the associated vegetation removal required for the project
- Minor noise exceedances in the surrounding areas of the AWRC during the operation of the project are expected.

While some negative impacts will remain for the project, all efforts have been made, and will continue to be made to minimise and mitigate those impacts where possible. The project is a major infrastructure project, providing significant opportunities for Western Sydney and beyond. It is typical for construction of such projects to generate some short-term impacts, however, overall, the project would benefit the community and stakeholders through the establishment of the AWRC and associated infrastructure.

13 Authorship Declaration

This report has been prepared in accordance with the former Department of Planning and Environment's (DPE) Social Impact Assessment Guideline for State significant mining, petroleum production and extractive industry development (DPE, 2017), the Department of Primary Industries (DPI) Land Use Conflict Risk Assessment Guide (DPI, 2011) and the Secretary's Environmental Assessment Requirements (SEARs) for this project (DPIE, 2020). It has also been prepared with consideration to the Department of Planning Industry and Environment's (DPIE) Draft Social Impact Assessment Guideline for Major Projects, published in 2020. It has been prepared by two suitably qualified and experienced lead authors who hold appropriate qualifications and have relevant experience to carry out the socio-economic and land use impact assessment for this project.

The Arup lead author is a Registered Planner of the Planning Institute of Australia within Arup's Economics, Planning and Design team, with almost eight years of experience across urban and social planning policy, strategy and impact. The Arup lead author has an undergraduate degree in human geography, and has a strong portfolio of land use, social and socio-economic impact assessment projects for a range of infrastructure and mixed-use development projects, including inputs to environmental impact assessments for major road and rail projects in Queensland, New South Wales, Victoria and the Australian Capital Territory, as well as numerous UK based transport and infrastructure projects.

The Aurecon lead author is from Aurecon's Environment and Planning team. With six years of local experience, the author has worked across a wide range of areas of environmental impact assessment (options analysis, constraints analysis and pre and post approval management), specialising in the development of socio-economic impact and land use assessments. The Aurecon lead author has comprehensive experience in data collection and analysis, the interpretation of community characteristics in relation to amenity, accessibility and values and a thorough understanding of how projects interact with communities and stakeholders. The author has extensive experience assessing and working on large linear infrastructure projects in both urban and greenfield NSW.

The report has also been passed through the relevant quality assurance processes at Arup and Aurecon, and Sydney Water.

The authors declare that this Social Impact Assessment report:

- was completed on 30 June 2021.
- has been prepared in accordance with the Environmental Impact Assessment (EIA) process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
- has been prepared in alignment with the former Department of Planning, and Environment's (DPE) Social Impact Assessment Guideline (September 2017).[18]
- has been through relevant technical reviews by specialists with significant experience in delivering social and economic impact assessments.
- contains all reasonably available information relevant to socio-economic and land use impact assessment.

[18] It is noted that at the time of writing DPIE published a draft update to the Social Impact Assessment Guideline (2020). It is likely a final version will be published in 2021. Noting this document remains in draft, this assessment aligns with the existing adopted 2017 guideline, but regard has been had to the content of the draft updated guideline where possible.

- is based on project definition, including understanding of construction activity, operations, staging and timing as provided by Sydney Water and as known at time of writing
- contains information that is neither false nor misleading.

Limitations and assumptions are outlined in section 4.4.

14 References

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