STATE PLANNING COMMISSION

Renascor BAM Facility

Assessment Report

Impact assessed development

May 2025

saplanningcommission.sa.gov.au

Government of South Australia
Department for Housing and Urban Development

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Executive summary

Renascor Resources Pty Ltd proposes the construction and operation of a mineral processing plant at Robinson Road, Waterloo Corner, adjacent the SA Water Bolivar Waste Water Treatment Plant. The plant will receive raw graphite from the Siviour Graphite Mine on Eyre Peninsula near Arno Bay. The graphite will be shaped and purified to produce 99.95% Pure Spherical Graphite (PSG) then bagged and transported to Port Adelaide for export to international markets. PSG is a Battery Anode Material (BAM) used in the manufacture of lithium-ion batteries.

Renascor's application for the BAM Facility was assessed under the 'impact assessed' pathway of the *Planning, Development and Infrastructure Act 2016*, which is the most rigorous level of development assessment in South Australia. It is reserved for projects of economic, social or environmental importance to the state. A key component of the process is the preparation of an Environmental Impact Statement by the applicant in accordance with a set of assessment requirements set by the State Planning Commission. Renascor's EIS for the BAM Facility was publicly notified, with comments received from community, City of Salisbury Council, and relevant State Government agencies.

This report provides a comprehensive assessment of the development proposal, taking into consideration community views, and technical advice from stakeholders. The assessment identifies the potential economic, social and environmental impacts of the development, and considers the adequacy of proposed mitigation measures.

The proposed development site was selected by Renascor for its proximity to existing services and infrastructure, and separation from residential zones, densely populated areas and sensitive ecosystems. The location of the BAM Facility is a key factor in mitigating the interface impacts of this industrial facility.

The construction phase of the project will generate noise, dust, and increased traffic movements. The protection of Aboriginal heritage, and effective management of erosion and sedimentation will be necessary during the undertaking of the required bulk earthworks. These impacts can be managed using industry standard practices, through a suite of management plans.

The BAM Facility will discharge treated wastewater to SA Water's Bolivar outfall channel, at a comparable quality and volume to the existing channel water. Monitoring of the discharge will be required as part of the environmental authorisation.

The BAM Facility will operate on a 24/7 basis, and noise modelling indicates that heavy vehicle movements during night time hours will exceed relevant criteria at adjacent residences. Renascor is committed to ongoing consultation with impacted landowners and is open to exploring noise mitigation at the residences.

The proposed development will contribute $2.6 billion in Gross State Product over the 40-year life of the project. Job creation, and demand for local goods and services will benefit the Northern Adelaide region and the state. The development contributes to the Australian Government's 2023-2030 Critical Minerals Strategy, diversifying the supply of graphite and contributing to market stability.

On balance, this assessment report concludes that the development warrants provisional development authorisation subject to a suite of reserved matters, conditions and advisory notes.

The operation of the BAM Facility will require an environmental authorisation under the *Environment Protection Act 1993*. The authorisation will regulate chemical storage, chemical processing, wastewater discharge and desalination activities.

1 Introduction

The assessment of impacts for projects declared as impact assessed development (not being restricted development) is undertaken through the preparation of an Environmental Impact Statement (EIS).

The EIS process is the highest level of assessment under the *Planning, Development and Infrastructure Act 2016* (the PDI Act) and enables the holistic consideration of major development or projects that are of economic, social or environmental importance to South Australia.

2 Assessment process

2.1 Process to date

On 17 November 2022, the delegate of the Minister for Planning declared that Renascor Resource's proposed BAM manufacturing facility be assessed as an Impact Assessed development pursuant to section 108(1)(c) of the PDI Act.

On 7 March 2023, the applicant lodged a development application in accordance with the requirements of Practice Direction 17 – Impact Assessed Development.

On 30 March 2023, the State Planning Commission endorsed a set of assessment requirements, to guide the preparation of an Environmental Impact Statement (EIS).

On 10 May 2024, Renascor lodged its final EIS. The EIS was referred to the local Council (City of Salisbury) and relevant state government agencies for comment. Community engagement was undertaken from 19 August to 27 September 2024, inviting the public to comment on the proposal.

On 20 January 2025, Renascor lodged a Response Document, addressing the opinions, ideas and concerns raised during the engagement period.

2.2 Assessment report

This assessment report has been prepared by the State Planning Commission, and considers the EIS, all feedback received during the consultation period, and Renascor's Response Document.

In accordance with section 113(9) of the PDI Act the Commission's report must include:

- The Minister's assessment of the development.
- Any comments by the Minister relating to:
    - the EIS
    - submissions received through the public consultation process
    - the proponent's responses to submissions received and matters raised by the Minister
- Comments provided by the Environment Protection Authority, another Minister, a council or other authority or body.

- Any other comments or matters as the Minister or the Commission thinks fit.

2.3 Next steps

This assessment report includes the Commission's recommendation to the Minister for Planning with respect to making a decision on the development application.

The Minister for Planning is responsible for making a decision on the development application. The Minister has the discretion to:

- Grant a development authorisation subject to conditions (if any) determined by the Minister
- Grant a provisional development authorisation, reserving a decision on a specified matter.
- Refuse approval to the development

In making this decision, the Minister must have regard to the following matters which are considered in this assessment report, as part of the Commission's recommendation:

- any relevant state planning policy; and
- the relevant regional plan; and
- the provisions of the Planning Rules and the regulations (so far as they are relevant); and
- the Building Rules (so far as they are relevant); and
- if the development involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993* (the EP Act)—
    - the objects of the EP Act; and
    - the general environmental duty under the EP Act; and
    - any relevant environment protection policies under the EP Act; and
- if the development is to be within an area of the State that is specifically subject to a special legislative scheme—the views of the Minister who is responsible for the administration of the Act in question; and
- any relevant EIS, and the relevant Assessment Report,

3 Proposal

The application is for the construction and operation of a mineral processing facility to produce Pure Spherical Graphite (PSG). PSG is a Battery Anode Material (BAM), a key material in the manufacture of lithium-ion batteries. Lithium ion batteries are used in electric vehicles.

The raw graphite will be sourced from Renascor's Siviour Graphite mine near Arno Bay on Eyre Peninsula. The proposed site of the BAM Facility is at Robinson Road, Waterloo Corner, adjacent the SA Water Corporation Ltd (SA Water) Bolivar Waste Water Treatment Plant (WWTP).

The mine was assessed and approved under the *Mining Act 1971* (the Mining Act), with the formal Program for Environmental Protection and Rehabilitation (PEPR) subsequently approved in November 2022.

3.1 Processing Facility

The BAM Facility includes a two-step production process:

1. Mechanical shaping: milling process for micronisation and spheronisation of the graphite
2. Purification: cleaning and concentration of the shaped graphite through thermal-chemical caustic roast and acid leach processes

Following the shaping and purification processes, the purified graphite will be dried and packaged within the facility, ready for distribution. The bagged PSG will be transported from the BAM facility to Port Adelaide, where it will be exported to international markets.

The equipment and facilities making up the BAM facility include:

- Micronisation and spheronisation milling trains
- Caustic roast kiln
- Water treatment equipment (including reverse osmosis plant, demineralisation, caustic process water treatment and acid process water treatment
- Leach tanks (caustic and acid), filtration equipment and re-pulp tanks
- Industrial buildings
- Product storage silos
- Chemical reagents and waste storage areas
- Truck loading and unloading facilities, access and egress
- Product bagging plant equipment
- Mechanical, hydraulic and pneumatic conveyance and supporting structures
- Water pipes to the SA Water outfall channel including intake and outfall pipes

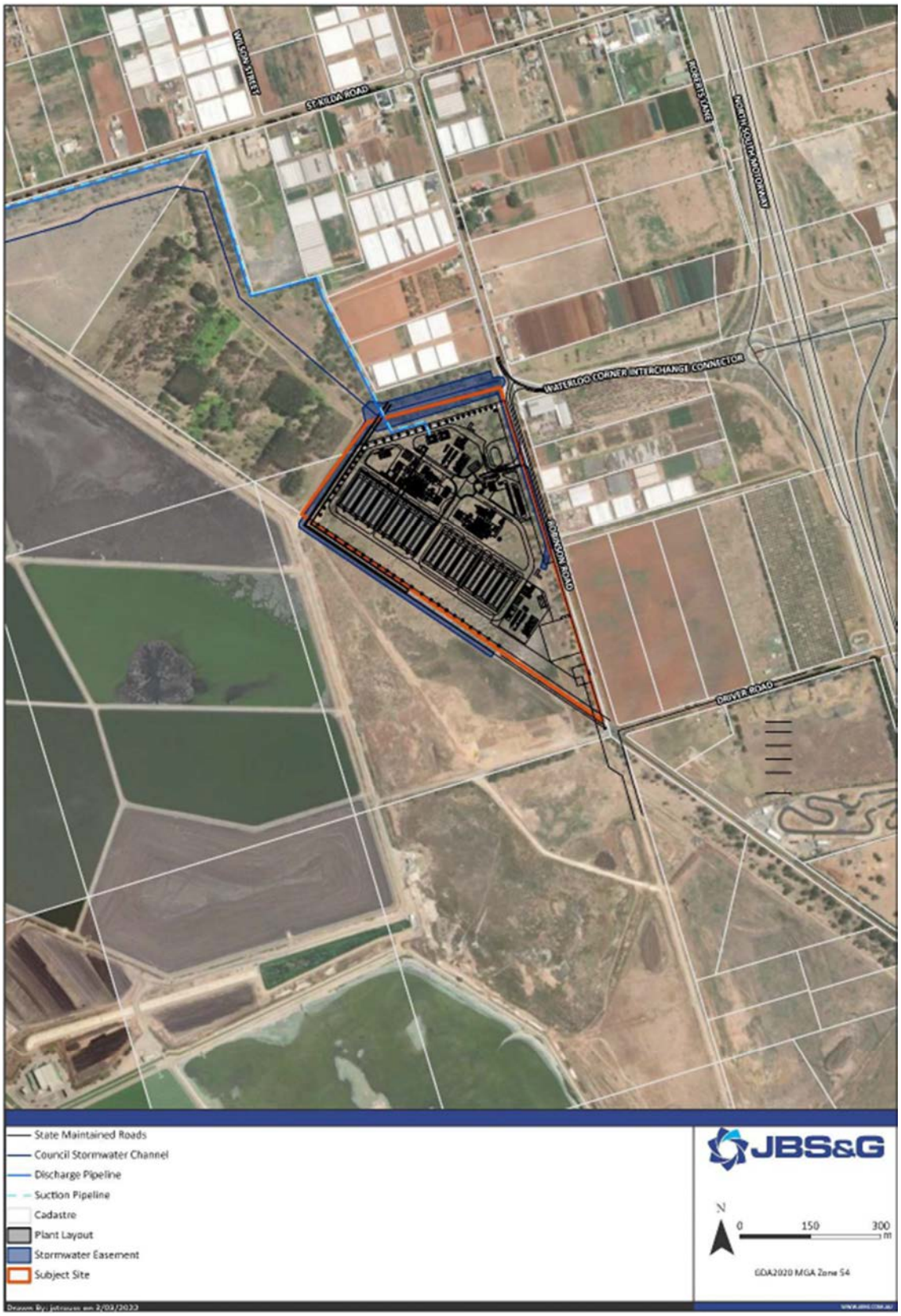

Figure 1: Site plan – stages 1 and 2

Figure 2: Supporting Infrastructure – water intake and outfall pipeline

3.2 Supporting Infrastructure

Key infrastructure upgrades/ required for the development are:

- Partial upgrade of Robinson Road pavement (from Waterloo Corner Road to the BAM facility entrance) to accommodate the size and type of heavy vehicle vehicles required for the facility.
- New / augmented electricity and gas supply lines.
- Construction of new stormwater channel along the eastern site boundary, which may be partially within the Robinson Road reserve (subject to detailed design).
- Construction of a new stormwater channel along the western site boundary.
- Upgrade of the existing stormwater channel north of the subject site, to create a detention basin (within SA Water land).

The BAM facility proposes to source water from the SA Water High Salinity Plant (HSP), at the start of the SA Water Bolivar outfall channel. This man-made outfall channel runs along the western side of the WWTP lagoons and extends 11km, discharging SA Water's WWTP wastewater to the marine environment at Freshwater Creek estuary, Gulf St Vincent. The channel is predominantly concrete lined except for the section closest to the marine outfall.

The water will be transported via pipe from the channel to the BAM facility where it will be desalinated in an on-site desalination plant and used in the purification process.

Once utilised through the facility, the process waste water will again be treated on-site and then returned back into outfall channel via a pipe.

A 10m wide corridor is proposed north of site, along St Kilda Road, then south, to accommodate the two pipelines (intake and outfall). The pipelines are proposed to be predominantly above ground.

3.3 Staging

The project will be developed in two stages. Stage 1 will produce approximately 50 kilo tonnes per annum (ktpa) of PSG. Stage 2 will double production output, to approximately 100 ktpa of PSG.

Construction of Stage 1 is anticipated to commence January 2028 and completion of all construction (Stage 2) is anticipated for January 2033. Estimated timeframes for staged project delivery are summarised below.

Project Delivery Timeframes

Project Stage	Timeframe
Stage 1 Construction	Construction to commence as soon as possible following development authorisation, final engineering design, and receipt of long lead equipment. Duration: 80 weeks (approx. 18 months).
Stage 1 Commissioning	Commissioning to occur immediately following construction. Duration: 3 months.
Stage 1 Operation	Operation to occur immediately following commissioning.

	Anticipated life of project: 40 years based on available supply of graphite from the Siviour Graphite Mine.
Stage 2 Construction	Construction to commence approximately 3 years following commissioning of Stage 1. Duration: 80 weeks (approx. 18 months).
Stage 2 Commissioning	Commissioning to occur immediately following construction. Duration: 3 months.
Stage 2 Operation	Operation to occur immediately following commissioning. Anticipated life of project: 40 years based on available supply of graphite from the Siviour Graphite Mine.

Renascor's development application seeks development authorisation for both Stage 1 and Stage 2. The EIS and this Assessment Report therefore considers cumulative impacts for both Stages 1 and 2.

The assessment of operational impacts is based on full operation of Stages 1 and 2. Stage 1 of the facility is expected to be operational whilst Stage 2 is being constructed, which is taken into account when assessing construction impacts.

The facility will operate on a 24/7 basis and will be staffed by rolling 12 hours shifts.

4 Need for Proposal

The proposed BAM facility will contribute to the objectives of the Australian Government's 2023-2030 Critical Minerals Strategy, which sets out the vision to grow the country's critical minerals sector.

Graphite is identified as a critical mineral for its use in lithium-ion batteries. The majority of the world's graphite supply is from China, with all processing of that raw material also taking place in China. This poses a high risk for the supply chain.

The proposed BAM facility will move downstream processing of raw graphite onshore, thereby diversifying the supply chain and increasing stability.

The project has been granted Major Project Status by the Commonwealth Government with a $185 million loan to support the project also provided.

The alternative to this project is for raw graphite from the Siviour Graphite mine to be exported directly to China for processing.

The consequence of not proceeding with the development is ongoing risk and instability in the global graphite supply chain, which was demonstrated as a critical issue during the COVID-19 pandemic. Not proceeding with the development would also prevent the expansion of knowledge and capabilities in this specialist field within Australia, and forego economic growth and jobs creation particularly at a local and state level.

5 Site Selection

Renascor undertook a detailed site selection process that considered numerous locations based on the following first tier criteria:

- Land area and land use: minimum 12 hectares vacant
- Proximity to haulage route: within 5km of route
- Water supply
- Capacity for wastewater disposal
- Power supply: within 2km of a substation

This process identified five general locations being the Whyalla terminal / Whyalla central, Port Augusta, Hughes Gap Regulator (Crystal Brook) and Bolivar. These five locations were further analysed against secondary criteria:

- Gas supply (non-essential but preferable)
- Proximity to major freight routes
- Infrastructure connection costs and requirement for additional infrastructure
- Workforce availability
- Community values and acceptability
- Cultural heritage
- Environmental sensitivity

Bolivar was selected as the preferred location, with various sites considered. Refer Figure 3. The final site selection offers a unique opportunity to re-use waste water from SA Water's

outfall channel, rather than using potable water. The site is close to the arterial road network and is not proximate to sensitive natural environmental or residential zoned areas.

Figure 3: Potential sites (Bolivar)

6 Site and Locality Description

6.1 Development Site

The development site is approximately 20.5 hectares, located within Certificate of Title Volume 5723 Folio 99 and comprises the majority of Allotment 3 and a portion of Allotment 4 in Filed Plan 115108.

The site is rectangular in shape, with frontage of approximately 700m to Robinson Road at its eastern boundary.

The site is within the suburb of Waterloo Corner, within the City of Salisbury local council area (west ward).

The land is owned by the SA Water as part of its broader landholdings for the Bolivar WWTP.

The land is freehold title and therefore Native title rights and interests have been extinguished. The traditional owners of the land are Kaurna Yerta Aboriginal Corporation (KYAC). One (1) registered Aboriginal heritage site is located within the project area.

The land is open, flat and extensively modified. It was historically used for a range of primary production activities dating back to the 1860s including livestock grazing, cropping and horticulture.

The site comprises vegetation in overall poor condition, that has either been historically planted or has naturally regenerated, with numerous regulated and/or significant trees. Numerous pest species are known to occur within the site.

The development site has access to essential services and infrastructure as follows:

- South East Australia Gas (SEA Gas) pipeline passes the southern tip of the site
- Water main pipeline located within Robinson Road
- Reclaimed water main pipelines located within Robinson Road, to the north, south and west of the site
- SAPN 66kV overhead transmission line along Robinson Road, connecting into the SAPN electrical substation 3.7km to the south (within the SA Water Bolivar WWTP)

6.2 Locality

The development site is located between the North-South Motorway (Northern Connector) and the Bolivar WWTP. These two features form the eastern and western boundaries of the 'locality' as described for this assessment.

SA Water's Bolivar WWTP extends over 1km in east-west direction and 5km in a north-south direction, physically separating the development site from the coast.

The North-South motorway is located approximately 600m to the east, and Port Wakefield Road is approximately 1.2km to the east, beyond which are the residential suburbs of Burton and Paralowie.

The Waterloo Corner Interchange Connector Road provides vehicular access through the locality.

The development site is located to the south of the Waterloo Corner Interchange Connector Road on Robinson Road (south). Robinson Road (south) provides a secondary access to the SA Water WWTP at the intersection with Undo Road. Beyond this intersection Robinson Road is a no-through road, terminating at the North-South Corridor. Robinson Road (south) is considered the southern boundary of the 'locality'.

To the north of Waterloo Corner Interchange Connector Road, Robinson Road (north) extends in a northerly direction, parallel to the North-South Motorway. Robinson Road (north) provides access to St Kilda Road, which is the main gateway to the St Kilda township and its various tourism and environmental attractions. St Kilda Road is considered the northern boundary of the 'locality'.

The subject site and land to the east and north is zoned Rural Horticulture and features a range of residential, horticultural, commercial and light industrial land uses. The site is within the Virginia horticultural district and existing land use is predominantly market gardens (greenhouses and open air), interspersed with dwellings and various commercial and industrial land uses.

The nearest residential properties to the development site are directly adjacent to the east, fronting Robinson Road (south), some of which are co-located with horticultural and commercial activities. Directly north of the development site is a dog breeder and associated residential dwelling.

The development site abuts the Infrastructure Zone at its south-west boundary within which are the SA Water WWTP treatment ponds. North-east of the development site, within SA Water's landholdings is the Adelaide Zoo feedlot which is used to grow food and vegetation for zoo animals. A drainage channel is located along the northern boundary of the development site, which then runs north up to St Kilda Road, and then west adjacent the road reserve. The drainage channel is within SA Water's landholdings but is part of Council's stormwater management system.

South-east of the development site, within the southern portion of the locality, are the South Australian Gun Club and Southern Go-Kart Club within the Open Space zone. Robinson Road (south) has no public realm infrastructure and has been the target of illegal dumping and hoon behaviour, due to its relative seclusion and physical separation from surrounding areas.

Beyond the locality as described above, key features and land uses in the wider area include:

- Market gardens extend north beyond the locality, and with other notable existing businesses including the Mark Lee fish farm (approx. 900m northeast), a rubbish dump (approx. 1.3km northwest), and the RAAF Defence landholdings (approx. 1km northwest).
- West of SA Water's WWTP, within the Infrastructure Zone, are the Buckland Dry Creek salt fields which run in a north-south direction between the SA Water WWTP and the coastline.
- The St Kilda township includes residential areas, small businesses and tourism attractions, in particular:
    - St Kilda hotel and marina
    - St Kilda adventure playground

    - St Kilda mangrove trail
    - The Tramway Museum
    - Bird watching areas
- The coastline features large areas of mangroves, physically protected from the Gulf of St Vincent by Torrens Island and Outer Harbour. This area encompasses the Adelaide International Bird Sanctuary (Winaityinaityi Pangkara) and Adelaide Dolphin Sanctuary.
- The nearest airport is the Edinburgh RAAF Airbase, located 4.3km to north-east. The nearest port is Port Adelaide, located 19km to the south-west.

6.3 Sensitive Receivers

The nearest land parcels to the development site have been identified as 'sensitive receivers' for the purpose of the EIS. Refer Figure 4.

The closest sensitive receivers are R14, 15 and 16, located to the east of Robinson Road, opposite the development site. These sites comprise various structures, including buildings that resemble residential dwellings. R14 and 16 are known to be occupied dwellings, whilst R15 appears to be uninhabited (based on Renascor's site visits and attempts to contact any residents). For the purposes of the EIS, all receivers R14, 15 and 16 are assumed to be occupied dwellings.

The next closest residential dwelling is located at R13, to the north-east of the development site.

The two existing recreational buildings located to the south-east of the development, Australian Gun Club and Southern Go-Kart Club, are identified as R22.

The SA Water WWTP is not considered a sensitive receptor for the purposes of the EIS.

6.4 Physical Environment

The development site is located within the Northern Adelaide Plains Land system. The landscape is flat to very gently undulating, and there are no natural surface water features within the development site. Natural vegetation types in the area range from samphire marshland and coastal mangroves to grassland and open to dense woodland.

The development site and surrounding areas are highly modified, having been cleared and development for various land uses.

The surface soils of the development site and surrounding locality have been extensively disturbed. Soil sampling for the site confirmed no acid sulphate soils within the development site. Soils are characterised by silty sand in the upper 0.2m layer and clay, gravel and sands in the deeper layers. Fragments of cement sheet (asbestos) were identified on site during site investigations.

Groundwater depth in the area is shallow, identified at between 0.6m to 1.8m below ground level (in test pits) and between 1.5 and 2.5m below ground level in boreholes. Groundwater may be subject to tidal variations and seasonal variations due to proximity to the coast.

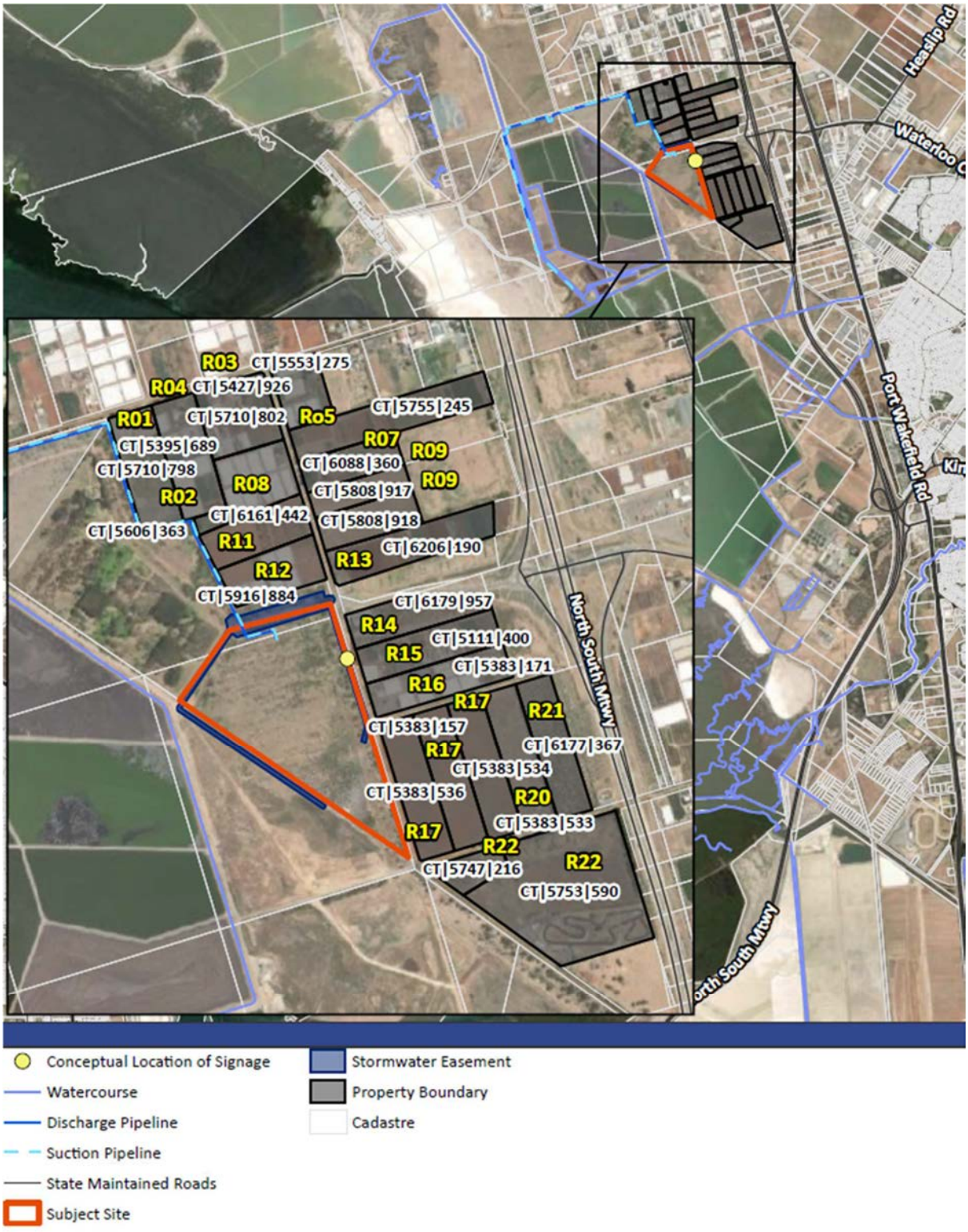

Figure 4: Sensitive receivers

7 Community Engagement

The EIS was released for community consultation in accordance with a Community Engagement Plan approved by the Minister on 12 July 2024. The plan was prepared in accordance with the Commission's Community Engagement Charter. The Charter sets out a flexible and practical framework for consultation that seeks to:

- promote better planning outcomes that consider community views and wishes
- establish trust in the planning process
- help communities to understand the planning system

The EIS was open for consultation for a period of 30 business days from 19 August 2024 to 27 September 2024, commencing with a public notice in the Adelaide Advertiser.

The engagement activities that were held during the consultation period include:

- Information sessions (registration through Eventbrite):
    - an in-person information session was held on 4 September 2024 at St Kilda Community Hall
    - an online session was held on 6 September 2024
- An article featured in the August 2024 and September 2024 YourSAy e-newsletter
- Social media posts on X, SPC LinkedIn and PlanSA Facebook (both feed and stories) alerting the public to the briefing sessions and the commencement and conclusion of consultation.
- A physical sign located on the proposed development site (Robinson Road frontage) – refer Figure 5.
- A direct letter to key stakeholders and landowners advising of public consultation.
- Hard copies of the EIS available for viewing at the City of Salisbury council office, and Department for Housing and Urban Development office.
- Electronic copies of the EIS available for download from the YourSAy and PlanSA websites, along with a fact sheet and frequently asked questions.
- The option to lodge a submission via various avenues: YourSAy, PlanSA, email, written, in person.

7.1 Public Submissions

Submissions and survey responses were received from a range of stakeholders including local residents, community members and interest groups.

A total of 33 submissions were received via online and hard copy submissions, and YourSAy survey responses.

The majority of submissions (28 of the 33) indicated general support for the proposal. The key areas of feedback have been captured under the following five survey question themes:

Theme	Summary of Comments
Proposed location	▪ 21 of the 33 submissions supported the proposed location of the development: o co-located with existing industry o proximity to infrastructure and transport, o appropriate separation from residential areas. ▪ The proposed use of recycled water (from the Bolivar outfall channel) in the development was commended.

	▪ A small number of submissions were concerned about the proximity of the proposed development to the SA Water waste water treatment facility, farming lands, and the suburbs of Mawson Lakes and Parafield Gardens. ▪ Potential concerns for the environment and human health were noted due to the proposed location, including the impact of climate change and potential future flooding risk.
Interaction with existing business and industry in the area	▪ There was consistent opinion that the development is compatible with the existing businesses and land uses in the area. ▪ There was some concern regarding an increase in traffic and noise, particularly from heavy vehicle movements during night hours. ▪ The short-term impacts of construction activities were recognised.
Benefit for community and economy	▪ There was overwhelming support for the creation of new jobs, particularly in the northern suburbs of greater Adelaide. ▪ There was recognition that investment in Australian resources will support growth in the region, the state and Australia. ▪ The development is an opportunity to create a new industry that adds value to resources and provides employment. ▪ Local businesses will likely benefit during the construction and operational periods, and through the future supply of products and labour.
Environmental aspects	▪ From a strategic perspective, the project contributes to a sustainable future through the production of clean energy solutions. This is an opportunity for Australia to contribute to decarbonisation of the economy. ▪ The development may contribute to improved utilisation of key resources such as water and energy. ▪ Specific environmental concerns include the potential for interaction with the underground water aquifer, proximity to habitat, and general concern regarding the renewable energy industry.
General feedback on the EIS and development	▪ The EIS is comprehensive and due diligence has been undertaken. ▪ The EIS has demonstrated how impacts to surrounding business and the environment will be minimised / mitigated. ▪ There was general support for the development and the opportunity for South Australia to be a leader in this industry. ▪ Potential risks to the environment, human health, and existing land uses and business can be mitigated.

7.2 Post Engagement Activities

The post-engagement activities that were undertaken following the consultation period include:

- A ‘What We Heard’ document was prepared, summarising the engagement process, key feedback, and next steps. The ‘What We Heard’ document was uploaded to PlanSA on 30 October 2024 and sent directly to all respondents and to all key stakeholders and landowners.
- Participants were invited to complete a survey, to consider the efficacy of the community engagement process. Eight (8) people engaged in the post-engagement survey, with the results summarised below.

	Question	Response
1	The information provided about the EIS allowed me to make an informed view.	▪ 75% strongly agree ▪ 25% somewhat agree
2	I feel there was a genuine effort to seek input from the community.	▪ 87.5% strongly agree ▪ 12.5% somewhat agree
3	I was given sufficient opportunities to provide feedback during the consultation.	▪ 87.5% strongly agree ▪ 12.5% somewhat agree
4	The purpose of gathering my feedback and its intended use was clearly explained.	▪ 87.5% strongly agree ▪ 12.5% somewhat agree
5	I feel confident that my input was considered during the engagement process.	▪ 87.5% strongly agree ▪ 12.5% somewhat agree

6	How did you find out about the Renascor BAM Facility EIS consultation process?	▪ 50% website ▪ 37.5% other: direct email, email newsletter, hotcopper (stock market trading forum) ▪ 12.5% community event or meeting
7	Do you have any additional comments or suggestions in relation to the engagement process for the Renascor BAM Facility?	Nil responses

Figure 5: Sign on land

8 Agency Advice

The final EIS was referred to eight (8) State Government Agencies for comment. A summary of referral comments is provided below.

8.1 Environment Protection Authority (EPA)

The proposed BAM facility would require an environmental authorisation under the *Environment Protection Act 1993* for activities of environmental significance. These activities include chemical storage, chemical processing, discharge of wastewater and desalination.

EPA sought clarification and/or further information in relation to the following:

- Air quality assessment relating to:
    - sulfuric acid emissions
    - product bagging facility emissions
    - health impacts from operational air emissions
    - ground level concentrations
- Operation noise:
    - the management of truck noise (exceedances at R14, 15, 16 due to night time truck movements)
    - Renascor should demonstrate that all reasonable effort has been made for mitigation measures.
- The rationale provided in the EIS in relation to extended construction hours (Sundays and outside 7am-7pm Monday to Saturday) based on background noise levels is not supported. Construction activities should not occur on Sundays or outside specific hours unless specific authorisation is sought from EPA.
- Water discharge assessment:
    - relies solely on dilution as mitigation (doesn't apply waste mitigation hierarchy)
    - numerous scenarios that increase the pollution load to the environment of long-lasting contaminants into an aquatic reserve and Adelaide Dolphin Sanctuary
    - relies on Renascor discharge entering the centre of the Bolivar channel
    - monitoring will be required to validate the model (during operation)

8.2 South Australian Country Fire Service (CFS)

Summary of comments:

- The project contains several large buildings and identifies fire water tanks and an emergency services point on the draft design.
- The CFS has not yet been formally consulted (by Renascor) regarding building fire safety system installation and requirements.
- CFS should be consulted at Building Rules Consent stage to confirm fire service infrastructure and fire risk mitigation in accordance with the National Construction Code.

8.3 Department for Energy and Mining (DEM), Mineral Resources Division

Summary of comments:

- Buckland Dry Creek (BDC) salt fields discharge brine into the SA Water outfall channel on an informal basis to manage salt field brine throughflows.
- BDC relies on water flow volume and salinity to determine if and how much brine can be discharged into the outfall channel in order to keep salinity below 45ppt.
- Note the EIS states that Renascor's discharge to the SA Water outfall channel will not result in a material to water quality or quantity, which would impact BDC's existing operations.

8.4 Department for Environment and Water (DEW)

Summary of comments:

- DEW defers to the EPA in relation to the regulation of the wastewater stream and relevant discharge licencing requirements.
- Concerns that continuous simulation modelling has not been carried out, to demonstrate that the proposed northern retention basin will be large enough for the development.
- A retention basin independent of the regional stormwater drainage is recommended to mitigate flooding.
- The subject site is within a prescribed groundwater resource area with shallow aquifers. There is a risk that the proposed stormwater channels and retention basin will intersect with shallow groundwater. The taking of groundwater requires a licence under *Landscape SA Act 2019* (Landscape SA Act).
- DEW encourages consideration of Water Sensitive Urban Design (WSUD) and Biodiversity Sensitive Urban Design (BSUD) in the proposal.

8.5 Department for Infrastructure and Transport (DIT)

Summary of comments:

- Direct access to the site is gained via Robinson Road which is a council-maintained road, and this is supported by DIT.
- Traffic volumes generally accepted by DIT and the SIDRA assessment is supported.
- Peak movements are likely to be accommodated within the existing road network capacity. Any over mass or oversize deliveries will require National Heavy Vehicle Regulator (NHVR) permits to be obtained.
- Standard requirement for a construction Traffic Management Plan (TMP) prepared in consultation with DIT and Council.
- The haulage route for graphite material from the Siviour mine to the BAM facility will utilise the Lincoln Highway and National Highway A1, Port Wakefield Road and Waterloo Corner Road.
- The heavy vehicle route assessment prepared by Tonkin identified the need for potential upgrades to the Robinson Road / Waterloo Corner Road intersection, and Robinson Road. Any road upgrades must be undertaken in consultation with DIT and Council. Any road works extending in Waterloo Corner Road shall be undertaken to

DIT standards and requirements, and Renascor shall enter into a Deed of Agreement for such works.

- Renascor to confirm that the 40.7m vehicle is a PBS (Level 3) vehicle (which DIT understand it is). If it is, then the turn paths undertaken for a low speed swept path (in SK-103) should meet PBSL3 standards.

8.6 Native Vegetation Council (NVC)

The NVC sought clarification and/or further information in relation to the following:

- More detail around how Renascor has sought to apply the Mitigation Hierarchy, particular how the project has addressed the avoidance, minimisation or restoration steps.
- Provide details of investigations into on-ground Significant Environmental Benefit (SEB) offset options.
- Correction to legislative reference, and confirmation that NVC approval is not required to clear Regulated and Significant trees.

8.7 Aboriginal Affairs and Reconciliation (AAR), Attorney General's Department

The AAR provided late comments:

- AAR commends Renascor for working closely with the Kaurna Yerta Aboriginal Corporation (KYAC) Board to undertaken cultural heritage surveys and to develop a Cultural Heritage Management Plan (CHMP).
- While these are effective tools to help protect and impacts to known Aboriginal heritage within a development area, there is a risk that unknown heritage may be encountered and inadvertently disturbed during ground-disturbing works.
- The EIS is not conclusive as to whether Renascor will apply for a section 23 authorisation under the *Aboriginal Heritage Act 1998* prior to construction of the development. If Renascor does not obtain section 23 authorisation prior to commencing work, any Aboriginal heritage discovered during works must not be damaged or disturbed without first obtaining a section 23 authorisation.
- AAR strongly recommends that Renascor work with KYAC and its heritage consultants to determine whether section 23 authorisation should be sought prior to construction. The authorisation process typically takes between 9 and 12 months.
- Any development authorisation for the BAM facility should include a condition of approval that prior to any damage, disturbance or interference with Aboriginal heritage, or any excavation of land for the purpose of uncovering Aboriginal heritage, relevant authorisations under the Act must be obtained.

9 Council Advice

The final EIS was referred to City of Salisbury Council for comment. A summary of referral comments is provided below.

- The performance of the range of impact-mitigation technologies and devices for air emissions is critical to meeting air quality criteria. Contingencies for poor performance of technology and devices should be considered. This should be addressed as part of the EPA licence.
- The development approval should include the necessary mitigation measures for existing dwellings (sensitive receivers R14, R15, and R17) on Robinson Road, so that noise levels from trucks at night meets the Environmental Protection Noise Policy.
- A major upgrade of Robinson Road south is required for the development. It is critical that the upgrade to Robinson Road, including the intersection with Waterloo Corner Road, be a requirement of the development approval. The upgrade should be to Council standard and requirements.
- The facility will be highly visible from both closer viewpoints and at a distance, and from a range of vantage points (given the proposed height and size of buildings). Proposals to screen out the facility as far as possible are supported and a detailed landscape plan should be provided that creates effective screening.
- The proposed buildings are relatively large within the rural locality. The taller elements cannot not be effectively screened by landscaping and will be visible from vantage points. It is therefore important that design elements such as external building materials, colour and form be considered for the taller buildings / structures.
- The flora investigation for trees should be reviewed in consideration of the legislation change for regulated and significant trees, and the offset requirements should be updated.
- A waste management plan should be developed for the facility. This should include details on the design and function of the proposed dry waste storage areas for the facility, including in the event that opportunities for market reuse and recovery do not come to fruition. Consideration should be given the location of the proposed storage area which is shown to be in a relatively prominent location on the site plan.
- A stormwater assessment should be undertaken that provides the appropriate mitigation measures based on an understanding of the capacity downstream impacts and allowances for existing external inflows. The assessment will need to investigate the capacity of existing drainage infrastructure, located on SA Water land, as well as the mitigation measures to address the potential contamination of water in the stormwater channel for the Greater Edinburgh Parks (GEP) outfall channel.
- The detailed design of the proposed water pipelines and associated easement should include provision for the Council's proposed new GEP outfall channel.
- The complexities of managing a large volume of wastewater necessitates detailed input and approval from SA Health. It is recommended that Rensacor seek approval for a suitably designed on-site wastewater system from SA Health.

10 Response Document

Renascor prepared a Response Document that addressed the matters raised in the public submissions, agency advice and council comments.

The Response Document does not propose any substantive changes to the nature of the proposed development, the industrial processes, or the overall site layout.

The Council and all relevant agencies confirmed that the Response Document satisfactorily addresses all questions and concerns from their referral comments but noting that, if approved, the final design of the facility, as well as management and operational procedures will be subject to Reserved Matters and/or Conditions of Approval.

The main points to be noted from the Response Document are summarised below.

10.1 Land Use

A number of public submissions raised concern regarding the proposed land use, its impact on existing land uses, and inadequate separation of the facility from sensitive receivers. The development is considered to be generally compatible with the existing and proposed future zoning.

The suitability of the development with respect to land use is discuss in detail in section 11.1 of this report. Interface impacts with sensitive receivers including noise, air emissions and traffic are discussed in the relevant sections of this report.

10.2 Flora and fauna

10.2.1 Clearance under the *Native Vegetation Act 1991*

In response to NVC comments, a detailed description of how the vegetation clearance mitigation hierarchy was applied to the development is provided in the Response Document and discussed in section 11.6 of this report.

Notably, the subject site has been selected as all native vegetation is either planted, or emergent chenopod shrubland, that is of low quality and high in weeds. The subject site was considered the lowest quality when compared to other site during the site selection process. No protected species were identified on the site during ecological investigations.

Renascor notes a correction to the EIS, that approval to clear native vegetation for an impact assessed development is pursuant to Regulation 12 and Schedule 1, Part 4, Clause 27 of the *Native Vegetation Regulations 2017*.

10.2.2 Clearance under PDI Act

On 16 May 2024 the definition of a regulated and significant tree was amended through the *Planning, Development and Infrastructure (General) (Regulated and Significant Trees) Amendment Regulations 2024*.

Council queried whether the EIS should be updated to reflect the revised definitions. This would likely increase the number of trees meeting the definition of regulated and/or significant on the subject site.

The transitional provisions outlined in Schedule 1 of the amendment regulations states that the amendments do not apply for development applications lodged before 16 May 2024. Renascor's development application was lodged in March 2023, therefore the amendment regulations do not apply to this assessment. No change is required to the EIS, and approval is only required for tree damaging activities to the 17 trees that meet the previous definition of regulated / significant.

10.3 Waste management

10.3.1 Waste management strategy

The EIS includes a waste management and minimisation strategy, with consideration of the waste management hierarchy. The strategy includes potential opportunities for market re-use and recovery of wastes but also includes a 'base case' option if market opportunities do not eventuate.

Renascor has confirmed that the strategy will be updated following development approval / detailed design to reflect final disposal methods.

10.3.2 Location of dry waste storage

Council queried the visibility of the dry waste storage area that is located at the corner of Waterloo Corner Road and Robinson Road. Renascor has advised that existing vegetation at this location will be retained to assist in screening.

10.3.3 Ablutions management

The solution and design for ablutions management has not been determined at this stage. The final design must comply with all SA Health requirements and will require approval from SA Health due to the size of the system.

10.4 Water management

10.4.1 Stormwater management

The proposed stormwater management arrangements were queried by DEW. Renascor has provided further information in the Response Document as to why a regional stormwater strategy is being pursued in collaboration with Council.

The proposed stormwater strategy and project design has been informed by flooding mapping and modelling, taking into account current and projected climate scenarios.

The delivery of the enlarged stormwater basin to the north of the subject site is discussed in section 11.8 of this report.

The inclusion of WSUD elements, as noted with DEW, will be defined in the detailed design of stormwater management arrangements.

10.4.2 Groundwater

DEW queried the potential interaction between shallow groundwater and surface water during construction of the proposed stormwater channels and basin.

Renascor intends to minimise groundwater and stormwater interaction by constructing the channels during seasonal groundwater lows, lining the channels and/or through other construction methods. Final mitigation measures will be determined during detailed design.

If groundwater is intersected during construction, Renascor is required to comply with relevant EPA guidelines and any licencing requirements under the *Landscape SA Act 2019*.

10.5 Wastewater

In response to EPA comments, a detailed description of the waste mitigation hierarchy with respect to waste water is provided in the Response Document and discussed in section 11.8 of this report. Renascor has confirmed that the water returned from the BAM facility to the Bolivar outfall channel is targeting a similar quality to that removed, such that the analytes present in the wastewater will not significantly impact the environment.

At detailed design phase, Renascor will investigate placing its treated wastewater outfall pipe at the centreline of the Bolivar outfall channel, to maximise mixing of the water.

Renascor is committed to monitoring the treated wastewater returned to the outfall channel, as described in the draft Discharge Criteria Management Plan provided as an attachment to the EIS.

10.6 Amenity impacts

10.6.1 Air quality

Council and EPA noted that the modelling relies on the performance of dust mitigation technology and devices to meet the relevant air quality criteria. Confirmation of the technologies and devices will be confirmed in detailed design and will be incorporated into the EPA licence requirements.

EPA licence requirements are also expected to include testing to verify actual performance of dust mitigation measures.

The Response Document also provides technical clarification with respect to sulfuric acid, nitrogen dioxide, particulate matter, and modelling for the product bagging facility. These are discussed in detail in section 11.2 of this report.

10.6.2 Noise

In response to Council and EPA comments, the Response Document incorporates an additional report that details all consultation efforts undertaken by Renascor with respect to noise mitigation at sensitive receivers R14, R15, R16.

Renascor is committed to working with the impacted landowners throughout the project. This includes undertaking noise monitoring during operation of the facility. If EPA noise criteria

are exceeded, Renascor will work with landowners with respect to possible mitigation works at the sensitive receivers.

In response to EPA's comment regarding construction hours, Renascor has confirmed that construction activities will comply with the Noise EPP. Construction undertaken outside standard hours (7am to 7pm Monday to Saturday) will only involve 'quiet activities' which do not exceed an average noise level of 45 dB(A) with maximum instantaneous noise level of 60dB(A).

10.6.3 Visual amenity

Renascor has confirmed that a detailed landscaping plan can be provided post-approval, with consideration for the City of Salisbury Landscape Plan as appropriate.

Renascor will also confirm final external cladding and materials selections as part of the detailed design of the facility.

10.7 Traffic

Renascor will undertake any road upgrades necessary for the project in accordance with Council and/or DIT requirements, including entering into Deeds of Agreement where required.

10.8 Aboriginal Heritage

AAR recommended that Renascor consider seeking section 23 authorisation under the *Aboriginal Heritage Act 1988* prior to the commencement of on-site works.

Renascor will make this consideration after a decision is made on the development application process. Renascor will conduct a risk assessment and consult with traditional owners, to determine if an authorisation should be sought prior to the commencement of works. Renascor has undertaken to confirm the final approach with AAR and remains committed to complying with all requirements of the *Aboriginal Heritage Act 1988*.

11 Assessment of Key Issues

11.1 Land use and zoning

LUSC1	**Land tenure, protected areas and land use**	Objective: to ensure that the impacts of development on environmental, social and economic values of adjoining land uses, land tenures and protected areas are avoided or minimised.

This section considers the impact of the proposed development on existing development, known future development, and potential future development in the locality, from a land use perspective.

The compatibility of the proposed Renascor BAM facility is considered against current and anticipated land uses and zoning for the subject site and locality.

11.1.1 Current zoning

The subject site, and surrounding land to the north, north-east and east, is currently zoned Rural Horticulture. The gun club and go-kart club to the south-east are within the Open Space Zone. The SA Water WWTP to the west is within the Infrastructure Zone. Refer Figure 6.

The Rural Horticulture Zone anticipates intensive horticulture and associated value adding enterprises and activities. Industrial activities are envisaged in the zone, notably those associated with the horticulture industry such as washing, processing, bottling and packaging primary produce.

Residential development is also anticipated, to provide a convenient base for landowners to conduct primary production activities. Tourist accommodation and shops are encouraged where they are associated with primary production activities, to generate additional sources of income.

The proposed Renascor BAM facility is defined as 'Industry' and will also require an environmental authorisation from the EPA under the *Environment Protection Act 1993*.

Whilst industry is generally anticipated in the Rural Horticulture Zone, the Renascor proposal is not associated with primary production activities within the locality. The Rural Horticulture Zone does not anticipate industrial development that process raw mineral products. Such land uses are anticipated within the Resource Extraction Zone and are typically proximate to mining operations.

Notwithstanding, all forms of industry are performance assessed within the zone. An analysis of the proposed development against the relevant provisions of the Planning and Design Code is provided in section 12.5 of this report.

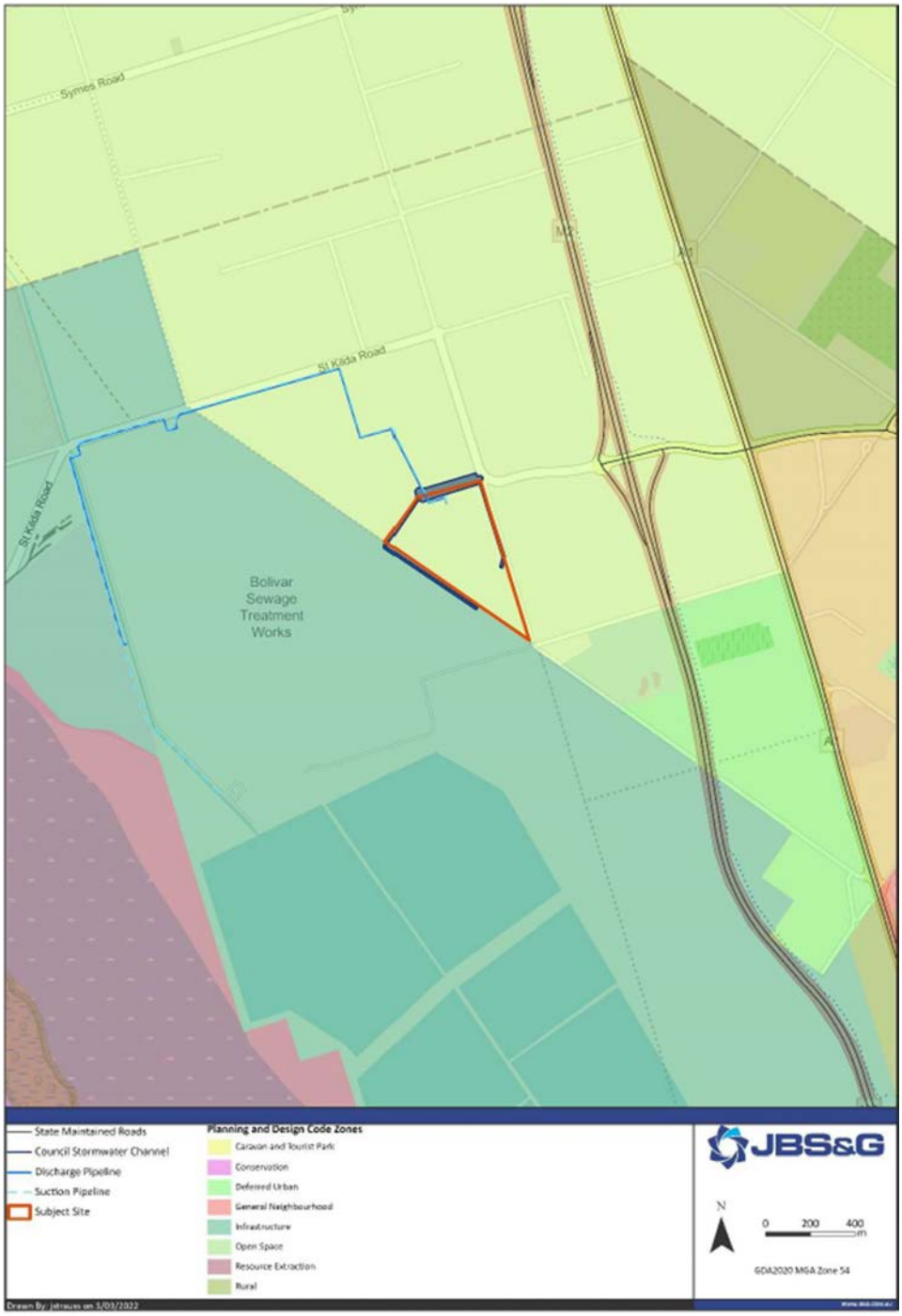

Figure 6: Current land use zoning

11.1.2 Impacts on existing land uses

SA Water Bolivar WWTP

The development abuts the Infrastructure Zone along its eastern boundary, which comprises the SA Water Bolivar WWTP. The proposed development site is located within SA Water's WWTP landholdings, with the agreement of SA Water.

The Renascor BAM facility has been designed to co-exist with the WWTP and utilise existing resources. The adjacency of the BAM facility to the WWTP operations allows for the reuse of SA Water's wastewater stream as a sustainable water source for the development. It also provides an outlet for treated process water and wastewater from the BAM facility.

The development includes the upgrade of existing stormwater infrastructure within SA Water land, and an upgrade to a portion of Robinson Road. The flood mitigation measures for the BAM facility will result in overflow being directed to SA Water land (north and south of the BAM facility). This impact is considered in detail in Section 11.10 of this report.

The BAM facility and SA Water are not expected to interfere or prejudice each other's operations with respect to air emissions, odour, noise, traffic, lighting and/or visual impact.

Residential Development

The nearest residential premises are R14, R15, and R16 located on the eastern side of Robinson Road. All three are assumed to be occupied dwellings for the purpose of the EIS.

These dwellings will be impacted by the BAM facility during construction and operation. With the inclusion of mitigation and management techniques, the EIS demonstrates that most impacts can be reduced to within legislated and/or acceptable limits.

The main residual impacts considered in this assessment report are noise emissions from heavy vehicle movements during night time hours, and visual impact.

The BAM facility is significantly larger and taller than existing development in the immediate locality and cannot be fully screened by vegetation. The facility will result in a significant change to the landscape when viewed from surrounding public roads and properties.

Night time heavy vehicle movements are considered essential to the development. The number of movements is relatively low at 1 vehicle (total 2 movements) during Stage 1 and 2 vehicles (total 4 movements) during Stage 2 operations. The duration of the impact will be relatively short, but noise will exceed relevant criteria at R14, R15, and R16. If the noise impact becomes a nuisance during operation of the BAM facility, Renascor has indicated a willingness to consider noise attenuation at these dwellings. It is noted that the EPA has powers under the *Environment Protection Act 1993* to issue an Environment Protection Order (EPO) if required, to ensure that the operator is taking all reasonable and practicable steps to mitigate environmental harm.

Recreational and Tourism Development

The nearest recreational businesses are the gun club and go-kart club to the south-east of the development site. These activities are unlikely to be sensitive to visual, noise or air quality impacts.

The next closest recreational and tourism businesses are the Tramway museum and St Kilda playground. These land uses are sufficiently separated from the development site such that noise, odour, air quality and dust impacts will not be elevated above background levels.

The development will be visible to differing degrees from the various businesses, however the overall impact is low due to separation distances, existing vegetation and development.

Overall, the proposed BAM facility is not expected to negatively impact patronage, participation or enjoyment of existing recreational and tourism businesses in the locality.

Primary Production Activities

The proposed development will result in a loss of 20.5ha of land which might otherwise be viable for food production, or value adding business and industry, within the zone.

The development site is on the eastern edge of SA Water's landholdings and is not currently being used for primary production purposes. The land could be considered underutilised (in terms of envisaged uses within the zone), although there is some value in the buffer that it currently provides between the WWTP and surrounding area.

The use of the development site for primary production activities may itself present challenges, due to its proximity to the WWTP.

The BAM facility is not expected to generate noise or air emissions that would negatively impact on agricultural / horticultural activities. There will be an increase in light and heavy vehicle movements on Robinson Road, connecting to Waterloo Corner Road, however the traffic impact assessment demonstrates this will not materially impact the efficiency or safety of the road network.

Overall, the impact on available primary production land in the locality is considered minimal, and construction and operation of the BAM facility is not expected to interfere with or prejudice primary production activities.

Commercial and Other

Commercial business and other land uses within the locality include a dog breeder (directly north of site), zoo feedlot (directly north-west of site), fish farm (approx. 900m north east), rubbish dump (1.3km north west), RAAF defence land (approx. 1km north), RAAF airfield (approx. 4km east), and the various businesses and activities within the township of St Kilda (approx. 2.7km east).

The BAM facility is not expected to negatively impact the various commercial businesses in the area.

Land use specific impacts, such as lighting impacts to the RAAF airfield, are discussed in detail elsewhere in this report.

11.1.3 Current development applications

At the time of assessment, a search of the PlanSA Development Application Register identified the following applications in the locality that are under assessment:

Ref	Application ID	Lodgement Date	Address	Nature of Development	Status
1	2239501	30/11/2022	107-709 Robinson Road, Waterloo Corner	Internal building work and change of land use from outbuilding (shed) to dog kennels for keeping of up to 15 dogs with associated office and kitchen area (animal keeping) and outdoor training areas	Under assessment
2	22015677	16/05/2022	58-66 St Kilda Road, Waterloo Corner	Variation to DA 361/1689/2020/1B (changing the location of shipping container)	Under assessment

3	24041179	06/03/25	Unit 1 9 Bolivar Interchange Connector Rd, Bolivar	Construction of a permanent biosolids stockpile area (Site 1)	Under Assessment
4	24041947	26/02/25	Unit 1 9 Bolivar Interchange Connector Rd, Bolivar	Construction of a permanent biosolids stockpile area (Site 2)	Under Assessment
5	24041951	21/02/25	Unit 1 9 Bolivar Interchange Connector Rd, Bolivar	Construction of a permanent biosolids stockpile area (Site 3)	Under Assessment
6	25003562	21/02/25	Unit 1 9 Bolivar Interchange Connector Rd, Bolivar	Construction of a chlorine dosing structure	Under Assessment

Figure 7: Development applications under assessment

In relation to the applications currently under assessment, the following is noted:

- Application #1 (2239501): animal keeping is not specifically envisaged in the zone and will be performance assessed by Council against the relevant provisions of the P&D Code. The proposed Renascor BAM facility is not expected to prejudice this proposed development, should it be granted development approval by Council. The

assessments undertaken in the EIS relating to noise, traffic, light and other impacts to residents, would equally apply to an animal keeping operation.

- Applications #3 (24047719), #4 (24041947) and #5 (24041951): three (3) permanent biosolids stockpile areas are proposed by SA Water as part of the existing WWTP operations. SA Water proposes to utilise Robinson Road for heavy vehicles exiting the site with loads of biosolids. The current condition of Robinson Road is considered in section 11.4 of this report. As noted above the proposed Renascor BAM facility is a compatible land use with the SA Water WWTP.
- Application #8 (25003562): a new chlorine dosing structure is proposed to support the Virginia Pipeline Scheme at the WWTP. The structure itself is relatively modest and there are not expected to be any interface issues with the proposed BAM facility.

11.1.4 Strategic Planning / Future Zoning

Strategic planning for future growth of the northern Adelaide region is provided in two (2) key documents, which are considered in detail in Section 12 of this report:

- *Strategic Growth Framework for Waterloo Corner and Bolivar Corridor* (Holmes Dyer, 2022) prepared for and endorsed by City of Salisbury Council on 25 July 2022.
- Greater Adelaide Regional Plan (GARP), State Planning Commission, released 17 March 2025.

	Subject Site	**North**	**North-East**	**East**	**South-East (gun & go-kart clubs)**
Current	Rural Horticulture	Rural Horticulture	Rural Horticulture	Rural Horticulture	Open Space
SGF	WWTP buffer	Rural Horticulture	Employment	Employment	Recreation
GARP	Rural Industry	Employment	Employment	Employment	Employment

The *Strategic Growth Framework (SGF) for Waterloo Corner and Bolivar Corridor* provides specific direction for future development within the locality, envisaging the land to the east and north-east of the subject site as future 'employment lands' with a potential 'eco-industrial' park. The subject site is identified within the buffer area to the WWTP. The SGF envisages that land to the north of the development site remain as Rural Horticulture, whilst the gun club and go-kart club are identified as recreational lands (instead of the current Open Space zoning).

Consistent with Council's SGF, the GARP identifies land to the east and north-east of the subject site as future employment lands within the *Port Wakefield – Strategic Growth Corridor Precinct and the National Employment (Economic) Cluster*. The GARP differs from the SGF by including land to the north and south-east as Employment lands, not Rural Horticulture and Recreational lands.

A future rezoning from Rural Horticulture to Employment may result in more commercial and light industry development moving into the area. Employment zones (under the current Planning & Design Code) do not envisage residential development. This contrasts to the current Rural Horticulture zoning which does envisage residential development as an ancillary land use to primary production.

This change is zoning may reduce the sensitivity of the receiving environment with respect to land uses, and in relation to amenity impacts from noise emissions, air emissions and visual impacts.

Assessment Outcome	The Assessment Report concludes that industrial development is envisaged in the zone, and the development has been sited and designed to minimise interface impacts with existing land uses. The development is not expected to prejudice existing or envisaged infrastructure, primary production, residential, commercial and other land uses in the locality. The proposed industrial land use is generally consistent with Council's SGF and the GARP, which envisage growth in employment lands in the locality.

11.2 Air quality

AEQ1	**Air Quality**	Objective: to ensure the development does not have unacceptable adverse air quality impacts on the surrounding receiving environment, in particular sensitive receivers in proximity to polluting development.

The *Environment Protection (Air Quality) Policy 2016* (Air EPP) provides air quality standards for South Australia and aims to reduce the impact of air pollutants on communities.

The development is expected to generate dust and air emissions during construction and operational stages.

The EIS includes an Air Quality Assessment that uses dispersion modelling to predict ground level air emissions from the development and assesses these against the relevant Air EPP criteria.

Existing ambient air quality of the receiving environment is considered generally good, based on data from an EPA monitoring station in Elizabeth Downs. Whilst air quality is generally good, the data indicated there were exceedances of the Air EPP criteria at times. Existing sources of dust and air emissions in the locality include construction, earthworks and general operations occurring within the SA Water WWTP site, traffic movement (light and heavy vehicles), and from the exposed surfaces of rural allotments and unsealed roads.

11.2.1 Air emissions during construction

Air emissions during construction are expected to include dust, combustion emissions and greenhouse gas emissions caused by vegetation clearance, excavation and earthworks, heavy vehicle movements and from diesel engines. Odour from construction activities is unlikely but may be experienced from diesel engines.

Dust emissions occur when high winds interact with exposed surfaces, or during dust generating activities such as excavation and earthworks, and vehicle movements on unsealed roads/surfaces. Dust emissions have the potential to impact on human health, vegetation health, and general amenity. The impact on human health depends on the size of the dust particle and the length of exposure, and can include eye irritation, coughing, sneezing and aggravation of conditions such as asthma. The impact on vegetation health is from the deposition of dust particles on leaves, which reduces photosynthesis output. General amenity impacts include deposition of dust on surfaces and visual nuisance

Dust emissions from construction activities cannot be reliably modelled, therefore a risk assessment methodology was adopted (the IAQM '*Guidance on the Assessment of Dust from Demolition and Construction'*) to determine the impact consequences for dust emissions.

The scale of earthworks and construction activities are categorised as 'large', and the nearest sensitive receivers R14, 15, 16 are considered to be highly sensitive (assuming they are occupied dwellings). As noted in the EIS, it is accepted that if air emissions can be managed to appropriate levels at these sensitive receivers, then it can be assumed there will be no significant impact to dwellings and businesses located further away.

Whilst the receivers are highly sensitive to air emissions, the assessment concludes that the risk category is reduced to 'low' due to the small number of heavy vehicle movements per day, and low risk of material track-out onto Robinson Road. The risk can be managed through standard dust management and mitigation practices, such that human and environmental health, and general amenity impacts can be minimised to an acceptable level.

Standard management practices are expected to include:

- Staged vegetation clearance and stabilisation of disturbed surfaces as soon as possible.
- Scheduling of earthworks and construction activities to avoid dry and windy conditions.
- Stockpile management to reduce material becoming airborne.
- Trucks containing soil and other loose material to be covered.
- Use of water trucks as required.

11.2.2 Air emissions during operation

Air emissions during operation are generated by the micronisation, spheronisation, and various industrial processes within the plant:

- Particulate matter (PM_{10} and $PM_{2.5}$) from manufacturing processes, product transport systems, fuel burning and truck haulage. Particulate matter from some sources includes graphite dust.
- Nitrogen dioxide (NO_2) from natural gas burning.
- Carbon monoxide (CO) from natural gas burning.
- Hydrogen sulfide (H_2S) from the alkaline gas scrubber stacks ((H_2S is odorous).
- Sulfuric acid fumes (H_2SO_4).

The Air Quality Assessment includes dispersion modelling of the full Stage 2 development, operating on a 24/7 basis. The modelling incorporates suitable background pollutant levels, representative weather conditions, as well as conservative assumptions and inputs for some aspects of the modelling.

Dust, air emissions and odour have the potential to negatively impact human health, vegetation health, infrastructure and general amenity. The EIS considers the impact to the nearest sensitive receivers R14, 15, 16, as well as various commercial and tourism land uses in the locality which may be sensitive to odour impacts (go-kart club, gun club and St Kilda adventure playground).

The predicted maximum ground level concentrations at sensitive receivers were assessed against the Air EPP Schedule 2 ground level concentration assessment criteria. Emissions were assessed cumulatively with background concentrations.

All modelled emissions $PM_{10,}$ $PM_{2.5,}$ $NO_{2,}$ CO, H_2S show incremental increases above background levels at all sensitive receivers. The predicted levels are below the Air EPP assessment criteria (with good margins) at the nearest sensitive receivers, including the H_2S criterion for odour. On the basis that Air EPP criteria are predicted to be achieved, air emissions from the operation of the development are not expected to negatively impact human health and general amenity.

Dust emissions from the facility will be minimised through the design of the plant, which is an enclosed system. The processing and bagging buildings will be under negative pressure and the transportation of graphite around the facility is through a pneumatic pipe system. At the emissions points (including exhaust stacks), fine particles will be captured by dust collection technology. The system has been designed to capture and reuse graphite dust, as this by-product that can be on-sold by Renascor. With the incorporation of dust collection technology into the facility, the risk of dust impacts at sensitive receivers is considered to be low.

The proposed mitigation measures for dust will also reduce the risk to electricity infrastructure in the locality, with the nearest being a 66kV powerline running along Robinson Road. Graphite dust has electrical conductivity properties which can cause powerlines to trip if sufficient dust creates a circuit between the lines.

The EPA noted that the modelling presented in the Air Quality Assessment is based on a preliminary design requiring numerous assumptions which introduces uncertainty, including the level of conservatism in the modelling. In addition, the low risk of dust impacts is strongly dependent on the performance of the proposed dust collectors incorporated into the plant design.

It is recommended that the final air emissions modelling, and the final design and performance of dust collectors, be reserved for further assessment during the detailed design phase, to confirm the predicted results. Post-commissioning stack testing to verify actual performance should be undertaken and can be incorporated through conditions of the EPA licence.

Assessment Outcome	The Assessment Report concludes that the risks associated with dust and air emissions during construction are low and can be managed through standard industry practices. The Assessment Report concludes that air emissions (including odour and graphite dust) during operation are expected to be within relevant criteria, however this should be verified at the detailed design phase to ensure the anticipated mitigation of emissions is achieved.

11.3 Noise and vibration

AEQ2	**Noise**	Objective: to ensure the development does not have unacceptable adverse noise impacts on the surrounding environment, in particular sensitive receivers in proximity to noise sources.

The *Environment Protection (Noise) Policy 2007* and EPA 425/23 Construction Noise Information Sheet provide noise standards for South Australia, to reduce the impact of noise from activities on communities. There is also a General Environmental Duty (GED) under the *Environment Protection Act 1993* to take all reasonable and practical steps to prevent or minimise environmental harm, including noise.

The development will generate noise during construction and operational stages. The EIS includes an Environmental Noise Assessment to model potential noise emissions from the development and assess emissions against the relevant criteria.

Existing, background noise levels in the receiving environment were measured using noise monitoring equipment at key locations near noise sensitive receivers. The average ambient noise level was determined to be 57dB(A) during day time hours (7am to 10pm on any day), and 52dB(A) during night time hours (10pm on any day until 7am on the next day).

11.3.1 Noise during construction

Noise emissions during construction will be produced by the operation of construction equipment (eg excavators, bulldozers), use of static equipment (eg generators) and vehicle movements. The construction period is expected to be approximately 18 months for Stage 1 and 18 months for Stage 2.

The EPA is responsible for the management and compliance of construction noise for this development using the GED under the *Environment Protection Act 1993*. The EPA 425/23 Construction Noise Information Sheet recognises that construction is inherently noisy, and therefore construction noise that causes an adverse impact is only permitted during normal construction hours (between 7am and 7pm, on Monday to Saturday). Noise that causes an adverse impact is defined as 45dB(A) for continuous / average noise, and 60dB(A) for a singular noise event, when measured at the nearest sensitive receptor.

Outside the hours of 7am to 7pm Monday to Saturday, construction noise must not exceed 45dB(A) for continuous noise with a maximum noise limit of 60dB(A). This allows sensitive receivers one full day of respite per week, free from adverse noise impacts. EPA approval is required to exceed these noise criteria and is generally only granted in exceptional circumstances.

The EIS includes an Environmental Noise Assessment which measures the average ambient noise level of the receiving environment and models expected noise emissions from the development.

Project delivery will be staged, with Stage 1 capacity to be doubled in Stage 2. The noise assessment has considered the following scenarios:

- Stage 1 construction
- Stage 2 construction (including contribution from Stage 1 operation)
- Stage 1 operation
- Stage 1 and Stage 2 full operation

The modelling predicts that construction noise during 7am to 7pm Monday to Saturday will reach up to 68dB(A) at R14. Whilst this meets relevant EPA requirements (because there are

no maximum noise criteria for construction noise between 7am and 7pm, Monday to Saturday), the expected noise level is above ambient (existing) noise levels.

Renascor will be required to prepare a Construction Environmental Management Plan (CEMP) that includes mitigation and management measures to minimise noise impacts to sensitive receivers. Typical mitigation measures may include scheduling of noisy activities, communication with affected landowners, shutting down equipment when not in use, maintenance of equipment, use of noise reduction devices, and enclosing noisy equipment such as generators.

Renascor's EIS proposed that some construction work be undertaken on Sundays during day time hours, generating noise levels of up to 57dB(A). This exceeds the Noise EPP maximum of 45dB(A) for continuous noise on Sundays. Renascor's position was that construction noise up to 57dB(A) would not adversely impact on amenity, due to existing noise levels in the locality being 57dB(A).

The EPA does not support this rationale and recommends that a precautionary approach be undertaken to safeguard the amenity of residents. In response, Renascor's Response Document confirms that any work outside 7am to 7pm, Monday to Saturday will not exceed 45dB(A) for continuous noise with a max noise limit of 60dB(A) in accordance with the Noise EPP requirements unless specific permission is granted by the EPA.

No general construction activities are proposed outside of normal construction hours (between 7pm and 7am Monday to Saturday); however, it is recognised that occasional construction operations can be justified and may be considered for approval by the EPA.

11.3.2 Noise during operation

Noise emissions during operation will be generated by various elements of the facility including the micronising and spheronising mill processes, purification process, kiln, waste water treatment and demineralisation plants, compressors, air conditioning condensers, forklifts, and heavy vehicle movements.

Operational noise from industrial facilities is governed by the Noise EPP. Indicative Noise Levels (INL) are applicable for day time hours (between 7am and 10pm) and night time hours (between 10pm on any day until 7am on the next day), which are based on the nature of the proposed land use, and the surrounding land use zones.

In accordance with the Noise EPP, the Environmental Noise Assessment in the EIS adopts an INL criteria of 52 dBA during the day and 45 dBA during the night time, which is based on the surrounding 'rural industry' land use, and includes a 5 dBA adjustment applied for new development.

The modelling is based on indicative noise data for the proposed plant design and equipment selections. A 'worst-case' scenario is adopted, with all equipment operating at the same time (which is unlikely to occur during night time operations) and using a scenario of favourable noise propagation meteorological data. The modelling is appropriately conservative. The noise report proposes a variety of onsite mitigation measures for site equipment which have been considered in the model.

Modelling was undertaken for both Stage 1 and Stage 2 operations, including and not including heavy vehicle movements, with results as follows:

Truck movements not included:

- Stage 1: all Noise EPP compliance criteria met.
- Stage 2: exceedance of 2dB(A) at R16.

Truck movements included:

- Stage 1: up to 6 dB(A) exceedance at R14, R15 and R16 for night time operations – maximum 1 truck per night (2 movements total, each with a duration of 5 minutes).
- Stage 2: up to 6 dB(A) exceedance at R14, R15 and R16 for night time operations – maximum 2 trucks per night (4 movements total, each with a duration of 5 minutes).

The EPA has determined that operational noise from the facility is acceptable for Stages 1 and 2 despite a potential 2dB(A) exceedance (without including truck noise) at a single receiver. The EPA considers this is not seriously at variance with the GED due to the conservative nature of modelling. The model assumes a worst-case scenario including data for many noise sources being modelled at a reasonable upper limit (final equipment selection may reduce individual contributions from some equipment) and worst-case weather conditions for noise propagation. Considering this, a 2dB(A) exceedance is considered minor and acceptable. It is also understood that one of the receiver properties is currently uninhabited, and another may only be currently inhabited on weekends.

The issue of truck noise was considered separately. The noise emissions generated by heavy vehicles may exceed night-time criteria due to trucks arriving and departing during night time hours to deliver and pick-up critical products. Noise is generated from vehicles entering and leaving the development site, immediately inside the vehicle access / crossover on Robinson Road. This is approximately opposite sensitive receptor R15, and near R14 and R16.

The noise exceedance (at the sensitive receivers) is expected to be short term, being approximately 5 minutes duration per truck to enter the site, and 5 minutes per truck to exit the site. Stage 1 operations require 1 truck delivery per night (2 movements total) and Stage 2 operations require 2 truck deliveries per night (4 movements total).

The EIS states that the predicted noise emissions from trucks within the development site would be "*well within the current background level of noise along Robinson Road*" (pp 265), and on this basis the Noise EPP infers that no action is required to mitigate the noise exceedances. The EPA did not agree with this method of assessing background noise and uses worst-case monitoring levels during the day and night periods (ie the lowest record noise levels). Average noise levels as used by the proponent can be affected by certain events such as peak hour traffic which starts to rise at around 6am, and skews average night-time noise levels.

The baseline noise monitoring recorded noise spikes up to 96.6dB(A) overnight, which the EIS attributes to heavy vehicle movements. The noise and traffic modelling presented in the EIS, however, are not conclusive with respect to noise sources during night time hours. Vehicle counts undertaken as part of the traffic impact assessment counted 124 vehicles on Robinson Road, comprising 9% heavy vehicles. During the survey period for traffic, there were no heavy vehicle movements between 10pm and 7am during the survey period.

Whilst it is acknowledged that heavy vehicles currently use Robinson Road during day time hours, particularly to access the SA Water WWTP site, it cannot be assumed that the night time noise recorded at the noise monitors was from heavy vehicles. Renascor was unable to

obtain further data from relevant sources regarding existing heavy vehicle movements on Robinson Road.

It is noted that the noise modelling in the EIS (and the predicted exceedances) only includes noise emissions from activities (and heavy vehicle movements) generated from within the development site, and from trucks entering and leaving the premises. Noise emissions from vehicles travelling on public roads are excluded from the Noise EPP.

Renascor has advised that night time truck movements are essential to the operation of the facility, to ensure continuity of supply of raw graphite from the Siviour Graphite Mine.

On this basis, and in response to comments from Council and State Agencies, Renascor was asked to consider noise mitigation options for night time deliveries. The following options were considered and discounted, as they are unlikely to deliver material benefit / reduction of noise emissions:

- Use of smaller / quieter trucks: this may reduce maximum predicted noise levels to some extent, but would require a greater number of trucks, which would increase the number of noise 'events' during the night. Also, there is not a significant difference in noise emissions between road trains (B-Triples) compared to B-double trucks when travelling at low speed / idling.
- Installation of noise barriers (on the development site): noise barriers along the eastern side of the development site (along Robinson Road) were considered, but found to have a negligible reduction in noise impacts due to there still needing to be a relatively large opening for heavy vehicle access. The use of solid / sliding gates was also considered, however trucks would need to idle / stop while waiting for the gates to open, which would increase noise at the sensitive receivers.
- Relocation of the proposed site access point: whilst relocating the site access point further south on Robinson Road may reduce noise emissions to some extent, the sensitive receivers would still be subject to noise from the same vehicles travelling along Robinson Road. While this would remove vehicle noise from the assessment it provides no practical benefit to residents who would still be affected by noise from passing vehicles.

Noise mitigation measures that are feasible, and proposed to be employed by Renascor to mitigate heavy vehicle noise, include:

- As far as reasonable and practicable, trucks will be scheduled to arrive and depart the site during day time hours.
- Where night time movements are required, preference will be given to arrival/departure during shoulder periods (6am-7am and 10pm-11pm).
- Minimise vehicle idling time while within the site or waiting to enter the site.
- Prohibit the use of engine brakes (except in emergencies) and truck reversing alarms within the site and on Robinson Road.
- Maintenance of access roads within the facility to minimise bumps.

The EPA has accepted that noise mitigation at the source and along transmission pathways (ie at the Renascor property, or between properties) is likely to be unsuitable. Mitigation at the three potentially affected receiver properties remains a suitable option.

Renascor proposes to undertake noise monitoring post construction at the potentially impacted sensitive receivers, to determine if there are residual noise emissions that exceed the relevant Noise EPP criteria. This will be addressed by the EPA post construction.

At the EPA's request Renascor has conducted consultation with potentially affected residents. Renascor's Response Document provides a record of engagement efforts with potentially impacted sensitive receivers R14, 15, 16 with respect to noise impacts.

Renascor has indicated that it will remain open to consultation with impacted sensitive receivers, and considering mitigation at the receiver in consultation with residents if noise from truck movements is considered a problem. This may include measures such as fencing, double glazing, and façade treatments.

Renascor has made all reasonable efforts to explore fitting mitigation to the impacted receivers in accordance with the GED, and the EPA has considered this to be acceptable.

As discussed in section 12 of this report, the GARP identifies the land to the east, north-east and north of the subject site as future Employment lands. Rezoning of this land from Rural Horticulture to an employment type zone would result in more commercial and light industry development moving into the area. Such land uses may be less sensitive to operational noise emissions (from the development) than the existing land uses, noting that the INL criteria in the Noise EPP for light industry is the same as for rural industry (current land use category under the Noise EPP), and the INL criteria for commercial land uses is higher than for rural industry.

Assessment Outcome	The Assessment Report concludes that sensitive receivers may be affected by temporary construction noise during standard construction hours (between 7am and 7pm, Monday to Saturday). Impacts can be mitigated through standard industry practices in a CEMP. Renascor has confirmed that no noisy construction activities (exceeding relevant Noise EPP criteria) will be undertaken outside of normal construction hours unless special approval is sought from the EPA. The Assessment Report concludes that sensitive receivers may be adversely impacted by ongoing operation noise from heavy vehicle movements within the site. Renascor has demonstrated that it will take all reasonable and practicable measures to mitigate noise impacts, either at the source or the receptor, to meet the General Environmental Duty under the *Environment Protection Act 1993*. Noise monitoring at potentially impacted sensitive receivers R14, R15 & R16 could, with owner agreement, be undertaken post construction to verify residual noise exceedances if complaints are received. Renascor will remain in consultation with sensitive receivers to implement any required noise mitigation at the receptor if the EPA receives complaints.

11.4 Traffic and transport

AEQ3	**Transport and Traffic**	Objective: to ensure impacts to the safety and efficiency of transport modes and the broader transport and traffic system and infrastructure are avoided or mitigated.

The development will generate light and heavy traffic movements throughout the construction and operational phases.

Key sources of traffic movements during construction are delivery of building materials, equipment and fuel, transport of staff and contractors, and relevant support services (ie food trucks).

Key sources of traffic movements during operation are haulage of raw graphite from the Siviour Graphite Mine to the BAM Facility, delivery of various products required for the graphite processing, haulage of processed PSG from the BAM Facility to Port Adelaide for export, and transportation of waste materials. Traffic will also be generated by the transport of staff and contractors, and relevant support services.

Vehicular access to the site is from Robinson Road, a local street under Council care and control. Robinson Road is not gazetted as a heavy vehicle route, however traffic counts undertaken as part of the Traffic Impact Assessment (TIA) for the EIS identified a small number of Class 10 and 11 vehicles using the road. Robinson Road is used as a secondary access to the SA Water Bolivar WWTP site. The road has no formed pedestrian footpaths or bicycle paths.

Vehicles travelling to /from the site will primarily travel from Robinson Road, via Waterloo Corner Road, and onto the North-South Motorway or Port Wakefield Road.

Waterloo Corner Road is council managed west of the interchange roundabout, however a portion of the road (and the intersection with Robinson Road) is located within an allotment owned by the Commissioner of Highways. The road has no formed pedestrian footpaths or bicycle paths.

The North-South Motorway and Port Wakefield Road are both arterial roads under DIT care and control.

The vehicle access arrangements, with direct access to the BAM facility from Robinson Road, are supported by DIT.

The EIS includes a TIA and Heavy Vehicle Route Assessment (HVRA) to consider the types and volumes of traffic generated by the development; the impact on the existing road network; and the need for any road and infrastructure upgrades.

11.4.1 Vehicle Access Route

Raw graphite from the Siviour Graphite mine will be transported from the mine on Eyre Peninsula to the BAM facility via Lincoln Highway, National Highway A1, Port Wakefield Road, Waterloo Corner Road and Robinson Road.

Vehicle types used to transport the raw graphite will include 26m B-Double (PBC Level 2A), 36.5m AB Triple (PBD Level 3A), and 40.7m AB Triple (PBS Level 3B).

Various other product deliveries and waste streams requiring both light, small trucks and heavy vehicles are expected to be generated from the Adelaide metropolitan area (ie south of site), with small numbers from north and east of the site.

Processed PSG and other by-products will be transported from the BAM facility to Port Adelaide via the north-south motorway, Port River Expressway, and Victoria Road, using a combination of B Double and AB Triple road trains.

Light vehicle movements associated with operational staff are likely to be generated from the Adelaide metropolitan area (ie south of site), with small numbers from north and east of the site.

11.4.2 Traffic Impact

The TIA modelled the predicted traffic volumes and types for all stages of the development:

- Stage 1 construction: estimated to generate a total 80 daily movements comprising 74 light vehicle movements and 6 heavy vehicle movements.
- Stage 1 operation: estimated to generate a total 178 daily movements comprising 136 light vehicle movements and 42 heavy vehicle movements.
- Stage 1 operation and stage 2 construction combined: estimated to generate a total 258 daily movements comprising 210 light vehicle movements and 48 heavy vehicle movements.
- Stage 2 operation: estimated to generate a total 238 daily movements comprising 154 light vehicle movements and 84 heavy vehicle movements.

The combination of Stage 1 operation and Stage 2 construction generates the highest number of light vehicles movements, due to the number of staff travelling to the site for both construction and operational work.

Full Stage 2 operations generate the highest number of heavy vehicle movements and represents the ongoing impact of the project during its estimated 40 year operational life.

Construction

The TIA demonstrates that peak vehicle movements expected during construction are likely to be accommodated within the existing road network capacity.

Separate Traffic Management Plans (TMPs) will be required for the construction phases of Stage 1 and Stage 2 of the development. The TMPs should be developed in consultation with DIT and Council and consider traffic volumes/types, traffic devices and controls to be utilised, and any proposed traffic restrictions on adjacent roads.

Any overmass or oversized deliveries will require permits from the National Heavy Vehicle Regulator.

Operation

The peak period for traffic movements will occur at shift changeover (indicatively 6:30am to 7:30am and 6:30pm to 7:30pm) and comprise mostly light vehicles.

The majority of heavy vehicle movements will occur during the daytime period, with minimal during peak periods or night time hours. Maximum heavy vehicle movements during nighttime hours are predicted to be 1 truck delivery per night (2 movements total) for Stage 1 operations and 2 truck deliveries per night (4 movements total) for Stage 2.

The predicted vehicle movements were modelled against existing traffic (background levels) to consider the impact on the existing road network:

- Mine to Bolivar haulage route: max 0.5% increase on least trafficked roads.
- Bolivar to Port Adelaide haulage route: less than 0.1% increase.
- North-South Motorway at the closest access point (northbound): 0.14% increase

- Waterloo Corner Road (west section): 8.51% increase during stage 2 operations.

The TIA demonstrates that peak movements during operation are likely to be accommodated within the existing road network capacity.

The TIA considers the impact to wait times at the most impacted intersections, being Robinson Road / Waterloo Corner Road, and Waterloo Corner Road / North-South Corridor. For both intersections, the increased wait time during peak periods is expected to be less than five (5) seconds.

11.4.3 Upgrade Requirements

The HVRA identified risk areas on the heavy vehicle route, and considered the need for road and intersection upgrades, with three (3) key areas considered.

Waterloo Corner Road / Robinson Road Intersection (Council road, DIT land)

The desktop route assessment presented in the EIS concludes that the intersection of Waterloo Corner Road / Robinson Road is considered to have sufficient geometry to support the proposed vehicle combinations to the BAM facility (26m B-Doubles, 36.5m AB Triples and 40.7m AB Triples) such that intersection upgrades would not be required.

The HRVA recommends that on-road trial turn paths be undertaken for both 36.5m AB Triples and 40.7m AB Triples to confirm the desktop analysis, and the need (or not) for upgrade works to the intersection as a direct result of the development.

Port Wakefield Road (DIT road)

A section of the haulage route along Port Wakefield Road is not gazetted as a PBS Level 3B route.

The TIA recommended that a signal modification be undertaken to allow for heavy vehicles to turn right off Port Wakefield Road onto Waterloo Corner Road.

It is understood that this measure has already been implemented by DIT.

Robinson Road (Council road)

The HVRA identified the width and condition of Robinson Road as a risk area. An upgrade of the road between the intersection of Robinson Road / Waterloo Corner Road and the BAM facility vehicle entrance is required to accommodate the largest expected vehicles (AB triples). This is a distance of approximately 200m.

The EIS notes that SA Water is planning to upgrade Robinson Road to accommodate B double truck movements, to support their ongoing operations. This upgrade would extend south of the proposed BAM facility entrance, connecting to SA Water's access point to the WWTP landholdings.

Renascor's development will generate larger / heavier vehicles than SA Water's operations, therefore agreement needs to be reached between the parties (Renascor and SA Water) to ensure the road upgrade accommodates all needs.

Council considers it critical that the upgrade of Robinson Road be a requirement of any development approval. The road must be design in consultation with Council, and to Council's specifications and standards.

Renascor's Response Document states that "*Renascor agrees that the necessary road and road infrastructure upgrades relevant to the BAM facility will need to be undertaken prior to operation of the development*" (pp12).

It is recommended that a condition of approval be included for any development authorisation, requiring that the Applicant enter in a Deed of Agreement with the relevant parties (likely to include Council, DIT and SA Water) for the Robinson Road upgrade.

Mine to BAM Facility Haulage Route

Whilst outside of this assessment, it is noted that the haulage road from the Siviour Graphite Mine to the BAM facility utilises primarily DIT maintained arterial roads.

A new 1km connecting link route is being considered between Schmitt Road and Five Cross Road at Arno Bay. This new link would allow for road trains to utilise the existing Lincoln Highway / Schmitt Road intersection and turning lanes, which can accommodate AB triples.

This road upgrade is not considered essential for the BAM facility.

Notwithstanding, Renascor's Response Document acknowledges that road upgrades required to be undertaken by Renascor on DIT roads will be undertaken in accordance with DIT requirements. The Applicant will be required to enter into a Deed of Agreement with DIT for any roadworks, with road upgrade costs borne by Renascor.

11.4.4 Car Parking

The Planning & Design Code requirement for an industry land use is 1.5 parks per 100m^2 of industry floor space. Based on the full Stage 2 operations, with a total floor space of approximately 140,000m^2, this would equate to a requirement of 1200 car parks which far exceeds the expected parking demand for the facility.

The full Stage 2 staffing numbers, across both shift times, is approximately 70 people. There is no public transport available to the area and it is expected that all staff will travel to/from the facility by private car.

The proposed car parking area for the project has provision for 75 spaces for Stage 1, and 120 spaces for Stage 2. This is considered sufficient to cater for anticipated demand, including peak periods during shift changeover. No spill over to the local road network is anticipated.

All staff car parking is located off-street, within the boundaries of the BAM facility. Light vehicles and heavy vehicles will utilise the same crossover entrance to Robinson Road, however light vehicle car parking is separated from heavy vehicle manoeuvring areas. Direct access is provided from the staff car park to the personnel entry/exit and administration building.

The final design of car parking areas should comply with relevant Australian Standards.

Assessment Outcome	The Assessment Report concludes that the construction and operation of the development will increase light and heavy vehicle movements on the road network. The increase in traffic volumes is not expected to disrupt the existing transport network; with minimal increases expected to wait times at key intersections. The increased traffic during construction and operation may result in minor deterioration of road pavements. An upgrade of Robinson Road between the intersection of Waterloo Corner Road and the BAM facility entrance is considered essential to the development and must be completed prior to operation of the development. Traffic Management Plans will be required to manage traffic and parking during both stages of construction. The standard requirements of a TMP are considered appropriate to manage impacts to an acceptable level. Adequate space is available within the confines of the development for off-street parking for light vehicles to cater for the expected number of staff during full Stage 2 operations.

11.5 Visual Impacts

AEQ4	**Visual Amenity**	Objective: to ensure adverse effects on visual amenity, landscape and open space values are avoided or minimised and opportunities to enhance these values are maximised.
DQ1	**Urban Design and Place-Making**	Objective: To ensure development promotes the value and quality of good design across South Australia's built environments, and that contributes to healthy neighbourhoods, supports innovation and the integration of smart and sustainable technologies.

11.5.1 Design and Appearance

The subject site is located within a landscape that is predominantly flat, and structures are generally visible due to the topography. The landform has been altered for a mixture of urban and rural activities. The immediate locality is predominantly horticultural, light commercial and infrastructure land uses with low scale of development. Amenity value is impacted by illegal dumping and a lack of public realm infrastructure.

The layout of the development has been arranged to meet operational requirements, allow for vehicle access and circulation, and accommodate all required infrastructure and plant.

The development is industrial in appearance, comprising numerous large buildings, equipment and plant as well as silos, tanks and other infrastructure. The buildings are set back approximately 75m from allotment boundaries, with the tallest structures associated with the development (full Stage 2 operations) as follows:

- 2 x kiln buildings – each approx. 500m^2 floor area x 26.8m high.
- 2 x purification buildings – each approx. 1000m2 floor area x 22.7m high.
- 4 x micronisation and spheronisation milling plant buildings – each approx. 8000m^2 floor area x 8.3m high.
- The water pipes required to carry water to and from the Bolivar outfall channel will be predominantly above ground.

The EIS includes a visual impact assessment that considers the visibility of the development from public roads, sensitive receivers in the locality, and from key tourist locations and

vantage points in / around St Kilda township. Visual renders were prepared to consider the extent and likelihood of visual impact from the development from 12 representative viewpoints.

Figure 8: Location of photomontage points for visual impact assessment

The development is physically larger and bulkier than existing development in the locality. The visual impact will be exacerbated with the removal of vegetation along Robinson Road frontage, to make way for a stormwater channel. Sensitive receivers R14, 15 and 16 will be most impacted, and are expected to experience a high degree of visual change until replacement vegetation planting along the eastern boundary grows to partially screen the lower levels of the facility. Refer Figure 9.

Figure 9: Viewpoint V4 – Robinson Road South (existing and with project render)

The Applicant will endeavour to retain as much of the existing vegetation along Robinson Road as possible and will work with local and state government to develop a landscaping plan for replacement plantings. Council has recommended that the 10m green buffer zone proposed around the northern, southern and western site boundaries be extended along the entire Robinson Road frontage. The landscaping plan should also include plantings around the dry waste storage area, which is located at the corner of Robinson Road and Waterloo Corner Road.

It is recommended that the design and management of all proposed green buffers be reserved for further assessment during the detailed design phase, through the provision of a landscaping plan.

South-east of the site, within the Open Space zone, the development will be partially visible from the gun club and go-kart club, with some screening from roadside vegetation. The gun and go kart clubs are not considered to be sensitive to visual impacts from the development.

The degree of visual impact on receivers generally decreases with distance from the development, and with the presence of existing development and vegetation. This is evident in the visual render for viewpoints 6 and 7 (Robinson Road north), whereby the development is visible on the horizon, with the lower portion screened by existing trees and structures.

Figure 10: Viewpoint V6 – Robinson Road North (existing and with project render)

When viewed from the various tourism receivers around St Kilda, the prominence of the development is significantly reduced by separation distance. The tramway museum is over 1.5km from the development site, and the mangroves boardwalk, marina and adventure playground approximately 2.5 – 3km from the site. At these distances, the development takes up very small percentage of the visual landscape.

The development will be visible for varying durations and extents along public roads. Viewpoints 8 (St Kilda Road) and 12 (North-South Motorway) suggest that the development will often be screened or partially screened by existing vegetation, buildings and local topography. The visual impact of the development from public roads is generally considered to be acceptable due to the temporary nature of the impact. Vehicles will view the development from a moving vehicle, for a short period of time.

Motorists on Waterloo Corner Road, approaching from the east, will have clear views of the development. This route was identified by Council as being of particular concern, because it is the gateway and main tourist route to St Kilda. This section of road is approximately 500m, with a speed limit of 80km/h, therefore the visual impact experienced by motorists will be relatively short.

Figure 11: Viewpoint V13 – Waterloo Corner Road (existing and with project render)

From many of the assessed viewpoints there is a residual visual impact due to the taller elements of the development which are visible above vegetation and cannot be screened. The Applicant has committed to using external materials that are matte finish, in muted colours that complement the landscape, and do not cause glare. The final layout of the development should set back the taller elements from public roads as far as possible, to reduce the visual dominance of the development to sensitive receivers along Robinson Road.

It is recommended that the final design and materiality of the buildings be reserved for further assessment during the detailed design phase, through the provision of detailed elevations and materials schedules.

11.5.2 Light Spill

The development will operate on a 24/7 basis and require after hours lighting of the facility and trafficable areas. Light spill has the potential to impact sensitive receivers, existing businesses and land uses, and flora and fauna.

The EIS states that lighting will comply with relevant Australian Standards, with existing tree screening to mitigate the effect of light spill. This requires further assessment in relation to sensitive receivers R14, 15, 16, noting that existing vegetation along the Robinson Road boundary may be removed during construction.

It is recommended that light spill to sensitive receivers be reserved for further assessment during the detailed design phase, through the provision of a lighting plan.

The subject site is located within the Controlled Lighting Installation Area for Edinburgh Airport, as shown in the Building Near Airfields Overlay of the Planning & Design Code. The Applicant will consult with RAAF / CASA regarding outdoor lighting spill as part of the detailed design phase to ensure the development does not cause distraction to aviation operations.

It is accepted that light spill will not negatively impact tourism businesses in the locality, as none of them operate at night.

It is accepted that light spill will not negatively impact fauna as there are no sensitive environmental receivers within or near the site.

11.5.3 Overshadowing

The EIS incudes shadow diagrams which depict the shadows cast by the proposed development throughout the day (9am, 11am, 1pm, 3pm) on the longest and shortest days of the year (summer and winter solstice).

The diagrams demonstrate that all shadows are within the subject site and will not have any overshadowing impact to adjacent properties. No further assessment is required.

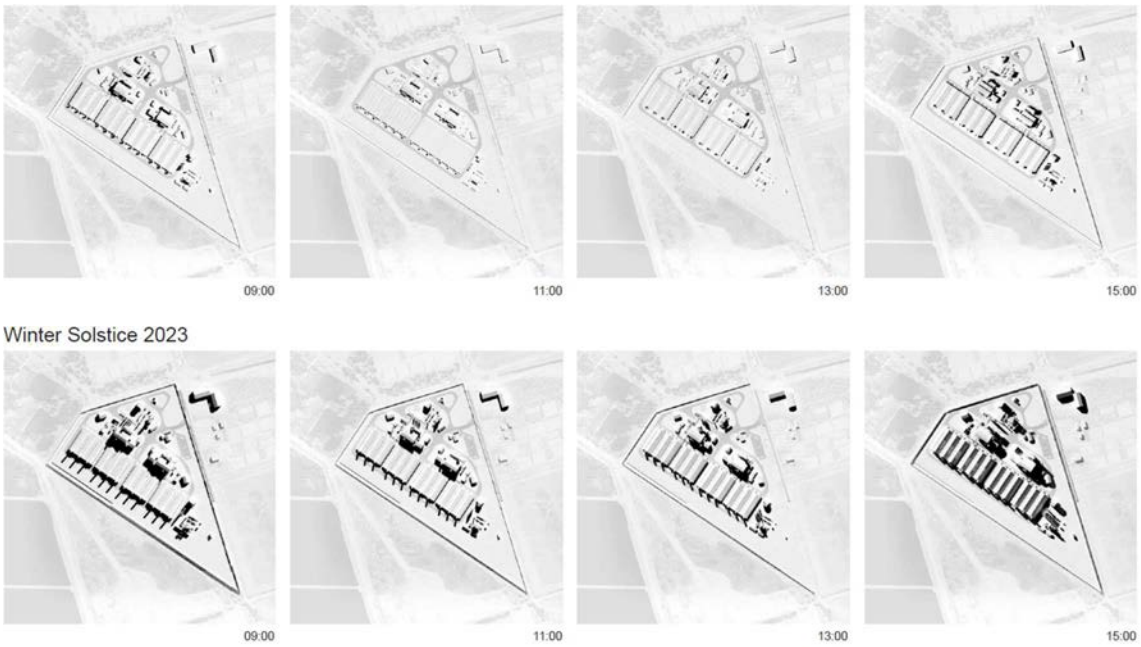

Figure 12: Shadow diagrams

Assessment Outcome	The Assessment Report concludes that the visual impacts of the development have been reduced through the selection of the site, which provides separation from residential zones, tourism businesses and visually sensitive areas. The Assessment Report concludes there will be a residual visual impact to sensitive receivers R14, 15, 16, which can be partially mitigated through landscaping and set backs. The Assessment Report concludes there will be a residual visual impact to motorists on Waterloo Corner Road, and from other public roads. The impact is acceptable as these are transitory environments and visual impact is temporary. The proposed landscaping, final design and materiality of the buildings requires further assessment to ensure the anticipated mitigation of visual impact is achieved. The potential impacts of light spill on sensitive receivers (including the Edinburgh airport) requires further assessment, to ensure that impacts are mitigated to acceptable levels. The development will not have any overshadowing impact beyond the boundaries of the subject site.

11.6 Biodiversity and Natural Processes

BE1	**Biosecurity**	Objective: to ensure that construction and operation of the development avoids the introduction or spread of biosecurity threats including pest or nuisance animal and plant species (including marine pests), diseases and pathogens.
BE2	**Marine Flora and Fauna**	Objective: to ensure that the nature and scale of the development avoids or minimises adverse effects on biodiversity, threatened and protected marine flora and fauna species, their ecological communities and habitat.
BE3	**Terrestrial Flora and Fauna**	Objective: to ensure that the nature and scale of the development avoids or minimises adverse effects on biodiversity, threatened and protected terrestrial and aquatic flora and fauna species, their ecological communities and habitat.
PE1.1	**Coastal**	Objective: to ensure that natural features and processes of coastal systems are protected so that the environmental values of the coast are maintained.
PE1.2	**Marine**	Objective: to ensure the quality and productivity of marine waters, sediment and biota are protected so that environmental values are maintained.

This section of the assessment report considers direct and indirect impacts of the development on the biota of terrestrial, coastal and marine environments.

The BAM facility is physically separated from the coastal and marine environments by the SA Water Bolivar WWTP and BDC salt fields and will not have any physical impact on coastal landforms or systems. All built form and ancillary infrastructure for the BAM facility is land based.

The discharge of treated wastewater via the existing Bolivar outfall channel is the only interaction that the development has with the coastal or marine environment. No physical upgrade or alteration is proposed to the existing channel.

The volume and quality of the wastewater being discharged to the marine environment via the outfall channel is considered in section 11.8 of this report.

11.6.1 Regulated and significant trees

Under the PDI Act, tree damaging activity in relation to a regulated or significant tree is included in the definition of development and therefore requires development authorisation.

At the time of lodging the development application (7 March 2023), Renascor identified a total of 18 trees on the site as meeting the definition of regulated or significant, based on their total circumference (2m for regulated and 3m for significant trees). Seventeen (17) of the 18 trees are proposed to be removed to make way for the development comprising 8 regulated and 10 significant trees.

On 16 May 2024 the definition of a regulated and significant tree was amended by the *Planning, Development and Infrastructure (General) (Regulated and Significant Trees) Amendment Regulations 2024*. The amendment reduced the circumference threshold to 1m for a regulated tree and 2m for a significant tree, with the purpose of protecting more trees within metropolitan Adelaide.

In accordance with the transitional provisions of the regulations, the new definition does not apply to the Renascor development application, as it was lodged with the Commission prior to 16 May 2024.

The majority of the 18 protected trees are sparsely planted black box and peppermint box trees located on the eastern boundary with Robinson Road. Their removal is required as they conflict with the proposed eastern stormwater channel. Three of the trees are located in the western corner of the site, within the footprint of the BAM facility, and one tree is located adjacent St Kilda Road, within the proposed pipeline corridor.

A detailed assessment of each trees' health, amenity and retention value is not provided in the EIS, however the ecological assessment notes that '*a high number of these trees were in less than optimum health with numerous broken limbs and dieback observed across the area'* (Ecosphere, 2023).

The existing trees and associated understory vegetation along Robinson Road currently provide visual screening of the development site from the street. Renascor has noted that the final design of the stormwater channel will seek to retain existing trees wherever possible. Renascor will undertake vegetative plantings along the eastern boundary, including juvenile trees, however these will take many years to mature and replace the existing natural screen.

Under the PDI Act and *Planning, Development and Infrastructure (General) Regulations 2017* (PDI General Regulations), the removal of regulated and significant trees must be offset through planting of replacement trees or payment can be made into the Planning and Development Fund. A condition of approval is recommended that provides flexibility for either replacement planting or payment into the fund.

Assessment Outcome	The proposed removal of 17 trees on the site cannot be avoided due to the necessity of the stormwater channels and overall site layout. The Assessment Report concludes that the tree removals are supportable as the trees are not identified as being of high biodiversity or amenity value and will facilitate development that is not otherwise possible. The proposed offset measures (payment into the urban trees fund, and on-site plantings) are acceptable.

11.6.2 Flora (Native vegetation)

Desktop and field surveys were undertaken by Ecosphere Ecological Solutions to identify the extent, condition and value of native vegetation on the site, including the pipeline alignment to the Bolivar outfall channel, and new stormwater channel along the eastern site boundary. No clearance or disturbance of habitat is proposed at Freshwater Creek, where the outfall channel discharges to the coastal / marine environment.

The desktop assessments identified various threatened ecological communities and threatened flora species as potentially occurring within the site, or within 5km of the site. Field surveys were conducted to verify actual communities and species occurring on the site.

The site has been previously cropped or grazed, and native vegetation on the site was either planted in approximately 2010 or is emergent growth (ie naturally regenerating species). The planted vegetation is in rows and comprises locally indigenous species. There is minimal upper story vegetation, low species diversity, weed infestations, and overall vegetation is sparse. At the time the field surveys were undertaken, sheep were grazing through the vegetation area.

The majority of the water pipeline alignment is on land that is already cleared, or where vegetation is in poor condition.

A total of ten (10) vegetation associations were mapped within the development site. Most of the vegetation was assessed as being in 'very low' condition, except for 0.75ha of vegetation association #4 (Black See Samphire emergent under planted Swamp Paperbark and Silver Saltbush) which was assessed as being in 'low' condition. This vegetation association is in the southern portion of the site where the land is low lying, and subject to inundation from surface waters. As a result, it has a higher cover of samphire and lower weed infestations. Refer Figure 14.

The field surveys did not identify any significant ecological communities, protected flora or fauna species, important habitat for conservation significant species or migratory species.

The proposed extent of clearance across the development site and pipeline route is 26.72ha including 22.2ha of emergent samphire / chenopod shrubland. Refer Figure 13. The impacted vegetation has been assessed as being overall, poor quality habitat.

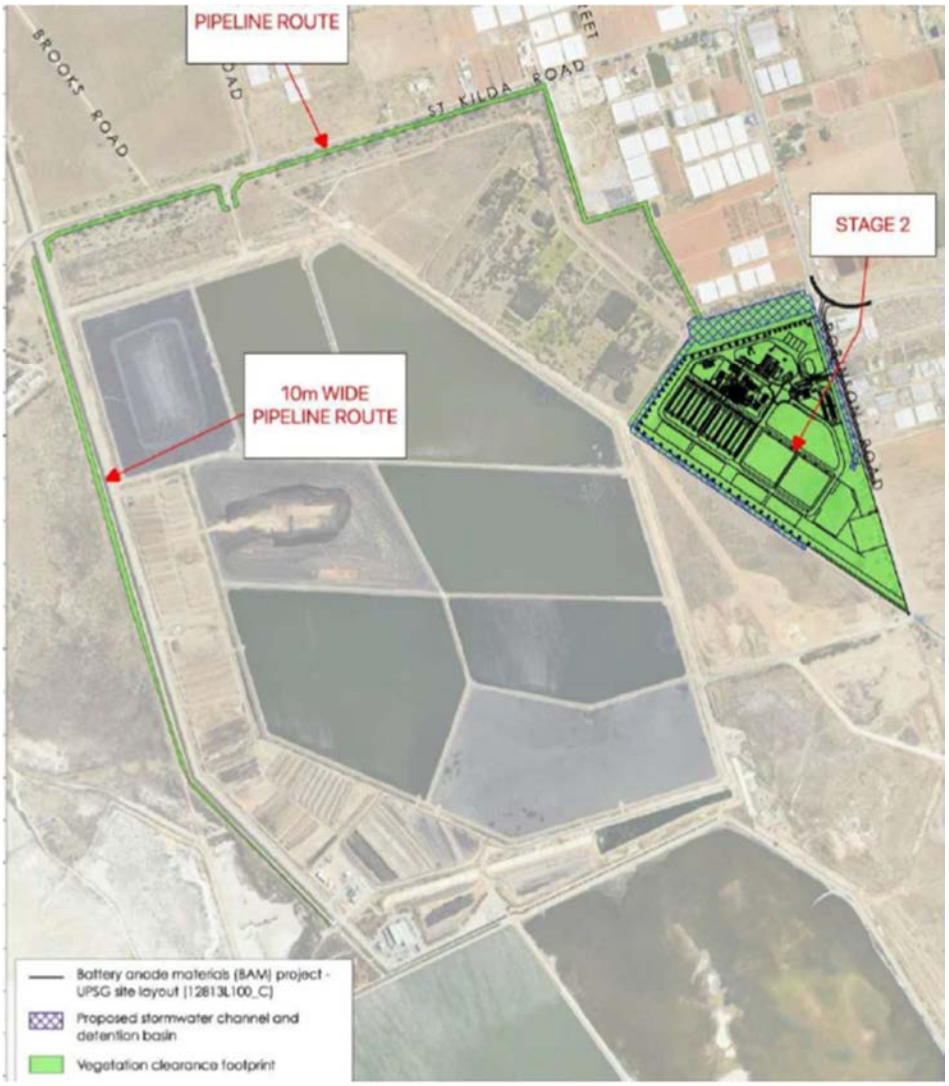

Figure 13: Extent of proposed clearance

Figure 14: Vegetation association #4 (Black See Samphire emergent under planted Swamp Paperbark and Silver Saltbush)

The Native Vegetation Council is responsible for considering applications to clear native vegetation under the *Native Vegetation Act 1991* (NV Act). The proposed clearance for the Renascor project is considered Level 4 clearance and in accordance with the requirements of the NV Act, a Data Report was prepared by Ecosphere and is included as Appendix 9 of the EIS. In assessing an application, the NVC will consider Renascor's application of the mitigation hierarchy (avoid, minimise, rehabilitate/restore, offset) as described in the *Native Vegetation Regulations 2017*.

If the clearance is approved, Renascor will be required to provide a Significant Environmental Benefit (SEB) to offset the native vegetation that is cleared. An SEB can be provided through on-ground offsets, or through payment into the Native Vegetation Fund.

Renascor has considered the mitigation hierarchy under the *Native Vegetation Regulations 2017* as follows:

- Avoid:
    - The majority of the site has been previously cleared.
    - Vegetation on the site is predominantly planted with some emergent chenopod shrubland.
    - The vegetation is of low quality, with high levels of weeds.
    - Roadside vegetation will be retained where possible.
    - Avoidance of native vegetation was considered in the site selection. The selected site has the lowest quality vegetation compared to other sites considered by Renascor in the site selection process.
- Minimise:
    - The eastern stormwater channel will require some clearance of native vegetation.

    - The final design and siting of stormwater infrastructure will seek to minimise clearance where possible.
- Rehabilitate or restore:
    - A green buffer will be created along the northern, northwestern and southwestern sides of the site following construction of the stormwater system.
    - The eastern boundary will be replanted where possible.
    - Revegetation elsewhere on the site is not feasible due to fire management requirements.
- Offset:
    - A search of the Native Vegetation Credit Register shows no known sites in the same IBRA association or sub region.
    - Renascor will continue to investigate opportunities for on-ground offsets.
    - In the event that a suitable on-ground offset cannot be identified, Renascor will pay into the Native Vegetation Fund.

Referral comments from the Native Vegetation Council did not identify any specific concerns with the proposed clearance, however an assessment will be required under Regulation 12, together with Schedule 1, Part 4, Clause 27 (Major Projects) of the *Native Vegetation Regulations 2017*. Significant Environmental Benefit (SEB) for impact assessed developments is determined under Regulation 13.

Renascor's Response Document signals an intention to work relevant stakeholders to identify on-ground offsets, as the preference for delivering the SEB. Where no suitable on-ground offset is available, payment will be made into the fund.

Native vegetation clearance is proposed to occur in stages. Clearance will initially be undertaken for Stage 1 of the BAM facility including the water pipeline corridor and stormwater easement. Stage 2 will occur later, prior to the commencement of Stage 2 construction. This approach is supported, as it will reduce the area of disturbed soils which are susceptible to wind and water erosion.

Assessment Outcome	The Assessment Report concludes that Renascor has applied the mitigation hierarchy under the *Native Vegetation Regulations 2017* through site selection and project design. The impacted vegetation is emergent samphire / chenopod shrubland with low habitat value. The site clearance will not impact nationally listed threatened ecological communities or flora species. The proposed clearance will require assessment by the Native Vegetation Council under the *Native Vegetation Act 1991*. If approved, Renascor will offset the clearance through either on-ground projects, or payment into the Native Vegetation Fund.

11.6.3 Fauna (Native animals)

Desktop and field surveys were undertaken by Ecosphere to identify the presence of native animals on the site, and the potential impact of the development on these species.

Impacts on native fauna may be direct from vegetation clearance, and indirect from noise, light spill, vehicle strike, and wastewater discharge through the Bolivar outfall channel.

The EIS considers potential impacts to both terrestrial and marine fauna species, however the development does have any physical interaction with the coastal / marine environment and therefore no direct impact on marine fauna.

Biodiversity

The field surveys included a focused avian species assessment, and opportunistic observations of other fauna species. A total of 32 species of birds were identified during the field surveys. No mammal or reptile species were identified, however this does not preclude their presence on the site, as targeted surveys were not undertaken.

The assessment undertaken by Ecosphere assigned biodiversity scores across the site.

The highest scores were in the southern section of site, which comprises vegetation community #4. In this area, exotic species are drowned out by periodic flooding and an emergent samphire community exists. Samphire habitat, whilst low in floristic diversity, can provide habitat for fauna species with specific / niche requirements. These areas are more valuable in terms of local conservation and therefore have a higher biodiversity score.

The lowest scores were in the northern section of the site, where the vegetation has been planted in rows. Notwithstanding, bird diversity was highest in the northern section of the site due to the presence of common boobialla and suitable overstory canopy. Plantings along the eastern boundary of the site comprise tree species from the Western Australian wheatbelt, which increases species variability and provides greater flowering periods, and suitable nesting and roosting habitat.

Nationally threatened fauna

The desktop assessments identified three (3) nationally threatened fauna species as potentially occurring within the project site: the St Vincent Gulf Slender-billed Thornbill, Grey-headed Flying-fox, and Blue-winged Parrot. The Fairy Tern was identified as potentially flying over the site but not using habitat within the site.

A targeted field survey for the St Vincent Gulf Slender-billed Thornbill did not identify this species within the site, nor its critical habitat. The Grey-headed Flying-fox, and Blue-winged Parrot may move through the project site to access areas of suitable habitat.

State threatened fauna

The desktop assessments identified three (3) state threatened fauna species as potentially occurring or likely to occur within the project site: Elegant Parrot, Little Egret, and Brown Quail.

The Elegant Parrot and Little Egret are transitory species and therefore unlikely to be negatively impacted by the development. The preferred habitat of the Brown Quail is not found within the proposed vegetation to be cleared for the development.

Migratory species

Many migratory species are associated with the Adelaide International Bird Sanctuary, which is located approximately 0.5km east of Freshwater Creek, where the Bolivar outfall channel discharges to the marine environment. The sanctuary provides important feedings ground habitat for migratory species.

Migratory species may fly over the subject site but are unlikely to utilise the site due to a lack of suitable habitat.

Other

In addition to the direct impact from vegetation clearance, there are several possible impacts to native fauna from construction and operation of the development. These are summarised in the table below and discussed in detailed elsewhere in this report.

Potential Impacts to Fauna

Nature of impact	Assessment comment
Noise	The development will generate noise during construction and operation, which can trigger physiological and behavioural responses in animals. Noise is not expected to impact conservation significant species, however numerous bird species were identified within the site during field surveys. The noise mitigation measures detailed in Section 11.3 during construction and operation are expected to mitigate noise impacts to fauna beyond the subject site. The development is not expected to generate noise impacts (including underwater noise) at coastal or marine environments during construction or operation, due to adequate separation from these sensitive areas.
Light spill	During construction, after hours lighting will be minimal as construction activities will be limited to daytime hours. During operation, the facility will operate on a 24/7 basis with lighting required around the facility. The lighting is not expected to negatively impact fauna as there are no sensitive environmental receivers within or near the site. Refer to Section 11.5 of this report.
Fires	The development site is not within a fire hazard area and does not abut any areas of native vegetation. The risk of uncontrollable fire, either originating offsite or within the site, impacting on fauna is relatively low. Refer to Section 11.10 of this report.
Traffic and vehicle strike	The risk of vehicle strike is greatest during construction, in particular the clearance of native vegetation. Bird species are expected to disperse when construction starts. The CEMP should include protocols for fauna management, including in the event that mammals are injured.
Erosion and stormwater	During construction, wind and water erosion can result in sedimentation within or beyond the subject site, which may impact habitat. Standard sediment control measures will be implemented as detailed in Section 11.9 of this report.
Dust	During construction, there is potential for dust to settle on vegetation within and beyond the subject site. This risk is particularly relevant to the Adelaide Zoo feedlot located to the northern of the development site. Standard dust control measures are detailed in Section 11.2 of this report. During operation, graphite dust will be produced from the manufacturing activities. The dust does not contain any pollutants which might harm vegetation / habitat. The management of air emissions in accordance with EPA requirements is detailed in Section 11.2.
Accidental spills	During construction and operation, fuels, chemicals and other potentially dangerous substance will be present on site. Spills have the potential to impact flora and fauna species if they are not contained, and enter the soil, stormwater and/or wastewater stream. The management of these substances is detailed in Sections 11.7 and 11.10 of this report.

Introduction of pest species	There are known species of weeds on the subject site. To prevent the transfer of weeds and pathogens to surrounding areas, particularly during site clearance and earthworks activities, standard control measures are proposed. Refer to Section 11.6 of this report.
Wastewater discharge from the Bolivar outfall channel	The wastewater discharge is the only interaction the development has with marine environment and protected areas (the Adelaide Dolphin Sanctuary and Adelaide International Bird Sanctuary). The development does not have any direct, physical impact on the coast or marine environment. The development is not expected to have a material change to water quality or temperature to existing Bolivar outfall channel water which could impact fish species / fish nurseries. Refer to Section 11.7 of this report.

Assessment Outcome	Existing vegetation within the development site is generally in low to poor condition, however some habitat value was identified. The clearance of native vegetation within the site will directly impact non-protected fauna species (mainly birds) that currently use the site. The Assessment Report concludes that the development will not impact state or nationally threatened fauna species, or migratory species. The proposed clearance of native vegetation will not impact any critical habitat for these species. The Assessment Report concludes that the development has a low risk of impacted the species and habitat of the Adelaide Dolphin Sanctuary and Adelaide International Bird Sanctuary. Overall, the site has relatively low biodiversity values and was not identified as contributing to regional biodiversity.

11.6.4 Matters of National Environmental Significance

The Applicant undertook a self-assessment under the *Environment Protection, Biodiversity and Conservation Act 1999* which considered potential impacts on Matters of National Environmental Significant (MNES). No referral was made on the basis that the desktop and field investigations is not likely to have a significant impact on MNES.

MNES Summary

Matter of National Environmental Significance	Assessment summary
World heritage properties	NA
National heritage places	NA
Wetlands of international importance	NA
National threatened species and ecologically communities	Two (2) species identified as potentially occurring within 5km of subject site through the desktop assessment (Protected Matters Search Tool). Subtropical and temperate coastal saltmarsh: tidal influence is a key criterion for this TEC, which is not present on the site. Not identified during field survey. Peppermint box grassy woodland of SA: no intact TEC identified during field survey.

	Five (5) nationally threatened flora species and one (1) flora species of state conservation significance identified as potentially occurring within 5km of subject site, none of which were recorded during field surveys, or likely to occur based on type and quality of vegetation within the site. 43 nationally threatened and 32 state threatened fauna species identified as potentially occurring within 5km of subject site, none of which were identified during field surveys or likely to be present. 97 listed marine species potentially occurring within 5km of subject site, none of which will be impacted due to the project due to no direct interaction with marine environment, and/or unsuitable habitat.
Migratory species	63 migratory species identified as potentially occurring within 5km of subject site, none of which were identified during field surveys or likely to be present.
Commonwealth marine areas	NA
The Greater Barrier Reef Marine Park	NA
Nuclear actions	NA
Water resources in relation to coal seam gas development and large coal mining development	NA

The outcomes of the self-assessment were acknowledged by DCCEEW as the commonwealth agency responsible for administering the EPBC Act.

Assessment Outcome	The Assessment Report concludes that the development is not expected to impact on areas on Matters of National Environmental Significance, based on the self-assessment undertaken by the Applicant. The Assessment Report notes that the Applicant has not self-referred the project under the EPBC Act, based on the results of the self-assessment.

11.6.5 Pest species

Construction

The existing vegetated areas within the subject site comprise 20 weed species including three (3) State declared weed species and two (2) Weeds of National Significance, African Boxthorn and Silver-leaf Nightshade.

Soil and water borne pathogens, in particular *Phytophthora*, are not known to occur within the locality, however the risk of *Phytophthora* occurring in the site is low due to relatively low rainfall and saline soils. Pest species such as cats, foxes, mice, rats and feral bird species are known to occur in the locality.

During construction there is potential for machinery and vehicles to spread weeds to surrounding horticultural and agricultural land uses and/or to native habitat elsewhere. The storage of waste materials on site can attract pest species such as mice and rats.

The proposed mitigation measures, including appropriate stockpile management, fill management (including importation of clean fill), waste management, erosion control, and vehicle hygiene protocols are all industry standard and can be implemented through a CEMP.

Operation

During operation, weed management will be required for any retained areas of native vegetation (not cleared during construction), and planted areas (including the green buffer and stormwater channels).

Standard mitigation measures relating to vehicle hygiene will be implemented through an OEMP.

Assessment Outcome	The Assessment Report concludes that with the proposed management measures in place, the development is not expected to result in the introduction and/or dispersal of weeds, pathogens or pest species.

11.7 Wastewater

BE2	**Marine Flora and Fauna**	Objective: to ensure that the nature and scale of the development avoids or minimises adverse effects on biodiversity, threatened and protected marine flora and fauna species, their ecological communities and habitat.
PE1.2	**Marine**	Objective: to ensure the quality and productivity of marine waters, sediment and biota are protected so that environmental values are maintained.
CCRE4	**Waste Management**	Objective: to ensure that waste generated, transported or received as part of the development is managed in accordance with the waste hierarchy and in a manner that protects all environmental values.

The development proposes to utilise water from SA Water's Bolivar outfall channel within the facility. The water will be treated in a demineralisation plant, comprising pre-treatment, reverse osmosis and polishing, then used in the BAM facility for the caustic and acid leach processes.

After use in the BAM facility, the process water will be treated in a water treatment plant, before being discharged back to the channel. Two (2) wastewater streams from the development will be discharged into the channel:

1. Treated and neutralised process water (including effluent plant wastewater)
2. Reverse osmosis brine

The Bolivar outfall channel carries treated wastewater from the SA Water's WWTP (flowing over weir 1) and the SA Water High Salinity Plant (HSP), located directly downstream of weir 1. Other discharges into the channel include brine from the Buckland Dry Creek (BDC) salt fields, and Mark Lee fish farm discharge. The channel empties into the marine environment at Freshwater Creek estuary, Gulf St Vincent.

The outfall channel is not considered to be surface waters or marine waters for the purposes of the *Environment Protection Act 1993* or the *Landscape SA Act 2019*. Nonetheless, Renascor will be indirectly discharging to the marine environment via the outfall channel, as part of a wastewater management system as defined under the *Environment Protection (Water Quality) Policy 2015.*

The EIS includes modelling of the treated process water to consider changes in volume, flow and analyte concentrations within the channel water, as a result of Renascor's wastewater discharge. The 'analytes' considered in the modelling include heavy metals, nutrients and other chemicals.

SA Water data is used to provide baseline levels of analytes already present in the channel water, as well as temperate and turbidity. Various scenarios are considered, applying different volumes / flows of the channel. Changes to analyte concentration are presented as 'standard deviations' from the baseline water quality.

To consider the impact on the receiving marine environment, the modelling compares analyte concentrations against the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. The ANZG Water Quality Guidelines (WQG) provide an appropriate and conservative benchmark for assessment purposes, as they '*provide authoritative guidance on the management of water quality for natural and semi-natural resources in Australia and New Zealand*'[1].

11.7.1 Volume

The outfall channel has existing flows of 80 ML/day – 240 ML/day. Flows from the HSP are steady throughout the year, whilst flows from the WWTP are subject to seasonal variations. These volumes do not include additional discharges to the channel, located downstream of the SA Water and proposed Renascor outfalls, which would further increase the volume of water in the channel.

The volume of Renascor's discharge to the outfall channel is equivalent to the water it will take from the channel, being a minimum 2.4ML/day during Stage 1 operations, up to a maximum 4.8ML/day for full Stage 2 operations.

All modelling undertaken for the EIS is based on the current design for Stage 2 which only uses 1.4ML/day. This equates to 2.25% of total channel flow (based on 80ML total) down to 0.6% of total channel flow (based on 240ML total).

11.7.2 Quality

The water within the Bolivar outfall channel already contains numerous analytes, many of which exceed the ANZG WQG guidelines for marine waters (including cobalt, chromium, copper, lead, zinc, aluminium and nitrate).

The wastewater discharged by Renascor will also contain a range of analytes, due to the various chemicals used in the BAM industrial processes.

Prior to discharge into the channel, Renascor's process water will undergo various treatment processes to reduce analyte concentration, including neutralisation, nano-filtration, evaporation, dewatering and clarification.

The remaining analytes present within the Renascor wastewater will be diluted when it mixes with existing water within the outfall channel.

[1] DCCEEW, 2025: Fresh and marine water (Australia and New Zealand)

Modelling for the EIS considered five (5) scenarios based on existing flows within the outfall channel, to explore the effect of dilution on analyte concentrations. Key to the results are the 'average case' and the 'worst-case' scenarios:

- Average case – average flow rate and average intake water quality.
- Worst case – HSP low flow rate and lowest 10% of weir 1 for the lowest month and average intake water quality (existing data shows these conditions occur for 1 to 5 days over a 5 year period).

The modelling predicts that temperature, Total Dissolved Solids (TDS), Electrical Conductivity (EC) and salinity loads will increase for all scenarios. Temperature will increase within 1 standard deviation (SD) above the baseline level. TDS and EC will increase between 1 and 2 SDs for both average and worst-case scenarios. All levels are less than 10% of EPA limits applied to other discharges to the outfall channel.

The modelling predicts various changes in analyte concentration as a result of the Renascor discharge into the channel. These are presented in the table below and compared to baseline levels within the channel (using SA Water data) and background levels within the marine environment (using EPA data). It is noted that the EPA data is from 1995-2000 and does not include all analytes modelled in the channel and/or Renascor wastewater.

Analyte concentrations compared to existing levels & guidelines

Analyte	Baseline levels – outfall channel (average)	Background levels – marine waters (mean)	ANZG WQG
Cobalt	Increase less than 1 SD.	NA – data not available.	Concentrations already exceed ANZG marine guidelines.
Copper	Increase less than 1 SD.	Exceedance of background level for all scenarios.	Concentrations already exceed ANZG marine guidelines.
Chromium	Increase less than 1 SD.	NA – data not available.	Concentrations already exceed ANZG marine guidelines.
Lead	Concentration equal to or decrease 1 SD	Below background level for all scenarios.	Concentrations already exceed ANZG marine guidelines.
Zinc	Concentration equal to (for average case scenario) or increase less than 1 SD (for worst-case scenario) baseline level.	Exceedance of background level for all scenarios.	Concentrations already exceed ANZG marine guidelines.
Cadmium	Increase less than 1 SD.	Below background level for all scenarios.	Below ANZG marine guidelines.
Manganese	Concentration increases above baseline levels.	NA – data not available.	Below ANZG marine guidelines.
Nickel	Increase less than 1 SD.	NA – data not available.	Below ANZG marine guidelines.
Ammonia	Increase less than 1 SD.	Below background level for average scenarios, and minor exceedance for worst-case scenarios.	Below ANZG marine guidelines.
Molybdenum	Increase over 2 SD.	NA – data not available.	No ANZG marine guideline. Equal to ANZG freshwater guideline for average case and minor exceedance (less than 10%) for worst case scenario.
Sodium	Increase 2 SD.	NA – data not available.	No ANZG marine or freshwater guideline.
Vanadium	Increase 2 SD.	NA – data not available.	Below ANZG marine guidelines.
Bicarbonate	Increase over 2 SD.	NA – data not available.	No ANZG marine or freshwater guideline.
Aluminium	Decrease less than 1 SD.	Exceedance of background level for all scenarios.	No ANZG marine or freshwater guideline.

With respect to the exceedances of the ANZG marine guidelines, or where no ANZG guideline exists, the following is noted:

- Cobalt, Chromium, Copper, Lead, Zinc:
    - Existing concentrations of these analytes in the outfall channel exceed ANZG marine trigger values.
    - Background concentrations of copper and zinc in the marine environment are well below the outfall channel concentrations, but they exceed the ANZG marine trigger values, and the water quality objectives set out in the Adelaide Coastal Water Quality Improvement Plan (2013)[2].
    - Copper and zinc are essential trace elements used by most aquatic organisms but can bioaccumulate to toxic concentrations.
    - The Renascor discharge results in either no change, or a minor increase / decrease to existing concentrations in the outfall channel, such that the development is not expected to impact the marine environment, over and above the existing situation.
    - Nonetheless, SA Water's existing exceedances of the ANZG marine trigger values within the outfall channel do not justify Renascor exceeding the recommended guidelines. Renascor must take all reasonable and practicable measures to reduce analyte levels, to prevent environmental harm.
- Molybdenum: there are no freshwater receivers within the channel, therefore comparison again the ANZG freshwater trigger value is a conservative assessment and suggests there will be no impact to the marine environment.
- Sodium: sodium chloride is the key salt in the marine environment, and the increase level from Renascor's discharge is not expected to negatively impact on the marine environment.
- Bicarbonate: will be inert in the channel, due to the existing pH of the channel water, and is therefore not expected to negatively impact on the marine environment.
- Aluminium: levels will decrease in the channel as a result of Renascor's wastewater. It is noted that existing concentrations of aluminium in the outfall channel water far exceed the background marine levels.

There is no available SA Water data for some analytes (namely Rubidium, Yttrium, Silica, Zirconium) that may be introduced to the channel from Renascor's project.

The absence of ANZG marine or freshwater guidelines for these analytes suggests that they are not expected to negatively impact the marine environment. It is noted that the modelled Zirconium and Yttrium levels for all scenarios are very low, below the lower limit of detection.

The Stage 2 design case (1.4ML/day) used for modelling represents a worst case scenario, whereby concentrations of analytes are at their highest. If Renascor's water use / discharge increases (ie up to 4.8ML/day), all analyte concentrations would drop by a proportionate amount, and mixing in the channel would improve. The plant will discharge the same concentrations of analytes from Stage 1 to Stage 2.

The EIS notes that emergency response procedures will be developed to respond to water quality exceedances. Response measures will include a shutdown procedure for the plant.

[2] EPA July 2013: Adelaide Coastal Water Quality Improvement Plan (ACWQIP)

The storage and containment of hazardous substance within the facility is discussed in section 11.10 of this report.

Aside from a shutdown procedure, and appropriate storage of hazardous materials, there are no proposed mitigation measures to capture or hold waters from the marine environment should the channel become contaminated.

11.7.3 Flow and Mixing

The modelling used a Computational Fluid Dynamics (CFD) model and considers high flow and low flow scenarios.

Renascor's discharge flow rate is estimated at 55.5m^3 / hour. This remains constant across all the modelling scenarios. The receiving channel flow rate may vary, however the modelling shows there is ample mixing of Renascor's discharge with the channel water.

The modelling indicates that mixing of Renascor's discharge is likely to be achieved (to 95%) within 20-500m of the discharge point, which is located upstream of other discharge points (Buckland Dry Creek and fish farm). The EPA notes that achieving this estimated dilution is based on Renascor's discharge entering the centre of the channel. Dilution is likely to be less if the discharge enters the side of the channel.

Renascor's Response Document confirms that the design / location of the discharge point into the channel can be determined during detailed design, to optimise mixing.

Additional turbidity and mixing will occur at other points in outfall channel, notably the weir where the channel changes from concrete to earthen, and the weir at the outfall into the marine environment.

11.7.4 Monitoring & Compliance

The EPA generally accepts Renascor's assessment of water quality impacts, noting that validation monitoring of the discharge to the channel will be undertaken when operational to verify the modelling presented in the EIS.

An EPA licence will be required for this discharge to the channel. EPA has advised that the monitoring and reporting specifics can be addressed in the licencing application stage.

The outfall channel is managed by SA Water, and SA Water is responsible for the final discharge point to the marine environment. In this respect, Renascor will need to obtain a trade waste permit from SA Water, which will define arrangements, risk management and responsibilities between the two parties.

Assessment Outcome	The Assessment Report concludes that the modelling undertaken for the wastewater discharge stream is appropriately conservative and considers both average and worst case scenarios. The Assessment Report concludes that the water taken from, and returned to, the Bolivar waste water channel will be of similar quality. The Renascor development will discharge various analytes (Cobalt, Chromium, Copper, Lead, Zinc) at levels that exceed the ANZG water quality guidelines.

	Exceedances to the water quality guidelines for various other analytes are modelled to occur for the worst case scenarios, and are expected to occur at some time during most years, based on existing SA Water data. Renascor has demonstrated that it will take all reasonable and practicable steps to mitigate environmental harm, including treatment of process wastewater (prior to discharge). It is noted that the water quality modelling relies on dilution of the Renascor discharge as one of the mitigation measures. Monitoring of the wastewater discharge will be managed under an EPA licence, and will include monitoring to verify the modelling.

11.8 Groundwater, surface water and stormwater

PE3	**Surface Water and Groundwater**	Objective: to ensure the quality of groundwater and surface water is protected so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.

The subject site is primarily within the Adams Creek and Helps Road Drain Catchment, with the northern boundary of the development footprint within the Greater Edinburgh Parks (GEP) and St Kilda Catchment. The current system outlet for discharging stormwater runoff to the Barker Inlet / Gulf St Vincent is the Gap outfall channel. Refer Figures 15 & 16.

Stormwater approaches the site from two (2) existing culverts under Robinson Road. An existing stormwater channel runs along the northern edge of the site. This existing channel is outside the development site, on land owned by SA Water, and is part of Council's existing stormwater management system.

The existing channels and culverts do not convey much flow other than during large rainfall events. Surface water currently flows from north to south across the site, where the land is lower lying and tends to pool.

The *Adams Creek and Helps Road Drain (ACHRD) Catchment Management Plan*, prepared by Tonkin for the City of Playford and City of Salisbury Councils (June 2024) notes that the catchment is largely developed, and stormwater infrastructure is already in place.

In contrast, the *GEP and St. Kilda Catchment Stormwater Management Plan*, prepared by Tonkin for the City of Playford and City of Salisbury Councils (July 2024) notes that existing stormwater infrastructure in this area is limited, due to much of the catchment area being undeveloped.

The GARP identifies three significant growth investigation areas within the catchments: Greater Edinburgh Parks (east of Port Wakefield Road), Port Wakefield – Strategic Growth Corridor Precinct and Riverlea (west of Port Wakefield Road). These areas are earmarked as potential Future Employment Lands and a National Employment Cluster.

With the anticipated urban infill and development of employment lands, particularly in the GEP & St Kilda catchment, impervious surfaces are expected to increase, and stormwater infrastructure upgrades will be required. The existing Gap outfall channel is already at capacity.

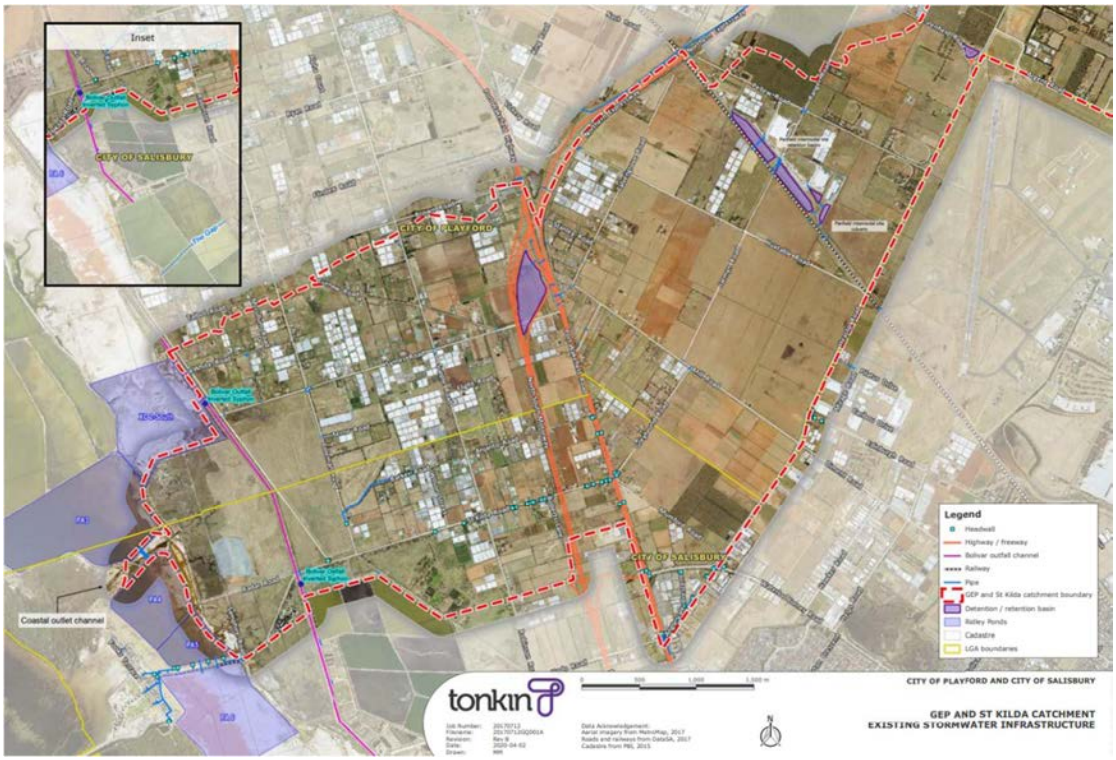

Figure 15: GEP & St Kilda Catchment – existing stormwater infrastructure

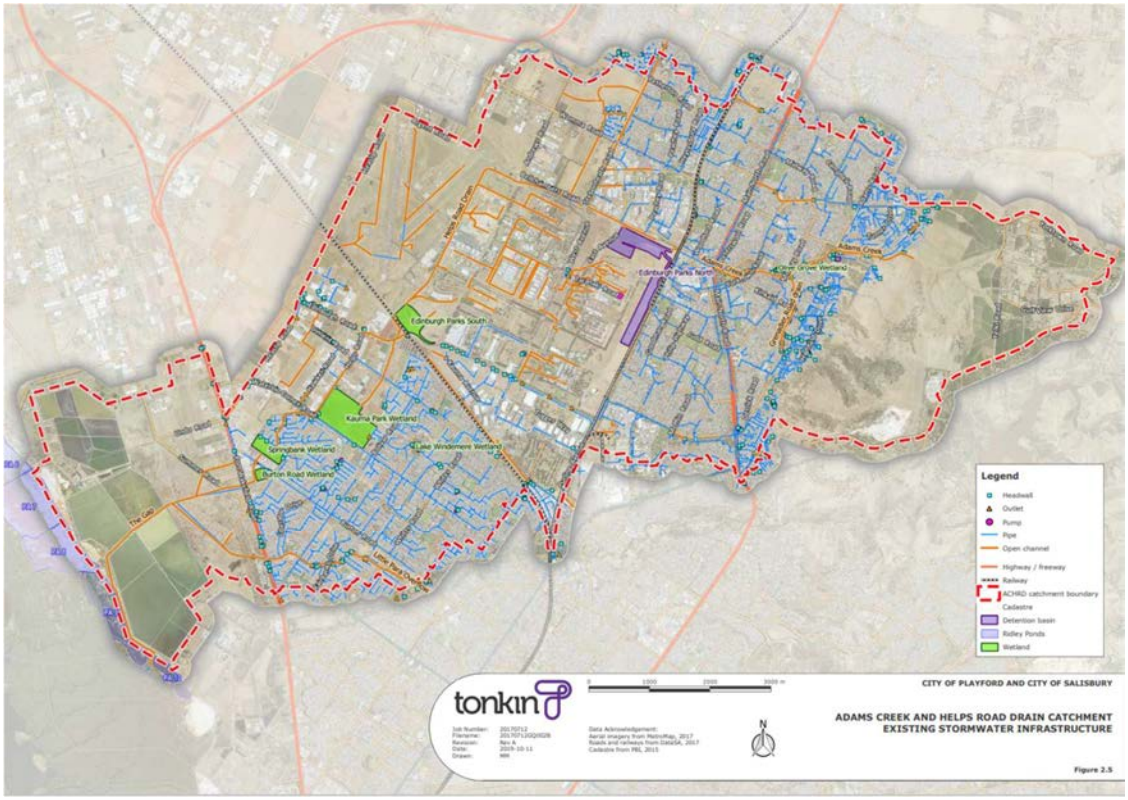

Figure 16: ACHRD Catchment – existing stormwater infrastructure

The proposed stormwater management strategy for the development comprises:

- Raising ground levels on site by approximately 300mm to lift the Finished Floor Level (FFL) above the 1% AEP flood level. This will impede existing surface water flows across the site.
- Construction of new, open stormwater channels around the perimeter of the site along the eastern (Robinson Road) and western boundaries. This will divert stormwater around the site and prevent flooding of the development. Both channels are expected to be located within the development site (ie not in the Robinson Road reserve) but are subject to detailed design.
- Capture of runoff within the site, within various catchments, to ensure all runoff is collected and treated. Depending on the catchment (and potential pollutants within the water) the runoff will either be reused or diverted to the onsite wastewater treatment system, or the stormwater system. Runoff from clean catchments with be directed through a vegetation buffer for biofiltration, prior to entering the perimeter stormwater drains.
- Surface water runoff generated by the development, and from the existing 2 Robinson Road culverts, will be diverted into the new stormwater channels.
- Bunding is proposed along the southern portion of the site to direct surface water flows towards the eastern channel.
- The eastern and stormwater channels will drain from south to north, with the overflow directed to the northern stormwater channel which is proposed to be upgraded to a detention basin. These works are entirely outside of the development site and located on SA Water's land. The flood modelling for the EIS presents an alternate development outcome whereby the channel directing overflow north towards St Kilda Road is also enlarged / upgraded, however this would only occur if SA Water (as landowner) does not support Renascor's preferred development scenario.

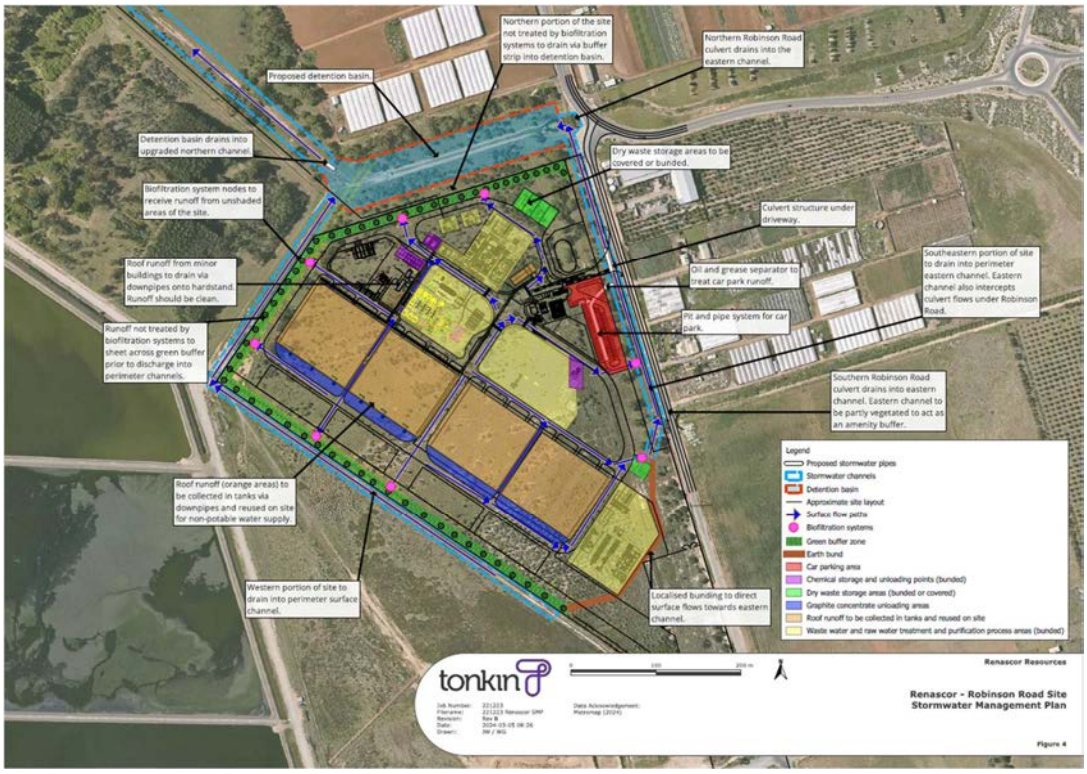

Figure 17: Stormwater Management Plan

Council's long-term plan for the GEP catchment is to construct a new outfall channel to discharge stormwater to the Barker Inlet. The upgraded northern stormwater channel (as part of the Renascor stormwater strategy) would connect into this new channel. The new outfall is a priority project for Council, however, it is not within the scope of Renascor's development proposal, is not included in any of the flood modelling, and is not required for the BAM facility to proceed.

The upgrade of the northern stormwater channel will involve bulk earthworks to create a detention basin, and potentially a channel directing overflow north towards St Kilda Road. All works are within SA Water's land. It is proposed that Renascor would undertake the bulk earthworks for the basin, with the intent to reuse the excavated spoil as fill to raise the development site (subject to appropriate assessment of the spoil material).

The final design and capacity of the basin will be subject to Council specifications, noting that the runoff from Renascor's site is expected to be a minor contributor to inflows to the detention basin. The majority of inflow to the basin will be from Council's existing stormwater network, via the culverts under Robinson Road.

DEW expressed concern that the regional stormwater may fill the enlarged basin, and that Renascor should seek a stormwater solution that is not in the regional drainage path, to mitigate the reduced floodplain storage as a result of the proposed development.

The upstream flows reporting to the existing Robinson Road culverts are currently limited by the North South Connector, which acts as a barrier for stormwater flows. External flows are also limited by the capacity of the culverts. Hydraulic modelling undertaken by Tonkin for the EIS has considered flows from the upstream network to predict flood impacts around the site.

The flood mapping shows that development of the BAM facility will result in minor increases in local flooding to the south of the site, and to the north of the site, near St Kilda Road. Flood risk is discussed in detail in Section 11.10.

The enlargement of the northern stormwater channel to a detention / retention basin is considered fundamental to the development, both to manage surface water / stormwater and to mitigate increased localised flooding as a result of diverting surface water flows around the BAM facility.

Conditions of approval are therefore recommended for any approval, requiring Renascor to finalise the stormwater management design / plan in consultation with Council, and to enter into a Deed of Agreement with Council (and SA Water as appropriate) for the design and delivery of the northern stormwater basin. As noted by Council, final stormwater arrangements should consider downstream impacts and the capacity of existing drainage infrastructure located on SA Water land.

Excavation of the northern basin and channel would ideally coincide with bulk earthworks for the BAM facility (to take advantage of spoil reuse), with final construction of the enlarged stormwater infrastructure coinciding with the commencement of operations of the BAM facility. It is acknowledged that timeframes for these works may be dependent on Council's broader stormwater planning, and funding commitments. The recommended condition of approval therefore provides flexibility with respect to timeframe.

Renascor is not expected to contribute to, or be involved in, any other upgrades of Council's regional stormwater system beyond the northern stormwater basin and channel within SA

Water land. This includes Council's proposed new GEP outfall channel connecting the northern basin to the Barket Inlet.

It is noted, however, that the final location and detailed design of Renascor's inlet and discharge pipelines to the Bolivar outfall channel will need to consider the placement of Council's existing infrastructure and proposed GEP outfall infrastructure.

Assessment Outcome	The Assessment Report concludes that the proposed stormwater management strategy for the development will protect the BAM facility from inundation. Surface water runoff from within the development will be captured on-site, treated and then discharged as waste water or stormwater. The upgrade of Council's northern channel is an integral component of the stormwater management strategy for the development. This element is outside of the development site (within SA Water owned land), and the infrastructure is under the care and control of Council. It is therefore recommended that a condition of approval be attached to any approval, requiring Renascor to enter into an infrastructure agreement with Council and other relevant parties to deliver this infrastructure upgrade. The final stormwater management arrangements will need to be determined in consultation with Council, and consider downstream capacity, and external inflows.

11.9 Soils and Geology

PE2	**Soils, Landform and Geology**	Objective: to ensure development is undertaken in a manner that protects the productivity and quality of land including soil, subsoil and landform and avoids impact to other environmental values.

The EIS includes a detailed description of the existing geology and soil type for the subject site and surrounding area.

The subject site overlays quaternary alluvial and fluvial sediments. The site is characterised by low seismic risk and no landslide risk. There are no known mine workings in the locality which would be encouraged during site excavations. The cultural heritage investigations for the development note that subsurface soils in the area may still be reasonably intact (being several metres deep on the Adelaide Plains), with the potential to feature Aboriginal heritage site, objects and/or burials.

Soil testing identified elevated coliform levels (bacteria), and no acid sulphate soils or potential acid sulphate soils.

The development requires the excavation of large amounts of material to enlarge the existing northern stormwater infrastructure and create the new perimeter stormwater channels. Approximately 20,000m^3 of fill is then required to build up the finished floor level of the BAM facility to 300mm above 1%AEP flood level. Renascor is considering using the excavated material from the stormwater infrastructure to fill the BAM facility site, however this will depend on timeframe and appropriateness of the excavated material.

Regardless of source, all soils reused or exported into the site will require assessment in accordance with EPA guidelines including the *Standard for the Production and Use of Waste*

Derived Fill to ensure it is free of contamination and appropriate for the intended use. Similarly, any removal of waste soil from the site must be undertaken in accordance with EPA standards.

During excavation and filling activities, disturbed soils are at risk of being eroded by wind and water. A Soil and Erosion Drainage Management Plan (SEDMP) should be prepared as part of the CEMP to prevent soil leaving the site (from wind and water effects) and entering water courses. Preparation and implementation of an SEDMP is an industry standard practice and should be undertaken in accordance with the International Erosion Control Association (IECA) Australasia 'Field Guides for Construction Site Managers and Buildings' and associated design fact sheets. The CEMP should also include protocols for Aboriginal heritage discoveries.

Section 11.10 (contamination) addresses the contamination risks during construction including interaction with the shallow groundwater, management of fill during construction, management of fuels and dangerous substances, and soil and erosion management.

The fill will be compacted and the site prepared in accordance with relevant Australian Standards, to ensure the building pad is suitable for the BAM facility. Following construction of the facility, the ground beneath the facility will not be susceptible to erosion.

At the end of the 40 year operational life of the BAM facility, the ground beneath the facility will be compacted, resulting in a loss of soil structure and quality.

If the decision is made to decommission the plant and remove all hardstand areas, remediation of the soil will be required. This may include ripping, mixing of topsoil and mulch / nutrient rich matter, and seeding with plant species. Reshaping of the land may also be required to adjust surface water flows over and around the site.

The final method for site and soil remediation will depend on whether the site is being returned to its existing land use or prepared for a new / different land use. A condition of approval is recommended requiring preparation of a decommissioning plan.

Assessment Outcome	The development will require bulk excavation and filling which will alter the existing landform and expose soils to the effects of wind and water. The Assessment Report concludes that risks associated with erosion, sedimentation, dust and exposure to elevated coliform levels can be managed through industry standard practices. The development will result in a loss of soil structure and quality over the 40-year life of the project. A decommissioning plan will be required to consider remediation requirements, to either return the site it its existing land use, or prepare for a new land use.

11.10 Hazards and Climate Change Adaptation

HR0	**Hazards – General**	Objective: to ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.

Renascor has undertaken initial hazard risk assessments for the EIS. It is acknowledged that risk assessment is an ongoing process, which will be developed and reviewed as the project progresses through design development.

The EIS states that final hazard management plans will be included in the Construction and Operational Environmental Management Plans (CEMP and OEMP).

11.10.1 Climate Change Adaptation

CCR1	**Climate Change Adaptation**	Objective: to ensure that development and design are climate resilient and risks from climate change are reduced.

On 31 May 2022 the SA Parliament declared a climate emergency and committed to a zero emissions future. The Government is implementing several strategies to assist business, industry and community to prepare for, manage and adopt to the impacts of climate change.

Climate change is expected to bring higher temperatures, drier conditions with more drought, dangerous fire weather, severe weather events including extreme rainfall, and rising sea levels.

Renascor has undertaken a Climate Change Risk Assessment (CCRA) to identify cumulative climate related risks relevant to the proposed development. The CCRA uses baseline and projection data for climatic conditions and creates a risk register for the project. Two scenarios were considered using climate projections from the RCP 8.5 scenario (high greenhouse gas emissions) and RCP 4.5 scenario (moderate greenhouse gas emissions).

A total of 14 risks were identified for the project, with each assigned a risk rating using the New South Wales Government's Climate Change Risk Register Tool. Without control measures in place, the register identified two risks with a rating of 'high'. The high risks relate to damage of local infrastructure (ie roads, energy transmission, pipelines, telco) which are beyond the control of Renascor.

All other risks were rated as low to medium. With the application of control measures, risks are reduced to as low as reasonably practicable, and do not require urgent adaptation / mitigation strategies to 2050.

The CCRA identified risks that require periodic monitoring and review when the BAM facility is operational. These include an increase in energy and water use; higher frequency HVAC system replacement requirements due to an increased need to cool buildings; and supply chain and infrastructure integrity. Renascor has signalled its intent to review the risk areas and control measures periodically, throughout the life of the project, and to adapt management responses as required.

The control measures to be implemented for the development, in response to climate change risks, are discussed in the following sections, and in section 11.8 (Stormwater management).

Assessment Outcome	The Assessment Report concludes that risks to the project from climate change can be managed through the application of standard control measures.

11.10.2 Bushfire / Fire

HR1	**Bushfire / Fire**	Objective: to ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.

The subject site is located within the Adelaide and Mount Lofty Ranges Bushfire Management Area. For planning and building purposes, the site is not within a Bushfire Protection Area or any bushfire hazard overlay identified in the Planning & Design Code for South Australia.

In general terms, the number of severe fire danger rating days are expected to increase throughout the life of the project due to climate change.

Notwithstanding, the subject site has not been impacted by a major bushfire within the past 20 years and is not considered a high risk area. The risk of a bushfire (originating offsite) impacting on the development is low and can be managed with standard fire hazard management procedures, and through the design of the facility. The hardstand and trafficable areas surround the buildings may act as a firebreak, providing separation from surrounding vegetation (and new landscape plantings).

The potential for a fire to originate within the development site is considered in the EIS. Ignition sources during construction include vehicles and hot metal work. To reduce the risk of fire, hot metal work should be separated from flammable material, and should not occur during high fire danger conditions. The construction site should be maintained to reduce fuel loads.

Ignition sources during operation include gas fired equipment (if used), heating elements, and belt / conveyors. To reduce the risk of fire, ignition sources will be separated from fuel sources. Hazardous substances will be stored in accordance with EPA requirements, and gas lines will comply with industry standards.

The indicative site layout plan for the BAM facility identifies fire water tanks and an emergency service point. Details regarding the access, firefighting equipment, and building fire safety systems are not yet available. The EIS notes that final design will consider access requirements, fire fighting equipment and fire suppression systems to enable an appropriate response in event of fire.

The CFS is the primary responding service for this site, with the MFS providing backup support. The site will be treated as a dual-response location, requiring all fire safety infrastructure to interface with both CFS and MFS appliances.

Any consultation regarding fire brigade response activities or operational requirements should be conducted with the CFS in the first instance. In the Response Document, Renascor commits to further engagement with the CFS during the detailed design phase.

A reserve matter is recommended that requires the accredited building professional to consult with CFS when assessing the development for compliance against the Building Rules. This condition mimics the process for code assessed development under Regulation 45 of the PDI (General) Regulations to ensure that fire safety systems are included in the final building design. Regulation 45 does not apply to the impact assessed pathway, and hence the need to include as a separate reserve matter.

Following construction and prior to operation of the facility, the CFS will be consulted under Regulation 103D of the PDI (General) Regulations for the issuance of the Certificate of Occupancy (COO). A COO is required for all new buildings approved and built under the PDI Act, to confirm that the building is ready to occupy. Regulation 103 does apply to the impact assessed pathway. The CFS' Regulation 103D referral report will consider whether the installed fire safety systems (e.g hydrants, sprinklers, smoke detection) meet the design criteria, as specified in the building certification.

In addition, a project specific emergency and fire management plan will be developed for both the construction and operational stages of the development.

Assessment Outcome	The Assessment Report concludes that the subject site is not within a bushfire prone area, and the risk of fire can be appropriately managed, during both the construction and operational stages, using industry standard fire management and training measures. These measures should be detailed in an emergency and fire management plan, prepared in consultation with CFS. The final design of the BAM facility will require consultation with CFS to ensure it meets all CFS requirements with respect to site layout, building design, access, vegetation management, and provision of fire safety infrastructure. Formal consultation with the CFS is also required when Certification of Occupancy is sought, prior to operation of the BAM facility.

11.10.3 Flooding

HR2	**Flooding**	Objective: to ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.

The subject site is within the Hazards (Flooding) General Overlay of the Planning and Design Code. Hydraulic modelling was undertaken by Tonkin for the EIS to consider the existing site conditions, and flood risk around the site from the 1% Annual Exceedance Probability (AEP) rainfall event.

Scenario 1 (existing site conditions) shows that that the site is prone to surface water inundation during high rainfall events, particularly in the southern portion of the site where the level of inundation is 0.6m during the 1% AEP rainfall event. Refer Figure 18.

The existing inundation is due to development upstream (east) of the subject site, with surface waters being directed to the Robinson Road culverts. The subject site is relatively flat and there is a lack of formal stormwater infrastructure in the locality.

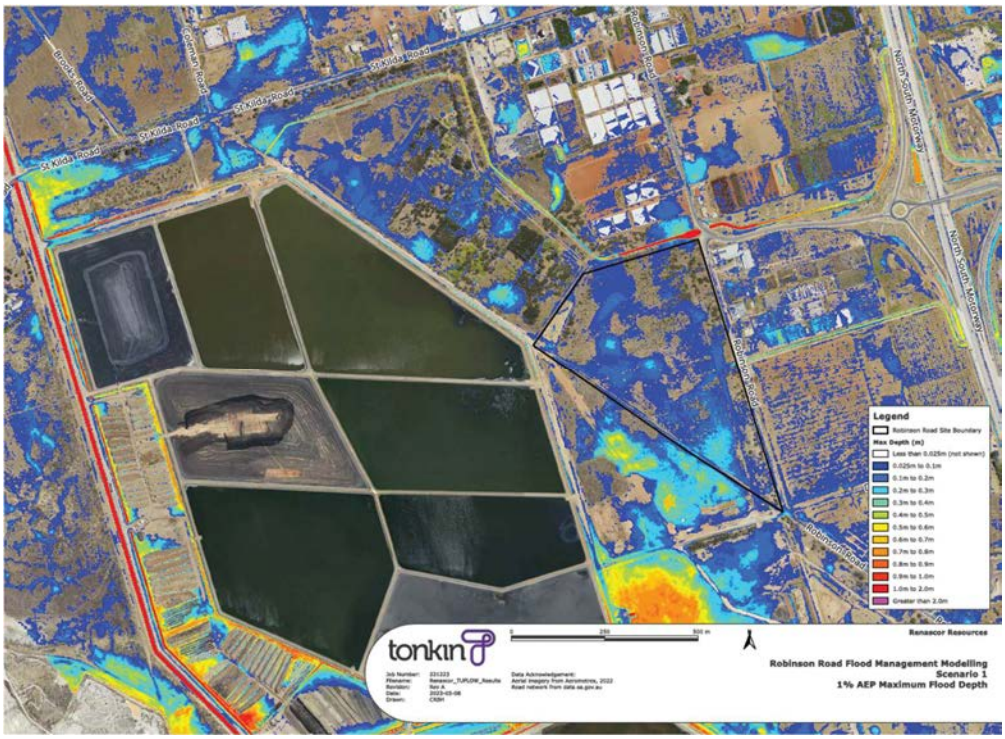

Figure 18: Scenario 1 (current conditions)

Post development, the hydraulic modelling considered various scenarios. The scenarios vary with respect to what stormwater mitigation measures are implemented. All scenarios are based on the development site being 90% impervious.

The main flood mitigation measure for the development is for the BAM facility site to be built-up to a Finished Flood Level (FFL) approximately 300mm above the 1% AEP flood level. This will prevent inundation of the BAM facility during flood events.

The proposed new perimeter stormwater channels on the eastern and western sides of the BAM facility will divert runoff around the development site, with overflow directed to the upgraded northern stormwater channel.

The subject site is sufficiently elevated from the coastline such that rising sea levels from climate change are not expected to impact the development.

Rainfall intensities are predicted to increase throughout the life of the project as a result of climate change. Increased rainfall events will subsequently increase stormwater / surface waters that drain towards the site, however for all scenarios, the flood risk does not increase under climate change projections as external flows are constrained by the capacity of the existing culverts under Robinson Road.

Scenario 16 is the preferred development outcome and has been used at the basis of impact assessment for the EIS. This scenario assumes the site is fully developed with the BAM facility (stages 1 and 2), with the new eastern and western perimeter channels, and northern channel upgraded. Refer Figure 19.

Scenario 16 is appropriately conservative, as it assumes that the perimeter stormwater channels, and the northern detention basin are full prior to the 1% AEP rainfall event.

The modelling shows a very minor increase in flood risk to the area south of St Kilda Road, in the range of an additional 1mm. The modelling shows an increase in flood risk for the land south to the development site, up to an additional 50mm.

The overflow to the south would only occur when large rain events direct stormwater from upstream through the Robinson Road culverts, and into the eastern perimeter channel.

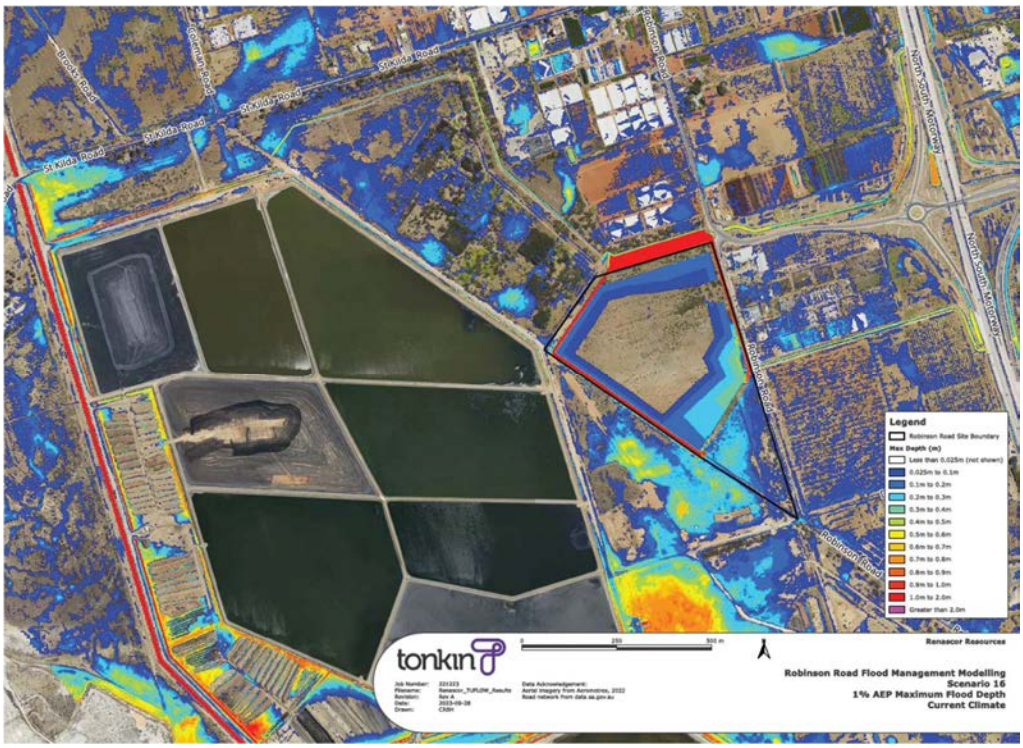

Figure 19: Scenario 16

Scenario 11 provides an alternative development outcome, in the event that SA Water does not support Scenario 16, which increases the flood risk south of the development site, within SA Water land.

Scenario 11 differs to Scenario 16 by including an upgrade of the existing stormwater channel that extends northward of the northern stormwater basin on SA Water land, up to St Kilda Road. The effect being that overflow from the enlarged basin would be directed to this channel, with a resulting increase in surface water inundation to the area south of St Kilda Road, in the range of an additional 25mm up to 300mm.

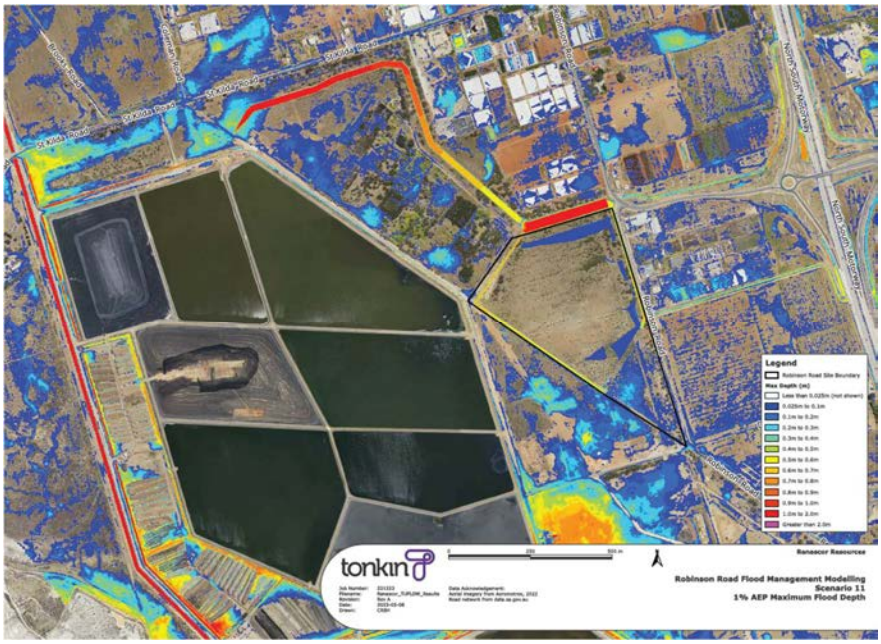

Figure 20: Scenario 11

Scenario 3 is included in the modelling for comparison purposes and is not the proposed development outcome. Scenario 3 depicts the flood risk in the event that the only mitigation measure is raising the site 300mm above the 1% AEP flood level, with no eastern and western perimeter stormwater channels, and no upgrade to the northern stormwater channel.

Scenario 3 would prevent flooding of the BAM facility, but modelling indicates that during high rainfall events there will be a minor increase in flooding for the low-lying land south of the site, as well as minor increase in flooding between the Bolivar WWTP and St Kilda Road.

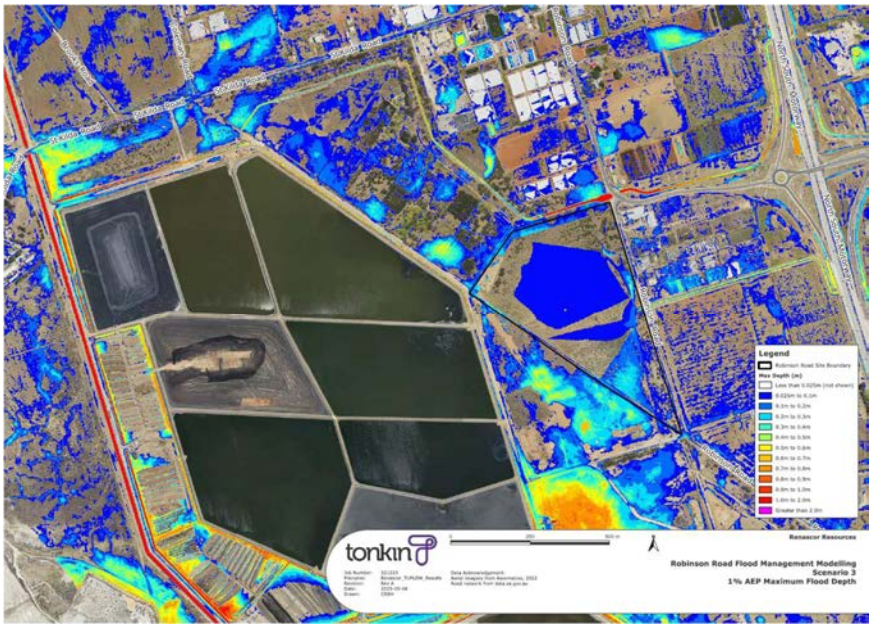

Figure 21: Scenario 3

As discussed in Section 11.8 of this report, construction of new perimeter stormwater channels within the BAM facility site, and the enlargement of the existing northern stormwater channel, are both integral components of the stormwater management strategy for the development. The enlarged northern stormwater channel is required because the BAM facility development will increase the amount of water reporting to this channel.

Scenarios 11 and 16 do not include construction of a new outfall channel to the coast, which is being considered as part of Council's forward planning for the GEP region. Appendix 10 of the EIS (prepared by Tonkin) states that the construction of this new outfall channel is not required for the Renascor development to proceed. In the interim, the proposed northern detention basin and proposed new perimeter channels would act as retention (ie no outlet) with water lost through evaporation and seepage only. For these scenarios the basin and channels would have a total storage volume of 24ML.

DEW's referral comments noted that the residual flood risk to the north and south of the development site during high rainfall events highlights the need for Council to implement a regional stormwater management and provide a new stormwater outfall to the coast. For both Scenarios 11 and 16 all flood impacts are to SA Water land.

DEW also raised concerns that the proposed stormwater channels and retention basin may not be large enough to cater for the development, and that the channels/basin may fill with shallow groundwater, thereby reducing their capacity and effectiveness for flood mitigation.

Excavation of the channels will occur during seasonal groundwater lows, and any required dewatering will be undertaken in accordance with EPA guidelines and legislative requirements. The stormwater channels will then be lined, to prevent them from being inundated with groundwater.

Renascor has also noted that, subject to Council's implementation of the GEP Stormwater Management Plan, if the surrounding stormwater infrastructure is improved, then the northern detention basin could allow for a shallower basin design (ie similar to the existing depth).

Assessment Outcome	The Assessment Report concludes that the proposed stormwater management strategy for the development will protect the BAM facility from inundation. With all proposed stormwater strategies in place (including upgrade of the northern stormwater basin), surface water flows are diverted around the development site. For both Scenarios 11 and 16 this will result in an increase in flooding to the south of the site, and north of the site near St Kilda Road, during high rainfall events. The Assessment Report concludes that the increased flood risk is relatively minor and considered acceptable, noting that local flooding issues pre-exist in the locality, are confined to SA Water land, and are expected to be improved when Council upgrades the regional stormwater network.

11.10.4 Contamination

HR3	**Site and Groundwater Contamination**	Objective: to ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.

The EIS considers potential impacts on the proposed development from existing / future sources of contamination; as well as potential contamination impacts from the proposed development on the environment and public health.

Preliminary site investigations involving on-site test pits were undertaken to determine existing soil and groundwater conditions. The soil samples indicated increased coliform bacteria levels, which may come from natural sources or from the airborne materials from the Bolivar WWTP lagoons. Acid sulphate soils were not identified, and the soil did not meet criteria for potential acid sulphate soils. No other soil contaminants were identified.

Small pieces of cement sheeting containing asbestos were identified at surface level. The source of the sheeting is likely from illegal dumping.

The subject site is located adjacent areas of known contamination. To the east and south of the site is a groundwater prohibition area, associated with contamination from polyfluoroalkyl substances (PFAS) from the Edinburgh RAAF Base. The contaminated groundwater is within the shallow quaternary aquifer. Areas of known site contamination are located to the south-east and north-east of the site. Refer Figure 22.

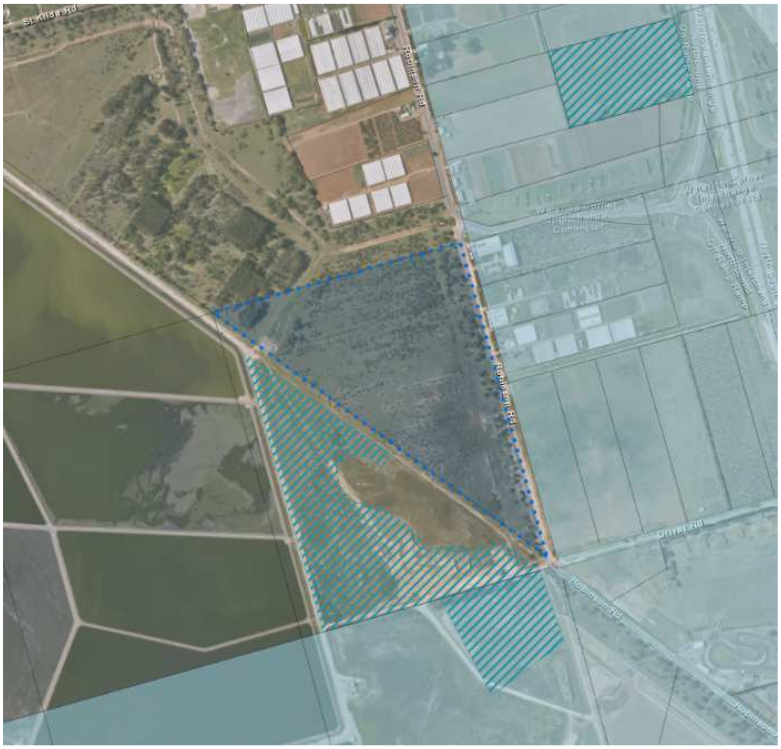

Figure 22: Section 83 Notification and Groundwater Prohibition Areas

Other potentially contaminating activities in the locality are the SA Water Bolivar WWTP and agricultural activities, which may generate airborne and/or water borne contaminants.

Construction

During construction of the BAM facility, all existing asbestos containing materials will be removed from the site and disposed of in accordance with EPA guidelines.

The elevated coliform bacteria levels do not pose a risk to the public, however additional precautions for worker safety will be required when soils are disturbed. If soils are removed from the site, they must be classified and re-used / disposed of in accordance with EPA requirements.

Construction of the BAM facility requires bulk earthworks. Enlargement of the northern stormwater basin and channel will require excavation of a large volume of material, which may then be used to fill the BAM facility footprint up to the desired FFL (300mm above 1%AEP flood level). Any reuse of fill material within the site, or export and import of fill to/from the site will require soil and contamination assessment in accordance with EPA guidelines.

There is a risk of interacting with shallow groundwater during construction activities, notably the creation of foundations, and construction of the stormwater channels. The EIS states that the excavation works are unlikely to create a groundwater gradient through which contaminated groundwater (from the adjacent prohibition areas) could migrate.

Excavation works will be scheduled to occur during seasonal groundwater lows to minimise the risk of interaction with groundwater. The stormwater channels will be lined, to prevent cross contamination of ground and surface waters.

In the event that groundwater is encountered during construction, dewatering will be undertaken in accordance with the EPA Guideline *Environmental management of dewatering during construction activities*.

The subject site is within the Northern Adelaide Plains Prescribed Wells Area and may require a licence for temporary dewatering under the *Landscape SA Act 2019*. Renascor will consult with DEW as required regarding licensing requirements, and associated management measures to prevent the cross contamination of surface water and ground water during construction.

During construction, a Soil and Erosion Drainage Management Plan (SEDMP) will be prepared to prevent soil leaving the site (from wind and water effects) and entering water courses.

With these mitigation measures, the EIS concludes that the potential for these activities to mobilise soil or groundwater contamination is low.

The potential for contamination from fuels and chemicals used / stored on site during construction is discussed in section 11.10.5 below.

Operation

The BAM facility is predominantly hardstand areas, with minimal opportunity for direct contact with soils and surface waters.

Potential sources of contamination during operation of the BAM facility include run-off from the car parking / hardstand / workshop areas; process waste water; and the use of hazardous chemicals and fuels.

The management of these potential contamination sources are discussed in detail elsewhere in this report:

- Process waste water: section 11.7 (wastewater).
- Car parking / hardstand / workshop run-off: section 11.10.5 (dangerous substances) and 11.8 (stormwater).
- Fuels and chemicals: section 11.10.5 (dangerous substances).

Assessment Outcome	The Assessment Report concludes that existing contamination identified within and near the subject site can be appropriately managed during construction, such that contaminated materials will not impact the environment or human health, subject to appropriate measures being implemented including soil management, groundwater interaction, and erosion controls. The Assessment Report concludes that potential sources of contamination during operation can be managed to avoid pollutants entering soils, groundwater and surface waters, subject to appropriate measures being implemented including chemical storage protocols, stormwater management and treatment of waste water.

11.10.5 Dangerous Substances

HR4	**Dangerous Substances**	Objective: to ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.'

The construction and operation of the BAM facility requires the use of various fuels and chemicals, and production of wastes, which have the potential to be harmful to the environment and human health.

Locations where chemicals and wastes are stored, handled or used will be on hardstands and bunded in accordance with EPA requirements. Bunded areas will either be undercover (ie no interaction with stormwater) or any stormwater from these areas will be directed to the on-site waste water treatment system.

The car parking areas will be fitted with a pit and pipe drainage system, with runoff directed to a water quality treatment device, before discharge into the perimeter stormwater channels. Truck unloading areas will have local spill containment designs to capture, control and clean up spills without interaction with runoff from other areas.

Runoff from internal roadways and hardstand areas will pass through a biofiltration system into the perimeter stormwater channels. The stormwater channels will be lined to prevent cross contamination between groundwater and surface waters.

Management measures relating to the storage and use of hazardous substances, as well as accidental spill management, should be detailed in an Operational Environmental Management Plan (OEMP).

Assessment Outcome	The Assessment Report concludes that dangerous substances used during construction and operation of the development will not impact the environment or human health, subject to appropriate measures being implemented including bunding and storage protocols, stormwater management, and treatment of waste water.

11.11 Sustainable use of resources / waste management

CCRE2	**Greenhouse Gas Emissions**	Objective: to ensure the development minimises greenhouse gas emissions associated with its construction and operation so as to meet South Australia's goal to reduce greenhouse gas emissions by more than 50% below 2005 levels by 2030 and achieve net zero emissions by 2050.
CCRE3	**Sustainable Use of Resources**	Objective: to ensure opportunities to procure and use resources efficiently and sustainably are maximised, supporting South Australia's transition to the circular economy
CCRE4	**Waste Management**	Objective: to ensure that waste generated, transported or received as part of the development is managed in accordance with the waste hierarchy and in a manner that protects all environmental values.

The PDI Act sets out seven (7) principles of good planning that should be applied to South Australia's planning system, including impact assessed development (insofar as reasonably practicable and relevant).

Principle of good planning *e) sustainability principles* include that '*particular effort should be focussed on achieving energy efficient urban environments'* and *'practices should promote sustainable resource use, reuse and renewal and minimise the impact of human activities on natural systems that support life and biodiversity'*.

These principles are embedded in two key strategies relating to sustainable resource use:

- *South Australia's Net Zero Strategy 2024-2030:* provides a framework for reducing greenhouse gas emissions, with a target of 100% renewable electricity sources by 2027, and net zero emissions by 2050.
- *South Australia's Waste Strategy 2020-2025*: provides a framework for contributing to a circular economy. A circular economy is an economic system based on the reuse and regeneration of materials, producing no waste and pollution, to allow for ongoing and sustainable growth.

Currently, the management of waste is regulated by the EPA through implementation of the waste management hierarchy set out in the *Environment Protection Act 1993* (EP Act) and the *Environment Protection (Waste to Resources) Policy 2010.*

The hierarchy provides waste management approaches, whereby avoiding waste generation is the most preferable method, and disposal of waste is the least preferable.

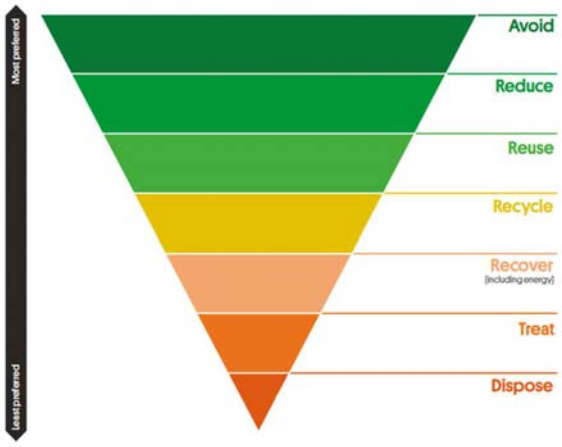

Figure 23: Waste Management Hierarchy (Green Industries SA)

The EIS considers how the development contributes to a circular economy; and how sustainability principles are embedded in the project design. The EIS also considers how the development uses resources and generates greenhouse gas emissions and waste.

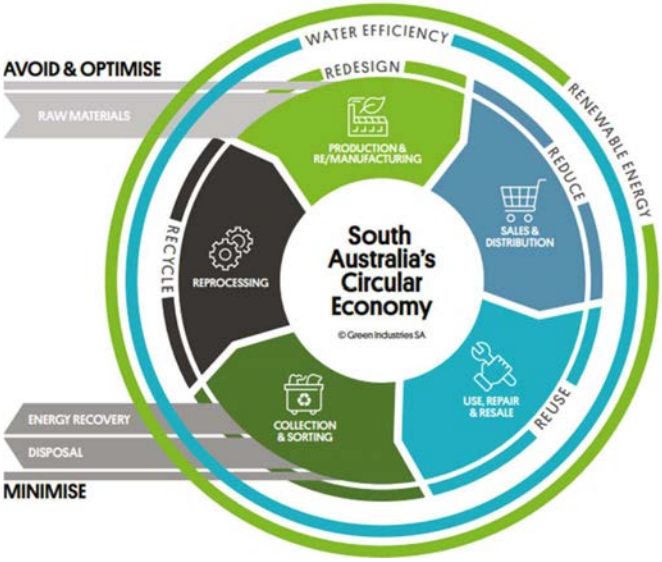

Figure 24: Circular Economy (Green Industries SA)

11.11.1 Project rationale and design

The development is a critical component in the supply chain for the manufacture of lithium ion batteries for electric vehicles. Electric vehicles are generally accepted to represent a reduction in lifecycle greenhouse gas emissions and carbon footprint, compared to internal combustion vehicles.

The siting of the BAM facility within South Australia may represent a reduction in greenhouse gas emissions, when compared to the alternative of exporting raw graphite to China for processing. This is due to reduced transportation distances, and because South Australia's electricity grid is predominantly supplied by renewable energy sources (74% in 2023). It is noted that the greenhouse gas emissions savings will be somewhat negated by the need to transport the processed PSG from the BAM facility to international markets via land and sea.

The circular economy concept encourages the reuse, recycling and reprocessing of materials, to avoid / reduce the use of raw materials. The BAM facility will process raw graphite, which is integral to the development and cannot be avoided.

Renascor has sought to apply the circular economy and waste hierarchy principles elsewhere in the project, primarily through the selected water source, efficiencies throughout the plant, and opportunities for recycling waste streams.

11.11.2 Greenhouse gas emissions

The carbon footprint of the proposed PSG product, calculated using a desktop Life Cycle Assessment (LCA) methodology, is estimated at 2.0kg of Carbon Dioxide (CO_2) per kilogram of PSG, or 191,889 tonnes of CO_2 equivalent per year. The LCA considered greenhouse gas emissions from resource extraction (at the Siviour Graphite mine), processing of the raw graphite at the BAM facility, through to delivery of the final PSG product at Port Adelaide.

Most of the carbon footprint (1.6kg / kg PSG) is from the BAM facility, with the greatest contributor being natural gas combustion (indirect and direct use) as follows:

- The electricity source for the plant is the SA electricity grid, which includes a proportion of natural gas.
- The direct burning of natural gas within the facility (kiln, steam boilers and flash dryer).

The remainder of the carbon footprint is from emissions associated with mining and concentration (at the mine site), the production and transport of chemicals used in the facility, and the transportation of the raw graphite and PSG product between the mine, BAM facility, and Port Adelaide.

Power consumption and efficiency

The BAM facility requires a continuous and reliable supply of electricity to power the plant, which is proposed to be obtained from the state electricity grid. The facility requires 30-40 MW / day for Stage 1 operations, up to 120 MW / day for full Stage 2 operations (if all plant equipment is electrically powered).

During construction, power will most likely be provided through on-site diesel generators.

The ongoing electricity supply is the largest contributor of greenhouse gas emissions to the project, due to SA's current energy mix which includes the burning of natural gas. During the last 12 months, approximately 31% of SA's electricity was generated from natural gas, 1% from liquid fuels, and the remaining 68% from renewables (wind, solar, batteries)[3].

South Australia's Net Zero Strategy 2024-2030 aims to achieve 100% of net renewable electricity generation by 2027. The reduction of natural gas within the State's energy mix would reduce the carbon footprint of the BAM facility.

Natural gas consumption and efficiency

The BAM facility requires a supply of natural gas to power elements of the plant, namely the kiln, steam boilers and flash dryer.

The development application seeks optionality with respect to the kiln, which may be powered by natural gas or electricity, subject to detailed design.

The natural gas kiln option has been applied in all EIS modelling, as the conservative scenario with respective to greenhouse gas emissions. If Renascor decides to utilise an electric kiln, the carbon footprint of the development will be less than that presented in the EIS.

11.11.3 Water consumption and efficiency

The BAM facility requires a continuous and reliable source of water to use in the industrial processing of graphite. The facility requires up to 2.4ML/day for Stage 1 operations, up to 4.8ML/day for Stage 2 operations.

[3] AEMO 2025: AEMO | NEM data dashboard

Whilst the use of water cannot be completely avoided for the BAM facility, Renascor proposes to utilise an existing wastewater stream, thereby avoiding the need to use higher quality or potable water.

Renascor will be utilising wastewater from the SA Water Bolivar outfall channel. This water is suitable for industrial purposes but not agricultural purposes (due to metal concentrations). There are no current users of this water stream.

The industrial processes integral to the BAM facility have been designed to reduce water use, by using the most efficient washing and filtration technologies available. The water used in the plant will be recovered and reused, then treated and returned to the outfall channel.

Section 11.7 considers the volume and quality of wastewater being discharged back into the outfall channel.

11.11.4 Waste management

The construction and operation of the BAM facility will produce a range of liquid and solid by-products and waste streams.

The EIS includes a Waste Management and Minimisation Strategy which provides approximate quantities of waste and details how the waste streams will be managed in accordance with the waste management hierarchy.

Construction phase

Waste will be generated through the following processes and activities:

- Vegetation and organic waste from land clearance.
- Asbestos material – fragments identified within the site.
- Construction waste including concrete, metal and timber.
- Clean fill and spoil from excavation.
- Domestic waste from offices, ablutions and change rooms.
- Workshop waste.
- On-site wastewater / septic system for human waste.

The final site layout will minimise the disturbance footprint to the greatest extent possible, to reduce the amount of vegetation and organic waste produced from land clearance.

Vegetation waste will be stockpiled and mulched, for reuse in landscaping and rehabilitation across the site. As confirmed in the Response Document, this activity must be undertaken in accordance with EPA's *Compost Guideline* (June 2019). If this is not possible, EPA advises that excess vegetation should be transported to a composting facility, instead of disposed to landfill.

Excavated soils and materials will be reused on site where appropriate or may be reused at other construction sites. Where offsite disposal of soil is required, the material must be assessed / classified in accordance with EPA's *Standard for the production and use of waste delivered fill* (2013).

The procurement of construction materials will seek to refine estimated volumes and avoid oversupply; reduce packaging where possible; and consider the purchase of recycled materials.

During construction, temporary facilities will be established to separate, store and manage the various waste streams. Where possible, materials will be returned to suppliers or third parties for reuse and recycling. Waste streams that cannot be recycled or reused will be disposed of at licenced facilities in accordance with EPA requirements.

The waste management arrangements detailed in the Waste Management and Minimisation Strategy should be implemented through a Construction Environmental Management Plan (CEMP).

Operation

Waste will be generated through the following processes and activities:

- Incoming water from the Bolivar outfall channel will be demineralised, desalinated, and polished to remove metals, solids, precipitates and dissolved salts.
- Leachate from the caustic leach process will be treated to recover sodium hydroxide and clean water, as well as solid & liquid waste.
- Water from the acid leach process will be neutralised, resulting in solid by-products and liquid waste.
- Graphite fines from the micronisation and spheronisation processes.
- Chemical wastes produced from boiler blowdown and chemical scaling / cleaning.
- Wastewater from the car parking, workshop and trafficked areas, and separated oils and contaminants.
- Domestic waste from offices, ablutions and change rooms.
- Workshop waste.
- On-site wastewater / septic system for human waste.

The EIS identifies the following opportunities for reuse and recycling of operational wastes:

- Sodium hydroxide and clean water recovered from the caustic leach process water will be re-used in the facility.
- Treated process water from the caustic leach and acid leach processes will be neutralised, filtered and returned to the SA Water outfall channel. Refer to section 11.7 for further detail.
- Two by-products have been identified for potential reuse by third parties:
    - Graphite fines / dust from the milling process may include refractory materials, carburization, sporting equipment, lubricants and pencils.
    - Solid precipitate materials from the process water treatment plants may have beneficial reuse applications in industrial processes (includes mixed silica aluminate and sodium silicate, mixed calcium and magnesium carbonate, and calcium sulphate / gypsum).

Solid by-products and wastes which cannot be reused or recycled (either within the BAM facility, or on sold to a secondary market) will be treated and/or stored on-site as appropriate and disposed of in accordance with EPA requirements.

A dry waste storage area is proposed in the north-eastern corner of the site layout. The storage area will be covered and/or bunded as required to contain the waste materials and prevent dust generation or leaching into the surrounding environment.

The waste management arrangements detailed in the Waste Management and Minimisation Strategy should be implemented through an Operational Environmental Management Plan (OEMP).

Assessment Outcome	The Assessment Report concludes that Renascor has sought to incorporate the principles of a circular economy where possible in the design of the project, notably through the reuse of an existing wastewater stream, and siting of the BAM facility near existing infrastructure, and on the transport route between the mine and the export location (Port Adelaide). It is acknowledged that a significant proportion of the project's carbon footprint is due to the current mix of natural gas burning within SA's electricity market. The project's carbon footprint may be reduced through the SA Government's aim to achieve 100% renewable electricity generation by 2027, however this it outside Renascor's scope of control. Renascor is therefore encouraged to consider further options for reducing carbon footprint during the detailed design phase, in particular electrification of the kilns, roasting ovens and dryers. The Assessment Report concludes that Renascor has applied the waste management hierarchy under the *Environment Protection Act 1991* for construction and operational wastes. The management measures outlined in the Waste Management and Minimisation should be implemented through Construction and Operational Environmental Management Plans.

11.12 Cultural heritage

11.12.1 Non-Aboriginal heritage

SC3	**Heritage Places and Areas**	Objective: to ensure that the nature and scale of the development does not compromise the recognised heritage significance of a heritage place or heritage area.

The *Heritage Places Act 1998* protects non-Aboriginal heritage places or objects of geological, palaeontological, speleological or archaeological significant within the State. No place or object can be damaged, disturbed or interfered without approval under the Act.

The South Australia Heritage Register does not include any known places or objects within the subject site. The nearest registered place is a dwelling located within the residential suburbs of Paralowie, approximately 1.8km south-west of the development site.

There is not expected to be any impact to non-aboriginal heritage during construction or operation of the Renascor BAM facility.

Assessment Outcome	The Assessment Report concludes that the development is not expected to impact non-Aboriginal heritage.

11.12.2 Aboriginal heritage

SC1	**Aboriginal Cultural Heritage**	Objective: avoid adverse effects on Aboriginal cultural heritage values and maximise opportunities to appropriately complement and preserve these values.

The *Aboriginal Heritage Act 1988* protects all Aboriginal heritage sites, objects and remains within the State. No sites, objects or remains may be damaged, disturbed or interfered with without approval under the Act.

The development site is located within the traditional lands of the Kaurna people. Renascor has engaged with the Kaurna Yerta Aboriginal Corporation (KYAC), to consider potential Aboriginal heritage impacts of the development.

The Central Archive of Aboriginal Site and Objects contains one (1) previously recorded Aboriginal archaeological site within the north-eastern corner of the subject site. The project layout has been designed to avoid this site, with appropriate curtilage. On-ground cultural heritage surveys were undertaken by a qualified consultant, in consultation with traditional owners. The surveys did not identify any additional sites within the project area.

The Central Archive identifies a range of Aboriginal sites in proximity to the subject site. This is reflective of the region as an important focal point for Aboriginal traditional life, particularly considering the rich and fertile alluvial soils, and proximity to the coast and rivers (ie Little Para River).

The project area has been considerably disturbed by land clearing and pastoral practices, however subsurface soils may still be reasonably intact and alluvial deposits on the Adelaide Plains can be several metres deep. Subsurface soils have the potential to feature Aboriginal heritage sites, objects and/or burials.

The most likely additional Aboriginal site types that have the potential to be encountered during earthworks are Aboriginal burials, occupation sites and/or artefact scatters (including mounds).

The confidential survey report made a number of recommendations, including that Renascor consider applying for authorisation under sections 21 and 23 of the *Aboriginal Heritage Act 1988* to disturb an Aboriginal site, due to the archaeological sensitivity of the area. If authorisation is not obtained prior to construction, Renascor would be unable to remove, relocate, or otherwise interfere with any heritage discoveries. In the event of a heritage discovery, construction work would be required to stop, and approval sought under the Act.

Renascor has not yet sought authorisation under the *Aboriginal Heritage Act 1988*. The Response Document states that Renascor will consider this '*subsequent to the development approval and will include a risk assessment, implication to schedule, Government recommendations and traditional owner consultation'* (pp 12).

All other recommendations of the confidential cultural heritage survey report have been adopted through the preparation of a Cultural Heritage Management Plan (CHMP). The CHMP has been developed and endorsed by KYAC and outlines management procedures relating to:

- Cultural awareness training and heritage inductions.

- Protection of the known site.
- Heritage monitoring.
- Site discovery procedures.

The previously endorsed CHMP should be reviewed by Renascor in consultation with KYAC to reflect the amendments made to the *Aboriginal Heritage Act 1988* on 1 January 2025. These amendments include enhanced and increased penalties, clearer reporting requirements, and changes to the scope of authorisations, which will allow the Minister for Aboriginal Affairs an opportunity to protect heritage discoveries not known about when an authorisation was granted.

A revised and updated CHMP should be applied to both construction and operation stages of the Renascor BAM facility. This is reflected in the recommended reserve matters relating to the preparation of a CEMP and OEMP.

The decision to not seek approval under the *Aboriginal Heritage Act 1988* prior to construction of the development is a matter for Renascor to further consider, including the risk posed to the project timeframes.

AAR recommends that the obligations under the *Aboriginal Heritage Act 1988* be included as a condition of approval.

Assessment Outcome	The Assessment Report concludes that the previously identified site of Aboriginal cultural significance will be avoided and protected through the project layout. Renascor has not yet sought approval under section 21/23 of the *Aboriginal Heritage Act 1988* to disturb Aboriginal heritage, noting that Renascor will reconsider following a decision on the development application. Conditions of approval are recommended to reinforce obligations under the Act. The Assessment Report concludes that the proponent has taken all other reasonable steps, from early engagement to preparation of a CHMP, to ensure that potential impacts are minimised.

11.13 Social, Community and Economic Impacts

SC2	**Community Wellbeing / Social Impact Assessment**	Objective: to ensure adverse effects on the community near the development are avoided or minimised including with regard to community cohesion, access to services and facilities and health impacts and capitalise on opportunities to enhance benefits for communities.
LRSE1	**Local, regional and state economies**	Objective: to ensure adverse economic impacts arising from construction and operation of the development are avoided or mitigated, and net economic benefits to the region and state are created.

11.13.1 Socioeconomic profile

The development site is located in the suburb of Waterloo Corner, within the City of Salisbury local council area. This small rural suburb has a population of 1103, compared to 145,806 people within the local government area (2021 ABS census data).

Waterloo Corner is used primarily for horticultural land uses, comprising small acreage blocks and low density housing. Other land uses include social and recreation facilities, commercial businesses and light industry.

Waterloo Corner has few community services and facilities, and little to no short-term tourist accommodation or retail facilities. These services are provided in abundance in nearby suburbs within the Council area.

Reflective of land use, horticulture is the main employment industry in Waterloo Corner. Within the broader council area, aged care services, hospitals and trades are the highest employment industries.

Waterloo Corner is a culturally diverse population, with 29.9% of residents speaking a language other than English at home. The suburb has an older than average population (median age of 58) with an approximate 70:30 split of family to single households.

A higher than average proportion of the population own their homes (65% outright and 15% mortgaged, compared to 12% renting), however household employment and income are well below the state average.

The social characteristics of the broader Salisbury local government area are generally consistent with those of Waterloo Corner, namely a larger migrant population, lower income, and higher unemployment than the state average. A key difference is labour force participation, with Waterloo Corner sitting at 37.7% and the local government area at 58.7% (just below the state average of 60%). This may be reflective of Waterloo Corner having a higher proportion of people in the retirement age bracket.

Overall, both the suburb and local government area are ranked amongst the most socioeconomically disadvantaged populations in Australia, based on the Social Economic Index for Areas (SEIFA).

11.13.2 Cost benefit analysis

The EIS includes an economic evaluation with cost benefit analysis, prepared by ERC Pty Ltd, which considers the BAM facility, and Renascor's overall Siviour Graphite Project.

The facility is estimated to contribute $2.6 billion in Gross State Product, including $1.4 billion in employee wages, and $158 million in taxes and other payments over the 40 year life of the development.

At the regional level the Siviour Graphite project will diversify economic activity within northern Adelaide and the Eyre Peninsula. The Siviour Graphite project will generate a net benefit of $4.3 billion per year over 40 years, inclusive of the BAM facility.

The majority of the positive impact (61%) will occur in the northern Adelaide region, with the balance occurring elsewhere in South Australia.

The cost benefit analysis identified limited cost (ie negative) impacts from the project. These were increased road use and traffic congestion, visual amenity impact and environmental risks. The proposed mitigation measures for these cost impacts are discussed elsewhere in this report.

11.13.3 Employment and housing

The development is estimated to generate approximately 200 FTE direct and indirect jobs during the two year construction period, and approximately 200 FTE direct jobs over its 40 year operational life span. Renascor will seek to employ locally where possible.

In addition to the approx. 200 FTE direct jobs created during the operational phase, the BAM facility will create a further 1000 FTE indirect jobs (843 of which are within northern Adelaide) through suppliers to the facility, and flow-on effects.

In the context of unemployment rates within the northern Adelaide region (and Eyre Peninsula for the mine component), and the lack of growth in existing industries (agriculture, mining and manufacturing), this is a net benefit for the project and will positively impact multiple generations.

11.13.4 Housing

The construction workforce is expected to be based in northern or greater Adelaide, and commute to the site daily. The need to house construction workers / technical specialists is therefore expected to be relatively low. Demand can be met from the existing supply of short-term accommodation within in the council area, without impacting the market.

Similar to the construction phase, the majority of the operational workforce is expected to be based within daily commute of the BAM facility. An estimated 10-50 employees are expected to be from interstate / overseas and require housing (rental or purchase). Whilst this demand is not expected to materially impact housing availability or house prices, there is a need for significant additional housing stock in the State. Trends suggest that undersupply issues will continue, which may impact the ease in which employees can secure housing.

11.13.5 Local business and services

There may be opportunities during the construction and operational phases for local business to provide goods and services to the development. Renascor's procurement policy will facilitate local products and services where possible.

The use of local businesses, health and social services during the construction and operational stages is expected to be relatively low, such that any increased demand can be absorbed by the local market.

Renascor will seek to provide financial support to local community, social or sporting organisations through sponsorships or other means.

11.13.6 Safety and security

The construction and operation of the facility is not expected to result in any increase in anti-social behaviour or safety concerns.

The 24/7 operation of the facility, with associated lighting, fencing and increased activity in the area, may increase the perception of safety for the local community. The presence of the facility may also discourage illegal dumping and anti-social behaviour in the area.

11.13.7 Amenity impacts

The development is expected to generate visual and noise impacts during construction and operation due to the large scale of the facility, use of industrial equipment, and increase in heavy vehicle traffic. The most impacted are three existing dwellings located opposite the proposed facility on Robinson Road.

Emissions and odour are not expected to result in any measurable impact during operation. Dust and amenity impacts during construction will be limited to the duration of the construction phase, and can be managed through industry standard mitigation measures within a CEMP.

The presence of midge flies is an existing issue in the area. Renascor is committed to providing midge reduction plantings as part of the project, which will be maintained in conjunction with SA Water.

Amenity impacts are considered in detail in Sections 11.2 to 11.5 this report.

Assessment Outcome	The Assessment Report concludes that the development will have a net social and economic benefit to the local, regional and state communities through direct and indirect job creation, market diversification, payment of taxes and mineral royalties, and flow on economic activity. The majority of the workforce for construction and operation of the BAM facility is expected to be from northern / greater Adelaide, within commuting distance of the facility. As a result, increased demand for housing, health, community and social services can be accommodated within the existing market, and without competing with the local community. Renascor is committed to exploring recruitment and procurement policies, and developing an industry participation plan, to utilise local labour, products and services. Renascor will also explore opportunities to contribute to local sporting, social and/or community organisations. The development will result in amenity impacts, especially for three local dwellings located adjacent the development site. The Assessment Report concludes that the proposed mitigation measures will reduce the impacts to acceptable levels.

12 Consistency with Current Planning Policies

In considering whether to grant development authorisation for an impact assessed development, section 115(5)(1) of the PDI Act requires that the Minister for Planning has regard to any relevant state planning policy, special legislative scheme, the relevant regional plan, and the Planning & Design Code.

12.1 State Planning Policies

State planning policies (SPPs) address the economic, environmental and social planning priorities for South Australia. They are the highest level of policy in the State's planning system. SPPs set the general direction for new development within the state's urban and regional areas.

A number of SPPs are relevant to the assessment of Renascor's BAM facility:

SPP 1 Integrated Planning

The principles of integrated planning will shape cities and regions in a way that enhances liveability, economic prosperity and sustainable future. The planning system has a critical role to play in allocating enough land for current and future industries.

The integrated planning of Waterloo Corner and Bolivar Corridor is considered in the City of Salisbury's 2022 Strategic Growth Framework (SGF) and the State Planning Commission's GARP. The SGF and GARP seeks a gradual diversification and intensification of more intensive employment land uses in the locality, which would occur over time through staged Code Amendments.

The proposed site for the BAM facility is consistent with Council's SGF and the GARP, being located in area earmarked as an 'Employment Growth Investigation Area'. The investigation area is serviced by key transport corridors and in proximity to current and future residential growth to support local employment opportunities.

SPP 2 Design Quality

The Planning System has a role to play in facilitating development that responds to local identity and protects the built and natural qualities that are valued by communities. Policies 2.1 and 2.2 seek that buildings, places and public realm apply the Principles of Good Design, and Crime Prevention Through Environmental Design (CPTED) and Water Sensitive Urban Design (WSUD).

The BAM facility will introduce a new visual element to the locality, which is notably larger than surrounding development. The facility may be visually dominant when viewed from local roads, and sensitive receivers along Robinson Road.

The design of the facility is largely driven by operational and commercial requirements, however the Principles of Good Design, CPTED and WSUD should be incorporated into the final design to the greatest extent possible for an industrial development.

Renascor is committed to an iterative design process and will consider opportunities to mitigate visual impact through final building design, external materials and finishes. This

process is reflected in the recommended reserve matters, which allow for consideration of the final design, external finishes, landscaping, and public realm interface at Robinson Road.

SPP 4 Biodiversity

The Planning System has a role to play in ensuring biodiversity and associated life-supporting functions are maintained and enhanced through the identification and protection of areas of high biodiversity value, ensuring development occurs in appropriate locations, and assessing the cumulative impact of development on biodiversity, including spatial, temporal and incremental impacts.

Policy 4.1 seeks the minimisation of impacts on areas with recognised natural character and values, such as native vegetation and critical habitat. Where impacts to biodiversity cannot be avoided (Policy 4.5), these impacts should be minimised, and where possible, offset.

The site selection process for the Renascor BAM facility project has avoided areas of high biodiversity value. The native vegetation proposed to be cleared has been assessed as being in low condition and does not provide suitable habitat for protected fauna species. The EIS did not identify any cumulative impacts as a result of the proposed clearance.

An SEB will be required under the *Native Vegetation Act 1991* to offset the proposed removal of native vegetation through either on-ground activities or payment into the Native Vegetation Fund.

The development will include strips of vegetative plantings around the perimeters of the site. The green buffers are part of the stormwater strategy for the development and may positively contribute to local biodiversity.

SPP 5 Climate Change

The Planning system has a role to play in supporting new infrastructure that can lower our carbon footprint (either directly or indirectly) and encourages the adoption of new technology.

Policy 5.6 facilitates green technologies and industries that reduce reliance on carbon-based energy supplies and directly or indirectly reduces greenhouse gas emissions. Policy 5.10 supports the transition of traditional industries that rely on fossil fuels to climate smart initiatives to reduce greenhouse gas emissions.

The development of the BAM facility will support green technologies, through the manufacture of material that is critical to the electric vehicle sector and other renewable energy applications.

The SPP also identifies the need for development to be located and designed with risk mitigation measures in place to safeguard against impacts from climate change.

The proposed site for the BAM facility is not prone to sea level rise but does require flood mitigation measures to protect against localised inundation from surface waters. A climate change risk assessment has been undertaken and appropriate mitigation measures can be incorporated into the design of the facility.

SPP 7 Cultural Heritage

The planning system has a role to play by protecting places of recognised heritage value through early identification and avoidance, particularly those places, items and objectives of significance for South Australia's First Peoples.

Objective 7.2 seeks to recognise and protect Indigenous cultural heritage sites and areas of significance, whilst policies 7.3 and 7.4 seek to recognise, protect and maintain such places for the community and future generations more generally.

The layout for the BAM facility has been designed to exclude a registered Aboriginal heritage site, and an on-ground survey has been undertaken with traditional owners to consider the potential impact on heritage values.

The EIS acknowledges the risk associated with ground disturbing works in this near-coastal location, and notes that Renascor has developed a CHMP in consultation with traditional owners to mitigate this risk. Renascor must comply with the requirements of the *Aboriginal Heritage Act 1988.*

SPP 8 Primary Industry

The planning system has a role to play in protecting key primary industry assets, and promoting co-existence to avoid land use conflicts. The policy acknowledges that this is becoming difficult for some part of the state, with previously stable industry locations experiencing competition for resources from new industries and encroachment from other sectors.

The BAM facility will occupy land currently zoned for Rural Horticultural. The subject site was previously used for primary production purposes, but is currently underutilised land that forms part of the buffer around SA Water's WWTP. The proposed development will therefore not displace existing, established primary production activities.

Interface impacts with agricultural / horticultural land uses in the locality can be managed to as low as reasonably practicable and are not expected to prevent existing or preclude future primary production activities in the zone.

SPP 9 Employment Lands

Employment lands are areas where development is focused on the creation of places to work across a variety of industries, to support business growth, innovation and investment.

The subject site is currently zoned for rural horticulture but as noted in SPP 1, Council's SGF and the Commission's GARP envision the gradual rezoning of this locality for employment purposes.

The Rural Horticulture zone currently envisages a wide variety of employment generating land uses, including industry, and in this respect to the proposed development is consistent with the SPP, providing employment opportunities throughout the construction and operational phases of the development.

SPP 10 Mineral and Energy Resources

The planning system has a role to play in facilitating investment in relation to mineral and energy resources. Whilst the policy is focused on the extraction of raw materials, and

interactions between land use planning and mining legislation, it recognises the importance of associated infrastructure, related activities, and supply chains.

The BAM facility will process raw graphite from the Siviour Graphite Mine on Eyre Peninsula, approved under the *Mining Act 1971*. The establishment of a downstream processing facility, separate to the mine facility but within the state, is a first for South Australia. The development will provide a value-added product that generates employment and economic benefit for the state, consistent with the policy.

SPP 11 Strategic Transport Infrastructure

The planning system has a role to play in integrating transport and land-use development to support access to jobs and services in accessible locations. As new industries and sectors are established, the state's freight system will need to accommodate the increased demand.

The proximity of the subject site to key freight routes was a critical to Renascor's site selection processes. The site is well located adjacent major transport routes connecting the Siviour Graphite Mine and the export market at Port Adelaide. The development is not expected to negatively impact on the state-maintained road network.

In accordance with policy 11.4, the transport-related impacts of the project can be managed. An upgrade of a portion of Robinson Road will be undertaken, and Renascor is open to working sensitive receivers that are negatively impacted by noise from night time truck movements during operation of the facility.

SPP 12 Energy

The planning system has a role to play in enabling all forms of energy infrastructure. This includes maintaining and expanding the existing energy network as well as enabling the development of renewable energy and alternative energy options.

The proposed BAM facility supports the manufacture of lithium-ion batteries, for use in electric vehicles and other renewable energy applications.

SPP 13 Coastal Environment

The policy states that onshore development can have significant impacts on our marine environment. Land use impacts on marine habitats from stormwater, wastewater and industrial discharges need to be managed. Policy 13.10 supports development that does not contribute to sediment, nutrients and contaminants entering the coast and marine environment.

The process wastewater from the BAM facility will be treated and returned to the SA Bolivar outfall channel at comparable volume and water quality as existing water in the channel.

The discharge of BAM's wastewater into the marine environment is assessed as having low likelihood of negatively impacts the coastal / marine environment, however EPA licensing will require monitoring to ensure treated wastewater is consistent with the EIS modelling.

SPC 14 Water Security and Quality

Land use planning needs to integrate current and future water availability into decision making. The policies encourage the incorporation of WSUD into new developments, and an

integrated approach to stormwater and wastewater capture and reuse to diversify our water supply.

The proposed BAM facility proposes to reuse an existing wastewater stream to meets its high water supply requirement, instead of using a potable water supply. This directly contributes to policy 14.1 to protect the state's water supply, and is expected to be a sustainable source of water for the 40-year project life.

An integrated stormwater and wastewater management system is proposed to capture, treat and either reuse or treat and dispose of surface waters and process wastewater during construction and operational phases. During construction, the interaction with shallow groundwater can be managed in accordance with legislation requirements, to prevent contamination.

During operation, on-site treatment of stormwater and wastewater will ensure that water leaving the site meets water quality requirements. Green buffers are proposed as a WSUD element to filter surface runoff before discharge into the stormwater system.

The stormwater management strategy proposes an upgrade of Council's existing stormwater infrastructure adjacent the site to increase detention / retention capacity and contribute to a longer-term regional solution.

SP 15 Natural Hazards

The planning system has a role to play in preventing development in high risk areas and ensuring that appropriate design standards are in place to prepare new development for acceptable levels of risk.

The subject site for the BAM facility is not susceptible to sea level rise, coastal erosion or acid sulphate soils. Localised flooding is a pre-existing issue due to low lying land, and poor stormwater infrastructure. The proposed development incorporates flood mitigation measures as part of the overall stormwater strategy. As noted in SPP 5, and consistent with policy 15.1, a climate change risk assessment has been undertaken and appropriate mitigation measures incorporated into the design of the facility.

Consistent with policy 15.6, the subject site is not within a bushfire risk area. Fire risk can be appropriately managed through industry standard mitigation measures during construction and operational phases.

SPP 16 Emissions and Hazardous Activities

The planning system has a role to play in supporting industrial clusters and protecting communities from harmful emissions via separation. Policy 16.1 seeks that industrial development control or minimise emissions at the source, or where emissions or impacts are unavoidable, at the receiver.

The BAM facility has been sited with appropriate separation from residential zones however a number of dwellings and recreational land uses are located within close proximity to the site, within the Rural Horticulture Zone.

Modelling undertaken for the EIS predicts that air emissions at sensitive receivers will be within the Air EPP assessment criteria with good margins. The modelling is based on a preliminary design and further modelling (based on the final design) as well as post-

commissioning stack testing will be required to ensure that actual emissions are within the Air EPP criteria.

Hazardous substances used during construction and operation will require appropriate storage and handling in accordance with industry standard practices and EPA requirements.

12.2 Special Legislative Scheme

State Planning Policy 18 details the Special Legislative Schemes declared under the PDI Act. These schemes, including the *Adelaide Dolphin Sanctuary Act 2005*, have a direct link to the planning system and are of significant environmental importance to the State.

Although the site of the BAM facility is approximately 2.8km from the Adelaide Dolphin Sanctuary there is the potential for wastewater discharge associated with the facility to indirectly impact the marine environment. The SA Water outfall channel, into which treated wastewater from the BAM facility will be discharged, enters the marine environment at Freshwater Creek within the Adelaide Dolphin Sanctuary (ADS).

The *Adelaide Dolphin Sanctuary Act 2005* was therefore considered in the preparation of the EIS, due to the location of the wastewater discharge point.

A formal referral of the EIS to the Minister administrating the *Dolphin Sanctuary Act 2005* was not triggered under s113(5)(a)(iii), however the potential impacts were considered by DEW at the departmental level. In that regard, DEW deferred to EPA as the regulator for discharge from the Renascor site.

Consistent with policy 18.2 the discharge from the BAM facility is not expected to materially increase the volume of wastewater entering the sanctuary, nor is it expected to alter the water flow regime. Consistent with policy 18.3 the stormwater strategy for the site will capture surface run-on in various catchments, and treat that water as required before discharging into the stormwater system.

On the basis that the EIS demonstrates that wastewater volume and pollutant loads to the marine environment are not significantly increasing above current levels, DEW understands there will be no direct impact on the ADS.

12.3 Regional Planning Policies

The current regional plan for the subject site is the Greater Adelaide Regional Plan (GARP), released on 17 March 2025. The GARP sets out the long-term vision for Greater Adelaide, identifying land use and infrastructure requirements over the next 30 years.

Consistent with Council's Strategic Growth Framework, the land to the east and north-east of the subject site is identified as future 'Employment Lands'. The GARP, however, also includes land to the north and south-east as Employment lands, instead of Rural Horticulture and Recreational lands per current zoning.

There is currently 439ha of vacant zoned employment land currently within the Inner North Land Supply region. This is forecast to be exhausted within the next decade. Demand for an additional 1750ha of industrial employment land within the Inner North is anticipated to 2051.

Land earmarked for future employment lands are located within the *Port Wakefield – Strategic Growth Corridor Precinct* and a *National Employment (Economic) Cluster*. A national employment cluster aligns with priority areas identified by the National Reconstruction Fund Corporation (NRFC) and are precincts '*of (actual or potential) scale, whose current and future activities are strongly linked with strategic and economic objectives of the state, and which accommodate (or will eventually accommodate) a critical mass of economic activity and employment*' (GARP)[4].

The Renascor BAM facility is expected to be a compatible and envisaged and use within an employment zone, and is generally consistent with the future strategic direction for the locality.

A future rezoning of land in the locality from Rural Horticulture to an employment zone may result in more commercial and light industry development moving into the area. Employment zones (under the current Planning & Design Code) do not envisage residential development. This contrasts to the current Rural Horticulture zoning which does envisage residential development as an ancillary land use to primary production.

This change is land use would reduce the sensitivity of the receiving environment with respect to land uses, and in relation to amenity impacts from noise emissions, air emissions and visual impacts.

12.4 Strategic Growth Framework for Waterloo Corner and Bolivar Corridor

The *Strategic Growth Framework for Waterloo Corner and Bolivar Corridor* (Holmes Dyer, 2022) was prepared for and endorsed by City of Salisbury Council on 25 July 2022. Whilst this document is not a formal planning policy created under legislation, it is particularly relevant to the proposed BAM facility.

The document includes a 25-year growth action plan and high-level Structure Plan for the land west of Port Wakefield Road.

The subject site is within Planning Area 4, and adjacent Planning Area 1 to the east and north. Planning Area 4 is identified as a potential eco-industry zone, with the subject site being part of a buffer area to the SA Water WWTP. This area provides opportunities for landscaping, vegetation, stormwater detention and channels, and pedestrian / cycle corridors, subject to SA Water agreement. A potential wetland opportunity is identified to the north-west of the subject site, adjacent the Zoo feedlot, as part of a stormwater strategy for the area.

The draft Structure Plan identifies Planning Area 1, being the land directly east of the subject site, and to the north-east, as future 'Employment lands' and eco-industrial park.

The land to the north is identified to remain as Rural Horticulture, whilst the gun club and go-kart club are identified as Recreational lands.

[4] Digital Regional Plans – Greater Adelaide Regional Plan

12.5 Planning and Design Code

The EIS includes a detailed assessment of the proposed development against relevant policy within the Planning and Design Code. Key matters are summarised in Appendix C.

The application is considered to be generally in accordance with the relevant planning policy, subject to the inclusion of management and mitigation measures as detailed in the EIS.

13 Conclusion

The proposed development is an industrial facility to process raw graphite form the Siviour Graphite mine on Eyre Peninsula into Pure Spherical Graphite (PSG) for use in the manufacture of lithium-ion batteries. The proposed downstream BAM processing facility would be the first of its kind for South Australia.

The proposal is generally consistent with existing Rural Horticulture land use zoning at this locality, which anticipates industrial development. The proposal is also consistent with the State Planning Commission's Greater Adelaide Regional Plan, which anticipates the expansion of employment lands to the west of Port Wakefield Road and the Northern Connector.

The site selection has provided separation from residential zones and ecologically sensitive areas. The development is not expected to unreasonably impact existing primary production activities, recreational, tourism and/or commercial operations, or the St Kilda township. Potential impacts to a small number of sensitive receivers (dwellings) on Robinson Road include noise from night time truck movements, visual impacts, and amenity impacts during construction.

The proposed development is considerably taller and bulkier than existing development in the locality and cannot be fully screened by vegetation and/or fencing. The visual impact of the facility should be mitigated to the greatest extent possible by maximising setbacks from site boundaries and selecting external materials that complement the surrounding environment and do not cause glare or reflection.

The proposed facility will operate 24/7 and modelling indicates that noise from heavy vehicles during night time hours will exceed Noise EPP requirements at sensitive receivers. EPA is satisfied that Renascor has taken reasonable and practicable steps to mitigate environmental harm, and remains open to consultation with impacted landowners regarding noise mitigation at the receiver.

Air emissions during operation will include dust / particulate matter, nitrogen dioxide, carbon monoxide, hydrogen sulfide and sulfuric acid fumes. When measured at sensitive receivers, all emissions are modelled to be within relevant criteria. The modelling is based on a preliminary design and requires further assessment during the detailed design phase. The EPA licence is expected to require post-commissioning stack testing against modelled outcomes.

The flood management strategy for the development involves increasing the finished floor level of the facility and diverting surface waters around the development site through new and upgraded stormwater channels. The stormwater infrastructure is integral to the development and must be developed prior to operation of the facility. Flood modelling shows that the diversion of surface waters around the development site will increase inundation to the north and south of the site, within SA Water land. The acceptability of this outcome ultimately rests with SA Water as landowner and party to the development.

The development proposes the clearance of 26.72ha of native vegetation. The impacted vegetation is either planted or re-emergent and the clearance will not impact protected ecological communities, flora or fauna species. Whilst the impacted vegetation has been

assessed as being of generally low quality, the vegetation will no longer be available for non-protected fauna species (birds in particular).

There are no direct impacts to the Adelaide Dolphin Sanctuary or the Adelaide International Bird Sanctuary, however Renascor will be indirectly discharging wastewater to the marine environment via the Bolivar outfall channel, under licence from the EPA. This wastewater has the potential to cause environmental harm, containing a range of heavy metals, nutrients and other chemicals.

The development proposes to reuse water from SA Water's WWTP Bolivar outfall channel. The water will be used in the BAM facility, then treated and returned to the outfall channel at a similar volume and quantity. The proposal is generally acceptable to the EPA, however it is noted that there are no proposed mitigation measures to capture or hold waters from the marine environment should the channel become contaminated. The infrastructure is managed by SA Water, so SA Water will ultimately be responsible for any pollution entering the marine environment.

The development has been designed in consultation with traditional owners, to avoid and protected a registered Aboriginal heritage site. The region is an important focal point for Aboriginal traditional life due to rich and fertile alluvial soils, and proximity to the coast and rivers. On-site surveys did not identify any additional sites, however subsurface soils in the area may still be reasonably intact (being several metres deep on the Adelaide Plains), and bulk earthworks have the potential to disturb Aboriginal heritage. Aboriginal heritage cannot be damage, disturbed or interfered with, without authorisations under the *Aboriginal Heritage Act 1988*. Renascor is encouraged to seek authorisation prior to the commencement of site works and excavation.

The traffic generated by the development is not expected to negatively impact on the functional performance of the State Maintained Road network. The greatest impact will be on Robinson Road, which requires an upgrade prior to operation of the development to provide safe access for the expected traffic type and volumes.

During construction, impacts such as air emissions, dust, noise, traffic, waste management, flora and fauna, and water quality can be managed through industry standard practices of a Construction Environmental Management Plan (CEMP). Construction activities will be limited to between 7am and 7pm, Monday to Saturday, to safeguard the amenity of residents, unless specific permission is granted by the EPA.

The development is expected to have a net social and economic benefit to the local, regional and state communities through direct and indirect job creation, market diversification, payment of taxes and mineral royalties, and flow on economic activity.

On balance, the development proposal is supportable, subject to a suite of reserve matters, conditions and advisory notes. Further consultation is required with Council and relevant State Agencies during the detailed design phase, to ensure that all proposed mitigation measures are incorporated and will achieve the desired outcomes.

14 Recommendation

PART A: MATTERS RESERVED FOR FURTHER ASSESSMENT AND APPROVAL

1. **A Works Program** that identifies the stages or phases of construction of the development.

2. **A Stage Details Plan** for each stage that is identified in the Works Program, prepared in consultation with relevant State Agencies and the City of Salisbury (where relevant), which must include:

   (a) final detailed designs for all permanent components of the BAM Facility, water intake and outfall pipes to SA Water's Bolivar outfall channel, and related civil infrastructure, including site plans, building floor plans, elevations, cross-sections, specifications and details of cut and fill; and
   (b) final stormwater management plan including civil drawings for the upgrade / enlargement of the northern stormwater channel, with the retention of as much existing vegetation across the site as possible, developed in consultation with Council;
   (c) final external materials selections and finishes for all permanent elements of the development; and
   (d) final lighting plan for the development, demonstrating compliance with *Australian/New Zealand Standard AS/NZS 4282:2023 – Control of Obtrusive Effects of Outdoor Lighting*; and
   (e) a final landscaping plan for the Robinson Road frontage, and the 10m wide green buffer around the northern, southern and western site boundaries as shown in Appendix 2 (Site Plans and Layout) of the EIS; and
   (f) final detailed plans for all temporary construction components (i.e. laydown areas, works compounds, storage areas, concrete batching plants etc.).

3. **Updated Air Emissions Modelling**, prepared in consultation with the EPA, including an assessment based on the final detailed design and selected impact-mitigation technologies (including the dust collectors) to confirm the results predicted in the EIS.

4. **A Construction Environment Management Plan (CEMP)**, prepared in consultation with the Environment Protection Authority; the Department for Environment and Water; the Country Fire Service; and the City of Salisbury. The CEMP must (at a minimum) detail the predicted impacts of the development on the following matters, the measures that will be implemented to manage and monitor the predicted impacts on those matters, and the predicted effectiveness of the measures:

   a) soil erosion and drainage
   b) geomorphology and groundwater
   c) flora and fauna
   d) weeds and pests
   e) air quality
   f) noise and vibration
   g) waste and litter
   h) soil contamination and spill hazards
   i) traffic
   j) Aboriginal heritage and
   k) local community impacts.

   The CEMP shall include the following sub-plans:

a) Noise and Vibration Management Plan
b) Soil, Erosion and Drainage Management Plan
c) Dust Management Plan
d) Waste Management and Minimisation Plan
e) Fire and Emergency Management Plan
f) Cultural Heritage Management Plan

5. **An Operational Environmental Management Plan (OEMP)**, prepared in consultation with the Environment Protection Authority; Department for Environment and Water; the Country Fire Service; the and the City of Salisbury. The OEMP must include an annual review procedure, including the provision of reporting to the Minister for Planning. The OEMP must (at a minimum) detail the predicted impacts of the major development on the following matters, the measures that will be implemented to manage and monitor the predicted impacts on those matters, and the predicted effectiveness of the measures:

    a) soil erosion and drainage
    b) geomorphology and groundwater
    c) flora and fauna
    d) weeds and pests
    e) air quality and greenhouse gas emissions
    f) noise and vibration
    g) water quality
    h) waste and litter
    i) soil contamination and spill hazards
    j) fuel and chemical storage
    k) traffic; and
    l) local community impacts.

    The OEMP shall include the following sub-plans:
    a) Waste Management and Minimisation Plan
    b) Fire and Emergency Management Plan
    c) Cultural Heritage Management Plan

6. **A Road and Traffic Management Plan**, prepared in consultation with the relevant road authority (City of Salisbury and/or the Department for Infrastructure and Transport) under the *Local Government Act 1999* and the *Highways Act 1926* for the construction and operational phases of the development. The Plan must address the following matters:

    (a) the type of vehicles to be used, their distributions and frequency.
    (b) safety impacts associated with transport of oversized and/or specialist componentry.
    (c) traffic management strategies (where required) including speed limits along the length of the route.

7. **A Road Infrastructure Agreement** and/or deed for the upgrade of Robinson Road (between the intersection with Waterloo Corner Road and the BAM facility entrance), and any other required road infrastructure upgrades and ongoing maintenance arrangements as a result of the proponent's development, where relevant, entered into between the proponent and the relevant road authority (City of Salisbury and the Department for Infrastructure and Transport) under the *Local Government Act 1999* and the *Highways Act 1926*.

8. **A Stormwater Infrastructure Agreement,** outlining the financial arrangements and/or contributions, timeframe and responsibilities associated with the upgrade / enlargement of the northern stormwater channel as a result of the proponent's development, located within

SA Water owned land, entered into between the proponent and the landowner (SA Water) and the relevant stormwater infrastructure authority (City of Salisbury) under the *Local Government Act 1999*.

9. **Building Rules compliance** must be assessed and certified for each stage or component of the development by an accredited professional (or by a person determined by the Minister) and a copy of all relevant certification documentation must be provided to the Minister. In assessing Building Rules compliance, the accredited professional (or a person determined by the Minister) must refer to the relevant fire authority (the SA Country Fire Service) for comment and report.

PART B: GENERAL CONDITIONS

10. In regard to the satisfaction of the reserved matters and general conditions (as outlined in Parts A and B of the Decision Notice), documentation submitted by the proponent shall be considered by an across government Working Group, chaired by the Department for Housing and Urban Development - Planning and Land Use Services. The Working Group shall comprise relevant state agency and local government representatives (plus the proponent), from which advice to the Department and/or Minister for Planning (the Minister) will be provided to determine whether each reserved matter or condition has been satisfactorily addressed, or whether further information is required.

11. Except where minor amendments may be required by other legislation or by conditions imposed herein, the construction, operation, use and maintenance of the development must be undertaken in accordance with the approved plans and details, drawings, designs and specifications:

    (a) Set out in the application:
        (i) Battery Anode Material (BAM) Facility – Environmental Impact Statement – May 2024 (including Appendices 1 to 18)
        (ii) Battery Anode Material (BAM) Facility – Response Document – January 2025 (including Appendix A and Tonkin Memorandum – 3 May 2024)

    (b) Set out in the final and approved:
        (i) Works Program;
        (ii) Stage Details Plan for each stage identified in an approved Works Program;
        (iii) Construction Environment Management Plan (CEMP) and sub-plans;
        (iv) Operational Environmental Management Plan (OEMP) and sub-plans;
        (v) Road and Traffic Management Plan;

    To the extent of any inconsistency, and subject to any contrary intention, a later document will prevail over an earlier one.

12. The development (including all stages and components) must be substantially completed within eight (8) years of the date of this authorisation, failing which an extension of time may be sought from the Minister prior to the expiry of that period or the authorisation may be cancelled.

13. Should the development not be substantially completed within eight (8) years of the date of this authorisation, and no extension of time sought before such expiry and subsequently approved, the state and condition of the land and buildings must be reinstated, so far as is reasonably practicable, to the state and condition that the land and buildings were in immediately before the commencement of the development.

14. No building works on any part of the site of the development may commence until a favourable decision has been notified to the proponent by the Minister in respect of the reserved matters (PART A) and until a development authorisation under section 115(2) of the *Planning, Development and Infrastructure Act 2016* is granted for the relevant stage or component as is approved in the Works Program.

15. The implementation of the CEMP and OEMP must be continuously monitored and reviewed to ensure compliance with the measures to manage and monitor relevant impacts and the effectiveness of those measures and updated (with approval of the Minister) as necessary. Each review must be made publicly available and a copy provided to the Minister until all construction stages or components are complete.

16. No damage, disturbance or interference with any Aboriginal site, object or remains (together, heritage), nor any excavation of land for the purpose of uncovering Aboriginal heritage, is permitted unless and until authorisations from the Minister for Aboriginal Affairs under sections 21 and 23 of the Aboriginal Heritage Act 1988 (SA) have been obtained.

17. Council, utility or state agency maintained infrastructure that is demolished, altered, removed or damaged without lawful authority in the implementation of the development, must be reinstated to council, utility or state agency specifications as applicable. All costs associated with these works must be met by the proponent.

18. The upgrade of Robinson Road, between the intersection with Waterloo Corner Road and the BAM facility entrance, must be completed to the road authority's satisfaction prior to the commencement of commercial operation of Stage 1 of the BAM facility.

19. All road infrastructure upgrades must be completed to the standard required to enable use of the identified vehicle type (as specified in the Road and Traffic Management Plan), to the satisfaction of the relevant road authority.

20. All road infrastructure upgrades, unless otherwise identified, are to be funded by the proponent.

21. Should the proponent or any subsequent owner or operator of the BAM facility intend that the operation of the BAM facility or portion of it will cease, the Minister must be advised as soon as is reasonably practicable. Furthermore, a Decommissioning and Rehabilitation Plan (DRP) must be prepared in consultation with relevant government agencies and the local council and must be submitted to the reasonable satisfaction of the Minister.

    The DRP must be prepared nine months prior to the time that the operation (or relevant portion of it) is scheduled to cease, and include information related to:

    (a) identifying assets to be rehabilitated, remediated, decommissioned and/or removed, along with those that are proposed to be retained and the proposed tenure and management arrangements
    (b) confirming responsibility for costs associated with rehabilitation, remediating, decommissioning and/or removing and retaining assets
    (c) handover arrangements for useable assets
    (d) responsibility for future management and maintenance of useable assets; and
    (e) measures, if required, to remove fuel and chemical storage and wastewater treatment facilities in accordance with relevant legislation and standards.

22. Decommissioning of the development and rehabilitation of the site must be undertaken in accordance with the approved DRP.

23. All external lighting, including for car parking areas and buildings within the BAM facility must be designed and constructed to conform with *Australian/New Zealand Standard AS/NZS 4282:2023 – Control of Obtrusive Effects of Outdoor Lighting*. Lighting must be located, directed and shielded, and of such limited intensity, as far as reasonably practicable, that no unreasonable nuisance is caused to any person beyond the boundary of the site.

24. All vehicle car parks, driveways and vehicle entry and manoeuvring areas at or providing access to and from the BAM facility must be designed and constructed in accordance with the relevant Australian Standards and appropriately line marked.

25. All loading and unloading, parking and manoeuvring areas at or providing access to and from the BAM facility must be designed and constructed to ensure that all vehicles can safely traffic the site and enter and exit the subject land in a forward direction.

26. All stormwater design and construction must be in accordance with Australian Standards and recognised engineering best practice to ensure that stormwater does not adversely affect any adjoining property or public road.

27. All liquids or chemical substances that are to be stored at the BAM facility and that have the ability to cause environmental harm must be located within a bunded compound that has a capacity of at least 120% of the volume of the largest container or 133% if flammable, in accordance with the EPA *Bunding and Spill Management Guidelines* (2016).

28. Replacement trees shall be planted within 12 months of completion of construction at the following rates:
    - if the development relates to a regulated tree—2 trees to replace a regulated tree; or
    - if the development relates to a significant tree—3 trees to replace a significant tree.

    A site plan showing the location of the replacement trees shall be provided to Planning and Land Use Services, Department for Housing and Urban Development (spcapplications@sa.gov.au) at the time of replanting.

    Replacement trees cannot be within a species specified under regulation 3F(4)(b) of the *Planning, Development and Infrastructure (General) Regulations 2017*, and cannot be planted within 3 metres of an existing dwelling or an existing in-ground swimming pool.

    OR

    Payment of an amount calculated in accordance with the *Planning, Development and Infrastructure (Fees, Charges and Contributions) Regulations 2019* be made into the relevant Planning and Development Fund in lieu of planting 1 or more replacement trees. Payment shall be made prior to the undertaking of development on the land.

29. Unless otherwise specifically provided for in these conditions, or otherwise agreed to in writing with the Minister, all costs necessary for compliance with these conditions must be met solely by the proponent.

ADVISORY NOTES

a. The proponent is advised that all conditions must be met including monitoring, mitigation and reporting requirements as detailed in relevant management plans. Failure to comply

with a condition is a breach of the *Planning, Development and Infrastructure Act 2016* (as applicable), under which this authorisation is given.

b. An accredited professional undertaking Building Rules assessments for each stage or component must ensure that the assessment and certification for any stage or component is consistent with this provisional development authorisation and the approved Works Program (including any conditions or advisory notes that apply in relation to this provisional development authorisation).

c. Construction of each stage or component of the development may commence only after a Building Rules assessment and certification has been undertaken in relation to that stage or component and has been issued by an accredited professional undertaking Building Rules assessments, and the Minister for Planning has received a copy of the relevant certification documentation.

d. Pursuant to Regulation 103 of the *Planning, Development and Infrastructure (General) Regulations 2017*, a Certificate of Occupancy is required for all new buildings, excluding Class 10 structures. The Applicant must comply with all relevant requirements of Regulation 103 including a report from the relevant fire authority (SA Country Fire Service) per Regulation 103(D).

e. In accordance with the *National Heavy Vehicle Law (South Australia) Act 2013*, the proponent must apply to the National Heavy Vehicle regulator to obtain permits for use of Restricted Access Vehicles and/or High Productivity Vehicles on public roads, where access for such vehicles is currently not available. This might include such things as construction equipment and vehicles carrying large indivisible construction materials. This might also include access for vehicles such as Road Trains or Performance Based Standards (PBS) vehicles to transport commodities.

f. Prior to the use of any High Productivity Vehicles, the Department for Infrastructure and Transport requires that any additional road infrastructure upgrades required to facilitate this use, must be completed to the satisfaction of the relevant road authority.

g. The proponent, and all agents, employees and contractors, such as construction crew, are reminded of their obligations under the *Aboriginal Heritage Act 1988* (AH Act) that excavation of land to uncover, damage, disturbance of, or interference with, any Aboriginal site, object or ancestral remains (known and unknown) is unlawful without ministerial authorisation under sections 21 and 23 of the AH Act. Before commencing construction, the proponent should consider the amendments to the AH Act, which include increased penalties for breaches of the AH Act: see https://www.agd.sa.gov.au/aboriginal-affairs-and-reconciliation/aboriginal-heritage/changes-to-the-aboriginal-heritage-act

   The proponent, and all agents, employees and contractors, such as construction crew, are reminded of requirements under the AH Act, particularly the requirement to immediately report the discovery of human remains to SA Police and notify the Attorney-General's Department - Aboriginal Affairs and Reconciliation (AGD-AAR) if any Aboriginal sites or objects are uncovered during any on-ground activities associated with the development. Before construction, the proponent should consider AGD-AAR's '*A Guide to Aboriginal Heritage in South Australia'* see: https://www.agd.sa.gov.au/__data/assets/pdf_file/0011/908417/A-guide-to-Aboriginal-heritage-in-South-Australia.pdf.

h. The proponent is reminded of requirements under the *Native Title Act 1993* particularly those requiring consultation with appropriate representatives of any relevant Aboriginal

Groups in relation to any known sites of significance in the area and any Native Title Claims over the sea bed and subjacent lands.

i. The proponent is reminded of requirements under the *Native Vegetation Act 1991* and the *Native Vegetation Regulations 2017,* particularly that native vegetation clearance must be undertaken in accordance with a management plan that has been approved by the Native Vegetation Council that results in a significant environmental benefit on the property where the development is being undertaken, or a payment is made into the Native Vegetation Fund of an amount considered by the Native Vegetation Council to be sufficient to achieve a significant environmental benefit in the manner contemplated by section 21(6) or (6a) of the *Native Vegetation Act 1991*, prior to any clearance occurring.

j. The proponent is reminded of requirements under the *National Parks and Wildlife Act 1972*, particularly as permits are required for the 'taking of protected animals', such for the capture and relocation of animals during construction and the destruction or relocation of animals during operation.

k. The proponent is reminded of requirements under the *Landscape South Australia Act 2019*, with respect to drilling wells and the taking of groundwater within a prescribed groundwater resources area. This includes groundwater that will be extracted during construction; groundwater that will infiltrate stormwater basins / channels on an ongoing basis; and the taking of groundwater for use in operation of the facility. The proponent should contact the Water Licensing Branch of the Department for Environment and Water on DEWwaterlicensing@sa.gov.au prior to construction and/or operation to confirm the requirements.

l. The proponent is reminded that an environmental authorisation (license) may be required for components of this development. Before commencing operations, the applicant/operator should contact the Environment Protection Authority on EPALicensing@sa.gov.au for information about the licensing application process and requirements.

m. The proponent/owner/operator is reminded of their general environmental duty, as required by section 25 of the *Environment Protection Act 1993*, to take all reasonable and practicable measures to ensure that activities on the site and associated with the site (including during construction) to not pollute the environment in a way which causes or may cause environmental harm.

n. The proponent is reminded of requirements under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* not to undertake any activity that could have a significant effect on any matter of National Environmental Significance without the approval of the Commonwealth Minister for the Environment and Water.

o. For any regulated tree to be retained, their critical root zones shall be fenced and protected to prevent accidental damage and to ensure material stockpiling or vehicle movements do not impact these trees during construction works. Where appropriate additional protection measures, which comply with the *Australian Standard 4970:2009 Protection of Trees on Development Sites*, must be implemented and complied with at all times.

p. In preparing the final detailed design for all permanent components of the BAM facility and the final stormwater management plan, as required under Reserve Matter 2, the Applicant should have regard to the following matters in consultation with the City of Salisbury and relevant State Agencies:

(a) The downstream drainage capacity impacts and potential (and frequency) of flooding of St Kilda Road.
(b) Allowances made for existing external inflows, i.e. upstream flows, east of Robinson Road.
(c) Pump infrastructure requirements for emptying the retention/detention basin, including risks associated with pump failure.
(d) The detailed design of the proposed Discharge Pipeline and Suction Pipeline and associated easement that should consider the provision for the critical existing and proposed Greater Edinburgh Parks outfall channel

q. In preparing the final landscaping plan, as required under Reserve Matter 2, the Applicant shall use its best efforts to retain as much existing vegetation across the site as possible. This is particularly relevant to the proposed new stormwater channel along the eastern site boundary with Robinson Road.

r. Should the proponent wish to vary the development or any portion of it, an application to the Minister must be submitted, provided that the development application variation remains within the ambit of the Environmental Impact Statement and Assessment Report referred to in this development authorisation. If an application variation involves substantial changes to the proposal, pursuant to section 114 of the *Planning, Development and Infrastructure Act 2016* (as applicable), the proponent may be required to prepare an amended Environmental Impact Statement for public consultation. An amended Assessment Report may also be required to assess any new issues not covered by the original Assessment Report and the decision made pursuant to section 115 of the *Planning, Development and Infrastructure Act 2016* (as applicable).

s. The Minister has a specific power to require testing, monitoring and auditing under section 117 of the *Planning, Development and Infrastructure Act 2016* (as applicable).

t. In regard to Conditions 4 and 5, the CEMP and OEMP must be prepared taking into consideration, and with explicit reference to, relevant *Environment Protection Act 1993* policies and guidance documents, including but not limited to:

- the Landscape South Australia Act 2019
- the Environment Protection (Air Quality) Policy 2016
- the Environment Protection (Commercial and Industrial Noise) Policy 2023
- the Environment Protection (Water Quality) Policy 2015
- the Environment Protection (Waste to Resources) Policy 2010
- the Environment Protection (Used Packaging Materials) Policy 2012
- the Environment Protection Authority Bunding and Spill Management Guideline 2016
- Environment Protection Authority Handbooks for Pollution Avoidance
- the International Erosion Control Association Australasia 'Field Guides for Construction Site Managers and Buildings' and associated design fact sheets.
- the Environment Protection Authority guideline 'Construction environmental management plan (CEMP) 2019'
- any other relevant legislative requirements, Guidelines and Australian Standards.

Appendix A: Definitions and acronyms

ACRONYM	DEFINITION
AAR	Aboriginal Affairs and Reconciliation
ACHRD	*Adams Creek and Helps Road Drain*
ADS	Adelaide Dolphin Sanctuary
AEP	Annual Exceedance Probability
AGD	Attorney General's Department
Air EPP	*Environment Protection (Air Quality) Policy 2016*
ANZG Water Quality Guidelines	*Australian and New Zealand Guidelines for Fresh and Marine Water Quality*
BAM	Battery Anode Material
BDC	Buckland Dry Creek
BSUD	Biodiversity Sensitive Urban Design
CASA	Civil Aviation Civil Authority
CEMP	Construction Environmental Management Plan
CFD	Computational Fluid Dynamics
CFS	South Australian Country Fire Service
CHMP	Cultural Heritage Management Plan
CCRA	Climate Change Risk Assessment
COO	Certificate of Occupancy
CPTED	Crime Prevention Through Environmental Design
dB(A)	A-weighted decibels
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEM	Department for Energy and Mining
DEW	Department for Environment and Water
DIT	Department for Infrastructure and Transport
EC	Electrical Conductivity
EPBC Act	*Environment Protection, Biodiversity and Conservation Act 1999*
EPA	Environment Protection Authority
EP Act	Environment Protection Act 1993
EPP	Environment Protection Policy
EPO	Environment Protection Order
EIS	Environmental Impact Statement
FFL	Finished Floor Level
GARP	Greater Adelaide Regional Plan
GED	General Environmental Duty
GEP	Greater Edinburgh Parks
ha	hectare
HVRA	Heavy Vehicle Route Assessment
HSP	High Salinity Plant
IAQM	Institute of Air Quality Management
IBRA	Interim Biogeographic Regionalisation for Australia
IECA	International Erosion Control Association IECA
INL	Indicative Noise Limit
KYAC	Kaurna Yerta Aboriginal Corporation
ktpa	Kilo tonnes per annum
kV	Kilovolt
Landscape Act	Landscape SA Act 2019
LCA	Life Cycle Assessment
LSR	Land Supply Region
MFS	Metropolitan Fire Service
ML	Megalitres
MNES	Matters of National Environmental Significance
Mining Act	Mining Act 1971
Noise EPP	Environment Protection (Commercial and Industrial Noise) Policy 2023
NV Act	Native Vegetation Act 1991
NVC	Native Vegetation Council
OEMP	Operational Environmental Management Plan
PBS	Performance Based Standards

PM	Particular Matter
PEPR	Program for Environmental Protection and Rehabilitation
PDI Act	Planning, Development and Infrastructure Act 2016
PDI (General) Regulations	Planning, Development and Infrastructure (General) Regulations 2017
PFAS	Polyfluoroalkyl substances
PMST	Protected Matters Search Tool
PSG	Pure Spherical Graphite
RCP	Representative Concentration Pathways
RAAF	Royal Australian Air Force
SA Water	SA Water Corporation Ltd
SEA Gas	South East Australia Gas
SEB	Significant Environmental Benefit
SGF	Strategic Growth Framework
SD	Standard Deviation
SMP	Stormwater Management Plan
SEDMP	Soil and Erosion Drainage Management Plan
SIDRA	SIDRA Intersection software package
SPP	State Planning Policy
TIA	Traffic Impact Assessment
TDS	Total Dissolved Solids
TMP	Traffic Management Plan
WQG	Water Quality Guidelines
WSUD	Water Sensitive Urban Design
WWTP	Waste Water Treatment Plant

Appendix B: Assessment guidelines

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
Amenity and Environmental Quality (AEQ)				
AEQ1	Air Quality	To ensure the development does not have unacceptable adverse air quality impacts on the surrounding receiving environment, in particular sensitive receivers in proximity to polluting development.	▪ Provide an air quality impact assessment prepared by an appropriately qualified specialist for all potential sources of dust / particles and gaseous pollutants associated with the construction and ongoing operation of the proposed development, to identify any known or potential human health and amenity effects of air emissions (including point source and diffuse sources) on the residential population and local businesses and describe how these would be mitigated, minimised, managed and monitored. ▪ The impact assessment must include modelling undertaken in accordance with the Environment Protection (Air Quality) Policy 2016 and the EPA's Ambient Air Quality Assessment 2016 guidance document. Techniques used to obtain the predictions should be referenced and key assumptions and data sets explained. ▪ Impact assessment must outline the impacts of dust / particles and gaseous pollutants on existing food production / horticultural / agricultural activities, commercial operations and any other identified nearby sensitive receivers in the vicinity of the proposed development, including cumulative impacts.	DETAILED
AEQ2	Noise	To ensure the development does not have unacceptable adverse noise impacts on the surrounding environment, in particular sensitive receivers in proximity to noise sources.	▪ Provide an impact assessment of noise associated with the construction and ongoing operation of the proposed development, prepared in accordance with the Environment Protection (Noise) Policy 2007 by a suitably experienced, professional acoustic engineering consultant. ▪ Describe and design strategies to mitigate noise impacts and how environmental management objectives for noise would be achieved.	STANDARD
AEQ3	Transport and Traffic	To ensure impacts to the safety and efficiency of transport modes and the broader transport and traffic system and infrastructure are avoided or mitigated.	▪ A Transport and Access Impact Assessment should be prepared by a suitably qualified traffic engineer, evaluating current and proposed traffic generation and access arrangements including the effect on the network (including arterial roads) and car parking, and vehicle interface with the local road network. The assessment must address: - Implications for the entire supply chain. - Implications for road safety, particularly with respect to existing road users in the locality. - Impacts over the construction, operation, maintenance and decommissioning phases. - Any upgrades or modifications to transport infrastructure required to support the development or mitigate its impacts. ▪ The assessment should determine the transport system asset improvements, asset management / maintenance requirements, and operational management requirements to accommodate the increase in movements and/or vehicle sizes/mass for affected transport assets and services across all modes for the proposal's construction / implementation and operational phases.	STANDARD
AEQ4	Visual Amenity	To ensure adverse effects on visual amenity, landscape and open space values are avoided or minimised and opportunities to enhance these values are maximised.	▪ Provide a description of the landscape character, features and values of the development area and its environs. ▪ Describe the effects of the development on visual amenity and landscape quality for residents and visitors for both near and distant views, from important viewing points. This should include construction, operations and closure / rehabilitation aspects of the proposal and address light spill from the development. ▪ Provide a visual analysis of the development from key viewpoints, including photomontages or perspectives showing the proposed and likely future development. ▪ Describe the rationale for the major design elements of the proposed development and measures to mitigate their visual impact.	DETAILED

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			▪ Describe how the design and construction of all buildings and structures will be controlled to ensure cohesive visual amenity, including details of construction materials, colours and landscaping for all buildings and structures. ▪ Describe the use of screening / amenity / landscape plantings and potential broad scale revegetation, including the opportunities for the use of locally endemic species.	
Biological Environment (BE)				
BE1	Biosecurity	To ensure that construction and operation of the development avoids the introduction or spread of biosecurity threats including pest or nuisance animal and plant species (including marine pests), diseases and pathogens.	▪ Identify the potential for the introduction or dispersal of new, and/or increased distribution and abundance of existing, exotic, pest or nuisance plant and animal species, diseases and pathogens, and the associated implications for native species, habitat, agricultural land and other environmental values. ▪ Propose measures to remove, control and limit the introduction or spread of exotic, pest or nuisance plants and animals, diseases and pathogens on the development site and any areas under the proponent's control (e.g. decontamination of vehicles, mobile plant, equipment and materials), having regard to the effectiveness of such mitigation measures in the past. This includes declared plants and animals under relevant State and Commonwealth legislation.	STANDARD
BE2	Marine Flora and Fauna	To ensure that the nature and scale of the development avoids or minimises adverse effects on biodiversity, threatened and protected marine flora and fauna species, their ecological communities and habitat	▪ Describe the development activities with the potential to impact on threatened and protected marine species and habitats, and listed threatened, protected and migratory fauna species, and provide an assessment of how those impacts will be avoided or mitigated. Address discharge to marine waters. ▪ The assessment of impacts to threatened and protected species and habitat will consider: - The potential impacts of water discharge on the Bolivar channel, other users of the channel and the receiving environment. - Impact on conservation parks, marine reserves, the Adelaide International Bird Sanctuary and the Adelaide Dolphin Sanctuary. - Cumulative impacts, noting that the receiving environment is already a stressed ecosystem. ▪ If potential impacts on MNES require approval under the EPBC Act, an assessment of impacts on the affected MNES must be prepared by an appropriately qualified specialist. ▪ Prepare a Discharge Criteria Management Plan, prepared by a suitably qualified expert, which details the existing environment and identifies any marine features or habitats. The plan will focus on the management measures and strategies adopted to ensure water discharge to the Bolivar Channel meets compliance criteria.	DETAILED
BE3	Terrestrial Flora and Fauna	To ensure that the nature and scale of the development avoids or minimises adverse effects on biodiversity, threatened and protected terrestrial and aquatic flora and fauna species, their ecological communities and habitat.	▪ Describe the development activities with the potential to impact on native vegetation and listed threatened flora species and ecological communities and provide an assessment of how those impacts will be avoided, mitigated or offset. ▪ The assessment of impacts to terrestrial flora and fauna will consider impact beyond the site, with respect to dust and noise. ▪ If potential impacts on MNES require approval under the EPBC Act, an assessment of impacts on the affected MNES must be prepared by an appropriately qualified specialist. ▪ Prepare a Native Vegetation Clearance Data Report prepared by an Accredited Consultant approved by the Native Vegetation Council. The assessment should undertake a survey of the vegetation and fauna (including EPBC Act Listed threatened species and communities), detail compliance with the impact mitigation hierarchy and describe how the significant environmental benefit would be achieved. ▪ Outline measures to mitigate effects on native vegetation by addressing the mitigation hierarchy, including any compensatory activities in already degraded areas and use of existing	STANDARD

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			easements. Refer to guidelines produced by the Native Vegetation Council and outline the likely effectiveness of any mitigation measures adopted during both construction and maintenance.	
Climate Change and Resource Efficiency (CCRE)				
CCRE1	Climate Change Adaptation	To ensure that development and design are climate resilient and risks from climate change are reduced.	▪ Undertake a climate risk assessment of the relevant potential impacts on the development of projected climate change over the lifetime of the development (e.g. increasing temperatures, extreme heat and heat waves, decline in rainfall, increased drought, extreme rainfall events, harsher fire weather, and sea level rise). Include proposed adaptive management strategies. ▪ For developments with a lifetime to 2050 or before, the risk assessment should be based on climate projections from the RCP 8.5 scenario (high greenhouse gas emissions scenario). For developments with a lifetime beyond 2050, the risk assessment should be based on climate projections under both the RCP 8.5 and RCP 4.5 scenario (moderate greenhouse gas emissions scenario). ▪ Examine the potential cumulative effects of climate change from a risk management perspective (including adaptive management strategies). ▪ Outline the potential effects of, and identify strategies to protect against, extreme weather events, including a 1% AEP storm event and sea level rise as per Coast Protection Board policy and allowances from a risk management perspective, including adaptive management strategies. Include mitigation strategies should the structure not withstand such an event.	STANDARD
CCRE2	Greenhouse Gas Emissions	To ensure the development minimises greenhouse gas emissions associated with its construction and operation so as to meet South Australia's goal to reduce greenhouse gas emissions by more than 50% below 2005 levels by 2030 and achieve net zero emissions by 2050.	▪ Undertake a greenhouse gas assessment that: - identifies all sources GHG emissions that would be generated - provides the estimated annual GHG emissions from each source - provides an estimate of yearly net GHG emissions and emissions intensity, including an uncertainty assessment - provide an inventory of projected annual Scope 1 and Scope 2 emissions for each GHG over the life of the development. Provide an estimate of annual Scope 3 GHG emissions for the life of the development. ▪ Describe how the project will contribute to South Australia's emissions targets i.e. 100% renewable energy target by 2030, 50% emissions reduction below 2005 level by 2030 and zero net emissions by 2050. ▪ Describe measures that have been incorporated in the design to minimise, reduce and ameliorate greenhouse gas emissions, particularly the use of alternative or renewable energy sources and off-sets, energy efficiency and energy conservation measures, and if it incorporates integrated passive design principles and climate-responsive techniques and features and identify barriers to implementation.	DETAILED
CCRE3	Sustainable Use of Resources	To ensure opportunities to procure and use resources efficiently and sustainably are maximised, supporting South Australia's transition to the circular economy	▪ Describe the sustainability objectives of the development and the approach and methodology used to achieve these objectives. ▪ Describe design guidelines for aspects of the development (including transport options) that would be adopted to ensure sustainability. ▪ Describe how sustainability of the development will be audited. ▪ Identify ways in which power use can be minimised or supplemented, especially using alternative energy sources, energy efficient measures and energy conservation. ▪ Identify ways in which water use can be minimised or supplemented, especially using sustainable water sources, water efficiency measures, and recycling. ▪ Describe the proposed approach to matters such as design, construction methods, materials and equipment to reduce energy use (including vehicle emissions), disposal of waste, water use efficiency during construction and operation over the life of the project.	STANDARD

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			▪ Detail the infrastructure and service requirements for the development including power, water and waste management; identify required infrastructure upgrades or new installations; and consider access and easement requirements. ▪ Assess the impact of resource use on existing users including food production / horticultural / agricultural activities, and commercial operations.	
CCRE4	Waste Management	To ensure that waste generated, transported or received as part of the development is managed in accordance with the waste hierarchy and in a manner that protects all environmental values.	▪ Identify, quantify and classify all the expected waste streams to be generated from the proposed project activities during the construction, operation, rehabilitation and decommissioning phases of the development. ▪ Assess and describe the proposed management measures against the waste management hierarchy, namely: avoid and reduce waste generation, recycle, reuse, recover, treatment and disposal. This includes the generation, storage and transport of waste. ▪ Prepare a waste management and minimisation strategy (for demolition, construction and operation where relevant), detailing the sources of waste, the location of waste storage (including separation of waste streams, such as recyclables, hard waste and e-waste) and disposal facilities on the site or development -related sites (e.g. laydowns) and provide details of how these facilities will be serviced. ▪ Identify if any waste outputs require further treatment before waste can be disposed of (e.g. low level contaminated waste disposal) and describe any management measures.	STANDARD
Local, Regional and State Economies (LRSE)				
LRSE1	Local, regional and state economies	To ensure adverse economic impacts arising from construction and operation of the development are avoided or mitigated, and net economic benefits to the region and state are created	▪ Provide a full economic analysis of the development including the long-term economic viability and efficiency of the operational aspects of the development, incorporating a regional impact analysis (RIA) and cost-benefit (risk return) analysis (CBA). ▪ The RIA should focus on the direct impact of the project on the local, regional and state economies. The identification of economic impacts should include the prediction of spending on goods, services, taxes etc. during construction and operation of the project and the distribution of income generated by the project. ▪ The CBA should assess the impact of the project on the economic welfare of the economies of interest by estimating a dollar value for as many economic, social and environmental benefits and costs as can reasonably be predicted.	DETAILED
Hazards and Risks (HR)				
HR0	Hazards – General	To ensure the risk of, and adverse impacts from natural and man-made hazards from the development are avoided, minimised or mitigated to protect people, property and the environment.	▪ Undertake a risk assessment which describes the potential risks to people and property that may be associated with the proposed project for all components of the development. ▪ The assessment will address the specific requirements listed in HR 1, 2, 3, 4 below.	STANDARD
HR1	Bushfire / Fire	As above	▪ Evaluate and identify any bushfire risks on the site, in particular how risks from bushfire will be minimised with regards to the potential for uncontrolled bushfire events, high levels and exposure to ember attack, impact from burning debris, radiant heat, likelihood and direct exposure to flames from a fire front. ▪ Evaluate the risk of fire explosion the site and any potential impacts on human health and to the environment. ▪ Describe measures that would be taken to minimise the risks of these events during all stages of development.	STANDARD
HR2	Flooding	As above	▪ Assess the vulnerability of the area to flooding. Describe the history of flooding onsite and in proximity to the development site.	DETAILED

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			▪ Identify the potential impacts on people, property, infrastructure and the environment from potential flood risk. ▪ Identify the wider impacts of stormwater and flooding from existing and planned upstream growth areas of the 30-Year Plan for Greater Adelaide. ▪ Include modelling that considers future increased rain intensity scenarios as a result of climate change and future land use change scenarios in the area that may also increase runoff. ▪ Describe measures that would be taken to minimise the risks of these events during all stages of development.	
HR3	Site and Groundwater Contamination	As above	▪ Detail any known or potential sources of contaminated soil and/or groundwater that could be impacted by the development. ▪ Identify the potential impacts on people, property, infrastructure and the environment from potential soil and/or groundwater contamination. ▪ Describe measures that would be taken to minimise the risks of these events during all stages of development.	DETAILED
HR4	Dangerous Substances	As above	▪ Identify all dangerous and hazardous substances and any explosives to be used, transported, stored, processed or produced and the rate of usage. ▪ Describe the use, handling and disposal of these materials during construction and operation, with reference to storage (including any associated fire protection facilities). ▪ Describe how hazardous contaminants and waste substances produced by the development will be treated or contained until their disposal at an approved facility. ▪ Evaluate the potential effects of any accidents involving dangerous substances on the environment and public health in the vicinity of the site. ▪ Describe measures that would be taken to minimise the risks of these events during all stages of development.	DETAILED
Land Use and Site Conditions (LUSC)				
LUSC1	Land tenure, protected areas and land use	To ensure that the impacts of development on environmental, social and economic values of adjoining land uses, land tenures and protected areas are avoided or minimised.	▪ Provide details of the development (activities or structures) with the potential to impact on existing land uses, future (envisaged) land uses, land tenures and protected areas that overlap, adjoin or are in the region of the development. ▪ Provide an assessment of local impacts to adjoining land uses and describe any measures to mitigate these impacts. ▪ Assessment to consider City of Salisbury's *Strategic Growth Framework – Waterloo Corner and Bolivar Corridor*.	STANDARD
Physical Environment (PE)				
PE1.1	Coastal	To ensure the natural features and processes of coastal systems are protected so that the environmental values of the coast are maintained.	<u>Coastal Systems</u> ▪ Describe existing coastal environmental values including estuarine, littoral and marine environmental values that could be impacted by construction or operation of the development. ▪ Identify the flooding and erosion risks to the site (including flooding and erosion exacerbated by sea level rise and extreme weather events) and measures to reduce the risks. ▪ Identify any potential for Coastal Acid Sulfate Soils (CASS) to be encountered on the site and how this might be mitigated (refer to the Coast Protection Board policy on CASS). ▪ Assess the potential impacts to the coastal system and existing uses from the development and propose mitigation measures to avoid or minimise those impacts during construction and operation. ▪ If MNES have been identified, undertake an assessment of potential impacts relevant to the MNES	STANDARD
PE1.2	Marine	To ensure the quality and productivity of marine waters, sediment and biota are	<u>Marine Waters</u>	DETAILED

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
		protected so that environmental values are maintained.	▪ Assess the potential impacts of the proposed project's activities in marine waters including any potential impacts on marine parks, commercial or recreational fisheries, effects of the development on nursery habitat (e.g. seagrass beds, reefs, or mangroves) and target species (such as prawns and fish). ▪ The assessment of impacts will: - Consider spills of fuels and chemicals from the development. - Consider run-off / discharge from the development. - Propose mitigation measures to avoid or minimise those impacts during construction and operation. - Consider the potential impacts of water discharge on the Bolivar channel, other users of the channel and the receiving environment. ▪ If MNES have been identified, undertake an assessment of potential impacts relevant to the MNES	
PE2	Soils, Landform and Geology	To ensure development is undertaken in a manner that protects the productivity and quality land including, soil, subsoil and landform and avoids impact to other environmental values.	▪ Provide a detailed description of the soils, landform and geology in the area of the development including the potential for water and wind erosion, soil salinity, acid sulfate soils and soil contamination. ▪ Describe the development activities with potential to impact on soils and ground stability. ▪ Identify the risks of contamination of land from spills of fuel (or other toxic substances). Describe measures for the prevention and containment of spills, describe the contingency plans to be implemented in the event of spills, and comment on their expected effectiveness. ▪ If acid sulfate soils would be disturbed or unexpectedly encountered during construction, describe measures to avoid oxidation of the sulfides, treat and neutralise the acid if it forms and manage any excavated material. ▪ Ensure that appropriate soil contamination investigations have been undertaken and that soil generated from earthworks is managed in accordance with EPA guidelines, including for re-use on site or removal of material off-site for re-use, treatment or disposal.	STANDARD
PE3	Surface Water and Groundwater	To ensure the quality of groundwater and surface water is protected so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.	<u>Surface Water</u> ▪ Describe existing surface water conditions upstream and downstream of the site (including seasonal variations and variations with flow). Water quality, any existing site contamination and potential sources of surface water pollution should be addressed. ▪ Describe the potential for pollution (e.g. sediment plumes, spills to land and water, discharge of stormwater and wastewater, dewatering) of water bodies, watercourses, drainage channels, wetlands and floodplains during construction and operation. ▪ Describe potential alteration to surface water flows as a result of the development. ▪ Impact assessment to consider impacts to downstream water users including food production / horticultural / agricultural land uses. ▪ Describe the proposed mitigation measures to protect environmental values and downstream water users. Provide details of proposed wastewater and stormwater management, as well as any water sensitive design features as part of the development. ▪ Describe the options for supplying water to the development including potable water (if relevant) and temporary demands during the construction period. Describe on-site storage and treatment requirements for wastewater from accommodation and/or offices and workshops. ▪ Describe measures for storage and management of stockpiled topsoil and subsoils during the construction phase. <u>Ground Water</u>	STANDARD

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			▪ Describe the known groundwater related environmental conditions including quality and significance of groundwater in the area of the development and any surrounding area potentially affected by the proposed development's activities. Groundwater testing is required. ▪ Describe the potential changes to hydrology (including water quality), as a result of the proposal, and the implications of these changes. Consider impacts to existing groundwater wells and aquifers. ▪ Describe stormwater and wastewater management and the potential impact on groundwater resources with regard to fuel and chemicals used in construction and / or operation of the development. Describe measures proposed for management of stormwater and wastewater during construction and operation to avoid impacts to groundwater.	
Design (DQ)				
DQ1	Urban Design and Place-Making	To ensure development promotes the value and quality of good design across South Australia's built environments, and that contributes to healthy neighbourhoods, supports innovation and the integration of smart and sustainable technologies.	▪ Demonstrate the proposal's servicing strategy including the location of any required services infrastructure and the proposed material/screening treatment of any visible services. ▪ Describe the proposal's Environmentally Sustainable Design (ESD) strategy and targets. ▪ Describe how the proposal considers Crime Prevention Through Environmental Design (CPTED) principles. ▪ Provide visualisations (including long view perspectives) to demonstrate the proposal in context. ▪ Provide a full set of documentation including site plan, plans, elevations (including streetscape elevations where relevant), sections/site sections and shadow diagrams.	STANDARD
Social and Community (SC)				
SC1	Aboriginal Cultural Heritage	Avoid adverse effects on Aboriginal cultural heritage values and maximise opportunities to appropriately complement and preserve these values.	▪ Describe how the proposed location and /or design avoids and / or mitigates potential impacts and risks to known and unknown Aboriginal heritage. Where impacts to Aboriginal heritage cannot be avoided, provide detailed justification for this. ▪ Undertake an on-ground cultural heritage survey undertaken by qualified heritage experts (ideally an anthropologist and an archaeologist) in consultation with the RARB/Traditional Owner representatives. This survey should cover the entirety of the project area. ▪ Preparation of a subsequent Aboriginal heritage report which should: - be prepared by a suitably qualified heritage expert - clearly outline the results of the heritage survey, including the location of Aboriginal heritage within the project area, as well as any areas where unrecorded sub-surface Aboriginal heritage is likely to occur - consider the results of the AAR central archives search results, as well as any other searches of local archives or other relevant databases - consider the views of the RARB, or where no RARB is appointed, Traditional Owner representatives. Note that any sensitive or restricted information relating to Aboriginal heritage must remain confidential, and should not be publicly disclosed - consider both the archaeological and anthropological/ethnographic values of the area, based on relevant literature, previous heritage assessments etc. - consider the project's potential impacts to known and unknown Aboriginal heritage - provide recommendations for the management of Aboriginal heritage during project works, in light of the above ▪ Preparation of a Cultural Heritage Management Plan (CHMP) by an appropriately qualified heritage expert in consultation with the RARB/Traditional Owner representatives that: - addresses the potential for the project to impact known and unknown Aboriginal heritage - outlines measures agreed with the RARB/Traditional Owner representatives to be taken in order to manage and protect Aboriginal cultural heritage wherever possible	DETAILED

Library Ref	Environmental Attribute	Objective	Method of Investigation	Level of Assessment
			- establishes processes for the management and protection of Aboriginal heritage before, during and after the proposed development, which may include: o establishment of avoidance or 'no-go' zones to avoid known heritage or areas of identified high risk o establishment of bunting or fencing around known Aboriginal heritage o conditional access areas (e.g. limits on heavy machinery in particular areas) o the engagement of Aboriginal heritage monitors to observe ground disturbing works in high risk areas - noting that the location and details about the heritage must not be made public. - includes an Aboriginal heritage discovery protocol, outlining the steps that will be taken in the event of an Aboriginal heritage discovery	
SC2	Community Wellbeing / Social Impact Assessment	To ensure adverse effects on the community near the development are avoided or minimised including with regard to community cohesion, access to services and facilities and health impacts and capitalise on opportunities to enhance benefits for communities.	▪ Provide a social impact assessment (SIA) of the development which addresses: - the existing social environment of communities potentially impacted by the project - the potential social impacts (both positive and negative) of the project, and how they will be managed and monitored - workforce management, housing and accommodation - local business and industry procurement - health and community wellbeing	STANDARD
SC3	Heritage Places and Areas	To ensure that the nature and scale of the development does not compromise the recognised heritage significance of a heritage place or heritage area.	Provide details of the location, nature and known potential heritage values of all historic heritage potentially affected by the development particularly State and Commonwealth-listed places and areas.	STANDARD

Appendix C: Assessment Against Planning & Design Code

Zones

Rural Horticulture Zone			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, 2, PO 1.1, PO 4.1, PO 4.2	Intensive agriculture in the form of horticulture and associated value-adding enterprises and activities.	☐YES ☐NO ☒PARTIAL	The proposed development is not an agriculture or horticulture land use, nor it is related to these sectors. 'Industry' is an envisaged form of development in the zone, however the policies encourage industry that offers diversification and value adding opportunities for local primary production activities.
DO 3	Manage interface conflict between horticulture and other land uses.	☒YES ☐NO ☐PARTIAL	The development is not expected to prejudice existing or future horticultural activities in the zone. The EIS demonstrates how interface impacts of noise, light spill, emissions and traffic movements will be managed.
PO 2.1	Development is provided with suitable vehicle access.	☒YES ☐NO ☐PARTIAL	The development has access from a local road. An upgrade of Robinson Road is required prior to the commencement of the development, to cater for the anticipated volume and type of heavy vehicle traffic during operation of the BAM facility.
PO 2.2	Buildings located on flat land to avoid cut and fill and visual impacts.	☐YES ☐NO ☒PARTIAL	The subject site is relatively flat land however bulk filling is proposed to raise the FFL 300mm above the 1%AEP flood level. Bulk excavation is also required for stormwater infrastructure. The proposed BAM facility would be a prominent structure in the locality, even without the proposed cut and fill.
PO 4.3	Industry is designed, sited and scaled to maintain rural function and character.	☐YES ☐NO ☒PARTIAL	The BAM facility is markedly greater in height, bulk and scale than existing development on adjacent land parcels. Within the broader locality, the development is not dissimilar to existing development within a 5-6km radius of the subject site including the Torrens Island Power Station and silos.
PO 11.1	Large buildings designed and sited to reduce impacts on scenic and rural vistas.	☐YES ☐NO ☒PARTIAL	The development will be visible from tourism, recreational and environmental destinations, predominantly within / around the St Kilda township. The visual impact is reduced through the separation distance, topography, existing development and vegetation. Overall, the development is not expected to unreasonably impact on the scenic or rural values from these key viewpoints.
PO 16.1	Development compatible with relevant Concept Plans.	☒YES ☐NO ☐PARTIAL	The subject site is within Concept Plan 81 – Edinburgh Defence Airfield Lighting Constraints. The site is approx. 4.3km west-south-west from the Edinburgh RAAF base. It is outside of the Lighting Control Zone shown in the concept plan, but within the 6km Controlled Light Installation Area. All lighting associated with the development will be required to meet relevant Defence requirements and Australian Standards.

Overlays

Building Near Airfields			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1, PO 1.2	Maintain the operational and safety requirements of certified commercial and military airfields.	☒YES ☐NO ☐PARTIAL	Refer to Zone PO 16.1. All lighting associated with the development will be required to meet relevant Defence requirements and Australian Standards, and is not expected to negatively impact on operations of the Edinburgh RAAF base. The development is not expected to attract or result in the congregation of wildlife.
PO 1.3	Buildings adequately separated from runways.	☒YES ☐NO ☐PARTIAL	The development is approximately 4.3km from the nearest RAAF runoff and is not expected to interface with take-off and landing facilities.

Defence Aviation Area – All Structures Over 45 metres			
Policy	**Objective**	**Consistency**	**Comment**

DO 1, PO 1.1	Building height does not pose a hazard to operations of Defence Aviation Areas.	☒YES ☐NO ☐PARTIAL	The subject site is within the 45m maximum height zone. No built form element of the project is expected to exceed 45m in height. The use of cranes during construction will seek the required permits.
PO 1.2	Exhaust stacks are designed and sited to minimise plume impacts on aircraft movements.	☒YES ☐NO ☐PARTIAL	The development includes a number of stacks, approximately 10m tall. The exhaust plumes are not expected to impact aviation activities due to their location and separation from the RAAF base.

Gas and Liquid Petroleum Pipelines			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1, PO 1.2	Management of risk to public safety, the environment and security of energy supply from the encroachment of development on strategic pipelines.	☐YES ☐NO ☒PARTIAL	This overlay impacts the southern most tip of the subject site, and the intake / outfall pipes connecting to the Bolivar outfall channel. The proposed development does not comprise a sensitive land use (ie accommodation, education, emergency services) but does result in large congregations of people during both construction and operational phases. The majority of activity will be occurring outside of the overlay. The application was referred to the Department for Energy and Mining, with no comment received in relation to the overlay.
PO 1.3	Development involving hazardous materials located and designed to avoid escalation of impacts from pipeline failure.	☐YES ☐NO ☒PARTIAL	The proposed development will utilise a number of hazardous materials, however the majority of storage / handling / use of these materials will be outside of the overlay, and in accordance with EPA requirements.

Hazards (Flooding)			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 2.1, PO 3.1, PO 3.2, PO 3.3, PO 3.4, PO 3.5	Impacts on people, property, infrastructure and environmental from high risk are minimised.	☐YES ☐NO ☒PARTIAL	The development site is not subject to flooding from sea level risk, however the area is subject to inundation due to upstream surface water flows, local topography and a lack of stormwater infrastructure. The proposed development includes a stormwater strategy to prevent flooding of the BAM facility and manage surface waters in the locality.
PO 4.1	Storage of hazardous materials designed to prevent spills or leaks during a 1% AEP flood event.	☒YES ☐NO ☐PARTIAL	The FLL of the facility will be built up to 300m above the 1%AEP flood level, to ensure hazardous materials storage is safe from inundation. Storage of hazardous materials will comply with EPA requirements including containment, roofing, bunding and security.
PO 4.2	Development does not create or aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood.	☒YES ☐NO ☐PARTIAL	During construction, a SEDMP will be prepared to prevent soil and water leaving the site. During operation, surface waters and roof-off will be captured, treated as required, and either re-used, discharged as waste water, or discharged to the stormwater system. Landscaping around the site perimeters will assist in stabilising soils.
PO 5.1, PO 5.2	The extent of excavation and filling does not cause unacceptable impact to adjoining properties by diversion of flood waters, or an increase in velocity or flood level.	☐YES ☐NO ☒PARTIAL	During operation, the proposed stormwater channels and detention basin divert stormwater flows around the site. Overflow will discharge to areas north and south of the development site (within SA Water land), until Council's stormwater infrastructure is upgraded. The proposed channels and detention basin will be engineered to minimise velocity of water flows. The impact is understood to be acceptable to SA Water (as land owner) noting that longer term upgrades to Council's stormwater infrastructure are planned. Earthworks will also be required to create level areas for driveways, parking areas and vehicle access. The earthworks will be graded to account for stormwater flows.
PO 6.1, PO 6.2	Development does not occur on land from which evacuation is not possible and emergency service vehicles cannot access during a 1%AEP flood event.	☒YES ☐NO ☐PARTIAL	The proposed new eastern stormwater channel will prevent flooding over Robinson Road during a 1% AEP flood level, thereby maintaining vehicular and pedestrian access to the site.

Hazards (Flooding – General)			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 2.1	Impacts on people, property, infrastructure and the environment from general flood risk are minimised through the appropriate siting and design of development.	☐YES ☐NO ☒PARTIAL	Refer to Hazards (Flooding).
PO 3.1	Storage of hazardous materials designed to prevent spills or leaks during a 1% AEP flood event.	☒YES ☐NO ☐PARTIAL	Refer to Hazards (Flooding).

Limited Land Division: Not Applicable

Major Urban Transport Routes			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, DO 2, PO 1.1	Safe and efficient operation of Major Urban Transport Routes for all road users.	☒YES ☐NO ☐PARTIAL	All vehicular access is via Robinson Road (a local Council road) which is supported by the Commissioner of Highways. The Robinson Road pavement and verges are proposed to be upgraded prior to the commencement of operation, to accommodate the volume and type of traffic generated by the development.
PO 2.1	Sufficient accessible on-site queuing adjacent to access points.	☒YES ☐NO ☐PARTIAL	No queuing impacts are expected to State Maintained roads.
PO 4.1, 10.1	New access points are spaced apart from any existing access point or public road junction to manage impediments to traffic flow and maintain safe and efficient operating conditions on the road.	☒YES ☐NO ☐PARTIAL	The proposed entry/access point to the BAM facility on Robinson Road is approximately 150m south of the intersection with Waterloo Corner Road, and offset from existing driveways on Robinson Road. The existing intersections on the heavy vehicle route have sufficient geometry for the expected traffic type and volumes generated by the development.
PO 5.1, 10.1	Access points are located and designed to accommodate sight lines that enable drivers and pedestrians to navigate potential conflict points with roads in a controlled and safe manner.	☒YES ☐NO ☐PARTIAL	The proposed new vehicle crossover on Robinson Road, and the Robinson Road / Waterloo Corner Road intersection both have good sight lines.
PO 6.1	Access points constructed to minimise mud or debris drag out.	☒YES ☐NO ☐PARTIAL	All internal roadways and manoeuvring areas will be sealed, as will the vehicle crossover to Robinson Road. Pavements will be all-weather and suitable for heavy vehicles. During construction, a CEMP should include mitigation measures to manage drag out of soils.
PO 7.1	Access points designed to minimise negative impact on roadside drainage of water.	☒YES ☐NO ☐PARTIAL	The development proposes a new eastern stormwater channel which will capture road run-off.

Native Vegetation			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1	Development avoids, or where it cannot be practically avoided,	☐YES ☐NO ☒PARTIAL	The development requires the clearance of 26.72ha of native vegetation.

	minimises the clearance of native vegetation.		
PO 1.2	Native vegetation clearance in association with development avoids significant corridors, protected species, or a wetland environment.	☐YES ☐NO ☒PARTIAL	The site selection for the BAM facility has avoided native vegetation with high conservation value. The site has been historically cleared for primary production, with vegetation on the site either amenity plantings or re-emergent samphire shrubland. The site does not comprise preferred habitat for protected fauna species. Nonetheless, some habitat value was identified in the flora and fauna assessments. The re-emergent samphire community functions as a quasi-wetland (due to periodic inundation). The planted amenity trees, and existing vegetation along Robinson Road were observed to support bird species.
PO 1.4	Development restores and enhances biodiversity and habitat values through revegetation using locally indigenous plant species.	☐YES ☐NO ☒PARTIAL	The proposal includes landscaping around the site perimeter as part of the stormwater strategy. The existing vegetation along the eastern boundary with Robinson Road will be retained to the greatest extent practicable. A Significant Environmental Benefit will be made (either on-ground or monetary) for the cleared vegetation under the requirements of the Native Vegetation Act 1991.

Prescribed Wells Area			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1	Sustainable water use in prescribed wells areas.	☒YES ☐NO ☐PARTIAL	The proposed development intends to utilise the existing wastewater in the SA Bolivar outfall channel. The EIS demonstrates that this is a sustainable source, which is expected to be available over the life of the project. Any interactions with groundwater during activities will be managed in accordance with EPA de-watering guidelines, and licences will be sought under the Landscape SA Act 2019 as required.

Regulated and Significant Trees			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1, PO 1.2	Conservation of regulated and significant trees to provide aesthetic and environmental benefits and mitigate tree loss.	☐YES ☒NO ☐PARTIAL	The development proposes the removal of 8 regulated or 10 significant trees to make way for the BAM facility. The majority of impacted trees are located on the eastern perimeter of the site and conflict with the new stormwater channel. The removal of these trees will remove natural screening, and habitat for birds.
PO 1.4	A tree-damaging activity accommodates the reasonable development of land in accordance with the relevant zone or subzone where such development might not otherwise be possible	☐YES ☐NO ☒PARTIAL	The final design will seek to retain as many regulated or significant trees as possible. Removal of the trees is required to facilitate development of the BAM facility.
PO 2.1	Regulated and significant trees, are not unduly compromised by excavation and / or filling of land, or sealing of surfaces.	☐YES ☐NO ☒PARTIAL	Any retained trees will require protection during construction, in accordance with relevant Australian Standards.

Traffic Generating Development			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, DO 1, PO 1.1	Development designed to minimise its potential impact on the safety, efficiency and functional	☒YES ☐NO ☐PARTIAL	Traffic to/from the BAM facility will utilise Port Wakefield Road and the North-South Motorway. There is no direct access from the development to the State Maintained road network – all access is from the local road network (Robinson Road).

	performance of the State Maintained Road network.		The EIS demonstrates that the State Maintained road network can accommodate the traffic generated by the development, with no statistically significant increase in traffic volumes.
PO 1.2	Access points sited and designed to accommodate the type and volume of traffic likely to be generated by development.	☒YES ☐NO ☐PARTIAL	Refer to Major Urban Transport Routes.
PO 1.3	Sufficient accessible on-site queuing provided to meet the needs of the development so that queues do not impact on the State Maintained Road network.	☒YES ☐NO ☐PARTIAL	Refer to Major Urban Transport Routes.

Water Resources			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, DO 2,	Protection of the quality of surface waters.	☒YES ☐NO ☐PARTIAL	This overlay applies to the man-made water channels within the adjacent SA Water Bolivar WWTP. The stormwater strategy for the development will separate, treat, reuse and dispose surface waters to manage water quality and flows. Treated wastewater and process water from the BAM facility will be treated onsite and transferred to the Bolivar outfall channel to be discharged into the marine environment. The treated wastewater is expected to be of comparable volume and quality to existing water within the outfall channel. This discharge will be licenced by EPA.

General Development Policies

Clearance from Overhead Powerlines			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.1	Protection of human health and safety when undertaking development in the vicinity of overhead transmission powerlines.	☒YES ☐NO ☐PARTIAL	The nearest powerlines are located along Robinson Road. The construction and operation of the development will maintain appropriate separation distances from these powerlines.

Design			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.4, PO 1.5	Design is contextual, durable, inclusive and sustainable.	☐YES ☐NO ☒PARTIAL	The BAM facility is a large-scale industrial development, and due to the height, bulk and scale of the built form, it will be visually dominant in the immediate locality. The site layout and building design is driven by operational requirements, with regard to the management of interface impacts. The buildings are set back from allotment boundaries, and green buffers / landscaping will be established around the project perimeters. The final finishes of the industrial buildings, fences and ancillary structures will have regard to colour, materiality, glare and reflection to mitigate visual impacts as far as practicable.
PO 2.1, 2.2, 2.3, 2.4, 2.5	Development maximises opportunities for passive surveillance of the public realm.	☐YES ☐NO ☒PARTIAL	There is no established public realm infrastructure on Robinson Road, and the BAM facility will not be a public facing facility. The facility will be secured with fencing / gates and will be lit 24/7. The facility will be designed for employee safety, with staff vehicle parking areas contained entirely within the secure facility. The 24/7 presence of the facility may discourage anti-social behaviour in the locality.

PO 3.1, PO 3.2	Incorporation of soft landscaping and tree planting.	☒YES ☐NO ☐PARTIAL	Landscaping, incorporating the planting of juvenile tree species, is proposed for the site perimeters. A final landscaping plan will be developed to confirm species, planting methodology and establishment.
PO 4.1, PO 4.2, PO 4.3	Buildings are sited and designed to incorporate climate-responsive techniques and features.	☐YES ☒NO ☐PARTIAL	The buildings are designed for function. For example, with some elements require negative pressure to control dust emissions.
PO 5.1, PO 31.1, PO 31.2, 32.1	Water Sensitive Urban Design - Development is sited and designed to maintain natural hydrological systems. Development designed to minimise pollutants entering stormwater.	☒YES ☐NO ☐PARTIAL	The stormwater strategy for the development seeks to capture all surface waters that fall within the BAM facility. Surface waters will be treated where required, and either re-used or discharged as wastewater or stormwater. Green buffers are proposed around the site which may assist in natural cleaning and infiltration of surface water runoff/ Interaction with groundwater will be managed in accordance with relevant legislation and EPA guidelines.
PO 6.1	Dedicated on-site effluent disposal areas not used for open space, driveways or car parking.	☒YES ☐NO ☐PARTIAL	The development will require an on-site septic wastewater service as there is no Community Waste Management Scheme available to the site. There will be treatment of human wastewater on site – this will be collected from site and disposal to a licensed facility in accordance with EPA requirements.
PO 7.1 – PO 7.7	Car parking siting and designed to minimise interface impacts, provide safety, and incorporate landscaping,	☐YES ☐NO ☒PARTIAL	Car parking for employees and visitors is located within the secure, fenced BAM facility. Lighting of the car parking will be in accordance with relevant Australian Standards to prevent light spill to adjacent sensitive receivers. No landscaping or trees are proposed within the car parking for shade or WSUD purposes, however surface water falling within the car parking areas will be collected and managed as part of the site site-wide stormwater strategy.
PO 8.1 – PO 8.5	Development, including any associated driveways and access tracks, minimises the need for earthworks to limit disturbance to natural topography.	☐YES ☐NO ☒PARTIAL	The development is predominantly flat however earthworks are required to build up the Finished Floor Level for flood mitigation purposes. Bulk excavation is also required for the stormwater channels and detention basin. The earthworks are not expected to increase the risk of landslip. The site will be developed in stages, with a SEDMP in place during construction to manage soils and prevent erosion.
PO 9.1	Fences, walls and retaining walls balance privacy and security requirements with visual amenity / interface impacts.	☐YES ☐NO ☒PARTIAL	Fences are proposed around the perimeter of the facility for security and screening purposes. The materiality and colour of fences will seek to minimise glare, reflectivity and visual impact as far as practicable.
PO 10.1	Development mitigates direct overlooking from upper level windows to habitable rooms and private open spaces of adjoining residential uses.	☒YES ☐NO ☐PARTIAL	The BAM facility include tall buildings, however there is expected to be limited opportunity for overlooking due to the design / function of these buildings. The placement of any external platforms will have regard for overlooking potential. Ancillary buildings which are used for administration / staff amenities, and are over one storey in height, will be sited, orientated and/or designed to minimise opportunities for overlooking.

Interface between Land Uses			
Policy	**Objective**	**Consistency**	**Comment**
DO 1, PO 1.2,	Development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses.	☒YES ☐NO ☒PARTIAL	The development site is appropriately separated from residential zones and populated areas. There are a small number of sensitive receivers (dwellings) along Robinson Road which may be impacted by noise, traffic, visual impacts and general amenity during construction and operation of the BAM facility. Interface impacts for other proximate land uses, including recreational facilities, commercial and primary production businesses can be mitigated / minimised.
PO 2.1, 4.1, 4.2	Development that emits noise (other than music) does not unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers).	☐YES ☐NO ☒PARTIAL	In response to EPA comments, Renascor has confirmed that any construction work undertaken outside of standard hours (7am to 7pm, Monday to Saturday) will not exceed 45dB(A) for continuous noise with a max noise limit of 60dB(A) in accordance with the Noise EPP requirements. Renascor is not intending to undertake construction activities during night time hours. Any exemption must be sought from EPA.

	Hours of operation should have regard to noise off-site impacts.		The BAM facility will operate 24/7. Noise modelling indicates that noise from heavy vehicles during night time hours will exceed Noise EPP requirements at sensitive receivers. Renascor will implement mitigation measures and is open to consultation with impacted landowners regarding noise mitigation at the receiver.
PO 3.1 – PO 3.3	Overshadowing of habitable room windows and private open space to main access to direct winter sunlight.	☒YES ☐NO ☐PARTIAL	Shadow diagrams demonstrate that the development will not have overshadowing impacts to adjacent properties during the winter solstice.
PO 4.2	On-site manoeuvring of service and delivery vehicles, plant and equipment, outdoor work spaces (and the like) are designed and sited to not unreasonably impact the amenity of adjacent sensitive receivers	☐YES ☐NO ☒PARTIAL	The facility includes areas for heavy and light vehicle manoeuvring, loading, unloading and parking entirely within the fenced development site. Noise exceedances from night time operations are due to heavy vehicles entering / exiting the facility. 24/7 truck movements are considered essential to the operation of the facility, generating a maximum of 2 vehicles (4 movements) at full stage 2 operations. Noise events will be relatively short and Renascor is open to consultation with impacted landowners regarding noise mitigation at the receiver. All plant and machinery are within enclosed spaces with appropriate noise attenuation.
PO 5.1 – 5.2	Development with the potential to emit harmful or nuisance-generating air pollution incorporates air pollution control measures to prevent harm to human health or unreasonably impact the amenity of sensitive receivers.	☒YES ☐NO ☐PARTIAL	Air emissions during construction (including dust) will be managed through standard practices within an CEMP. Air emissions during operation will include dust / particulate matter, nitrogen dioxide, carbon monoxide, hydrogen sulfide and sulfuric acid fumes. The modelled air emissions at all sensitive receivers will slightly increase and remain within Air EPP assessment criteria. The emission points including exhaust stacks will be fitted with dust collection technology. The modelling is based on a preliminary design and requires further assessment during the detailed design phase. The EPA licence is expected to require post-commissioning stack testing.
PO 6.1 – PO 6.2	External lighting positioned and designed to not cause unreasonable light spill or be hazardous to motorists / cyclists.	☒YES ☐NO ☐PARTIAL	The facility will require lighting on a 24/7 basis. All lighting will be internal to the site. The final lighting design should comply with relevant Australian Standards and Australian Defence Force requirements to prevent light spill to adjacent properties, sensitive receivers and the RAAF base.
PO 7.1	Development designed and comprised of materials and finishes that do not unreasonably cause distraction, heat loading and/or glare.	☒YES ☐NO ☐PARTIAL	The final finishes of the industrial buildings, fences and ancillary structures will have regard to colour, materiality, glare and reflection. Colours will be selected to complement the surrounding environment and local context.
PO 9.7	Urban development does not prejudice existing agriculture and horticultural activities throughout appropriate separation and design techniques.	☒YES ☐NO ☐PARTIAL	The development has been designed with appropriate setbacks from allotment boundaries. The development is not expected to prejudice existing and future agricultural activities within the locality / zone.

Site Contamination			
Policy	**Objective**	**Consistency**	**Comment**
DO 1	Ensure and is suitable for the proposed use.	☒YES ☐NO ☐PARTIAL	Site investigations identified scattered asbestos at surface level (likely from illegal dumping of rubbish) and elevated coliform levels within the soil. No groundwater contamination was identified, however the groundwater is highly saline. The subject site is adjacent a groundwater prohibition area. During construction, interactions with groundwater will be managed, and mobilisation of groundwater from adjacent prohibition areas is not expected.

Transport, Access and Parking			
Policy	**Objective**	**Consistency**	**Comment**
DO 1,	A comprehensive, integrated and connected transport system that is safe, sustainable, efficient, convenient and accessible to all users.	☒YES ☐NO ☐PARTIAL	The development generated both heavy and light vehicle traffic movements during construction and operation. The traffic generated by the development is not expected to negatively impact on the functional performance of the State Maintained Road network. The greatest impact will be on Robinson Road. Robinson Road will be upgraded prior to operation of the development to provide safe access for the expected traffic type and volumes.
PO 1.2	Development is designed to discourage commercial and industrial vehicle movements through residential streets and adjacent other sensitive receivers	☐YES ☐NO ☒PARTIAL	The heavy vehicle route for the development will not pass through residential zones. There are a small number of sensitive receivers (dwellings) along Robinson Road which may be impacted by traffic and associated noise during construction and operation of the BAM facility.
PO 1.3, PO 1.4, PO 11.1, PO 11.2	Industrial, commercial and service vehicle movements, loading areas and designated parking spaces are separated from passenger vehicle car parking areas.	☒YES ☐NO ☐PARTIAL	Heavy vehicles will enter the facility from Robinson Road. The new access point will be designed and constructed to accommodate the size and type of traffic anticipated for the developed. All unloading, loading, internal site circulation and vehicle manoeuvring will occur within the fenced BAM facility. Heavy and light vehicles will utilise the single enter from Robinson Road. Internal to the site, a dedicated car parking area will be available for light vehicles (for staff parking).
PO 2.1, PO 2.2	Sightlines at intersections, pedestrian and cycle crossings, and crossovers to allotments for motorists, cyclists and pedestrians are maintained or enhanced to ensure safety for all road users and pedestrians.	☒YES ☐NO ☐PARTIAL	The traffic assessment demonstrates that vehicles have adequate sightlines at all key intersections. There is no forma public realm infrastructure on Robinson Road, and the area does not support regular pedestrians or cyclist movements (due to the nature of land uses in the locality). Interactions between vehicles, pedestrian and cyclists is therefore expected to be minimal and the Robinson Road access point.
PO 3.1 – PO 3.9	Safe and convenient access minimises impact or interruption on the operation of public roads.	☒YES ☐NO ☐PARTIAL	All vehicle access is from Robinson Road. This is a local, no-through road will low traffic volumes. Traffic generated by the development is not expected to create queuing or congestion issues on Robinson Road (or associated intersections).
PO 3.4	Access points are sited and designed to minimise any adverse impacts on neighbouring properties.	☐YES ☐NO ☒PARTIAL	The location of the site access will require clearance of existing vegetation along the Robinson Road site boundary. The access is staggered between driveways located on the eastern side of Robinson Road. Regardless of the location of the site access, sensitive receivers on Robinson Road will be impacted by heavy vehicle movements along Robinson Road. Vehicle are expected to be travelling at relatively low speed. Noise impacts and mitigation is discussed in Interface between Land Uses overlay.
PO 4.1	Development is sited and designed to provide safe, dignified and convenient access for people with a disability.	☒YES ☐NO ☐PARTIAL	Car parking areas and access will be designed in accordance with Australian Standards.
PO 5.1, PO 6.1 – 6.7	Sufficient on-site parking to meet the needs of the development.	☒YES ☐NO ☐PARTIAL	All staff and visitor parking will be provided within the secure BAM facility. No overflow to Robinson Road is anticipated. The car parking rates required in the code are considered excessive for the development. Parking spaces will be provided to meet employee demand and will be provided progressively to meet the needs of Stage 1 through to full Stage 2 operations.

Waste Treatment and Management Facilities			
Policy	**Objective**	**Consistency**	**Comment**

DO 1, PO 2.1	Mitigation of the potential environmental and amenity impacts of waste treatment and management facilities.	☒YES ☐NO ☐PARTIAL	The BAM facility includes a waste treatment plant, to treat process water prior to discharge to the SA Water outfall channel. The development will require an on-site septic wastewater service as there is no Community Waste Management Scheme available to the site. There will be treatment of human wastewater on site – this will be collected from site and disposal to a licensed facility in accordance with EPA requirements. Waste water streams will be separate from groundwater and surface water to prevent contamination.