



Strategic Extractive Resource Areas

Background Technical Report
to Draft Planning Controls - Lang Lang,
Oaklands Junction and Trafalgar

/ September 2024



Department
of Transport
and Planning

ACKNOWLEDGEMENTS

Authorisation

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Accessibility

If you would like to receive this publication in an accessible format, please email planning.implementation@transport.vic.gov.au. This document is also available in PDF format at www.engage.vic.gov.au/sera-langlang-oaklandsjunction-trafalgar.

Document information

Date of approval September 2024.

We proudly acknowledge Victoria's First Nations people and their ongoing strength in practising the world's oldest living culture. We acknowledge the Traditional Owners of the lands and waters on which we live and work and pay our respects to their Elders past and present.

▼ Description of artwork

Aaron (Gunaikurnai) 'Movements Between the Five Clans' 2019, acrylic on canvas.

'The tracks are going between the five clans of the Gunaikurnai and the hands are the symbols of my spirit travelling around the campsites.'

This artwork was created through programs provided by the Torch. The Torch provides art, cultural and arts industry support to Indigenous offenders and ex-offenders in Victoria. The Torch aims to reduce the rate of re-offending by encouraging the exploration of identity and culture through art programs to define new pathways upon release.



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1. INTRODUCTION

About this report

This report explains the Strategic Extractive Resource Areas (SERAs) program and the rationale for the draft planning controls proposed to apply to three SERAs, near Lang Lang in Cardinia Shire, Oaklands Junction in Hume City, and Trafalgar in Baw Baw Shire.

The proposed planning changes detailed in this report have been prepared by the Department of Transport and Planning (DTP) and Resources Victoria (within the Department of Energy, Environment and Climate Action) with input from the Bunurong Land Council Aboriginal Corporation, Gunaikurnai Land and Waters Aboriginal Corporation and Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation as well as the Bass Coast, Baw Baw, Cardinia, Hume and South Gippsland councils. Consultation with extractive industry peak bodies - Concrete, Cement and Aggregates Australia and the Construction Material Processors Association have also informed the proposals.

There is additional information at engage.vic.vic.gov.au/sera-langlang-oaklandsjunction-trafalgar namely:

- draft planning controls for each proposed SERA
- information sheets for each SERA
- frequently asked questions.

The draft planning controls are now subject to public consultation, and written submissions about them are invited.

Submissions must be made by **Friday 8 November 2024**.

Submissions can be made at www.engage.vic.gov.au/sera-langlang-oaklandsjunction-trafalgar

If you have any questions about the proposals for the consultation, please phone **136 186** or email planning.implementation@transport.vic.gov.au

After public consultation has ended and all submissions have been considered, the Minister for Planning will decide on the final implementation of the SERA planning controls.

About Strategic Extractive Resource Areas

A Strategic Extractive Resource Area (SERA) is an area known or likely to contain a significant supply of extractive resources (such as hard rock or sand) located close to a large population that will need these resources over the long-term for construction purposes.

A SERA may comprise:

- a broad area of land with few or no existing quarries but which may provide new supply opportunities over the long-term
- land encompassing an existing quarry that annually supplies a significant volume of extractive resources and has a long-term supply of available resources.

A SERA:

- is well-serviced by roads and reasonably close to where extractive resources are needed to reduce transport (and therefore construction) costs and emissions
- is located where a quarry will not have significant or unmanageable impacts on the environment and surrounding land uses
- has surrounding environmental attributes that are manageable
- does not change any requirements regarding the process or preparation of a cultural heritage management plan under the *Aboriginal Heritage Act 2006*.

SERAs are called ‘strategic’ because Victoria must have ready access to enough of the quality resources it needs to build affordable homes and public and private sector infrastructure for our growing population, which is set to double by 2050. We must plan for the long-term to get the balance right between ensuring these resources are available and ensuring communities can continue to develop, but not in ways that limit or prevent existing and future quarries from operating. Planning schemes must clearly identify SERAs and their requirements for protection so that:

- planning authorities, responsible authorities and others may properly consider SERAs when making decisions about nearby land uses and development
- extractive industry knows SERAs are suitable places for future quarries: where quantities of quality resources are likely to occur, there is good road access and the local planning system balances operators’ needs with existing values, land uses and community interests
- the community knows where future quarries are likely to be, so plans for development around them can occur in a way that limits potential noise, dust and traffic impacts.

About the SERA program

The Victorian Government developed the Strategic Extractive Resource Areas (SERA) program to plan for the long-term to get the right balance between safeguarding the future availability of strategic extractive resources and ensuring communities can continue to develop, but not in locations that are too close to existing or future quarries.

The SERA program aims to:

- protect strategic extractive resources from incompatible land uses over the long-term to ensure there is a sufficient supply of these resources to meet the growing demand from housing, infrastructure and other construction projects
- secure supplies as close as practicable to where the resources will be needed, helping to lower the cost of these much-needed construction materials and the emissions generated by transporting them

- increase certainty for local communities, the extractive and construction industries and others about future locations for extractive industry and land uses in and around those locations
- protect the resources and provide certainty in a way that acknowledges environmental, social, cultural and economic assets and values, including Aboriginal cultural heritage.

The intended benefits of the SERA program include:

- greater long-term certainty for extractive industry about the preferred locations of future quarrying operations and land uses close to them
- better long-term protection of areas of known strategic extractive resources close to transport infrastructure
- better guidance for decision-makers about managing proposed sensitive land uses, development and subdivision near SERAs and operating quarries.

The SERA program is being jointly delivered by the DTP and Resources Victoria in DEECA.

Why the SERA program?

In recent years, unprecedented public and private sector investment in Victoria’s infrastructure has been a major factor in the growing demand for strategic extractive resources. The Victorian Government has increased its investment from an average \$4.6 billion per year over the decade to 2015-16 to an average \$12.2 billion a year between 2016-17 and 2020-1. This heightened level of infrastructure investment will continue, with major works underway and committed, including Victoria’s Big Build and Big Housing Build. There has also been extensive commercial and residential construction, particularly in urban growth areas.

Victoria’s growing population will further increase the demand for extractive resources. Victoria’s population is projected to almost double from an estimated 6.8 million in 2023 to 10.3 million by 2051. Most of this population growth is planned to be accommodated in the established suburbs of Melbourne and Victoria’s regional cities, with some accommodated in Melbourne’s growth areas.

Population growth drives demand for public and private infrastructure: houses, roads and bridges, rail infrastructure, health and educational facilities, employment precincts, renewable energy projects and facilities for sport, tourism and recreation. Annual demand for extractive resources to build this infrastructure is expected to reach close to 80 million tonnes by 2030, an increase from 63.7 million tonnes in 2020-21.

To provide infrastructure for its people, Victoria must have a long-term supply of competitively priced, quality, strategic extractive resources.

As population centres expand, so does land use and development pressure, including in areas close to and containing extractive resources. Each year, tens of millions of tonnes of resources are extracted and trucked from Victorian quarries – often located in Melbourne’s peri-urban areas and green wedges – to construction sites, mostly in Melbourne and other major population centres. To contain transport costs (which flow onto building costs) and reduce emissions, extractive industry should be located as close as practicable to demand.

Sensitive land uses (such as housing) are generally incompatible with the extractive industry. Extractive industry – quarrying, sorting, weighing, loading and transporting extractive resources – generates dust, noise, traffic and ground and air vibrations. Hard rock quarrying also includes rock crushing and air blasting – using compressed air to break or dislodge rock formations – and fly rock – fragments of rocks that fly into the air during blasting.

Encroachment by sensitive land uses on SERAs can make a quarry unviable or prevent it from reaching its full extractive potential. The planning system can protect current and future quarries against encroachment by managing the land around them to omit uses that, when the time comes, would stop resources from being extracted from them. Preventing encroachment by sensitive land uses through the planning system allows extractive industry to operate confidently and protects sensitive land uses from quarrying’s detrimental impacts.

About extractive industry

Victorian extractive industry supports the state’s construction sector, which is the third largest employer in Victoria and delivered \$40.9 billion of building work in 2022-23. Victoria has about 470 active quarries producing in excess of 70 million tonnes of hard rock, sand, gravel and limestone annually. The quarry gate value of this annual production is more than \$1.3 billion.

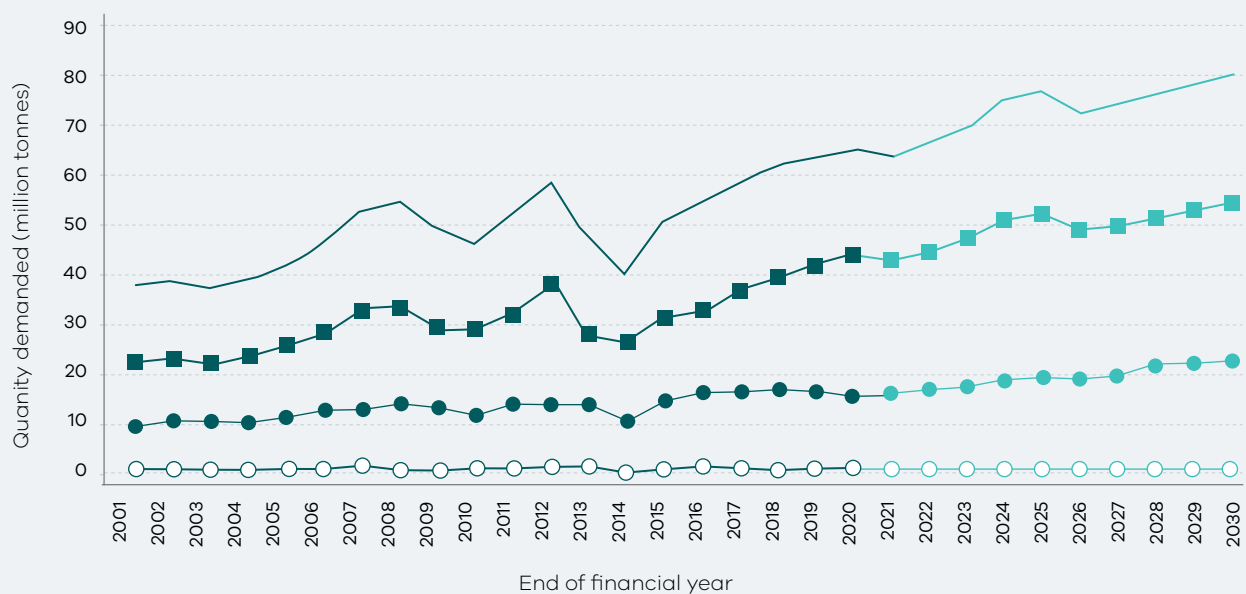
Extractive resources vary in quality and nature. A stone quarry might contain hard rock of different grades, which is processed and blended on-site, ready for transport to where it is needed. Stone or sand quarried from a site may also be transported to a different quarry for processing and blending. Occasionally, the resource is of sufficient quality to need very little processing or blending before it is transported to where it’s needed.

Unlike mineral resources (such as gold, silver, lithium and coal), which are owned by the Crown, extractive resources like stone and sand are owned by the landholder.

Extractive resources demand and supply

Since 2016, Resources Victoria and its predecessors have conducted extractive resources supply and demand studies that forecast the likely tonnage of rock, sand and clay that Victoria will need in the medium-to-long term for housing, infrastructure and other development projects.

The *2023 Extractive Resources in Victoria: Supply and Demand Study 2022-30* included statewide and regional supply and demand forecasts for the key extractive resources. It reported that statewide demand for extractive resources is expected to increase from 63.7 million tonnes in 2020-21 to 79.5 million tonnes by 2030, which is higher growth than the historical trend. Figure 1 shows statewide actual and forecast demand for hard rock, sand and clay from 2001 to 2030.



▲ Figure 1: Statewide demand for extractive resources, 2001-2030

Legend



The earlier 2016 *Extractive Resources in Victoria: Demand and Supply Study 2015-2050* found that demand for extractive resources would double by 2050 to 87.8 million tonnes a year above 2015 levels. Since 2016, demand for extractive resources has been tracking above the highest scenario the study forecasted. Updated modelling shows that Victoria's demand for extractive resources will double the 2015 demand much earlier than previously forecast. In 2022-23, statewide production reached 72.3 million tonnes.

Demand forecasts indicate that greater Melbourne will account for about 80% of total demand for extractive resources from 2021-22 to 2029-30. In particular, Melbourne's outer urban growth areas, including Casey, Cardinia, Hume, Melton, Mitchell, Wyndham and Whittlesea, as well as large regional cities such as Greater Geelong, will have strong demand for extractive resourcing driven by the housing and infrastructure needs of their growing populations.

The highest-demand extractive resource is hard rock, followed by sand, for which demand is steadily increasing. Demand for clay is much lower and relatively constant.

On the supply side, industry survey data gathered in 2022 showed that current extractive Work Authority (WA) approvals issued under the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) hold at least 1.13 billion tonnes of reserves approved for development. A further 811 million tonnes of extractive resources in those WAs could become available, subject to further regulatory approvals being issued for those sites.

The three SERAs near Lang Lang, Oaklands Junction and Trafalgar are located in municipalities that comprise Regional Development Victoria partnership 'zones' with the highest supply of reserves in Victoria, as outlined in the *Extractive Resources in Victoria: Supply and Demand Study 2022-30*.

Table 1 and Table 2 show the top regions for sand and hard rock supply in Victoria.

▼ **Table 1: Top three sand supply regions**

REGION	GIPPSLAND*	GREATER MELBOURNE	BARWON*
Total reserves (million tonnes)	56-121	26-55	26-55
Local government areas	– Bass Coast – Baw Baw – East Gippsland – Latrobe – South Gippsland – Wellington	– Cardinia – Casey – Frankston – Mornington Peninsula – Kingston – Others	– Colac Otway – Greater Geelong – Queenscliffe www.queenscliffe.vic.gov.au/Home – Surf Coast

*These regions are addressed by Regional Development Victoria Regional Partnerships.

▼ Table 2: Top four hard rock supply regions

REGION	GREATER MELBOURNE	LODDON CAMPASPE*	GOULBURN*	BARWON*
Total reserves (million tonnes)	248-510	149-247	26-55	26-55
Local government areas	– Cardinia – Hume – Melton – Whittlesea – Wyndham – Others	– Campaspe – Central Goldfields – Greater Bendigo – Loddon – Macedon Ranges – Mount Alexander	– Greater Shepparton – Mitchell (Pt) – Moira – Murrindindi – Strathbogie	– Colac Otway – Greater Geelong – Queenscliffe – Surf Coast

*These regions are addressed by Regional Development Victoria Regional Partnerships.

The forecast cumulative demand of 640 million tonnes from 2021 to 2030 represents about 56% of current reserves. While there would appear to be enough extractive resources statewide to meet forecast demand to 2030, demands in practice are for specific resource products from specific locations, and these may not correspond to the quality and location of available reserves. So, extractive resources to meet Melbourne's growth may need to come from further afield.

Extractive resources should be sourced from close to where they are needed to reduce transport costs and emissions. The extractive resources in quarries close to Melbourne continue to diminish, and supply is not being sufficiently replenished from nearby new or expanding quarries. The SERAs will secure long-term extractive resources within a reasonable distance of major demand locations. The Local Government Areas (LGAs) in which the SERAs are located are classified by the 2018 *Joint Ministerial Statement on Extractive Resources* as 'Designated Supply' LGAs (within 50 km of a 'Top 10 Demand' LGA).

Recycling as a source of construction materials

Recycled asphalt, concrete and glass are an increasingly important secondary source of construction materials.

The Victorian Government's 2020 *Recycling Victoria: A New Economy* includes actions to use more recycled materials, including for road and building construction. These include aggregates, soil, sand, concrete and bricks. The 2018 *Helping Victoria Grow: Extractive Resources Strategy* also recognises opportunities for reducing demand on extractive resources by substituting them with recycled products if appropriate. However, while recycling of materials is very important, the volume of these materials is insufficient to result in major reductions in demand for extractive resources.

Table 3 shows examples of recycled materials used for road construction projects.

▼ **Table 3: Examples of recycled materials used for road construction projects**

MATERIAL	USE	EXAMPLE
Reclaimed asphalt pavement	Can make up to 40% of new asphalt	The Peninsula Link has 22% reclaimed asphalt pavement
Crushed concrete	If 100% pure, it is used as a road sub-base	Recent major road projects in Melbourne have used up to 200,000 tonnes of crushed concrete
Recycled crushed glass in concrete	Aggregate in footpaths	Wyndham City Council has trialled this material in new footpaths
Recycled crushed glass	Can replace sand in asphalt, road base, pipe bedding and filter material	The Kororoit Creek Road level crossing removal project used this in bedding material

Replenishment

The 2023 *Extractive Resources Supply and Demand Study 2022-30* identified the volume of extractive resources needed to supply housing, infrastructure and other land development across the state and the need for 'replenishment' of supply.

Active quarries eventually 'exhaust' their extractive resources and when this happens, they can no longer provide supply and are closed. If one or more quarries close in a given area without a replenishment supply being opened nearby, there can be a lack of sufficient resources close to demand, potentially delaying project plans and increasing project costs. It is therefore important to provide certainty of supply of construction materials for both public and private construction projects.

There are long lead times to bring new extractive resource projects to market. It currently takes about 10 years to establish a quarry on a greenfield site and 3–5 years to expand an existing quarry. Establishing new quarries to replace the forecast closure of existing quarries requires a long-term, strategic approach to ensure suitable areas remain available for future resource extraction.

Greenhouse gas emissions

It is essential that extractive resources be sourced with minimum greenhouse gas (GHG) emissions to support Victorian Government's targets of a 40% reduction on 2005 emissions by 2030 and for the state to be net-zero by 2045.

Operational measures and site location can reduce GHG emissions by extractive industry. Individual quarry operators are responsible for operational measures, some of which are considered during the approvals process. Operators are also using 'smart' technology and electric trucks to reduce emissions.

The location of SERAs close to areas of high demand for extractive resources provides long-term planning for future quarries close to where they will be needed. This will help minimise GHG emissions from heavy vehicles used to transport materials from quarries to consumers.

If a quarry location aligns with the existing rail network, rail transport, which has a lower environmental impact than road transport, is preferable. One train trip can replace about 37 B-double truck trips, and rail freight is three times more fuel-efficient.

Due to the constraints associated with locating quarries close to existing rail connections and the long lead times for developing new rail connections, reducing the distance travelled and increasing the efficiency of road freight vehicles is the best way to reduce emissions in the short-to-medium term.

Locating quarries close to major demand locations also provides economic benefits by limiting potential supply chain risks and reducing fuel costs, which lowers the supply cost to consumers.

The evolution of strategic extractive resources protection

The SERA project continues Victorian Government efforts to take a strategic approach to securing extractive resources for the future.

Extractive Industry Interest Areas

In the 1990s, the Geological Survey of Victoria (GSV) identified Extractive Industry Interest Areas (EIAs), which were then introduced into planning schemes to form part of the Victoria Planning Provisions (VPPs). EIAs are areas of land located reasonably close to major population centres, likely to contain commercially viable extractive resources where extractive industry may be established.

2016 Extractive Resources in Victoria: Demand and Supply Study 2015–2050

In 2012, the Victorian Government found that EIAs were not providing sufficient protection of extractive resources and there was insufficient information to identify and protect land containing extractive resources to meet future demand. Additionally, existing quarries were being encroached on by sensitive land uses, resulting in lost opportunities for supply. Proposed quarries were also subject to long, complex planning permit application assessment processes that were being applied inconsistently by decision makers.

In the same year, a joint government-industry Extractives Strategy Taskforce was established to examine how extractive resources supply and demand and could be secured over the long-term. The Taskforce included representatives of the two Victorian Government departments that manage earth resources and land use planning, as well as the extractive industry peak bodies, Cement Concrete and Aggregates Australia (CCMA) and the Construction Material Processors Association (CMPA).

The Taskforce commissioned the 2016 *Extractive Resources in Victoria: Demand and Supply Study 2015–2050* that identified important locations within LGAs that could potentially provide long-term supply. The study also found that planning schemes should:

- better recognise and protect existing quarries and significant areas containing strategic extractive resources
- apply ‘buffer’ areas to the edges of current extractive WAs to discourage encroachment by incompatible land uses.

2018 Helping Victoria Grow: Extractive Resources Strategy

The Victorian Government’s 2018 *Helping Victoria Grow: Extractive Resources Strategy*, informed by the *Extractive Resources in Victoria: Demand and Supply Study 2015–2050*, included priorities and actions to better protect areas containing strategic extractive resources through land use planning. Its six themes for action were: Resource and land use planning, including demand and supply modelling; Transport planning; Efficient regulation; Promoting environmental sustainability; Promoting innovation (particularly with post-quarry land use); and Confident communities.

Priority Actions contained in the Strategy included a ‘refresh’ of EIAs ‘to delineate areas of importance to the State and recognise these within the planning system’ and to ‘conduct a pilot Strategic Extractive Resource Area project in partnership with local government’ (see below).

2018 Joint Ministerial Statement on Extractive Resources

In 2018, the former Minister for Resources and the former Minister for Planning issued the *Joint Ministerial Statement on Extractive Resources*. The Statement committed the two Victorian Government departments that manage earth resources and land use planning to deliver the *Helping Victoria Grow: Extractive Resources Strategy*, in recognition of government’s aim of addressing the State’s long-term demand for extractive resources.

2020 SERA pilot project

In 2020, the SERA pilot project was launched. The pilot project was overseen by the Extractives Strategy Taskforce, and the project aim was to review existing planning mechanisms in the Victorian planning system to:

- develop knowledge through geoscience and industry supply and demand studies
- protect existing quarries and safeguard potential extractive resources
- establish SERAs in collaboration with stakeholders and the community.

2020 review of Extractive Industry Interest Areas

The review found that more than 40% of EIAs had been compromised by residential and other 'sensitive' development due to Environment Protection Authority (EPA) buffers – also known as 'minimum separation distances' – required between operating quarries and 'sensitive' uses to reduce the risks to residents of dust, noise and ground and air vibrations.

In 2020, the Victorian Government commissioned a review to determine the extent to which incompatible development and rezoning had reduced the availability of resources for future extraction within EIAs – for example, where residential development and associated buffers to reduce the risk of dust, noise and vibrations from current or future quarries restricted current quarrying operations and/or quarry expansion. The review found that more than 40% of EIAs had been compromised by residential development and associated buffers.

2021 Planning Scheme Amendment VC196

In August 2021, following public consultation, the SERA pilot project resulted in Amendment VC196, which changed Victoria Planning Provision *Clause 14.03-1 S Resource exploration* and extraction to designate SERAs as areas for long-term protection of current and potential future quarries.

Amendment VC196 also changed the Wyndham Planning Scheme for the Werribee-Little River SERA and the Cardinia and South Gippsland Planning Schemes for the Nyora West SERAs by:

- introducing schedules to a new *Clause 44.07 State Resource Overlay* to protect areas of state-significant mineral, stone and other resources from uses and development that would prejudice the current or future productive use of the resources
- updating and amending schedules to the Special Use Zone (SUZ) related to extractive industry
- rezoning some WAs to SUZ.

The SRO schedules introduced planning permit requirements for sensitive land uses, which are explained at pages 28 and 32 in this report.

The *Amendment VC196 Explanatory Report* and the *Strategic Extractive Resource Areas Pilot Project Draft Report* provide more information about Amendment VC196.

2021 Strategic Extractive Resources Roadmap

In 2021, the Strategic Extractive Resources Roadmap built on previous initiatives to improve coordination between agencies and support the implementation of the 2018 Strategy's land use actions, particularly the roll-out of future SERAs and an EIA 'refresh' following the EIA review.

The Roadmap identified 12 'Priority' LGAs as well as other 'Additional Supply' LGAs as key sources of hard rock, sand and gravel located close to markets. Three of the 12 Priority LGAs were identified for the SERA Pilot Project and nine for further background investigations to be undertaken. The Priority LGAs were mainly located in Melbourne's peri-urban and surrounding areas, with some located further to Melbourne's west and east.



The Priority LGAs were listed in the top 20 strategic resource locations identified in the *Extractive Resources in Victoria: Demand and Supply Study 2015–2050*. These LGAs contain substantial supplies of resources, have high production levels and support the growth of metropolitan Melbourne.

Additional Supply LGAs were also potential candidates for SERAs based on their high production levels and proximity to high-demand growth areas. The Victorian Government departments that manage earth resources and land use planning analysed planning schemes, geological studies, supply and demand data, transport networks, biodiversity, settlement and land holding patterns to further assess these areas. Table 28 at Appendix 1 to this report provides more detail on this process.

Of the 12 Priority LGAs, two Background Investigation Areas were identified as being suitable for prioritising 'greenfield' SERAs:

- Trafalgar Sands in Baw Baw Shire, with SERA boundaries then refined to identify the 'Trafalgar SERA'
- Cardinia Bass Sands, with SERA boundaries then refined to identify the 'Lang Lang SERA' in Cardinia Shire. The portion of the Cardinia Bass Sand Background Investigation Area located within Bass Coast Shire was ultimately not included within the Lang Lang SERA boundaries, due to the need for further investigation of planning and environmental matters.

Of the Additional Supply LGAs, one existing 'brownfield' site at Oaklands Junction in Hume City, which is known to contain a substantial, long-term supply of hard rock, was also considered in the background investigations. A quarry is already located within the site and has large volumes of annual hard rock production. Extraction of the hard rock resources are at risk from emerging land uses proximate to the site. This has resulted in the identification of the 'Oaklands Junction SERA'.

Other planning provision changes

In 2020, Amendment VC175 altered *VPP Clause 13.07-1 S Land use compatibility* to protect commercial, industrial and other employment-generating uses from encroachment by uses or development that would compromise their ability to function safely and effectively.

In 2021, Planning Practice Note 92 *Managing buffers for land use compatibility* was introduced to the VPPs to guide planning for land use compatibility and the planning policy framework, including requirements about the management of buffers.

In 2022, Amendment VC219 was gazetted, affecting the Farming, Rural Conservation, Green Wedge, Rural Living and Rural Activity zones. This amendment created a requirement for planning permit applications for accommodation uses within 500m of a lot containing a current WA to be referred to the Secretary of the department administering the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act) – currently DEECA. On receipt of the referral, the Secretary or their representative can object to the proposal, compelling the decision-maker (usually either a council or the Minister for Planning) to refuse it. This is relevant because much of the land within the three SERAs is in either the Green Wedge, Farming or Rural Conservation zones.

In 2023, Amendment VC242 introduced two new particular provisions into the VPP to facilitate developments that provide a significant level of housing, which may include affordable housing, or make a significant contribution to Victoria's economy and provide substantial public benefit, including new jobs. These developments must meet requirements specified in *Clause 53.22 Significant Economic Development* and *Clause 53.23 Significant residential development with affordable housing* to qualify as a significant development.

A key feature of these new provisions is they remove third-party appeal rights for decisions about planning permit applications. They also make the Minister for Planning the responsible authority for determining proposals to which Clause 53.22 or Clause 53.23 apply. And they allow more circumstances for a permit applicant to submit their application directly to the Minister for Planning as the decision-maker. *Clause 53.22 Significant Economic Development* includes permit applications for extractive industry proposals if the value of the extractive resource is more than \$30 million as verified by an industry-approved measure. This clause applies to new quarries and the expansion of existing quarries beyond what has already been approved.

The use of the new provisions is voluntary. Applicants can choose to have these provisions applied if their application includes written advice from Invest Victoria and a report confirming the estimated cost of development. Applicants will still have the option for their proposal to be assessed via the process that predates the introduction of Clause 53.22.

Traditional Owner engagement matters

Feedback from engagement with representatives of the Registered Aboriginal Parties (RAPs) whose Country contains the proposed SERAs contributed to the draft planning controls and SERA boundaries. These RAPs are the Bunurong Land Council Aboriginal Corporation (Lang Lang SERA), the Wurundjeri Woi Wurrung Aboriginal Corporation (Oaklands Junction SERA) and the Gunaikurnai Land and Waters Aboriginal Corporation (Trafalgar SERA).

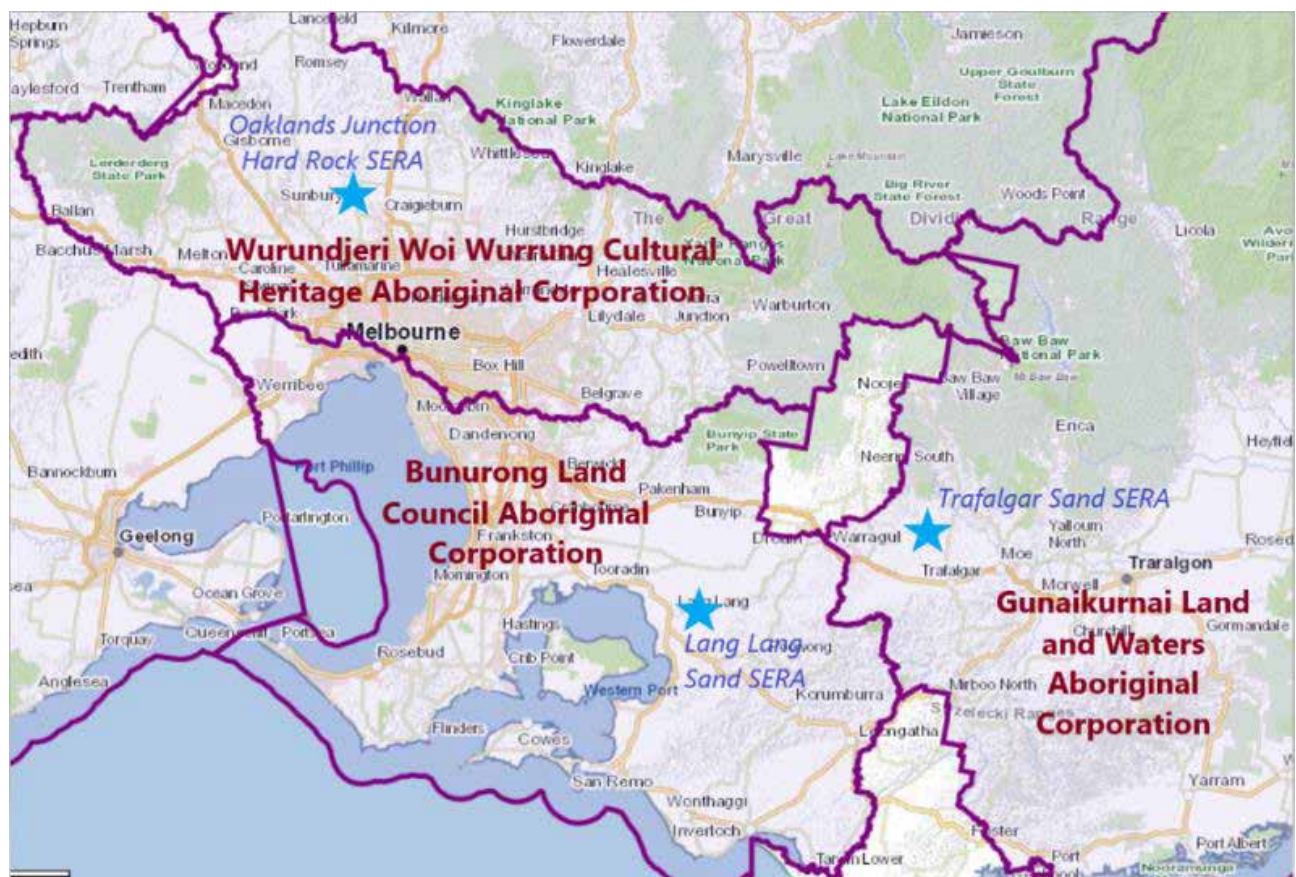
As a result of this engagement:

- the SRO1 schedule and the schedule to *Clause 66.06 Notice of permit applications under local provisions* of the VPPs will require notice to be given to RAPs of otherwise exempt quarry applications (but not review or appeal rights) – these provisions are further explained at page 30 in this report

- the SRO1 boundaries were defined to avoid areas of known Aboriginal cultural heritage sensitivity where possible, particularly areas unaffected by current or proposed work authorities and at the edges of the boundaries
- the information produced for public consultation was drafted to explain that the application of the quarry application exemption test in the SRO1 planning controls does not provide ‘short cuts’ for future quarry proponents to meet requirements for Aboriginal Cultural Heritage Management Plans or related matters (such as Indigenous land use agreements).

Implications for the proposed overlay and zone changes for the three SERAs were also considered, having regard to the *Native Title Act 1993*. Indigenous Land Use Agreements under the Act that have been entered into for land within the Trafalgar SERA are further explained at page 80 in this report.

▼ **Figure 2:** Registered Aboriginal parties for SERAs





2. RELEVANT LEGISLATION, PLANNING CONTROLS, GUIDANCE AND POLICIES

Legislation, planning controls and guidance

Table 4 shows legislation, Victoria Planning Provisions and general guidance relevant to extractive industry approvals and SERAs more specifically.

▼ Table 4: Relevant Acts and planning controls

ITEM	FUNCTION	COMMENT
<i>Planning and Environment Act 1987 (PE Act)</i>	The Act establishes the framework for the VPP to enable planning permit quarry applications to be prepared and determined.	The Act identifies the decision-making framework and processes and rights of parties to achieve the objectives and purpose of the Act. It authorises giving weight to guidelines (such as EPA publication 1518, described below).
<i>Mineral Resources (Sustainable Development) Act 1990 (MRSD Act)</i>	The Act establishes the legislative framework to approve WAs and associated work plans.	The Act, in land use terms, ensures that risks to the environment, the public, land, property and infrastructure by work done under a licence or extractive industry WA are identified and eliminated or minimised as far as reasonably practicable (s(2)(1)(b)).
<i>Clause 13.07 Amenity, human health and safety</i>	The clause sets out objectives and strategies addressing risks of harm to the environment, human health and amenity.	The clause addresses encroachment issues and the practice of separating incompatible land uses (e.g. extractive industry and dwellings).
<i>Clause 14.03 Earth and energy resources</i>	The clause sets out objectives and strategies to assist in the conservation and use of earth resources.	The clause addresses extractive industry, including SERAs and other earth resource commodities.
<i>Clause 37.01 Special Use Zone</i>	The clause recognises or provides for the use and development of land for specific purposes as identified in a schedule to the zone.	The clause is typically used to provide for extractive industry in a site-specific situation.
<i>Clause 44.07 State Resource Overlay (SRO)</i>	The clause protects areas of mineral, stone and other resources identified as state-significant from use and development that would prejudice the resource's current or future productive use.	The clause addresses sensitive land uses and protects existing and future extractive industry.

ITEM	FUNCTION	COMMENT
Clause 52.08 <i>Earth and energy resources industry</i>	The clause encourages land to be used for exploration and extraction according to acceptable environmental standards.	The clause sets out the approval pathways for extractive industry, including quarries. The quarry approval pathway is via a planning permit trigger in conjunction with Clause 52.09 or the environmental effects statement process. It also addresses applications and referral requirements for mines.
Clause 52.09 <i>Extractive industry and extractive industry interest areas</i>	The clause provides for the appropriate use and development of extractive industry, quarry rehabilitation and decision-making about protecting EIAs and extractive industry proposals.	The clause provides for the Secretary of the department administering the MRSD Act to provide input into decision-making about sensitive land uses that may encroach on extractive industry under s55 of the PE Act.
Clause 53.22 Significant economic development	The clause prioritises and facilitates the planning, assessment and delivery of projects that will significantly contribute to Victoria's economy and provide substantial public benefit, including jobs for Victorians.	The clause provides an opt-in approval pathway for large quarry proposals, exemption from some decision requirements and review rights and makes the Minister for Planning the responsible authority. Decision guidelines and referrals still apply. The pathway for consideration via an environmental effects statement remains.
Clause 62.01 <i>Uses not requiring a permit</i>	The clause lists 16 categories of use that do not require a permit, sometimes with qualifying criteria (e.g. meeting a local law, code or other provision of the planning scheme). Often included in section 1 of the zone tables with the wording, 'Any use listed in Clause 62.01'.	The clause exempts the proposed extractive industry from needing a planning permit if the conditions of Clause 52.08 are met.
Planning Practice Note 89 (PPN89) <i>Extractive industry and resources</i>	The note sets out the processes to enable extractive industry approval by the planning and resources regulatory systems.	The note includes guidelines for decision-making about SERAs and for planning applications for non-quarry land uses near SERAs and existing quarries.
Planning Practice Note 92 Managing buffers for land use compatibility	The note provides guidance about planning for land use compatibility and VPP requirements about the management of buffers.	The note supports the interpretation of <i>Clause 13.07 Amenity, human health and safety 13.07</i> and <i>Clause 44.08 Buffer Area Overlay</i> .
EPA publication 1518: Recommended separation distances for industrial residual air emissions	The guidance sets how close sensitive land uses can be located to quarries and the criteria for varying that distance. The PE Act obliges decision-makers to consider this guidance.	The EPA is currently reviewing the guidance.

Policies

Plan Melbourne 2017-2050

The Victorian Government's *Plan Melbourne 2017–2050* and its five-year implementation plan guide long-term planning for Melbourne's future growth. The following Plan Melbourne direction, policy and action relate specifically to securing strategic extractive resources.

Direction 4.5 Plan for Melbourne's green wedges and peri-urban areas

'As Melbourne grows, planning for Melbourne's green wedges and peri-urban areas is required... to protect extractive industries ...

'Consistent with Plan Melbourne and the Regional Growth Plans, planning for green wedge and peri-urban areas should define and protect areas that are strategically important to the metropolitan area and the state, for the environment, biodiversity, landscape, open space, water, agriculture, energy, recreation, tourism, environment, cultural heritage, infrastructure, extractive and other natural resources.'

Policy 1.4.2 Identify and protect extractive resources (such as sand and stone) important for Melbourne's future needs

'Extractive industry resources in green wedges and peri-urban areas need to be protected and carefully planned to provide for Melbourne's needs without impacting on local amenity. Effective strategic planning for these resources will increase industry certainty and improve community confidence... the sequencing of urban development in growth areas should allow strategic resources such as sand and stone to be extracted ahead of establishing urban areas, with provision for these areas to proceed outside defined buffer zones that can be subsequently in-filled by other urban land uses.

'If not managed, urban encroachment, rural-residential expansion and other incompatible development will constrain the operations of existing quarries and curtail future supplies of extractive resources-endangering Melbourne's medium-to long-term growth prospects. To secure a long-term supply of extractive resource materials at competitive prices, current extractive industries must be protected and future extractive resource areas must be identified.'

Action 18 Management of extractive industry

'Protect extractive industry and future extractive resource assets from incompatible land uses by adopting planning options consistent with the findings of *Extractive Resources in Victoria: Demand and Supply Study 2015–2050*'.

Plan for Victoria

A new plan for Victoria will focus on delivering more homes near transport, job opportunities and essential services in vibrant, liveable and sustainable neighbourhoods.

DTP is preparing a new plan for Victoria, to guide future growth and change over the next 30 years. The new plan will establish a unified approach to deliver and take the necessary actions to drive Victoria to become more liveable, affordable, and sustainable.

The development of a plan that encompasses the whole state provides greater opportunity to ensure Victorians' access to a wider variety of well-designed housing with improved housing affordability, within liveable neighbourhoods in the urban areas of Melbourne and Victoria's regional cities with more equitable access to jobs, services and transport.

Housing affordability is an increasing issue across Victoria. There are many contributing factors to this issue resulting in the need for a whole-of-Victorian-Government approach and cross-portfolio collaboration, including the alignment of planning and fiscal policy levers. Developing a plan for the whole of Victoria will enable a coordinated and cohesive whole-of-state approach to strategic land use planning including for extractive resources.

Victoria's Housing Statement 2024–2034

The Victorian Government's *Victoria's Housing Statement, The Decade Ahead 2024-2034* recognises that Victoria is the fastest growing state in Australia. With Victoria's population expected to reach 10.3 million by 2051, 1.6 million homes and associated urban infrastructure will need to be built to meet the demands of a growing population.

The Housing Statement acknowledges the need for government to make big decisions faster, with the Minister for Planning to be the decision maker for significant residential developments that include affordable housing. This aligns with Planning Scheme Amendment VC242 that introduced *Clause 53.22 Significant economic development* - as noted in Table 4 - to meet the demand for extractive resources by making the Minister for Planning the decision maker for extractive industry planning permit applications when relevant criteria are met. It is also consistent with the government's long-term strategic planning for protection of state-significant extractive resources.



3. APPLICATION OF PLANNING CONTROLS

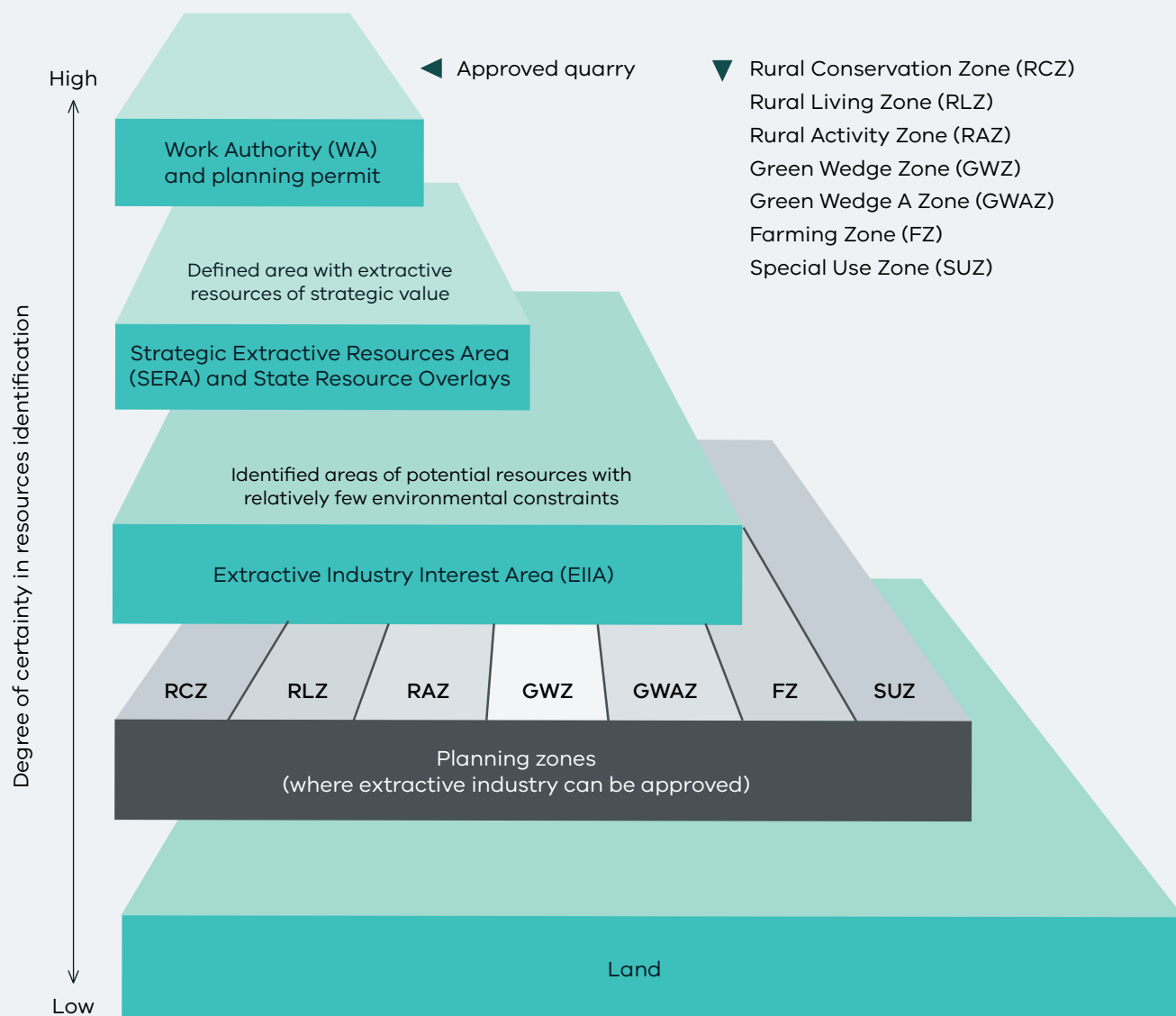
Planning control protection for strategic extractive resources

Figure 3 illustrates Victoria's tiered approach to identifying and protecting strategic extractive resources.

It uses:

- **Land** as the baseline in the progression; the Victoria Planning Provisions apply to all land in Victoria except for Commonwealth-owned land
- **Planning zones where extractive industry can be approved**, subject to a planning permit, include Farming Zone (FZ), Green Wedge Zone (GWZ), Green Wedge A Zone (GWAZ), Rural Activity Zone (RAZ), Rural Conservation Zone (RCZ), Rural Living Zone (RLZ) and Special Use Zone (SUZ)
- **Extractive Industry Interest Areas (EIAs)**: areas likely to have a good supply of extractive resources and are in locations with good transport links and relatively few environmental constraints
- **Strategic Extractive Resource Areas (SERAs)**: areas known to have long-term supplies of strategic extractive resources at the required quantity and quality to support commercial quarrying operations to make a substantial contribution to building Victoria's public and private sector infrastructure – these are individually identified in the VPPs via the **State Resource Overlay**, Schedule 1 (SRO1), with WAs at the edge of each SERA protected via the SRO2/SRO3
- **Work Authorities (WAs)**: licences issued under the *Mineral Resources (Sustainable Development) Act 1990* for quarries to operate.

▼ **Figure 3: Planning control protection for strategic extractive resources**



Extractive Industry Interest Areas

The Geological Survey of Victoria established EIAs in the VPPs in the 1990s. EIAs identify land reasonably close to major population centres that are likely to contain commercially viable extractive resources and where extractive industry could potentially be established.

EIAs have played a minor role as a planning tool in the planning system, due in part to their location within a particular area being shown on maps that have not be easily accessed, and therefore not easily identifiable. As a result, the current planning controls at *Clause 52.09 Extractive industry and extractive industry interest areas* do not adequately protect strategic extractive resources. Some EIAs have been encroached on by sensitive land uses or inappropriate development, which has resulted in those resources no longer being available for extraction.

The Helping Victoria Grow: Extractive Resources Strategy found that EIAs are too extensive, inconsistent with other government strategic planning documents and do not provide a binding mechanism to secure extractive resources of strategic importance. Implementing the SERA pilot project was one of the strategy's top three actions in response to EIAs not providing the level of protection that was originally intended.

There is also considerable variation in planning approaches to extractive resources, as relevant policies are included in various sections of planning schemes. The SERA designation builds

on the EIAs approach, to define requirements in planning schemes in a much clearer and more consistent way, in that:

- SERA boundaries are better investigated and determined, with greater public consultation
- the three proposed SERAs are in areas with existing EIAs and will be by clearer, more enforceable planning controls
- the SERA designation gives areas with strategic extractive resources a higher policy profile in planning schemes, which should encourage new extractive industries to establish in areas where those resources are known to exist
- the draft planning controls provide clearer guidelines to ensure SERAs are considered in land use assessments and planning permit applications for sensitive uses.

Quarry approvals process

In Victoria, applications for new quarries and extensions to existing quarries are assessed under the PE Act and the MRSD Act.

Quarry applications – also known as applications for extractive industry – may also be assessed under other legislation and regulations, having regard to a range of values including environmental, biodiversity, water and Aboriginal cultural heritage values.

Figure 4 shows the key steps in the quarry approval process. *Planning Practice Note 89 Extractive industry and resources* explains the process of obtaining a WA.

▼ **Figure 4: Quarry approvals process**

1	Work plan	The proponent prepares a work plan in consultation with the Earth Resources Regulator and responsible authorities
2	Planning permit or EES	The proponent applies for a planning permit (as usually occurs) or prepares an Environment Effects Statement
3	Work authority	The proponent submits the work plan, planning approval or EES, rehabilitation plan and bond to the Earth Resources Regulator Minister for Energy and Resources issues a work authority if all is in order
4	Quarry operations	The proponent operates the quarry according to the work plan and planning permit/EES conditions the quarry operator reports production volumes and sales values to Resources Victoria annually

Work plan

The process begins with the proponent preparing a work plan in consultation with the Earth Resources Regulator in DEECA and with responsible authorities.

The plan:

- sets out the site layout and the proposed works
- shows how the applicant will meet council, water authority and environmental management and catchment authority requirements, including with respect to traffic, environmental management, native vegetation, amenity and Aboriginal cultural heritage
- shows how the applicant will satisfactorily manage dust, noise, vibration, earthworks and drainage risks.

Native vegetation removal is not permitted without approval, subject to the VPP and related legislation. Typically, land within 20m of the proposed WA boundaries must be left in its natural condition and not used for quarrying activity, stockpiles or storage.

Resources Victoria's *Extractive industry work plan guideline* has detailed information about preparing a work plan.

Planning permit or Environment Effects Statement

Once the department head administering the MRSD Act approves the work plan, the proponent must then either:

- apply for a planning permit to use and develop land for extractive industry (as usually occurs) or
- prepare and have assessed an Environment Effects Statement (EES) under the *Environment Effects Act 1978* and have a WA issued for the land: this alternative to the requirement for a planning permit is allowed under *Clause 52.08 Earth and energy resources industry* and section 77T of the MRSD Act.

A planning permit is required if no EES is prepared.

If the responsible authority decides to issue a planning permit, the permit sets out conditions to manage extractive operations, including hours of operation, off-site traffic management, amenity, appearance and environmental matters. These operational details recorded in the work plan must align with those recorded in the documents submitted to the responsible authority to satisfy planning permit conditions.

Clause 52.09 Extractive industry and extractive industry interest areas sets out application requirements, the referrals and giving notice processes and other matters.

The responsible authority to make a decision on the planning permit application is usually Council, unless the Minister for Planning exercises their power to call in the application – or it is submitted via the Clause 53.22 pathway noted earlier in this report. The Minister for Planning is also the responsible authority for the EES.

Work authority

Once completed, the proponent submits the work plan, planning approval or EES, a rehabilitation plan and a bond to secure the rehabilitation to the Earth Resources Regulator. In some cases, they may also need to submit an Aboriginal cultural heritage management plan.

If all is in order, the Minister for Energy and Resources, through Resources Victoria, issues a licence to operate the quarry – a work authority after actions under section 77I(3) of the MRSD Act are completed. The WA has a sunset date. The planning permit is valid indefinitely unless the quarry ceases to operate for more than ten years.

Extractive activities can only happen within the approved area under the work plan, which is set out in the WA. Over time, the work plan can be varied to extract resources in the WA outside the current extraction limit or to change production levels or layout. Such variations may need further approvals under the MRSD and PE Acts.

The quarry operator must report production volumes and the value of sales to Resources Victoria annually for each quarry. The sales value reporting is 'at gate' or 'at the quarry gate' and is the value of the extractive resources in the trucks as they leave the site's weighbridge, less production costs to that point. This reporting allows Resources Victoria to understand and report on the value of production across the state.

Encroachment, buffers and the planning system

Despite best practice management, the effects of the dust, noise and ground and air vibrations that extractive industry generates can sometimes not be wholly contained within the site. A land use buffer — a separation distance — around the edges of a quarry discourages sensitive land uses like dwellings from locating too close to a quarry. A land use buffer enables a quarry to operate in accordance with its licence, and it provides confidence to those nearby (such as residents) that quarrying will not adversely affect their amenity.

Land use buffers are most effective when they can be readily identified in the VPP and planning schemes.

The planning system uses buffers to separate incompatible land uses from encroaching on established uses. Some buffers are easily identifiable through the use of overlays. Others are described in planning schemes or referred to in guidelines (such as *EPA publication 1518: Recommended separation distances for industrial residual air emissions*).

Table 5 shows the VPPs and other items in planning schemes relevant to buffers.

▼ Table 5: Planning controls relevant to buffers

ITEM	FUNCTION	REMARK
Precinct structure plans (PSPs) or framework plans	These may indicate buffer areas, which may also be included in an enabling planning scheme zone or overlay.	Any buffers in PSPs are usually shown or described on structure plan maps either as incorporated documents or in schedules to the Urban Growth Zone.
Clause 35 Rural Zones	These zones require applications for accommodation uses within 500m of the nearest title boundary of the land on which a WA has been applied for or granted to be referred to the Secretary of the department administering the MRSD Act.	VicPlan, the Victorian Government's online mapping service, shows the presence and status of current and proposed WAs and buffers.
Clause 44.07 State Resource Overlay (SRO)	An SRO schedule can be used to identify buffers for extractive industry areas.	The SRO buffer schedule is used to manage the encroachment of sensitive or incompatible land uses near extractive industry operations.
Clause 44.08 Buffer Area Overlay (BAO)	A BAO can be used to prevent incompatible land uses and development from co-locating. Referrals to the Environment Protection Authority are required for proposed sensitive land uses within a BAO.	A BAO, where applied, is in the relevant local government's planning scheme. It does not include extractive industry among the uses for which the overlay is to be applied.
Clause 52.09 Extractive industry and extractive industry interest areas	The clause sets out referral and notice requirements when accommodation in a rural zone is proposed within 500m of a current WA or proposed extractive industry operation.	VicPlan, the Victorian Government's online mapping service, shows the presence and status of current and proposed WAs and EIAs.
Clause 53.10 Uses and Activities with Potential Adverse Impacts	The clause provides for buffers or separation distances between sensitive land uses and uses that could cause offence or unacceptable risk. If they could, a referral to the EPA is required.	Extractive industry is not included in the list of uses in the clause.
PPN 92: Managing buffers for land use compatibility	The clause provides guidance on planning for land use compatibility and requirements in the VPPs about the management of buffers.	Supports interpretation of clause 13.07 and the Buffer Area Overlay.
EPA publication 1518 Recommended Separation Distances for Industrial Residual Air Emissions – Guideline (EPA 2013)	The guidance recommends a 500m for blasting (stone) and a 250m buffer for non-blasting (sand) quarries. It must be considered in strategic and statutory planning processes as an adopted guide under Clause 60(1A)(g) of the PE Act.	This guidance is to be updated in August 2024 to EPA Guideline 1947, which will apply a standard buffer of 500m for all quarries. A risk assessment will be required for all sensitive uses proposed within 500m of an existing quarry or a new/expanded quarry within 500m of a sensitive use.

Proposed Special Use Zone schedule changes

While the Special Use Zone (SUZ) provides for the use and development of land for specific purposes identified in a schedule to the zone, the VPPs do not include a zone that specifically provides for the use of land for extractive industry.

The SERA project therefore includes:

- rezoning of some or all land within a SERA that contains a WA to the SUZ, subject to a set of selection criteria
- applying or updating SUZ schedules for extractive industry to provide for the use of land within the SUZ that is already being used for quarrying.

While a WA provides a quarry with some protection from encroachment and includes specific land management requirements, the SUZ schedule will prohibit incompatible land uses, providing certainty to quarry operators and neighbours about land uses that may or may not occur within the SUZ. The SUZ schedule will also encourage interim uses and land rehabilitation after quarrying operations have concluded, and the schedule can be tailored to each individual SERA.

Most of the land in the Lang Lang SERA is in the Green Wedge Zone, Schedule 1 (GWZ1), with one parcel zoned Rural Conservation Zone, Schedule 1 (RCZ1). The Oaklands Junction SERA is already partially zoned SUZ in recognition of the existing land use as a hard rock quarry, but a portion of this SERA is also in the GWZ. The Trafalgar SERA contains land in the Farming Zone, Schedule 1 (FZ1). Sections 4 – 6 of this report contain detailed zoning analyses of each SERA.

The SUZ tends to be a more appropriate zone for land containing WAs than the rural zones of GWZ1, RCZ1 and FZ1. While a planning permit can be issued for quarrying in rural zones, these zones also allow a range of land uses that can be incompatible with quarrying and may or may not require a planning permit. These land uses include bed and breakfasts, dwellings, group accommodation, halls, funeral parlours and primary schools. Such uses can potentially limit approved and potential future extractive industry, which is why it is better to have a specific SUZ schedule to manage land uses that are incompatible with extractive industry.

For various reasons, not all WAs within SERAs are proposed to be rezoned to the SUZ. For example, when land is rezoned, all of the land within the title boundaries must be rezoned to ensure consistency of zoning within that land parcel/lot. In many instances, WA boundaries are the same as Title boundaries, but sometimes WA boundaries cover only a small portion of the lot. In some instances, WA boundaries extend beyond the title boundaries of one lot into two or more lots.

Factors considered when determining whether a particular WA within a SERA should be proposed for rezoning therefore include:

- whether the alignment of WA boundaries is the same/close to the lot boundaries of the land parcel/parcels
- if the WA boundaries cover only a small portion of the larger lot boundaries, then it is not proposed to be rezoned
- if the WA boundaries extend into two or more lots, whether the WA boundaries comprise a majority of the area of all lots
- whether the WA, lot and/or zone boundaries are determined by specific features within the landscape, such as a road or watercourse
- whether the land is affected by existing factors that would prevent its potential future use for extractive industry, such as an incompatible land use that is already established within the buffer area of a WA.

It is proposed to:

- rezone to the Special Use Zone Schedule 1 (SUZ1) nine WA sites within the Lang Lang SERA, the GWZ portion of the Oaklands Junction SERA and two WAs within the Trafalgar SERA
- update the existing Schedule 1 to *Clause 3701 Special Use Zone* for the Oaklands Junction SERA.

The GWZ1, RCZ1 and FZ1 include a planning provision that:

- requires a minimum subdivision lot size of 40 ha
- allows the granting of a permit for a smaller lot if the subdivision is a re-subdivision of existing lots and will not increase the number of lots or dwellings or where the subdivision is by a public authority or utility service for a utility installation.

For consistency, it is proposed to retain these requirements for the subdivision of land in the SUZ planning controls.

Proposed State Resource Overlay Schedule 1

The proposed State Resource Overlay 'Strategic Extractive Resource Areas' Schedule 1 (SRO1) would apply to all of the land within each SERA, identifying its extent and requiring a planning permit for all sensitive uses, buildings, works and subdivision. The draft planning controls also include a two-step test for determining whether planning permit applications for a new quarry or extension to an existing quarry would be exempt from the notice, review and appeal rights under the PE Act, based on the proximity of the proposed quarry to existing sensitive uses and road transport infrastructure.

The Statement of Resource Significance in the SRO1 describes the importance of extractive resources within each SERA, to provide a more specific context and assist with decision making.

The proposed SRO1 boundaries have been mapped having regard to surrounding environmental and Aboriginal cultural heritage values, existing land uses, transport networks and proximity to extractive resource markets.

The SRO1 planning controls are intended to form a part of the VPPs over the long-term. The SRO1 boundaries may, therefore, change over time due to various factors, including the approval of a nearby new quarry or expansion of an existing quarry, the productive 'life' of a quarry coming to an end and its land being rehabilitated, changes to sensitive land use buffer distances or changes in government priorities. If approved in future, any amendments to SERA boundaries would be made via the planning scheme amendment process.

Boundary determination

The SRO1 boundaries have been mapped following detailed analysis, which considered:

- geoscience and geological evidence as the basis for each SERA's shape, and it confirms that the SERA contains strategic extractive resources: see Appendix 2 and each SERA section for detailed information
- updated supply and demand information, which Resources Victoria produces periodically
- biodiversity and native vegetation: see Appendix 3 and each SERA section for detailed information
- amenity, particularly avoiding nuisance from dust, noise and ground and air vibrations, having regard to existing guidelines for separation distances, settlement patterns and land use zoning
- transport: the relationship of the site to its surrounding transport network and proximity to where the extractive resource is needed
- cultural heritage: by examining areas of Aboriginal cultural heritage sensitivity, as defined in the *Aboriginal Heritage Regulations 2018*
- land use, asset and hazard mapping shown on planning scheme zones and overlays
- lot boundaries versus WA boundaries: whereas the SUZ rezoning boundaries align with lot boundaries, SRO1 boundaries may generally align with lot boundaries or WA boundaries, depending on how closely the WA boundary aligns with the lot boundary. If the WA boundary closely aligns with the lot boundary, then the SRO1 boundary will as well. If the WA boundaries do not closely align with the lot boundaries, then the SRO1 boundary will align with the WA boundary.

An assessment was also undertaken of community impacts, consistent with the Confident Communities theme of the 2018 *Helping Victoria Grow: Extractive Resources Strategy*. The assessment sought to identify and address issues that commonly concern communities around quarry sites. Planning permit application assessment processes are lengthier and more complex where quarries are proposed in areas with high cultural heritage, biodiversity, amenity or environmental values. Local communities understandably want to know that potential quarry operators will respect and protect these values.

Planning permit requirement

To prevent inappropriate development within a SERA, under SRO1 a planning permit will be required:

- for new sensitive land uses within SRO1 to ensure it is compatible with potential future quarrying
- to construct a building or to construct or carry out works, except for:
 - an alteration or extension to an existing building, provided the gross floor area of the alteration or extension is no greater than 200m²
 - a non-habitable building with a gross floor area no greater than 200m²
 - a building or works associated with the use of land for extractive industry
 - works with an area not exceeding 200m²
 - works associated with the use of land for agriculture (agriculture is generally considered a compatible land use)
 - a rainwater tank
 - land in the Public Use Zone, Schedule 4
- to subdivide land unless each lot created by the subdivision is at least 40 ha.

Sensitive land uses

The proposed SRO1 would identify sensitive land uses that require a planning permit. These land uses are typically incompatible with current or future quarrying operations.

Sensitive land uses:

- encourage people to congregate in an area
- may gradually increase in scale to such an extent that they discourage or prevent the complete extraction of otherwise available resources
- are commercial activities that depend on the surrounding area to have high amenity values.

The sensitive land uses proposed in SRO1, consistent with the approach taken across the VPPs, are:

- accommodation (including a dwelling, dependent persons' housing, retirement village and hotel)
- crematorium
- education centre (including a school and childcare centre)
- funeral parlour
- hospital
- leisure and recreation facility (including a formal or informal facility, with or without paid access)
- place of assembly (including a hall, function centre and place of worship)
- retail premise (including a shop, restaurant, cafe and farm gate sales premise)
- winery
- veterinary clinic.

Subdivision

The fragmentation of land via subdivision can deter a prospective quarry operator from buying and aggregating sufficient land holdings to set up a viable extractive industry operation. Small or fragmented rural lots can also be attractive locations for rural living and other sensitive land uses incompatible with extractive industry.

To ensure the potential subdivision of lots smaller than 40 ha is monitored and considered under extractive industry policy, the proposed SRO1 will require a planning permit to subdivide land, except where each lot created is greater than 40 ha.

Planning permit referrals

It is proposed that all planning permit applications triggered by the SRO schedules be referred to Resources Victoria as the determining referral authority. This means Resources Victoria may specify conditions to the granting of a planning permit or direct that the permit application be refused.

If Resources Victoria specifies permit conditions, they must be included as part of the permit. If it directs that the permit must be refused, then the responsible authority (Council, the Minister for Planning or the Victorian Civil and Administrative Tribunal) must refuse to grant a planning permit.

Planning permit decision guidelines

In addition to the decision guidelines in *VPP Clause 44.07 State Resource Overlay* and *Clause 65 Decision guidelines*, the decision guidelines the responsible authority would have to follow for planning permit applications triggered via SRO1 are:

- the statement of resource significance and the management objectives specified in a schedule to the overlay
- the significance of the future productive use of the resource to the state
- any transport network implications related to the application
- when the resource is likely to be required for extraction
- the desirability of preventing any use, buildings, works or subdivision that may adversely impact the future productive use of the resource
- any other matters specified in a schedule to the overlay.

Exemptions from quarry application notice, decision and review rights

The proposed SRO1 exempts a planning permit application for extractive industry (quarrying) from the PE Act's notification, decision and appeal provisions if the proposed quarry:

- is to be located at least 250m (for a sand quarry) or 500m (for a hard rock quarry) from a sensitive land use
- has access to a road in TRZ2 (the principal road network), including a declared arterial road.

This means if the above two tests are met, the responsible authority will not provide public notification of the application and its decision – to grant or refuse a permit – cannot be appealed at the Victorian Civil and Administrative Tribunal (VCAT). The reason for this is that if an application meets the two tests, the proposed quarry will likely have minimal impact on the amenity of surrounding sensitive land uses. This approach is consistent with the planning controls approved as part of the SERA pilot project.

An exception to an application being exempt from notification would occur if a specific person or entity is listed in the table in a *Clause 66.06 Notice of permit applications under local provisions* schedule. It is proposed to add the Registered Aboriginal Party (RAP) under the *Aboriginal Heritage Act 1990* whose Country would be affected by the proposed quarry to this table. While the RAP could submit an objection to the proposal, it would not have the right to appeal the responsible authority's decision at VCAT.

The exemption of notification, decision and appeal provisions does not mean a proposed quarry is automatically approved. It must still be assessed in accordance with the relevant decision guidelines under the PE Act and the WA application process under the MRSD Act.

Table 6 provides more detail about the legislative context for exempting planning permit applications for extractive industry in SERAs if the responsible authority determines the two tests are met.

▼ **Table 6: Planning permit application notification, decision and appeal exemptions legislative context**

EXEMPTION	CONTEXT
NOTIFICATION	
Notice of the application to neighbouring owners and occupiers <i>PE Act section 52(1)(a)</i>	The proposed exemption would omit neighbours being notified of a planning permit application for a quarry. However, under section 77K of the MRSD Act, the WA licence holder must consult with the community throughout the period that the WA is current by sharing information about their activities and giving community members reasonable opportunities to express their views about those activities.
Notice of the application to a neighbouring council where relevant <i>PE Act section 52(1)(b)</i>	The proposed exemption would remove this step.
Notice of the application to any person to who the planning scheme requires <i>PE Act section 52(1)(c)</i>	The proposed exemption would not remove this step and would require notice to be given to any persons (organisation) identified within the planning scheme at Clause 66.05 or Clause 66.06 (as noted above).
Notice of the application to any other person <i>PE Act section 52(1)(d)</i>	The proposed exemption would remove this step. The proposed exemption does not stop a council from deciding to give further notice of an application if it is likely to be of interest or concern to the community (PE Act section 52(1)(3)).
DECISION	
Giving notice of a decision to refuse a permit <i>PE Act sections 65(1) and (2)</i>	Should the application be refused, the applicant and any objectors would not be notified of the decision or the grounds for the decision.
Giving notice of a decision to grant a permit <i>PE Act sections 64(5)</i>	If the application is approved, the applicant and any objectors would be given a copy of the decision.
APPEAL	
An objector may not apply to the Victorian Civil and Administrative Tribunal for a review of the decision to grant a permit, should one be issued <i>PE Act sections 82(1)</i>	As noted above, this exemption would only apply if there were no existing sensitive land uses within 250m of a proposed sand quarry or 500m of a proposed stone quarry and the proposed quarry has access to a road in the TRZ2.



Work authority approval process is unchanged

The requirements for approvals for a WA under the MRSD Act are not affected by the SERA draft planning controls. Similarly, there are no changes proposed to planning controls that apply under *Clause 52.09 Extractive industry and extractive industry interest areas*. The assessment process for proposed extractive industry outside a SERA are also unchanged. A planning permit will continue to be required for extractive industry under relevant zoning provisions.

Proposed State Resource Overlay Schedule 2 or 3

The proposed State Resource Overlay 'Protecting Extractive Industries' Schedule 2 or 3 (SRO2/3) — also called the 'SRO buffer' in this report — would be applied to land outside the SERA adjacent to a WA that is located within the SERA towards the edge. The SRO buffer would require a planning permit for the same sensitive land uses, development and subdivision as for the SRO1. This would prevent incompatible activity being locating close to an existing quarry or from encroaching on or limiting the ability of the quarry to function into the future.

For the Oaklands Junction and Trafalgar SERAs, the schedule number would be 2 (SRO2) and for the Lang Lang SERA, the schedule number would be 3 (SRO3). This is because the SERA pilot project introduced the SRO2 schedule via Amendment VC196 into the Cardinia and South Gippsland Planning Schemes as the SRO buffer for the Nyora West SERA, located in South Gippsland Shire, so Schedule 3 is numerically next in the sequence.

The proposed SRO buffer width would be a maximum of 500m from the edge of a WA boundary for stone quarries - which normally use explosive blasting as part of the extraction process - and a maximum width of 250m from the edge of the WA boundary for sand quarries, which do not usually use explosive blasting.

Extractive industry operators on land adjacent to the proposed SRO buffer would continue to be required to meet their environmental duty of care and other requirements to control dust, noise and ground and air vibrations within their WA site boundaries. The 250m / 500m SRO buffer distances that were applied as part of the SERA Pilot project and which form part of the draft planning controls are consistent with the Environment Protection Authority's 2013 *Recommended Separation Distances for Industrial Residual Air Emissions - Guideline*.

In August 2024, the EPA provided an update to the guidelines that require a risk assessment to be undertaken for sand quarries proposed to be located within 500m of an existing sensitive use, and for sensitive uses proposed to be located within 500m of an existing sand quarry. This is consistent with the 500m threshold for stone quarries. The previous distance threshold for sand quarries was 250m. The draft planning controls currently retain a 250m threshold distance for managing sensitive land uses within the buffer of the SERA.

The proposed SRO buffer specifies land uses, development and subdivisions that will require a planning permit, along with decision guidelines to be considered by the relevant responsible authority. Permit applications will be referred to Resources Victoria under the same requirements as applications referred under SRO1.

The proposed SRO buffers were determined by measuring the distance from the property boundary of the land within which the WA is located. This approach is consistent with *Clause 52.09 Extractive industry and extractive industry interest areas* and with the SERA pilot project method. Using title boundaries as the measurement point is also consistent with other planning controls that address extractive industry and buffers.

The locations of the SRO buffer boundaries are intended to remain within the VPPs over the long-term. The locations of these boundaries may be amended in response to WA boundaries moving over time, as the locations of a quarry pit and the associated machinery, plant, equipment and other structures change over the life of the quarry. Any such changes to SRO buffer boundary locations would occur via an amendment to the VPPs.

The planning controls associated with the SRO buffer are exactly the same as those in SRO1, except that planning permit applications for extractive industry on land within the SRO buffer would not be exempt from the notice, decision and review requirements explained in Table 7.

Planning permit decision guidelines

To ensure that incompatible land uses are discouraged from locating close to an existing quarry or from encroaching on or limiting its ability to function now or in the future, a decision about granting a planning permit will take into account whether:

- the proposed use or development is compatible with the extractive industry use operating on nearby land
- the use or development could limit the operation and expansion of the extractive industry
- if existing natural features and topography will mitigate the potential impacts of existing or future extractive industry on the proposed use
- the proposed use or development is a major capital development which may adversely affect the future productive extraction of the resource
- the proposed development is designed and sited in a location that minimises amenity impacts from resource extraction operations and transportation
- the proposed subdivision would lead to land use outcomes that inhibit the use of the land for extractive industries.



4. LANG LANG SERA

About the Lang Lang SERA

The Lang Lang SERA is approximately 33.6 km² in area and wholly located within the Cardinia Shire. It includes areas of land that form part of a larger group of EIAs extending from Lang Lang in Cardinia Shire through Nyora in South Gippsland Shire and south to Grantville and Glen Alvie in Bass Coast Shire.

Sand resources to the east (near Nyora) have been extracted since the 1950s, and sand extraction in this area is projected to continue for the next few decades. Sand extracted in this area is used in construction projects across Melbourne.

Most land parcels in the SERA are over 40 ha, and most of the remainder are over 21 ha. Land uses in and around the SERA are farming, a gas plant, rural-residential, quarrying, major transport corridors and areas with important environmental values (including Ramsar wetlands and remnant native vegetation).

Cardinia Shire is one of the top five strategic extractive resource locations in Victoria and is Victoria's second-highest sand-producing LGA, supplying 2,591,000 tonnes of sand and gravel: 16.45% of all sand and gravel produced in Victoria in 2022–23.

Two EIAs for sand and gravel cover most of the Lang Lang SERA. There are nine WAs in the SERA – WA127, WA338, WA456, WA1005, WA1029, WA1338, WA1372, WA1516 and WA006051 – contained within 11 lots. Of these, seven are currently 'in production' (that is, operating as quarries). Six of the WA boundaries closely align with the lot boundaries, with the other WA boundaries generally aligning with lot boundaries.

Figure 5 shows the proposed SERA boundaries.

While most of the land within the SERA is in private ownership, there are also 27 Crown land parcels. These are used for services and utilities, community uses and resources, as well as nature reserves and local waterways.

Snapshot



LGA

Shire of Cardinia



LOCATION

About 94 km south-east of Melbourne's CBD and 18 km from the Urban Growth Boundary at Pakenham



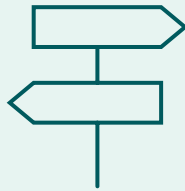
AREA

3,301 ha (33 km²) approx.



REGISTERED ABORIGINAL PARTY

Bunurong Land Council
Aboriginal Corporation



NEARBY SETTLEMENTS

- Lang Lang
- Jam Jerrup
- Nyora



EXTRACTIVE RESOURCES

- Sand
- Gravel



WORK AUTHORITIES

Nine WAs, covering about 800 ha, of which seven are in production



SUPPLY

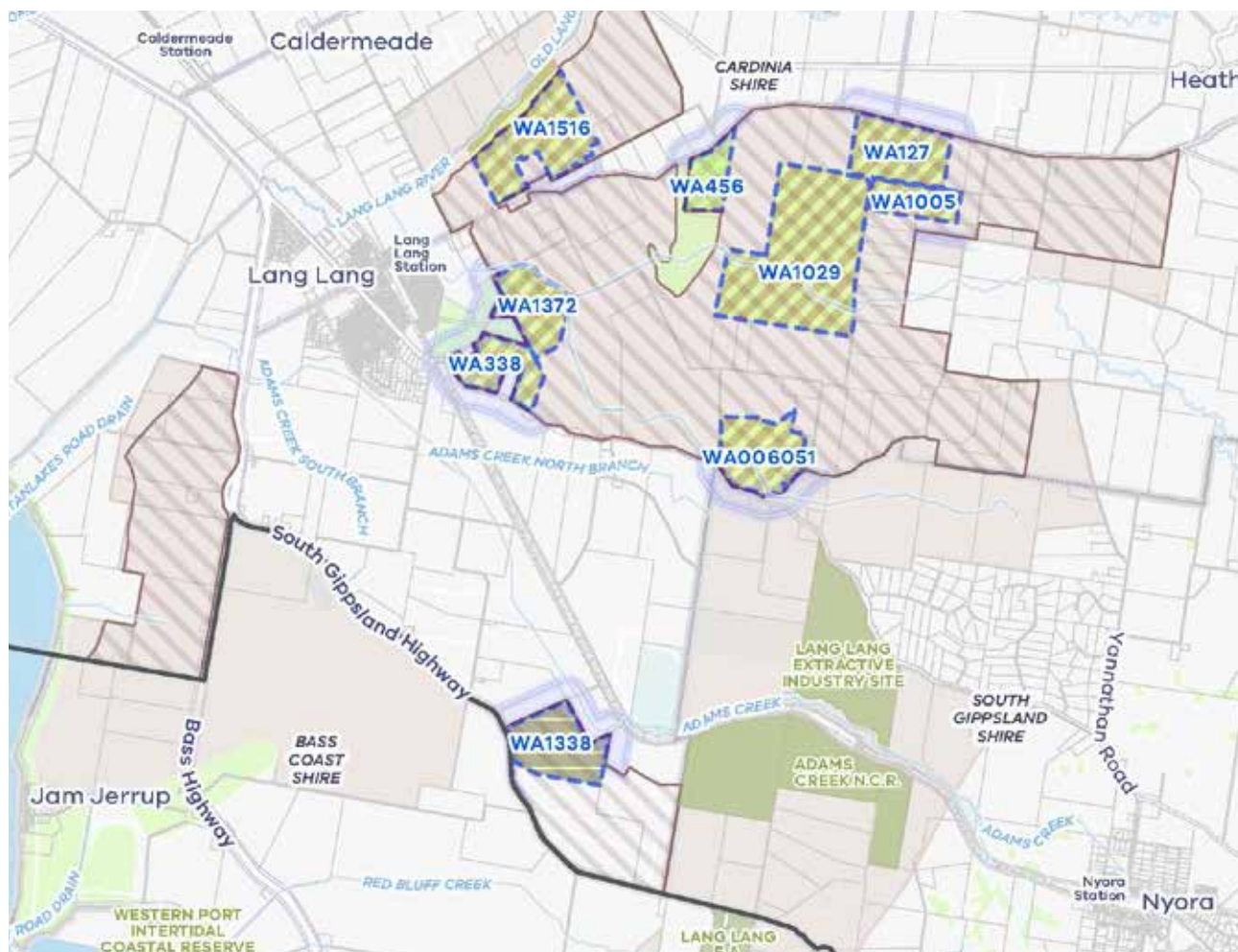
Quarries in Cardinia supplied 2.46 million tonnes of sand to Victoria (mainly Melbourne) in 2022-23, representing about 15% of Victoria's sand production



LAND USES IN AND AROUND THE SERA

Farming, a gas plant, rural-residential, quarrying, major transport corridors and areas with important environmental values (including Ramsar wetlands and remnant native vegetation)

▼ Figure 5: Lang Lang SERA



Consultation Draft Planning Controls - Lang Lang (Cardinia Shire)

Existing

-  Work Authority (WA) of quarry
-  Extractive Industry Interest Area (EIIA)
-  Environmental Significance Overlay, Schedule 3 (ESO3)
-  Park/Reserve
-  Named Waterways

Proposed

-  State Resource Overlay, Schedule 1 (SRO1)
-  State Resource Overlay, Schedule 2 (SRO2)
-  Rezone Green Wedge Zone (GWZ) to Special Use Zone, Schedule 1 (SUZ1)
-  Rezone Rural Conservation Zone, Schedule 1 (RCZ1) to Special Use Zone, Schedule 8 (SUZ8)
-  Bass Coast Distinctive Area and Landscape boundary

Geoscience

The Lang Lang SERA has substantial sand and gravel resources of strategic importance for Melbourne and Victoria. There are seven current work authorities. Quarrying operations have started in six of them but not in WA1029.

The bulk of the SERA is located between the Lang Lang Fault in the west and the Heath Hill Fault in the east, and it has several types of sand:

- in Cardinia, extraction is mainly from Pleistocene-age Cranbourne sand and Pliocene-to-Miocene-age Sandringham sandstone units
- in the south around Grantville, extraction is from the Pliocene-to-Oligocene age Yallock Formation.

The sand from each production area has different physical properties, but they both meet specifications for construction use.

The sands from the areas are considered prospective, justifying the application of two EIAs (884122 and 883996) for sand and gravel. Incompatible land uses have not significantly encroached on the EIAs within the SERAs.

The sand resources in the SERA are suitable for the production of construction sand. Considering all the WAs throughout the sand area of Cardinia and Bass Coast shires between Grantville and Lang Lang, the average overburden thickness is about 3.5m and the overburden-to-sand ratio is 1:6, indicating the sand can be extracted economically.

Aboriginal cultural heritage

The Lang Lang SERA is located within the RAP boundaries of the Bunurong Land Council Aboriginal Corporation. Section 58 of the Aboriginal Heritage Regulations 2006 identifies extractive industry as a high-impact activity, and statutory authorisation is required to use the land for this purpose.

A substantial part of the Lang Lang SERA contains or potentially contains land of Aboriginal cultural heritage significance under the Aboriginal Heritage Regulations 2018, including land within 200m either side of the Little Lang Lang River (north and south branches), Adams Creek and the Lang Lang River, and land within 200m of the Western Port shoreline.

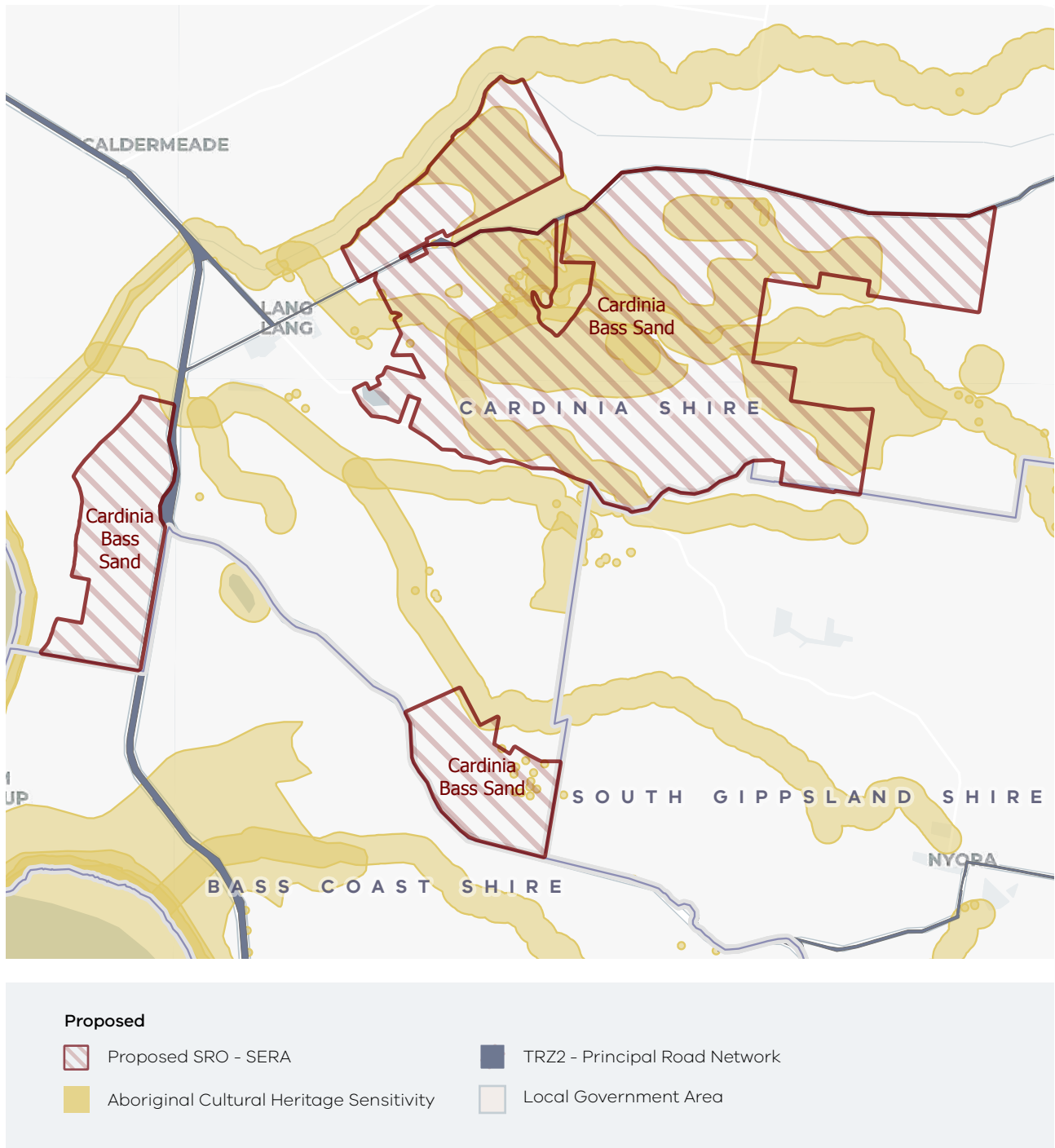
Several named waterways, coastal land and the Koo Wee Rup Plain are mapped as areas of Aboriginal cultural heritage sensitivity. Figure 6 shows mapped areas of Aboriginal cultural heritage sensitivity.

There are several registered Aboriginal places in the area. The proposed SERA boundaries seek to minimise impacts on these places. The smaller portions of the SERA encompass areas with few known areas of Aboriginal cultural sensitivity, but the larger northern portion of the SERA contains known areas of Aboriginal cultural heritage significance. Protections provided under the *Aboriginal Heritage Act 2006* will continue to apply to any future development within the SERA.

Extractive industry is identified as a high-impact activity under section 58 of the *Aboriginal Heritage Regulations 2006*, which requires statutory authorisation to use the land for extractive industry.

The Lang Lang SERA does not contain places listed on the Victorian Heritage Register, World Heritage List, National Heritage List or Commonwealth Heritage List.

▼ Figure 6: Mapped areas of Aboriginal cultural heritage sensitivity within and near the SERA



Environment

The Lang Lang SERA is within the Gippsland Plain bioregion. It is characterised by undulating land, plains and low-lying areas. Vegetation types include heath and grassy woodlands, swampy riparian woodlands and swampy woodlands.

Western Port is located to the west of the SERA, and the foothills of the Strzelecki Ranges are located to the east. The Koo Wee Rup low-lying area is to the north. The Lang Lang River and the Little Lang Lang River (north and south branches) are in and adjoin the SERA, running westwards to Western Port, part of the Bunyip River basin. Further south is the native vegetation corridor that locals refer to as Western Port woodlands, which extend into Bass Coast Shire.

Significant land clearing and altering have fragmented the native vegetation and habitat across the SERA. Vegetation has mainly been cleared for agricultural purposes, but there is some remnant native vegetation.

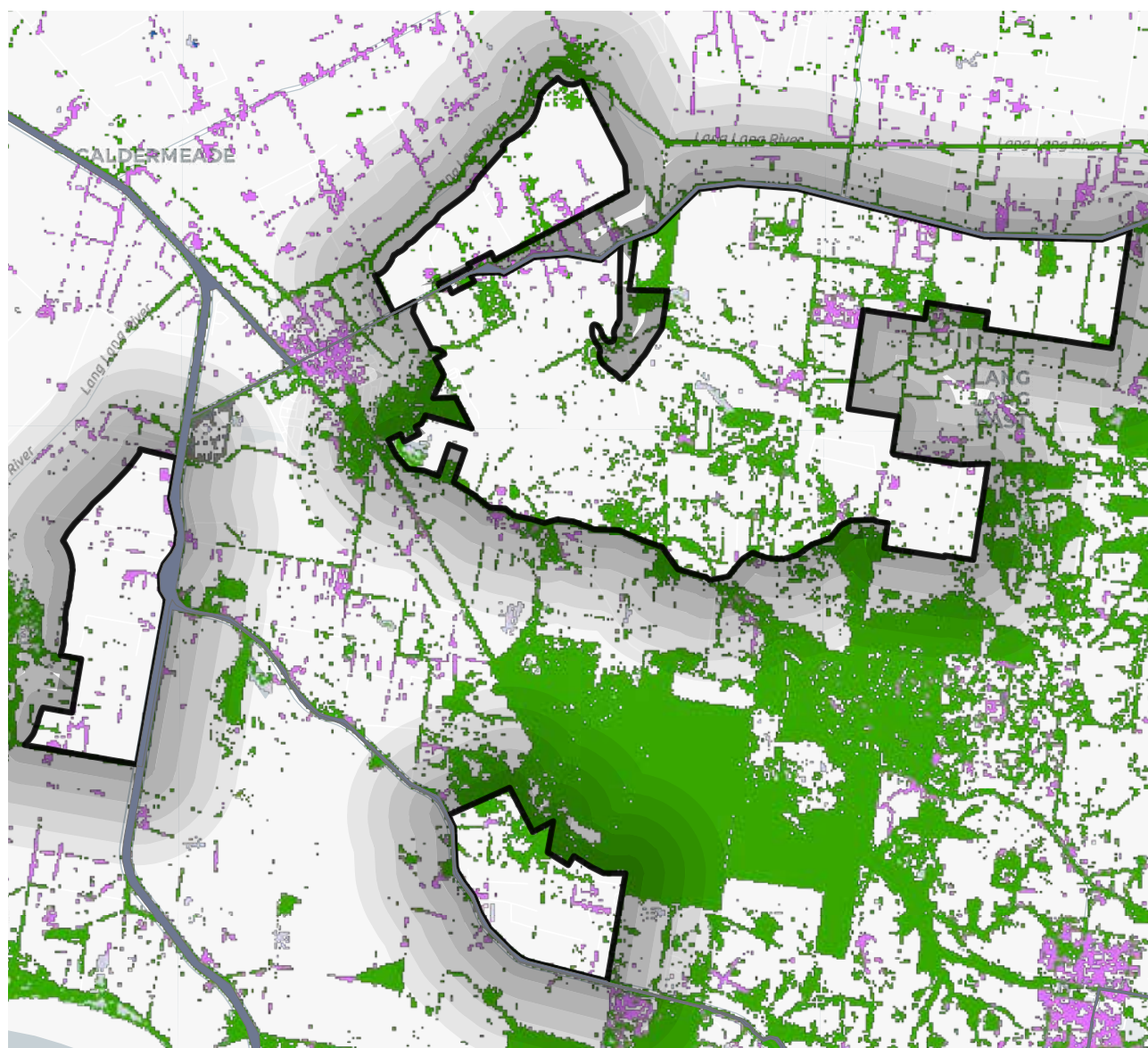
Figure 7 shows remnant native vegetation in and around the SERA. It is mainly located along roads, fence lines and waterways within and surrounding the Adams Creek Nature Conservation Reserve and clustered around current WAs.

Table 7 shows flora and fauna species recorded within the SERA listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act).

▼ **Table 7: Lang Lang SERA threatened flora and fauna species**

COMMON NAME	EPBC ACT	FFG ACT
Large-leaf cinnamon-wattle	N/A	Endangered
Velvet apple-berry	N/A	Endangered
Spurred helmet-orchid	N/A	Endangered
Glaucous flax-lily	N/A	Critically endangered
Southern brown bandicoot	Endangered	Endangered
Eastern curlew	Critically endangered	Critically endangered
Southern toadlet	N/A	Endangered
Lace monitor	N/A	Endangered

▼ Figure 7: Lang Lang SERA native vegetation extent



Legend

Proposed SRO

Tranche 1 Version 1.1

Native vegetation extent

Artificial impoundments

Exotic largely treeless

Exotic tree cover

Native vegetation cover

Natural waterbodies



Western Port Ramsar site

The Western Port Ramsar site is 60 km southeast of Melbourne. It comprises much of the Western Port embayment north of Phillip Island and consists of large, shallow intertidal areas dissected by deeper channels, as well as saltmarsh and mangroves set in a natural wetland marine embayment. Several vulnerable, endangered or critically endangered species or threatened ecological communities are established here. Figure 8 shows the site, which covers about 60,000 ha.

The SERA has low-lying land subject to inundation. The short length of the Lang Lang River and its tributaries, combined with low-lying areas and flood risk from the river, increases the risk of turbidity and siltation from adjoining land uses, including extractive industry. Over time, changes to the course of the Lang Lang River and the drainage of low-lying areas have altered its natural flow conditions.

The SERA is within the land subject to the *Koo Wee Rup Groundwater Management Plan*, administered by Southern Rural Water, for sustainable groundwater use for domestic, commercial and environmental purposes. The SERA is on the southern edge of the Koo Wee Rup Swamp, which has been drained for agriculture since the 1890s, and the first groundwater bore was sunk here in 1922.

Transport

The Lang Lang SERA is located about 94 km from Melbourne's CBD and some 90 minutes by road. Four declared roads run through the SERA: the Bass Highway (M420) along the western edge, Westernport Road (C431) running south-west to north-east, the South Gippsland Highway (A440) through the southern portion, connecting South Gippsland with Melbourne via the Monash Freeway (M1) and Eastlink (M3) and McDonalds Track, running south-east to north-west.

The Bass Highway (M420) and the South Gippsland Highway (A440) carry local, commuter and tourist traffic as well as heavy vehicle traffic to and from quarries and agricultural operations. South Gippsland Highway and Westernport Road have been approved for use by trucks up to 36.5 metres in length. There are several unsealed roads that also form part of the wider road network supporting extractive industry.

The township of Lang Lang is on the (now-closed) Cranbourne–Nyora rail line, which was used to transport glass-grade sand until 1985. There is no existing or proposed railway that could transport sand.

▼ **Figure 8:** Western Port Ramsar site

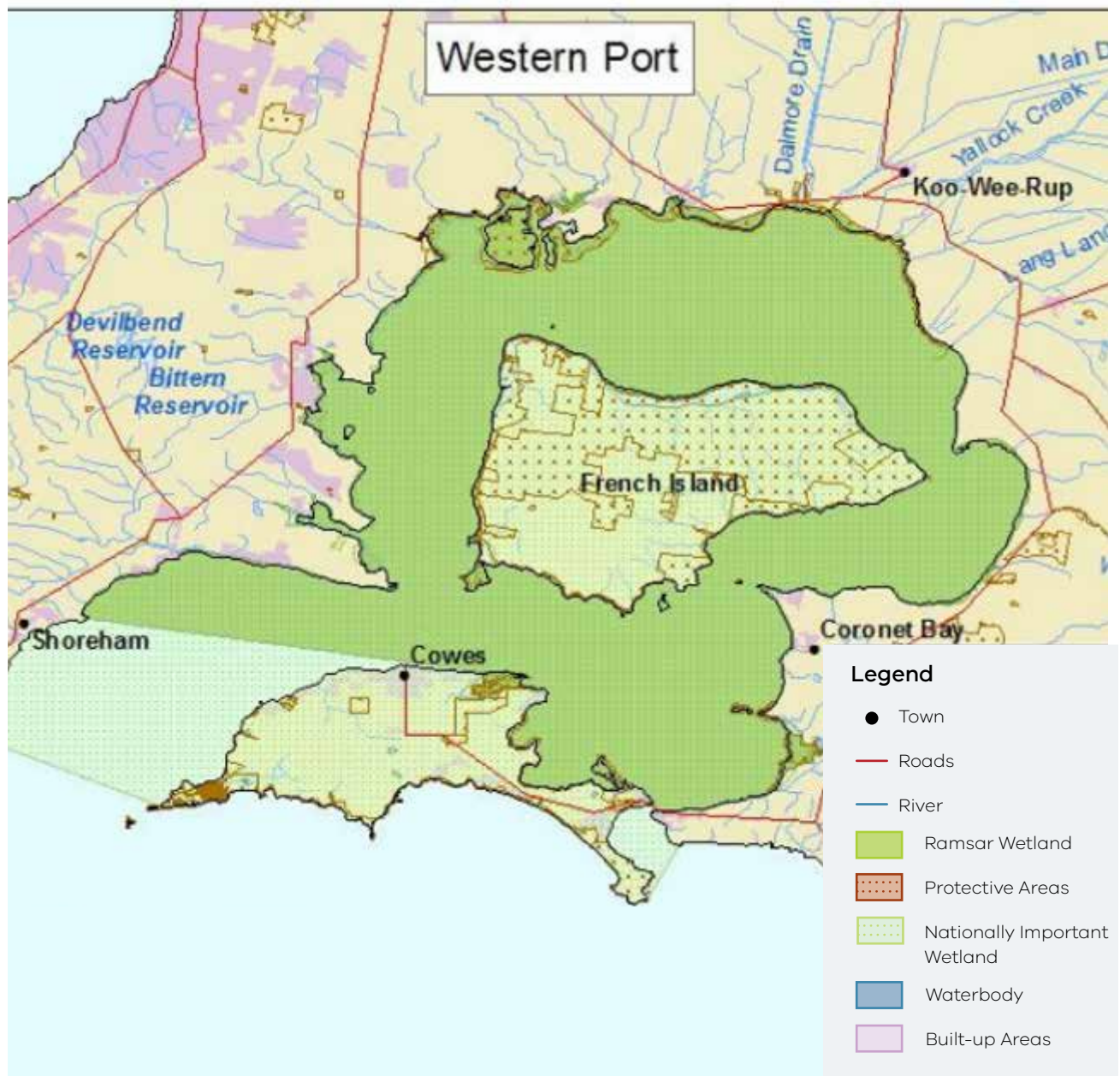


Figure 9 shows the transport network within and around the SERA.

Cardinia Planning Scheme *Clause 21.04-6 Extractive industry* identifies the need to complete planning and designing a bypass for truck traffic from the northern part of the SERA. If realised, the Lang Lang Bypass stages 1 and 2 would seek to redirect heavy traffic, including quarry trucks, around Lang Lang by linking McDonalds Track with Westernport Road and Bass Highway. The bypass has been designed to accommodate trucks up to 26m in length.

Truck and trailer configurations up to 19m long and weighing 50 tonnes (with a carrying capacity of 34 tonnes) can access any road in Victoria. Larger truck configurations such as B-Double and Performance Based Standards (PBS) vehicles up to 36.5 metres long and weighing 113 tonnes can only operate on roads with the relevant national classification.

‘Trucks’ in this section refers to larger vehicles unless otherwise specified. It is a common issue that even if a nearby highway is approved for these larger trucks, the connecting road to a quarry may not be. Truck traffic issues are addressed during the WA approval process, which is a separate to the process of establishing a SERA. Freight Victoria plays a key role in negotiating ‘last kilometre’ access to WAs, with roads providing access to quarries recommended to be declared as arterial roads due to the high volume of traffic and associated road maintenance costs.

In 2021-22, the combined annual quarry production from quarries in the Lang Lang SERA was two million tonnes. Assuming a 4% a year increase in production to meet forecast demand, the production output is projected to grow to 2.6-2.7 million tonnes a year by 2030. Combined production in 2022-23 was 30% greater than in 2021-22, noting, however, that annual production fluctuates in line with market demand.

The likely increase in demand and consequent greater production will increase the volume of truck movements. Based on future demand and supply predictions, the 69,000¹ return truck trips in 2021-22 would increase to about 90,000 return truck trips in 2030. This projection is based on the composition of the existing quarry fleet servicing the SERA. Changes to the truck fleet’s composition would alter this projection. For example, larger-capacity trucks carry more material and so make fewer trips, which aligns with the Victorian Government’s 2021 **High Productivity Freight Vehicle Plan: Moving more with Less**, which intends to improve productivity, safety and environmental outcomes.

The existing road network within and around the Lang Lang SERA will likely require upgrades over time. Further investigation is required to determine the scope and extent of these works. This may include upgrades in the short-to-medium term to meet the demands of growing communities as well as existing and increased quarrying to address:

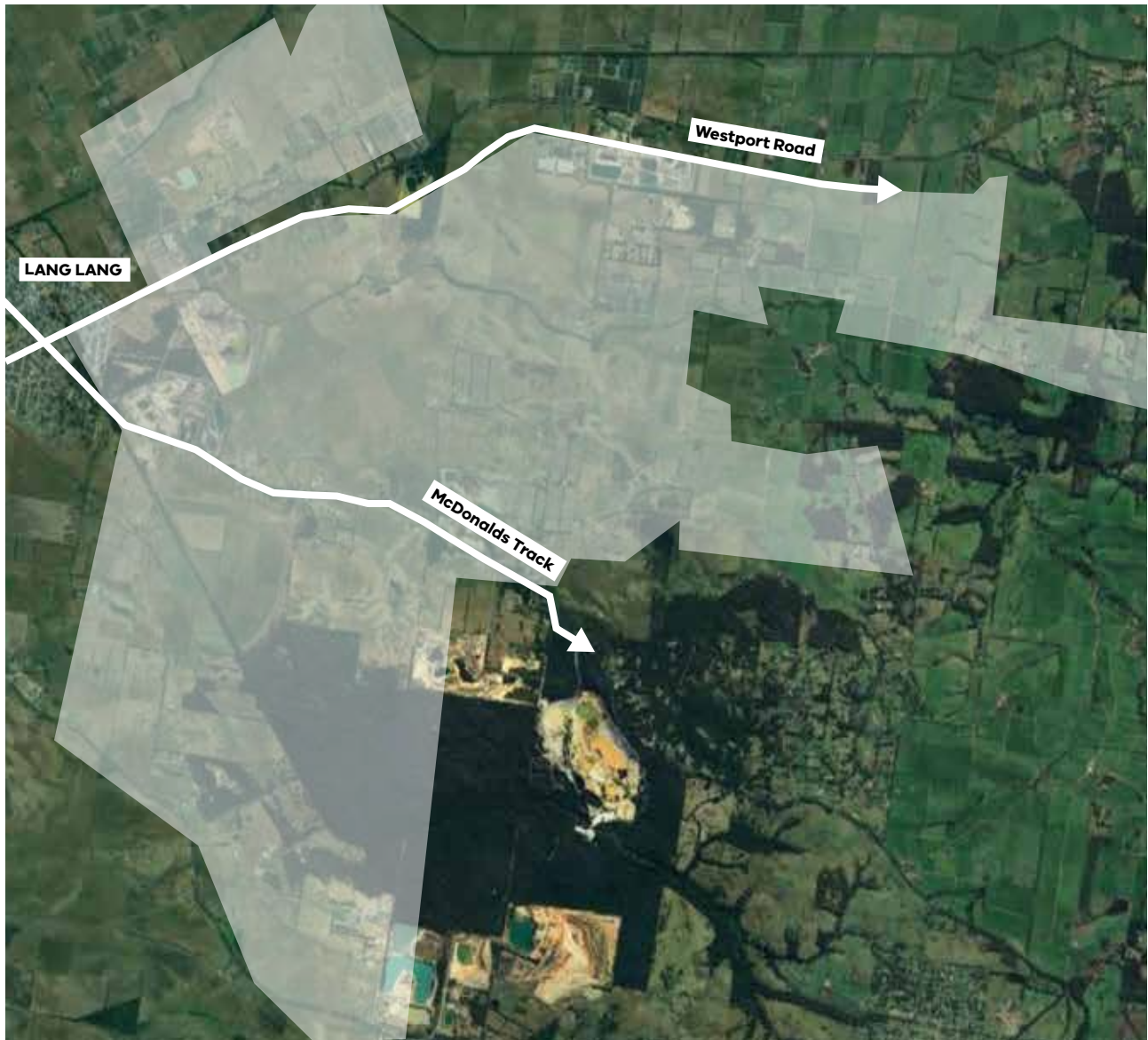
- traffic congestion outside the SERA, including at the roundabout on the South Gippsland / Bass Highway where quarry trucks access the freight network and congestion towards Koo Wee Rup’s and Cranbourne’s urban areas
- road-sharing inside the SERA, with quarry truck routes affecting and being affected by new residential estates on the edge of Lang Lang and by primary school traffic
- the lack of access lanes or access lanes being too narrow for heavy vehicles to merge with quickly moving highway traffic
- minor roads not having been built for large articulated heavy vehicles and roads in low-lying areas having drainage issues that weaken the road, both of which lead to congestion and difficulties moving across the network.

1 69,000 return truck trips comprise 34,500 outward truck loads from the Lang Lang SERA to markets and 34,500 empty trucks returning to the SERA.

Proposed boundaries

Table 8 summarises the assessment of the Cardinia Bass Sand (Cardinia and Bass Coast) Investigation Area and the consequent determination of the proposed boundaries of the Lang Lang SERA (as per the proposed SRO1) and SRO buffers (as per the proposed SRO3), which Table 9 shows. The main factors in determining the boundary were environmental and Aboriginal cultural heritage factors and including as much EIIA land as desirable.

▼ **Figure 9: Lang Lang SERA transport network**

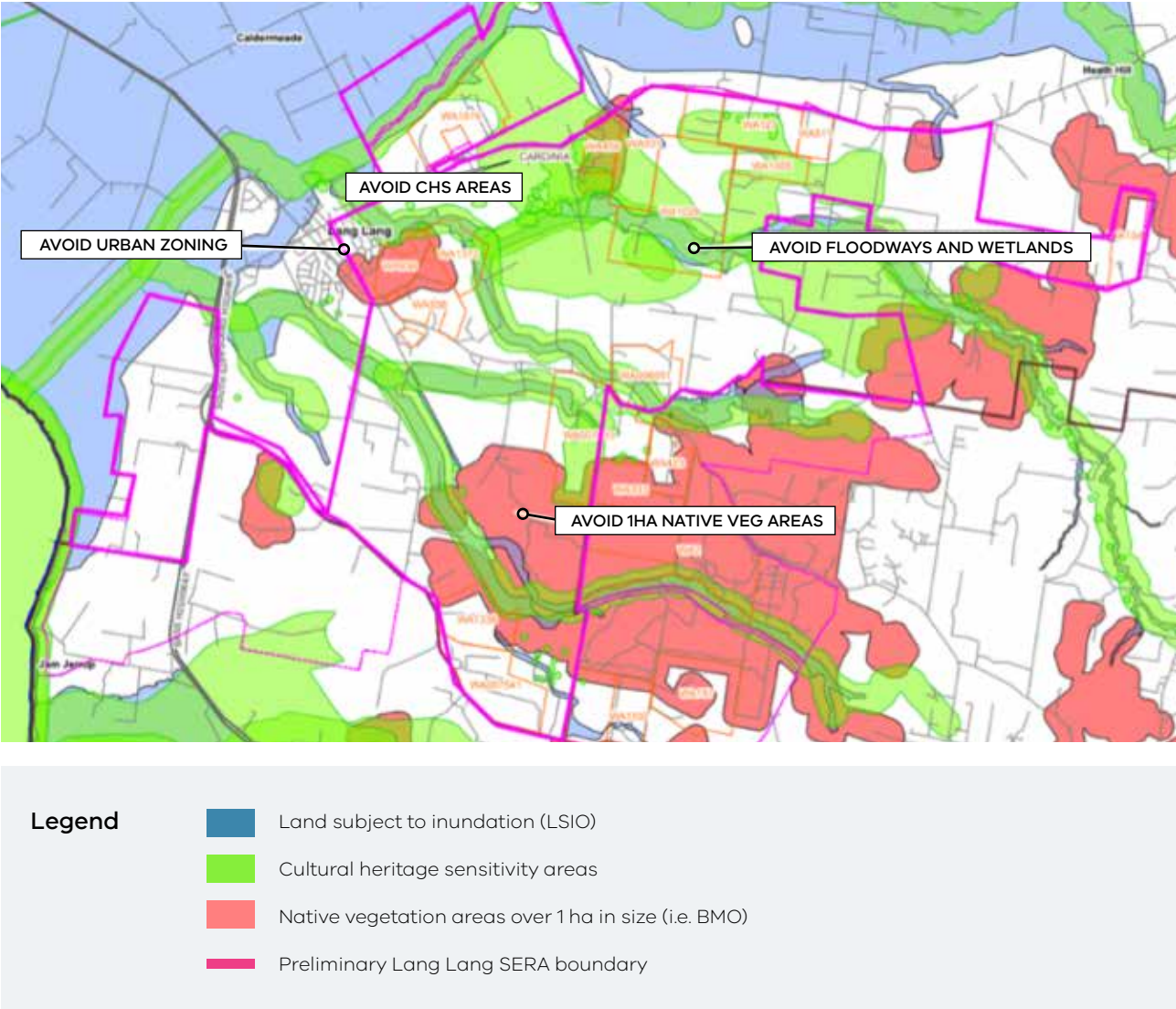


▼ **Table 8:** Factors in determining proposed Lang Lang SERA SRO1 and SRO3 boundaries

FACTOR	ANALYSIS	RESPONSE TO ANALYSIS
Geoscience	The investigation area is based on the EIA extent. The geoscience assessment indicates the sand resource is of a quality and quantity to be significant.	The proposed SRO1 seeks to maximise the coverage of the sand resource subject to other considerations.
Aboriginal cultural heritage	There are substantial and widespread Aboriginal cultural heritage areas along named waterways and at some high points.	There are mapped areas of Aboriginal cultural heritage sensitivity across the Lang Lang sand resource, and they were considered in setting the proposed SERA boundaries. The boundaries were not set to remove all these areas because future development in the SERA must comply with <i>Aboriginal Heritage Act 2006</i> and Aboriginal Heritage Regulations 2007 requirements.
Environment	The SERA is located close to Ramsar wetlands, low-lying areas and waterways. It contains remnant vegetation.	The proposed SRO1 avoids the Ramsar area and, in part, the Lang Lang River, Little Lang Lang River and Adams Creek, areas with identified inundation risks and areas of important remnant native vegetation. Any future removal of native vegetation will be subject to the 2017 <i>Guidelines for the removal, destruction or lopping of native vegetation</i> .
Land uses	Lang Lang township is to the west and in the north of the SERA, and there are also scattered rural living sites in the area. Land parcels of more than 40 ha are common. The remaining land in and surrounding the SERA contains mostly rural land uses (such as farms), quarries, highways and a gas plant.	The proposed SRO1 and SRO3s are generally set away from urban-zoned land.
Transport	Three Transport Zone 2 (Principal Road Network) roads adjoin and pass through the SERA. These are ideal for transporting extractive resources. The road network may need upgrading in the short-to-medium term to meet industrial and community needs.	Transport factors did not require any changes to the proposed SRO1 and SRO3 boundaries.

Figure 10 shows the Cardinia Bass Sand Investigation Area — the pink line — which was the starting point from which the proposed SERA boundaries were then refined, having regard to the items listed in Table 9.

▼ Figure 10: Preliminary Lang Lang SERA



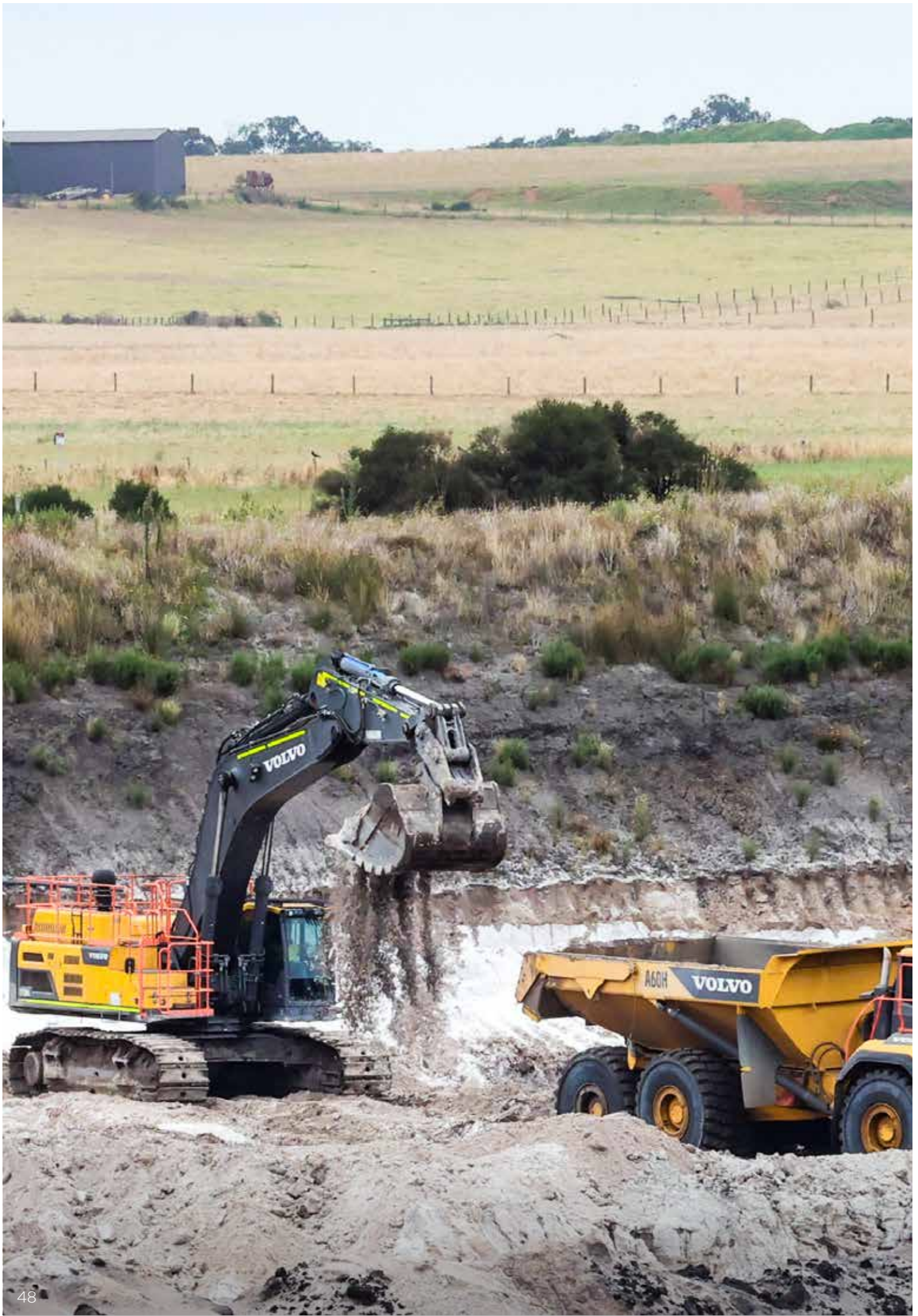


Figure 11 shows the final proposed boundaries of the Lang Lang SERA following analysis of land subject to inundation, Aboriginal cultural heritage sensitivity and native vegetation areas over 1 ha in size.

▼ Figure 11: Proposed Lang Lang SERA



Relevant policies, zones and overlays

Table 9, Table 10 and Table 11 show relevant planning policies, zones and overlays in the Cardinia and South Gippsland planning schemes relevant to the Lang Lang SERA. These apply in conjunction with the legislative and planning controls in Table 5.

▼ **Table 9: Lang Lang SERA relevant planning policies**

ITEM	RELEVANCE TO SERA
Plan Melbourne 2017–2050 Policy 1.4.2 Identify and protect extractive resources (such as stone and sand) important for Melbourne's future needs	Cardinia Shire has green wedge land identified for its strategic significance for extractive resources.
Gippsland Regional Growth Plan	The plan recognises that extractive industry for sand and rock is necessary to support growth in Melbourne and regional Victoria. EIAs within the region contain areas of known future interest to the extractive industry.
CARDINIA PLANNING SCHEME	
Clause 21.01-5 Strategic framework plan	Figure 1 in the clause shows the SERA as an agriculture area with environmental or landscape values.
Clause 21.04-6 Extractive Industry	The clause acknowledges the SERA has high value for extractive industry and needs protection while managing amenity, environmental, transport and site rehabilitation impacts.
Clause 21.05 Infrastructure, including Clause 21.05-2 Freeway, declared arterial roads	The clause identifies as a key issue providing for the upgrading and constructing of future declared arterial roads, including facilitating the Lang Lang bypass.
Clause 21.08 Local Areas – Western Port Region, including Clause 21.08-1 Lang Lang	The clause shows the Lang Lang bypass route and supports its facilitation.
Clause 22.02 Sand Extraction – Lang Lang to Grantville Region	The clause provides policy support to protect sand resources in the Lang Lang–Grantville area, facilitate extractive industry and rehabilitate sites in a way that protects the area's significant environmental, social and economic values.
Clause 22.05 Western Port Green Wedge Policy	The clause recognises sand quarrying within the SERA.
SOUTH GIPPSLAND PLANNING SCHEME	
Clause 02.03-5 Natural resource management: Extractive industry	The clause protects the area identified in the <i>Regional Sand Extraction Strategy: Lang Lang to Grantville</i> in the northwest of the shire for its significant sand resource.

▼ Table 10: Lang Lang SERA relevant zones

ITEM	RELEVANCE TO SERA
Clause 32.03 Low Density Residential Zone (LDRZ)	LDRZ adjoins the SERA on its western boundary. There is no adjoining WA to the land, so it is not affected by the proposed SRO3.
Clause 32.09 Neighbourhood Residential Zone (NRZ)	Land with existing dwellings in the NRZ on the north side of Westernport Road immediately adjacent to WA1516 is not proposed to be included within the SRO, given land within the buffer area is already zoned for a range of sensitive land uses.
Clause 35.04 Green Wedge Zone (GWZ)	Most land within the SERA is zoned GWZ schedule 1 (GWZ1). GWZ1 specifies a minimum lot size for subdivision of land of 40 ha, thereby protecting approved and future WAs.
Clause 35.06 Rural Conservation Zone (RCZ)	RCZ schedule 1 (RCZ1) is applied to land adjacent to Western Port, the Lang Lang River and a portion of land south of the Lang Lang town boundary within the SERA. The land is reserved for bushland or conservation purposes. RCZ1 specifies a minimum lot size for subdivision of land of 40 ha, thereby protecting approved and future WAs.
Clause 35.07 Farming Zone (FZ)	FZ applies to land mainly south of the SERA.
Clause 36.03 Public Conservation and Resource Zone (PCRZ)	Land in the GWZ and PCRZ on the south side of Westernport Road opposite the NRZ land is not proposed to be included within SROs due to its distance from WA1516.
Clause 36.04 Transport 1 Zone (TRZ1)	TRZ1 is applied to transport assets identified as state transport infrastructure. TRZ1 land within the SERA comprises the former Gippsland Railway Line, now developed as a rail trail.
Clause 36.04 Transport Zone 2 (TRZ2)	TRZ2 is applied to roads forming the Principal Road Network. TRZ2 land within the SERA includes the South Gippsland Highway and Westernport Road. As quarries must have access to major transport routes, land zoned TRZ2 is important for supporting quarry operations.
Clause 36.04 Transport Zone 3 (TRZ3)	TRZ3 is applied to significant municipal roads. TRZ3 land within the SERA includes the McDonalds Track. As quarries must have access to major transport routes, land zoned TRZ3 is important for supporting quarry operations.

▼ Table 11: Lang Lang SERA relevant overlays

OVERLAY	RELEVANCE TO SERA
CARDINIA PLANNING SCHEME	
Clause 42.01 Environmental Significance Overlay (ESO3)	ESO schedule 3 (ESO3) covers about 100 ha of land south of Westernport Road and includes all WA456. It is applied to other significant sites of botanical or zoological significance. ESO3 affects the eastern areas of the SERA. ESO3 aims to ensure a site's habitat values are not diminished by incremental development and that development is sensitively designed and sited to reinforce environmental characteristics.
Clause 42.03 Significant Landscape Overlay (SLO3)	SLO schedule 3 (SLO3) is applied to the Lang Lang – Heath Hill area east of Lang Lang to Nyora in the south and Poowong in the east. The National Trust recognises the area, including its landforms, alluvial river flats, sandy heaths and rolling hills. SLO3 affects most of the SERA east of the Lang Lang town boundary. The SLO3 aims to protect and conserve vegetation and flora and fauna habitat and ensure new buildings and works avoid detrimental effects on the landscape's key characteristics.
Clause 43.01 Heritage Overlay (HO50)	The SERA contains one site affected by the HO schedule identified at HO50, which applies to Bay View (house, dairy shed and well) at 115 Jetty Road, Lang Lang.
CARDINIA AND SOUTH GIPPSLAND PLANNING SCHEMES	
Clause 44.04 Land Subject to Inundation Overlay (LSIO)	LSIO schedule 1 applies to all riverine areas in or near the SERA.
Clause 44.06 Bushfire Management Overlay (BMO)	The BMO affects areas of vegetation over 1 ha within the SERA.



Application of planning controls

This section should be read in conjunction with the draft planning controls for the Lang Lang SERA.

The draft planning controls proposed for inclusion in the Cardinia Planning Scheme for the Lang Lang SERA would:

- rezone eight parcels of land containing WAs from GWZ1 to SUZ8 and one WA from RCZ1 to SUZ8
- apply State Resource Overlay ‘Strategic Extractive Resource Areas’ Schedule 1 (SRO1) to all land within the SERA
- apply State Resource Overlay ‘Protecting Extractive Industries’ RO Schedule 3 (SRO3) to six WAs located within the SERA to land up to 250 metres outside the SERA.

The draft planning controls proposed for inclusion in the South Gippsland Planning Scheme for the Lang Lang SERA would apply the SRO3 to one WA at the edge of the SERA.

Special Use Zone

Consistent with *Clause 35.04, Schedule 1, Green Wedge Zone* and *Clause 35.06, Schedule 1, Rural Conservation Zones* in the Cardinia Planning Scheme, for land in the SUZ8, a planning permit will be required to subdivide land to create lots of less than 40 ha. A permit may be granted for smaller lots if the subdivision is a re-subdivision of existing lots and it will not increase the number of lots or existing dwellings; or if the subdivision is for a utility installation.

The draft planning controls for SUZ8 would also encourage land management practices and rehabilitation that minimise adverse impacts on the use and development of nearby land.

Table 12 compares the current planning permit requirements for all sensitive land uses in the GWZ1 and RCZ1 schedules with the proposed SUZ1.

▼ **Table 12:** Planning permit requirements for sensitive land uses in the existing Green Wedge Zone Schedule 1 and Rural Conservation Zone Schedule 1 compared with the proposed Special Use Zone Schedule 8

SENSITIVE LAND USE		GWZ1	RCZ1	SUZ8
Accommodation	– Dwelling (other than a bed and breakfast)	  Permit required if tests are met; otherwise prohibited  No permit required for a bed and breakfast if tests are met	 Prohibited , except a permit is required for dependent person's unit, dwelling, group accommodation, host farm and residential hotel  No permit required for a bed and breakfast if tests are met	 Prohibited , except a permit is required for a caretaker's house
	– Camping and Caravan park			
	– Host farm			
	– Small second dwelling	 		
	– Residential building	Permit required if tests are met; otherwise prohibited		
	– Group accommodation			
	– All others			
Crematorium				
Education centre	– Primary & secondary school			
	– All others			
Funeral parlour				
Hospital				

Key:  No Permit required  Permit required  Prohibited

SENSITIVE LAND USE		GWZ1	RCZ1	SUZ8
Leisure and recreation	– Informal outdoor recreation			
	– Indoor recreation facility			
	– Major sports and recreation facility			
	– Motor-racing track			
	– All others			
Place of assembly	– Cinema-based entertainment facility			
	– Nightclub			
Retail premises	– Landscape gardening supplies			
	– Manufacturing sales			
	– Primary produce sales	 No permit required if tests are met; otherwise prohibited		
	– Market			
	– Plant nursery	 Permit required if tests are met; otherwise prohibited		
	– Restaurant			
	– All others			
Veterinary centre				
Winery				

Table 13 shows the nine land parcels containing current WAs that are proposed to be rezoned from GWZ1 and RCZ1 to SUZ8.

▼ **Table 13: Application of SUZ to land parcels containing WAs within the Lang Lang SERA**

WA	CURRENT ZONE	PROPOSED ZONE
WA127	Green Wedge Zone	Special Use Zone
WA338	Green Wedge Zone	Special Use Zone
WA456	Green Wedge Zone	Special Use Zone
WA1005	Green Wedge Zone	Special Use Zone
WA1029	Green Wedge Zone	Special Use Zone
WA1338	Rural Conservation Zone	Special Use Zone
WA1372	Green Wedge Zone	Special Use Zone
WA1516	Green Wedge Zone	Special Use Zone
WA006051	Green Wedge Zone	Special Use Zone

State Resource Overlay Schedule 1

Applying SRO1 to the SERA would not significantly increase the planning permit triggers beyond what is already required under the current rural zones (VPP clauses 35.03 to 35.08) and EIIA-related planning controls (VPP Clause 52.09).

As land within the Lang Lang SERA is currently zoned either GWZ1 or RCZ1, the planning permit requirements for sensitive land uses within the proposed SRO1 are similar to those that already

exist in these zones. For example, in both zones, a planning permit is typically required to use land for accommodation – for a dwelling — when the land size is less than 40 ha.

Table 14 compares existing planning permit triggers for sensitive land uses in the GWZ1 and RCZ1 with those proposed under SRO1.

▼ Table 14: Land use planning permit triggers, SRO1 compared to Green Wedge Zone / Rural Conservation Zone

LAND USE	GREEN WEDGE ZONE	RURAL CONSERVATION ZONE
Accommodation	 Permit required (no change)	 Permit required (no change)
Crematorium	 Permit required (no change)	 Permit required (no change)
Education centre	 Permit required (no change)	 Permit required (no change)
Funeral parlour	 Prohibited (no change)	 Permit required (no change)
Hospital	 Prohibited (no change)	 Permit required (no change)
Leisure and recreation	 Permit required ; includes 'informal outdoor recreation', which otherwise requires no permit	 Prohibited , except for 'informal outdoor recreation', which is currently 'no permit required'. This is proposed as 'permit required' as it is a sensitive land use
Place of assembly	 Permit required (no change)	 Prohibited (no change)
Retail premises	 Permit required (no change), except 'primary produce sales', which requires a permit per the SRO	 Permit required (no change)
Veterinary centre	 Permit required (no change)	 Permit required (no change)
Winery	 Permit required (no change)	 Permit required (no change)

Key:  No Permit required  Permit required  Prohibited

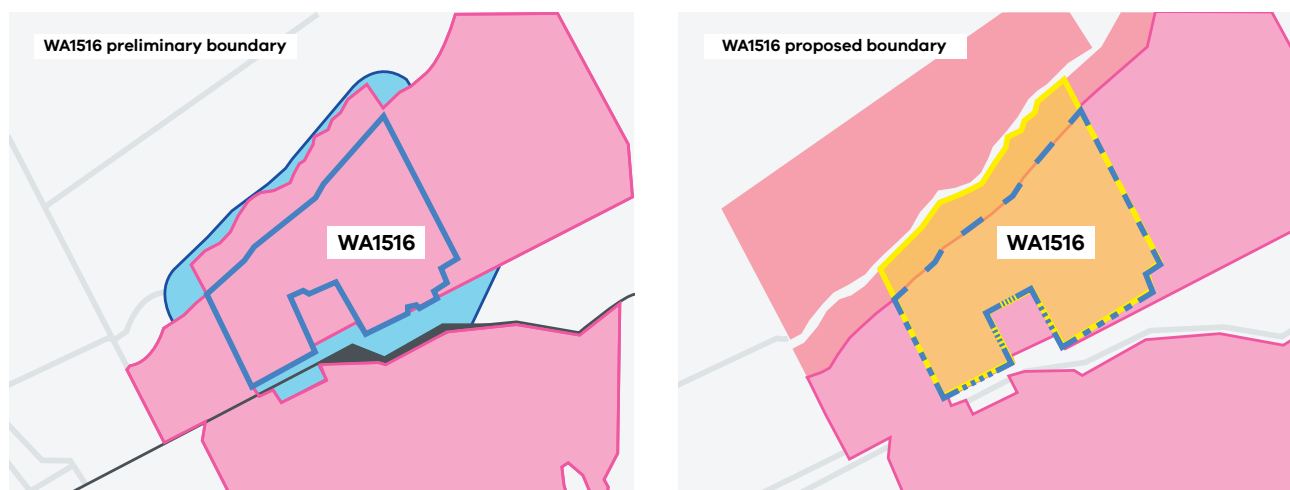
State Resource Overlay Schedule 3

As sand and gravel are the extractive resources proposed for protection within the Lang Lang SERA, SRO3 would apply a 250m buffer from either the lot boundary or the WA boundary, depending on how closely the WA boundaries align with the lot boundaries.

SRO3 is proposed to apply to the edge of eight WAs in Cardinia Shire: WA127, WA338, WA456, WA1005, WA1372, WA1338, WA1516 and WA006051; and to a small portion of one WA in South Gippsland Shire: WA006051.

In most instances, the WA boundaries generally align with lot boundaries. Where this occurs, the SRO3 buffer distance of 250m extends outwards from the lot boundaries that contain those WAs. The exception in the Lang Lang SERA is WA1516, where the WA boundary does not generally align with the lot boundary. In this instance, the SRO buffer extends outwards from the WA boundary. Figures 12 and 13 shows the proposed extent and location of the SRO buffer. The preliminary boundary was at the 250-m extent, but there is a named waterway along the north-east side and it therefore became the north-east boundary.

▼ Figures 12 and 13: WA1516 initial and proposed SRO buffer boundaries



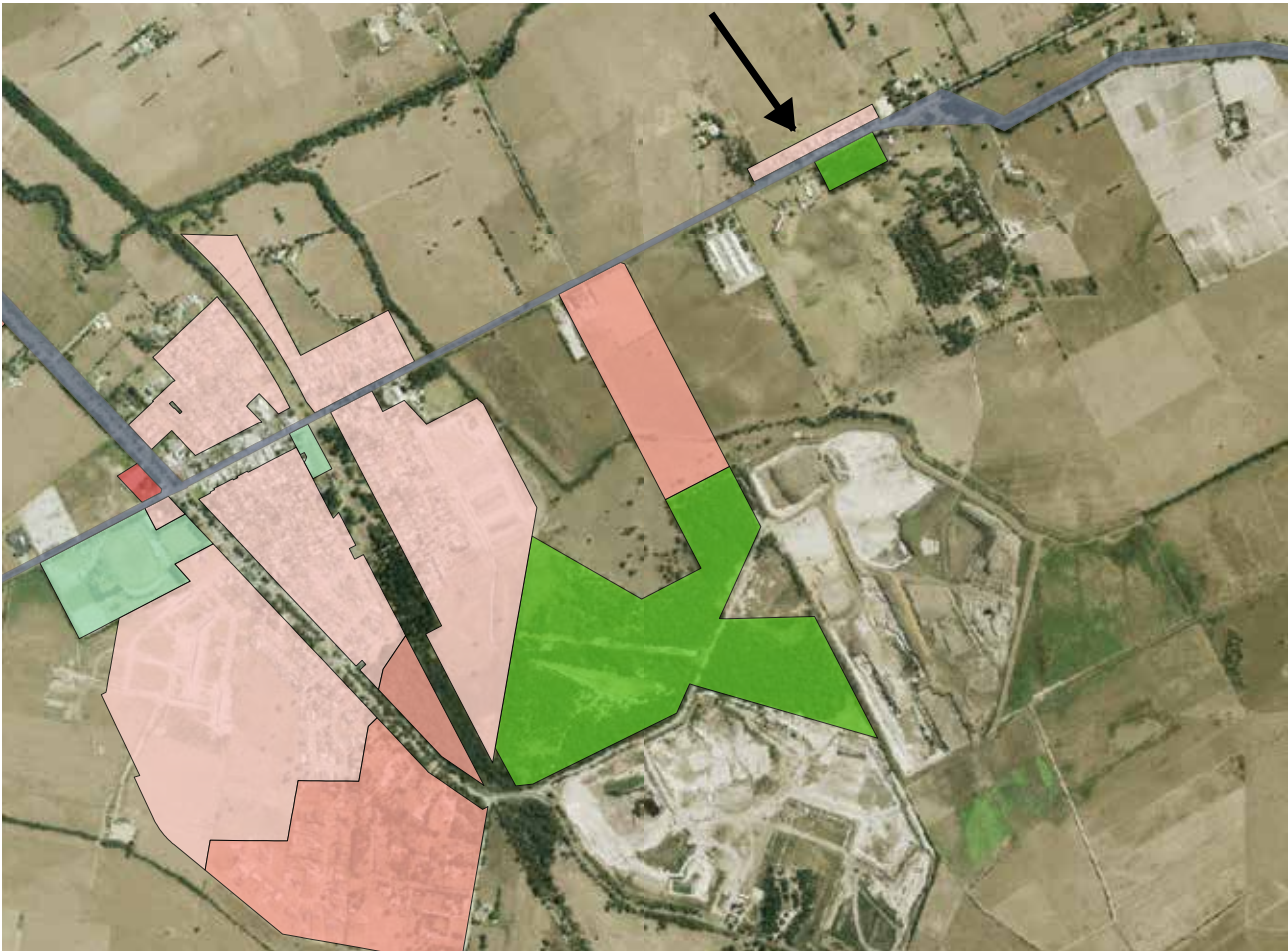
It is not proposed to apply SRO3 to land in Bass Coast Shire for WA1338 because the Victorian Government is currently finalising the Bass Coast Statement of Planning Policy, which will affect land use planning in that shire.

An area of land southwest of WA1516, shown in Figure 14 shaded pink and circled in orange, contains 22 lots with frontage to Westernport Road and is zoned Neighbourhood Residential Zone Schedule 1 (NRZ1). The SRO buffer is not proposed in this area, as a purpose of the NRZ1 is to recognise areas of mainly single

and double-storey residential development. NRZ1 does not require a planning permit for the use of land for residential development, which is a sensitive land use. It would, therefore, be at cross-purposes to apply the SRO buffer to this land as the purpose of the SRO buffer is to discourage sensitive land uses.

It is also proposed not to apply the SR buffer to the land to the north-west of WA1516 as this land is within 200m of the Lang Lang River and is, therefore, in an area of Aboriginal cultural heritage sensitivity.

▼ **Figure 14:** Land in Neighbourhood Residential Zone schedule 1 on Westernport Road



- | | |
|-------------------------------------|--|
| TRZ2 - Principal Road Network | NRZ - Neighbourhood Residential Zone |
| LDRZ - Low Density Residential Zone | GRZ - General Residential Zone |
| MUZ - Mixed Use Zone | R1Z - Residential 1 Zone (Superseded by GRZ) |
| TZ - Township Zone | PPRZ - Public Park and Recreation Zone |
| RGZ - Residential Growth Zone | PCRZ - Public Conservation and Resource Zone |



5. OAKLANDS JUNCTION SERA

About the Oaklands Junction SERA

The Oaklands Junction SERA is located within the Hume Green Wedge, some 1.4 km to the west and 4.5 km to the east of the outer edge of Melbourne's Urban Growth Boundary. Sunbury is located 10 km to the west, and the suburb of Greenvale is 2.2 km to the south-east. Melbourne Airport, at Tullamarine, is located just over 3 km to the south. The SERA, which Figure 15 shows, is located close to areas of high demand for extractive resources for housing and major infrastructure.

The SERA is a '*brownfield*' site in that there have been extractive industry operations at the site for decades. It comprises one WA-WA176 which covers an area of 3.16 km². It is not within an EIA but is known to contain a substantial reserve of hard rock (stone). As a hard rock quarry, explosive blasting is often required to extract material.

Local issues potentially affecting the extraction of the hard rock resource include encroachment by sensitive land uses, the growth of nearby urban areas, consequent increases in road traffic and the requirement to comply with restrictions associated with aircraft flight paths into Melbourne Airport.

The Oaklands Junction SERA is located in a rural area that has been mostly cleared for pastoral uses. There are nearby rural-residential and rural uses. The average size of land parcels within 500m of the SERA is 53 ha. Most lots are more than 20 ha, and several are about 100 ha. There is a concentration of lots less than 10 ha in the area south of the SERA.

Snapshot



LGA

City of Hume



LOCATION

About 30 km north of Melbourne's CBD and 1.35 km from the Urban Growth Boundary at Greenvale



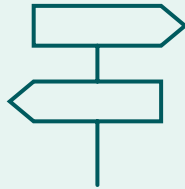
AREA

316 ha (3.16 km²), comprising the land contained within WA176



REGISTERED ABORIGINAL PARTY

Wurundjeri Woi Wurrung Aboriginal Corporation



NEARBY SETTLEMENTS

- Oaklands Junction
- Greenvale



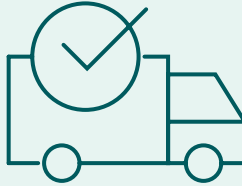
EXTRACTIVE RESOURCES

- Granite
- Hornfels



WORK AUTHORITIES

One, covering 3.16 km²



SUPPLY

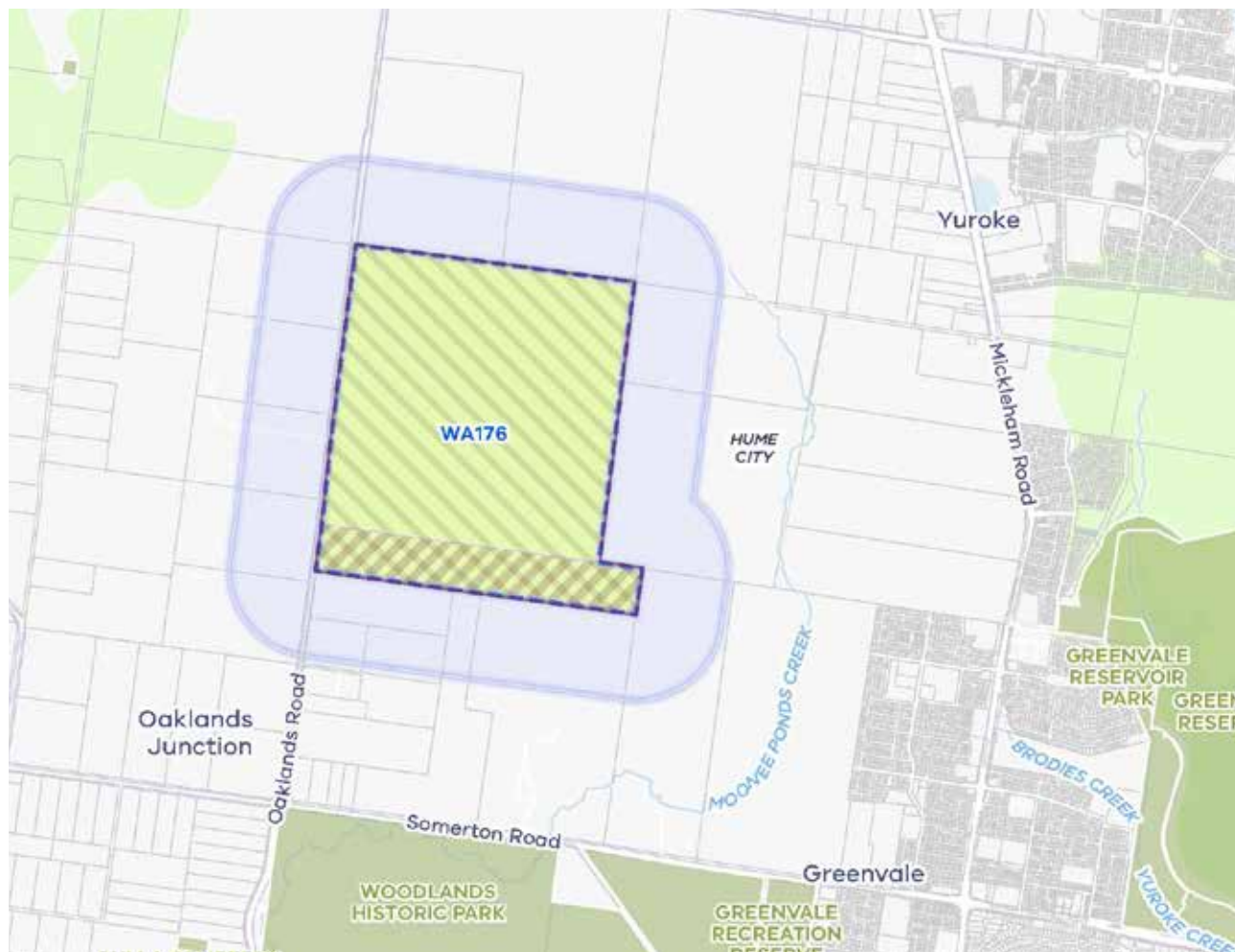
The hard rock resource contained within the SERA would provide over 50 years' supply at an output of about one million tonnes a year, with the capacity for this to increase



LAND USES IN AND AROUND THE SERA

Grazing and horse-training businesses, rural living, sale yards and the upper branches of Moonee Ponds Creek

▼ Figure 15: Oaklands Junction SERA



Consultation Draft Planning Controls – Oaklands Junction (Hume City)

Existing

-  Work Authority (WA) of quarry
-  Special Use Zone, Schedule 1 (SUZ1)
-  Park/Reserve
-  Named Waterways
-  Environmental Significance Overlay, Schedule 3 (ESO3)

Proposed

-  State Resource Overlay, Schedule 1 (SRO1)
-  State Resource Overlay, Schedule 2 (SRO2)
-  Rezone Green Wedge Zone (GWZ) to Special Use Zone, Schedule 1 (SUZ1)



Geoscience

The hard rock resources extracted from the Oaklands Junction quarry are strategically important to Melbourne. They provide a long-term supply of high-demand products close to major construction projects, particularly in Melbourne's northwest.

The resources – hard rock (granite and hornfels) are used mostly for aggregate and road base. They are of a high-quality that meets VicRoads specifications for the full range of concrete and asphalt aggregates, ballast and crushed rock products. The resources are also used for many types of construction, from housing and commercial projects to major infrastructure projects.

A detailed geological report was not prepared to identify the extractive resources contained within this SERA as it contains known resources within an already approved operating quarry.

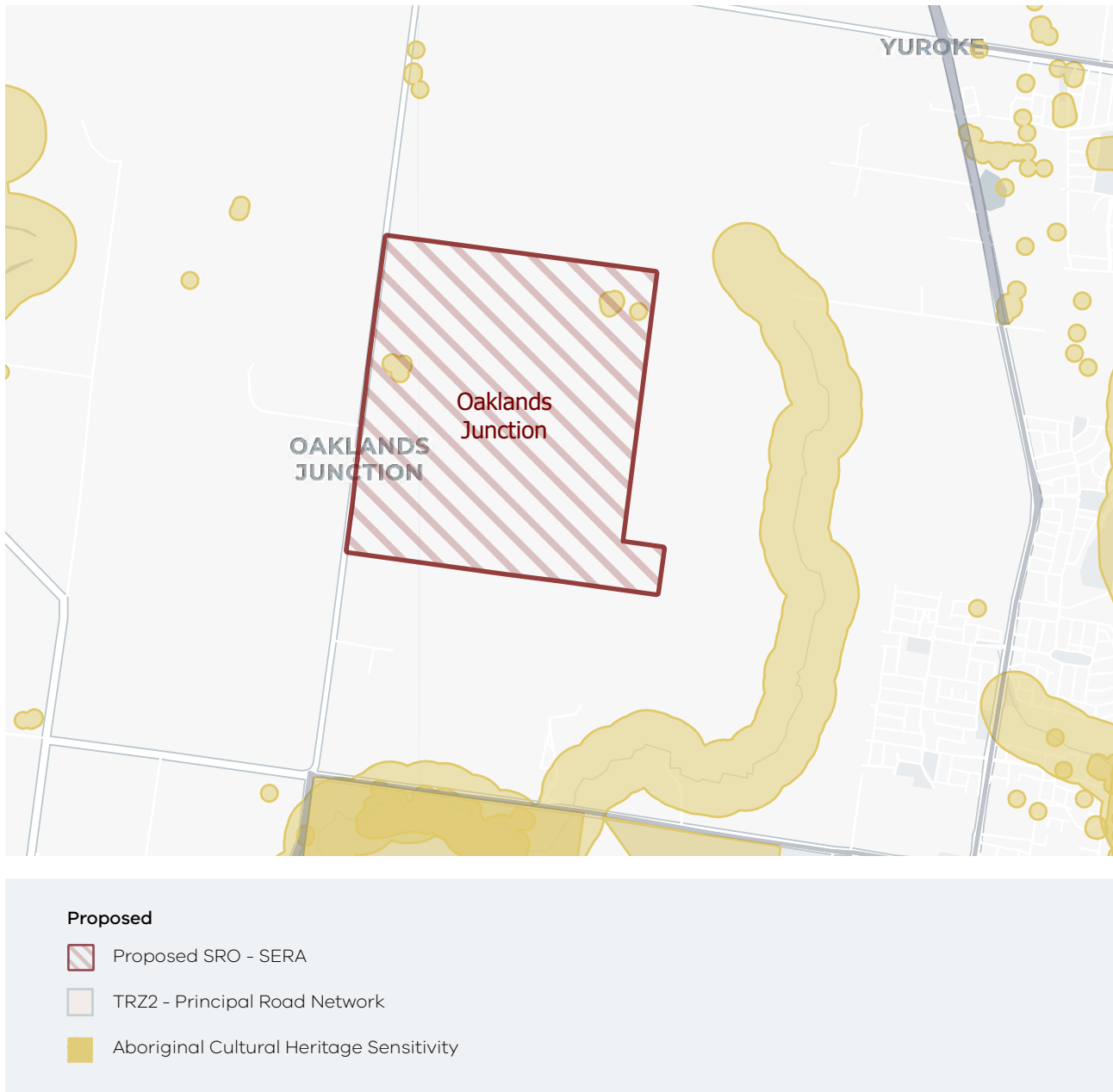
The Oakland Junction quarry is expected to continue supplying hard rock for at least 50 years, with annual production among the highest of Victoria's quarries. It has rock-crushing facilities, sorting areas, a hard stand and loading and weighing areas.

As a hard rock quarry, explosive blasting is required to break up the resource to be extracted and processed. Blasting requires sensitive land uses to be at a suitable distance, typically 500m. A 500-m buffer is required to protect the quarry site from future encroachment. The WA boundary is 7.5 km long and encloses an area of 7.7 km², including the WA. The buffer is about 4.5 km².

Hume City Council has recently granted a planning permit to expand quarrying operations within the site.

Demand for hard rock will continue to increase to support population and housing growth, infrastructure projects and private sector development. Over time, hard rock will need to be sourced from further afield due to the continued depletion of supplies, the absence of new hard rock quarries and few expansions coming online close to Melbourne in the foreseeable future.

▼ Figure 16: Areas of mapped Aboriginal cultural heritage sensitivity within and near the SERA



Aboriginal cultural heritage

The Oaklands Junction SERA is located within the RAP boundaries of the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation.

The Oaklands Junction WA includes three areas of known Aboriginal cultural heritage sensitivity located close to the site’s perimeter. Several of these are within 1 km of the SERA and close to Moonee Ponds Creek. There are also three areas to the northwest of the site. Figure 16 shows areas of mapped Aboriginal cultural heritage sensitivity.

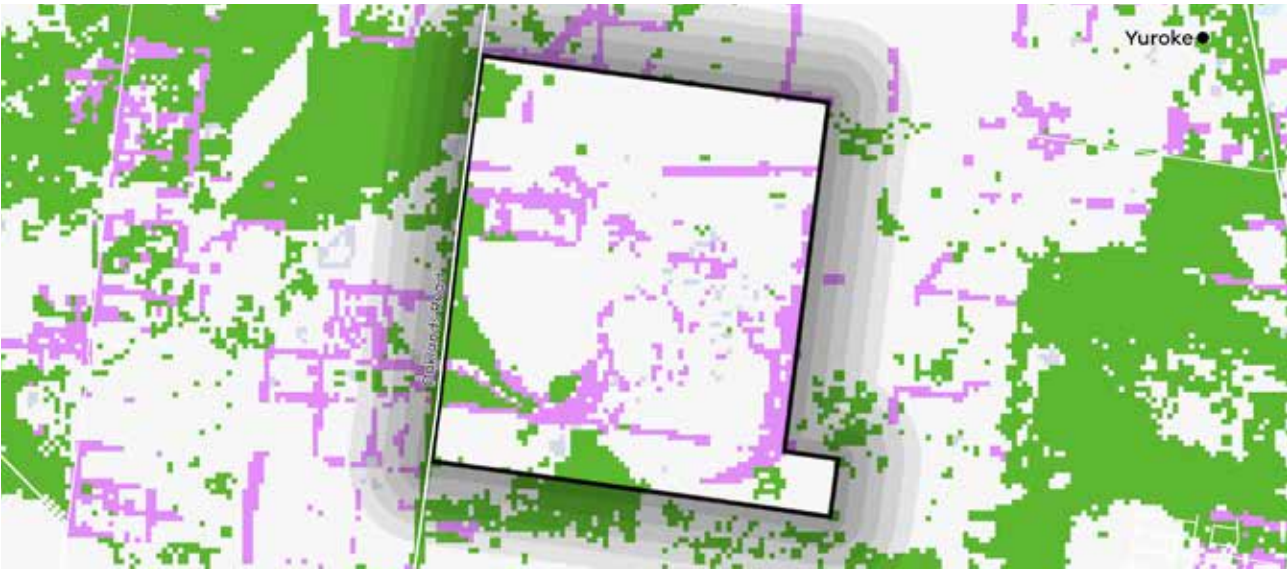
The small number of known Aboriginal heritage places within the SERA reflects the fact that extensive Aboriginal archaeological assessments have not been undertaken. Identification of an area as containing Aboriginal cultural heritage indicates there is a greater likelihood that there are areas of unregistered Aboriginal heritage in and around the SERA.

Environment

The vegetation and topography of the site and immediate surrounds area have been greatly modified due to the current WA. Remnant native vegetation, which Figure 17 shows, is mostly along the western boundary and south of the larger lot, and this acts as a visual barrier between nearby areas and the extractive operations on the site. An extensive revegetation program has been underway across the perimeter of the site for many years, creating added visual amenity and wildlife habitat.

There are two ecological vegetation classes the standard unit for classifying vegetation types in Victoria - within the site. These are Plains Grassy Woodland (which is endangered) and Hills Herb-rich Woodland (which is vulnerable). Plants and animals recorded within the site are classified as threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the Victorian Flora and Fauna Guarantee Act 1988. The upper reaches of the Moonee Ponds Creek are located within adjacent properties.

▼ Figure 17: Oaklands Junction SERA extent of native vegetation



Legend

Proposed SRO

Tranche 1 Version 1.1

Native vegetation extent

- Artificial impoundments
- Exotic largely treeless
- Exotic tree cover
- Native vegetation cover
- Natural waterbodies

Transport

The Oaklands Junction SERA is located 25 km to the north of the Melbourne CBD on Oaklands Road. It is zoned TRZ3, which becomes TRZ2 1.6 km to the south. Oaklands Road connects to Somerton and Sunbury roads, which both connect to the broader road network. Most quarry trucks transport materials via Somerton and Sunbury roads due to their connectivity to the greater Melbourne area.

Figure 18 shows the SERA's transport network.

The Oaklands Junction quarry has many forecast years of operation until the depletion of the resource. It currently operates six days a week with some aspects running 24 hours a day, ceasing at 6 pm on Saturdays and starting at 6 am on Mondays. Blasting is confined to weekday afternoons, and crushing occurs all day on weekdays and on Saturday mornings.

Under current operations, there are approximately 132,000 two-way heavy vehicle trips generated each year. Around 80% of the fleet comprises trucks capable of transporting payloads ranging from 35 to 40 tonnes, while the remaining 20% consists of trucks with payloads between 40 and 45 tonnes. These volumes are market-dependent and can be subject to change.

The Oaklands Junction SERA is served by a good transport network connecting the northern and north-western urban areas north of Melbourne Airport. It is close to existing heavy vehicle networks and the Principal Freight Network, although at present, only truck combinations up to 26m long can access the quarry. There is no heavy rail in the vicinity of the Oaklands Junction quarry or ease of extending rail through to the site from other locations.

As with the other SERAs, roads in the local network have varying approved route status that restricts the movement of larger vehicles. If upgrades to local roads were to occur, some of these restrictions would be minimised.

▼ Figure 18: Oaklands Junction SERA transport network



Table 15 shows local and regional road and rail upgrades and projects that will improve traffic flow, travel times, connectivity and capacity around the SERA. However, quarry trucks share roads with commuters and commercial and private vehicles, and road upgrades and increased road use may increase competition for road space for the quarry's life. Increased road use also accelerates wear and tear, necessitating greater maintenance.

▼ **Table 15:** Road and rail projects near Oaklands Junction SERA

UNDER PREPARATION	UNDER CONSTRUCTION	COMPLETED
Bulla Bypass	Mickleham Road upgrade	CityLink Tulla widening
Bulla Road Interchange		
Somerton Road upgrade		
Outer Metropolitan Ring and E6 Transport Corridor		
Oaklands Road widening		
Melbourne Airport Rail Link		

There is also the proposed Airport Link, to join the end of the Tullamarine Freeway (as it runs into Sunbury Road) with the planned Outer Metropolitan Ring and E6 Transport Corridor southwest of the SERA. A Public Acquisition Overlay (PAO2) is in place to facilitate future road construction and widening of Oaklands Road.

While most of these projects are currently being prepared rather than construction having commenced, they are planned to be built within the lifetime of the Oaklands Junction quarry, which would be well-placed to provide them with materials.

The Victorian Government's Big Build is upgrading rail infrastructure, including removing 16 level crossings along the Melton, Craigieburn and Sunbury lines. These works are generating strong demand for extractive resources from nearby quarries.

The proposed local and metropolitan road and rail upgrades are appropriate to accommodate growing quarry traffic in response to increasing demand for extractive resources and more road users near the SERA.

Proposed boundaries

Table 16 summarises the assessment of the Oaklands Junction brownfield site and the consequent determination of the proposed boundaries of the Oaklands Junction SERA, which Figure 19 shows. As the WA boundaries for the Oaklands Junction SERA align with the lot boundaries, the SRO1 boundaries are proposed to align with the WA/lot boundaries.

▼ **Table 16:** Factors in determining proposed Oaklands Junction SERA SRO1 and SRO2 boundaries

FACTOR	SERA ANALYSIS	RESPONSE TO ANALYSIS
Geoscience	The hard rock resources are substantial, and production is envisaged at large volumes for the next 30 years.	The proposed SRO1 boundary is the WA boundary.
Aboriginal cultural heritage	There are several known cultural heritage sites within the WA, outside the quarry void.	Aboriginal cultural heritage issues have not required any changes to boundaries. Cultural heritage sensitivity areas will continue to be addressed through MRSD Act WA approval processes.
Environment	The site has scattered native vegetation in an area largely modified from its original pre-contact condition, and there are no recorded threatened flora or fauna within it.	Environmental management issues have not required any changes to boundaries. Environmental management issues will continue to be addressed through MRSD Act WA approval processes.
Land uses	The SERA contains quarry land and farmland in two lots of 258 ha and 52 ha, respectively.	The proposed SRO1 and SRO2 boundaries match the WA boundary.
Transport	The SERA adjoins Oakland Road, a TRZ2 road that connects with the larger road network.	No transport issues were identified to inform the proposed SRO1 and SRO2 boundaries.

▼ **Figure 19:** Oaklands Junction SERA proposed boundaries



Relevant policies, zones and overlays

Table 17, Table 18 and Table 19 show planning policies, zones and overlays of the Hume planning scheme relevant to the Oaklands Junction SERA. As the tables show, few provisions specifically address extractive industry. These apply in conjunction with the legislative and planning controls in Table 5.

▼ Table 17: Oaklands Junction SERA relevant planning policies

ITEM	RELEVANCE TO SERA
Plan V 2017–2050	
Policy 1.4.2 Identify and protect extractive resources (such as stone and sand) important for Melbourne’s future needs	The City of Hume includes green wedge land identified for its strategic significance for extractive resources.
Clause 02.03-1 Rural Areas including the Green Wedge areas and Melbourne Airport	Rural areas in the municipality contain important natural resources.

▼ Table 18: Oaklands Junction SERA relevant zones

ZONE	RELEVANCE TO OAKLANDS JUNCTION SERA
Clause 35.04 Green Wedge Zone (GWZ)	GWZ schedule 1 (GWZ1) is applied to the southern lot of land within WA176. It specifies a minimum lot size for the subdivision of land of 40 ha to protect approved and future WAs.
Clause 36.04 Transport Zone (TRZ3)	TRZ3 applies to Oaklands Road, which abuts WA176. TRZ3 is applied to significant municipal roads, appropriate for a quarry area.
Clause 37.01 Special Use Zone (SUZ)	SUZ schedule 1 Earth and Energy Resources Industry (SUZ1) is applied to the northern lot of land within WA176.

▼ Table 19: Oaklands Junction SERA relevant overlays

OVERLAY	RELEVANCE TO SERA
Clause 43.01 Heritage Overlay (HO)	The Oaklands Junction SERA contains one site affected by the HO: HO397 Dunalister/Balbethan Stud Farm Complex at 290–310 Oaklands Road, Oaklands Junction. Quarrying activities are at a distance from this historic homestead and farm building complex. The HO is applied to two places within 500m of WA176, both at 380 Oaklands Road, Oaklands Junction, and both will be affected by the proposed SRO2. They are: – HO271 Oaklands Farm Complex, a substantially intact farm complex comprising a homestead, outbuildings, garden and tree-lined driveway – HO272 Oaklands Bluestone Quarry, comprising two small hillside quarries from Oaklands Road.
Clause 45.01 Public Acquisition Overlay (PAO2)	PAO2 is for road construction and widening along Oaklands Road. These works will aid traffic management.
Clause 45.01 Public Acquisition Overlay (PAO3)	PAO3 is for the Outer Metropolitan Ring /E6 Transport Corridor. The alignment is just outside the WA's 500m buffer. Its construction will affect local traffic patterns, including WA area traffic.
Clause 45.08 Melbourne Airport Environs Overlay (MAEO)	The SERA is close to MAEO schedules 1 and 2, which are to the west of the site: – MAEO1 denotes land subject to high levels of aircraft noise: 25 Australian Noise Exposure Forecast (ANEF) – MAEO2 is for land subject to moderate levels of aircraft noise: 20-25 ANEF. The overlays limit use and development to that appropriate to the level of exposure. The MAEOs will be within the proposed SRO2.



Application of planning controls

This section should be read in conjunction with the draft planning controls for the Oaklands Junction SERA.

The draft planning controls proposed for inclusion in the Hume Planning Scheme for the Oaklands Junction SERA would:

- update the Special Use Zone schedule 1 Earth and Energy Resources Industry (SUZ1), which applies to the parcel of land within the northern portion of WA176
- rezone the parcel of land within the southern portion currently zoned Green Wedge Zone to SUZ1
- apply SRO schedule Strategic Extractive Resource Areas (SRO1) to land containing WA176
- apply SRO schedule Protecting Extractive Industries (SRO2) to land adjoining WA176 at a radial distance of 500m.

Special Use Zone

Resource extraction approved for WA176 extends across two lots:

- the larger northern lot (Crown Allotment 9, Parish of Bulla Bulla [265ha], which is already zoned SUZ1
- the southern lot (Consolidated Plan No. 153518 [50ha]), which is currently zoned GWZ.

It is proposed to extend the SUZ across the whole site by rezoning land in the GWZ to SUZ1, consistent with the SERA project default to rezone land within a current WA to SUZ if relevant criteria are met.

It is also proposed to update the SUZ1 schedule. The current SUZ1 schedule is outdated compared with SUZ schedules introduced via Amendment VC196 for the and is to be updated to the current format and planning controls.

Consistent with *Clause 35.04 Green Wedge Zone Schedule 1* in the Hume Planning Scheme, a planning permit will be required to subdivide land in the SUZ1 to create lots of less than 40 ha. A permit could be granted for smaller lots if the subdivision is a re-subdivision of existing lots and it will not increase the number of lots or dwellings; or if the subdivision is by a public authority or utility service provider for a utility installation.

The draft planning controls for SUZ1 would also encourage land management practices and rehabilitation that minimise adverse impacts on the use and development of nearby land.

Table 20 compares the current planning permit requirements for all sensitive land uses in the GWZ schedule with the proposed SUZ1.

▼ **Table 20: Planning permit requirements for sensitive land uses, (current) Green Wedge Zone and (proposed) Special Use Zone Schedule 1**

SENSITIVE LAND USE		GWZ1	SUZ8
Accommodation	– Dwelling	 Permit required if tests are met; otherwise prohibited No permit required for a bed and breakfast if tests are met	 Prohibited , except a permit is required for a caretaker's house
	– Camping and Caravan park		
	– Host farm		
	– Small second dwelling		
	– Residential building	Permit required if tests are met; otherwise prohibited	
	– Group accommodation		
	– All others		
Crematorium			
Education centre	– Primary & secondary school		
	– All others		
Funeral parlour			
Hospital			
Leisure and recreation	– Informal outdoor recreation		
	– Indoor recreation facility	 Permit required if tests are met; otherwise prohibited	
	– Major sports and recreation facility	 Permit required if tests are met; otherwise prohibited	
	– Motor-racing track	 Permit required if tests are met; otherwise prohibited	
	– All others		

Key:  No Permit required  Permit required  Prohibited

SENSITIVE LAND USE		GWZ1	SUZ8
Place of assembly	– Cinema-based entertainment facility		
	– Nightclub		
	– All others	 Permit required if tests are met; otherwise prohibited	
Retail premises	– Landscape gardening supplies		
	– Manufacturing sales		
	– Primary produce sales	 No permit required if tests are met; otherwise prohibited	
	– Market	 Permit required if tests are met; otherwise prohibited	
	– Plant nursery	 Permit required if tests are met; otherwise prohibited	
	– Restaurant	 Permit required if tests are met; otherwise prohibited	
	– All others		
Veterinary centre			
Winery			

State Resource Overlay Schedule 1 (SRO1)

The proposed SRO1 will manage use and development within the SERA. As with the Lang Lang and Trafalgar SERAs, applying SRO1 to the SERA will not significantly increase the permit triggers for the use and development of land. The proposed SRO's requirement for a planning permit for sensitive land uses is similar to the GWZ's.

For example, in GWZ, a planning permit is typically required to use the land for accommodation - for a dwelling - particularly when the land size is less than 40 ha.

State Resource Overlay Schedule 2 (SRO2)

The proposed SRO2 would apply a 500m buffer to land surrounding the two lots containing WA176. The surrounding land is zoned GWZ.

Table 21 shows existing planning permit triggers for land uses in the GWZ and how SRO2 would affect them.

▼ **Table 21:** Comparison of land use planning permit triggers in the SRO schedules and Green Wedge Zone schedule

LAND USE	GREEN WEDGE ZONE
Accommodation	 Bed and breakfasts, dependent person's units, dwellings and rural workers' accommodation will now require a permit
Crematorium	 Permit required (no change)
Education centre	 Permit required (no change), primary and secondary schools remain prohibited in the zone
Funeral parlour	 Permit required
Hospital	 Permit required
Leisure and recreation	 Permit required (no change), except informal outdoor recreation will require a permit
Place of assembly	 Permit required
Retail premise	 Permit required (no change), except primary produce sales will require a permit
Veterinary centre	 Permit required (no change)
Winery	 Permit required (no change)

Key:  No Permit required  Permit required  Prohibited

6. TRAFALGAR SERA

About the Trafalgar SERA

The Trafalgar SERA is located in the southern area of Baw Baw Shire between Shady Creek, Willow Grove and Yarragon. It generally covers EIIA 884123 (for sand and gravel). To the east is the regional city of Latrobe, which comprises four rural centres: Churchill, Moe/Newborough, Morwell and Traralgon. To the west is the Latrobe Renewable Energy Zone.

The 2014 Gippsland Regional Growth Plan, which forms part of Baw Baw Planning Scheme Clause 11.01-1R Settlement – Gippsland identifies agriculture and tourism as key economic activities. Urban growth is promoted at Warragul, a regional centre, and it is supported at Drouin and Trafalgar. To support the development of these areas, sand may be sourced from the nearby SERA. Over the long term, this extractive resource will likely also be a key sand supply for metropolitan Melbourne as existing sand supply sources closer to Melbourne are depleted.

The Australian Energy Market Operator's Integrated System Plan identifies the Latrobe Valley as one of six Victorian renewable energy zones, areas with the greatest potential for renewable energy (such as wind, sunshine, rain, tides, waves and geothermal heat). The area has several high-voltage power lines to transfer electricity into the grid.

The landscape throughout the SERA has been largely modified. Native vegetation has been cleared and areas sown to pasture for agricultural purposes.

Most lots are over 40 ha, some are more than 21 ha, and a few are 5-20 ha. Nearly all the lots are privately owned, and three lots totalling less than 2 ha are Crown land reserves. The Latrobe River and Shady Creek comprise Crown land frontages classed as natural feature reserves.

The EIIA for the extractive resource measures about 9.5 km from north to south and 7 km from east to west. It has favourable geological conditions for extracting sand and gravel. The proposed SERA boundary generally aligns with the existing EIIA boundary.

The SERA is bisected by state-significant infrastructure assets: four high-voltage power lines, sub-distribution power lines and the Longford–Melbourne gas pipeline.

There are seven WAs in the Trafalgar SERA - WA523, WA521, WA204, WA103, WA454, WA23 and WA406 contained within nine lots as shown in Figure 20.

Snapshot



LGA

Shire of Baw Baw



LOCATION

About 118 km east-southeast of Melbourne's CBD and 54 km from the Urban Growth Boundary at Pakenham



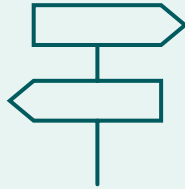
AREA

Approx. 5,254 ha (52.5 km²)



REGISTERED ABORIGINAL PARTY

Gunaikurnai Land and Waters Aboriginal Corporation



NEARBY SETTLEMENTS

Trafalgar, Yarragon, Shady Creek and Willow Grove



EXTRACTIVE RESOURCES

- Sand
- Gravel



WORK AUTHORITIES

Seven WAs covering 390 ha



SUPPLY

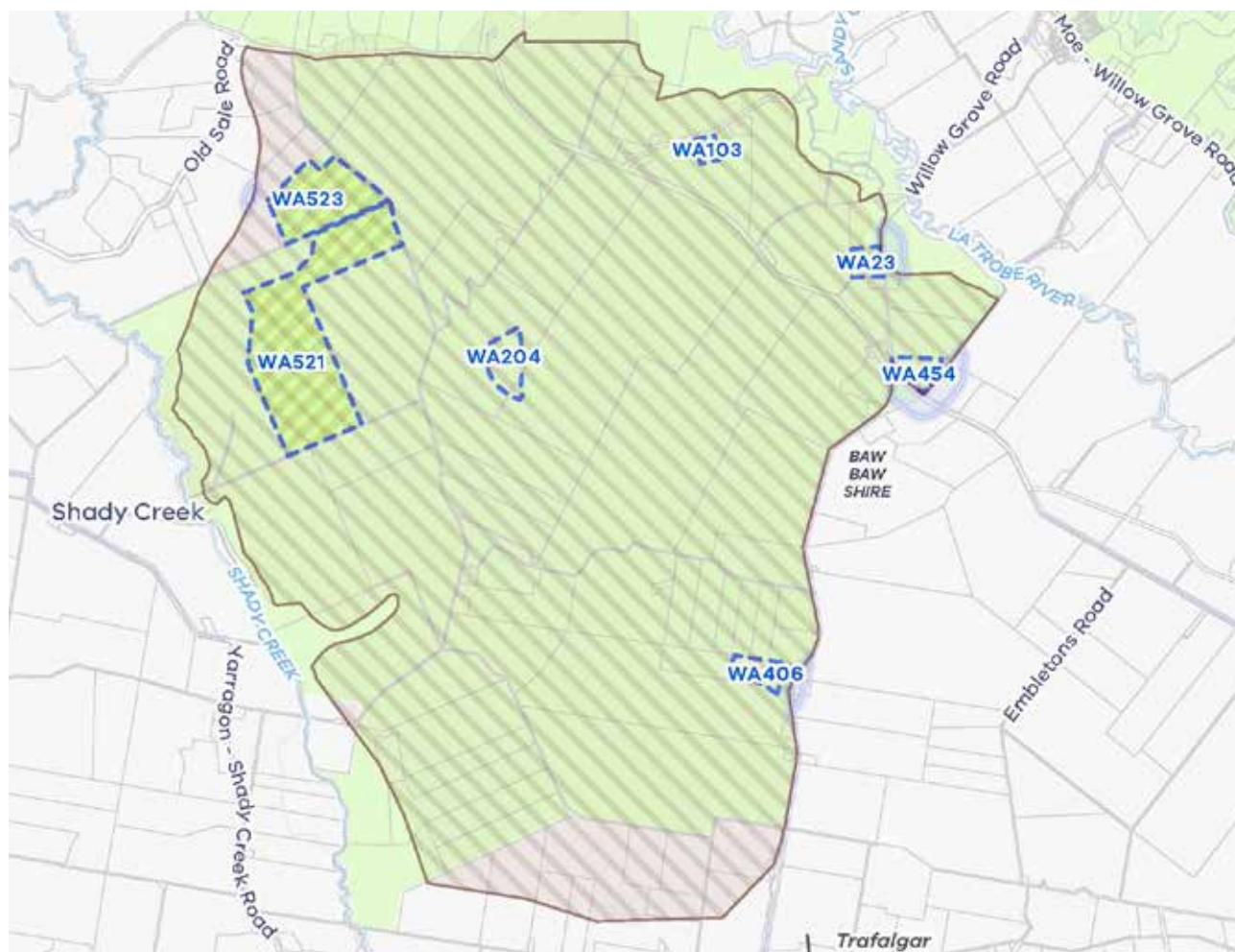
As of 2021, the resource estimate was 574 million tonnes of sand meeting the specifications for producing concrete, with an additional 47 million tonnes of sand suitable for other construction purposes



LAND USES IN AND AROUND THE SERA

Rural, including large dairy and grazing businesses, quarries and major gas and electricity infrastructure corridors

▼ Figure 20: Trafalgar SERA



Consultation Draft Planning Controls - Trafalgar (Baw Baw Shire)

Existing

-  Work Authority (WA) of quarry
-  Extractive Industry Interest Area (EIIA)
-  Environmental Significance Overlay, Schedule 3 (ESO3)
-  Named Waterways

Proposed

-  State Resource Overlay, Schedule 1 (SRO1)
-  State Resource Overlay, Schedule 2 (SRO2)
-  Rezone Green Wedge Zone (GWZ) to Special Use Zone, Schedule 1 (SUZ1)

Geoscience

The area of the Trafalgar SERA supplied over 350,000 tonnes of sand in 2022-23, and geoscience modelling indicates there are substantial remaining sand and gravel resources.

The SERA contains seven current WAs. Two of these yield clay, sand and gravel. The other five only yield sand and gravel.

The SERA's surface geology is Haunted Hills formation gravel and sand overlain by a major alluvial floodplain system and minor colluvial deposits. This formation is the source rock of interest for extracting and producing construction materials, and regional variations in the formation allow for various sand products to be produced.

The SERA is covered by EIIA 884123, and a recent review of this EIIA has not substantially altered its extent. The sand resource extends into the adjacent Darnum area to the west, which is not part of the SERA.

The Trafalgar sand resource has a modelled average thickness of 11.3m, an average overburden thickness of about 3.7m and an overburden-to-sand ratio of 1:5.6, indicating it can be extracted economically. The sand is suitable for high-grade construction products, including concrete and asphalt, meeting both the Australian Standard and VicRoads standards for concrete sand. Appendix 1 has more information about the methods used to establish these facts.

The Darnum and Trafalgar North area contains an estimated 630 million tonnes of sand, with the majority and highest-grade resources located in the SERA and surrounds.

Aboriginal cultural heritage

The Trafalgar SERA is located within the RAP boundaries of the Gunaikurnai Land and Waters Aboriginal Corporation. Section 58 of the *Aboriginal Heritage Regulations 2006* identifies extractive industry as a high-impact activity, and statutory authorisation is required to use the land for this purpose.

The SERA contains the following publicly listed areas of Aboriginal cultural heritage significance, as shown in Figure 21:

- areas within 200m of Shady Creek and the La Trobe River
- one registered Aboriginal place: an artefact scatter.

The small number of Aboriginal places recorded within the SERA reflects the fact that extensive Aboriginal archaeological assessments have not been undertaken. Identification of an area as having cultural heritage significance indicates a greater likelihood of unregistered Aboriginal heritage in the area.

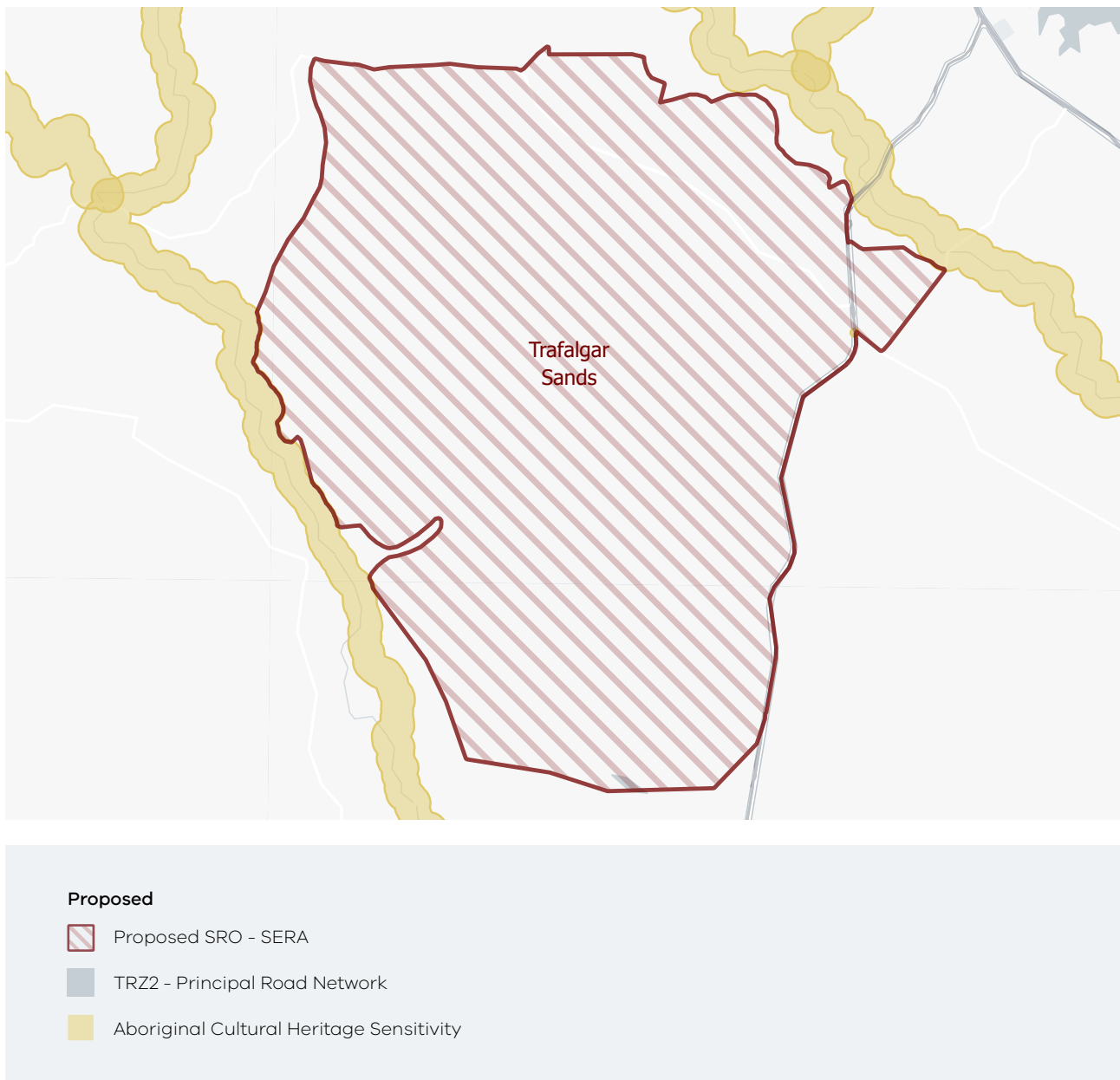
One Indigenous land use agreement - NNTT VI2010/003, registered in 2011 for the Gunaikurnai Land and Waters Aboriginal Corporation applies to three small parcels of Crown land within the SERA.

These are:

- Crown Allotment 47E on Old Sale Road, named Neerim East Gravel Reserve, a Crown land reserve of 9,019m²
- Crown Allotment 58B on Old Sale Road near Daveys Road, being uncategorised Crown land of 3,939m²
- Crown Allotment 2001 on Old Sale Road near Daveys Road, being uncategorised Crown land 2,358m².

The proposed SERA boundary minimises impacts on these places, noting that protections provided through the *Aboriginal Heritage Act 2006* will continue to apply within the SERA.

▼ **Figure 21:** Areas of mapped Aboriginal cultural heritage significance within and near the SERA



Environment

The Trafalgar SERA is located within the Gippsland Plains bioregion on low hills near the southern fall of the Great Dividing Range. It contains various EVCs in mosaic patterns, including Riparian Scrub, Swampy Riparian Woodlands, Lowland Forest, Heathy Woodlands and, adjacent to the Latrobe River, Floodplain Riparian Woodlands.

Significant clearing and alteration of the land for farming has fragmented the native vegetation and habitat across the SERA and its surrounds, but there is still some remnant native vegetation.

Figure 22 shows the extent of remnant native vegetation in the area, which is located in large patches across the area and along roads and waterways.

Recent records of species listed under the Victorian Flora and Fauna Guarantee Act 1988 in the SERA area include the Gang-Gang Cockatoo and the Lace Monitor.

Table 22 shows the EVCs and their bioregional conservation status within the SERA, which is within the Gippsland Plain bioregion.

▼ Figure 22: Trafalgar SERA extent of native vegetation





▼ Table 22: Trafalgar SERA ecological vegetation classes

EVC GROUP NAME	EVC NAME	BIOREGIONAL CONSERVATION STATUS
Dry Forests	Shrubby Foothill Forest	Endangered
	Valley Heathy Forest	Endangered
Lowland Forests	Lowland Forest	Vulnerable
Riparian Scrubs or Swampy Scrubs and Woodlands	Riparian Forest	Vulnerable
	Riparian Scrub/Swampy	Vulnerable
	Riparian Woodland Complex	Vulnerable
	Swamp Scrub	Endangered
	Swampy Riparian Complex	Endangered

ESO3 was introduced into the Victorian planning system in the 1990s to protect the Trafalgar sand resource from sensitive land uses and protect the Sweetwater Nature Conservation Reserve. It does not require a planning permit to remove invasive plant species. The proposed SRO boundaries generally align with the ESO boundaries. It is proposed to delete this ESO and replace it with the proposed SRO.

The Sweetwater Creek Nature Conservation Reserve is to the north of the SERA. It is an area of 1,240 ha set aside for conserving biodiversity values containing endangered species. The reserve is upstream of the SERA, so extractive industry operations do not drain into it.

The SERA is part of two irrigation areas: the Upper Latrobe River and the Moe River area, taking in the Shady Creek Catchment. Most of the SERA is in the Moe Groundwater Management Area, which would affect any future quarry operator seeking to use bore water for their operations.

Transport

The Trafalgar SERA is located 5.5 km north of the Princes Highway East at Trafalgar. The SERA adjoins Willow Grove Road (C463, zoned TRZ2) and Old Sale Road, which provide access to the east, south and west. The Princes Freeway provides access to major extractive industry markets in Melbourne, particularly in the south-eastern suburbs.

Figure 23 shows the transport network most commonly used by extractive industry in and around the Trafalgar SERA.

The Gippsland railway line passes through Trafalgar, carrying freight from the Maryvale Paper Mill at Morwell. This line is shared with passenger services between Melbourne and Traralgon/Bairnsdale that run up to 20 times a day. There are no loading facilities for extractive industry materials along the rail line, so it can't currently be used to transport sand and gravel. There may be opportunities to do so in future and maximise the SERA's production potential if loading facilities are constructed at suitable locations.

It is estimated that quarry production will increase by about one quarter from now until 2030 with an average of 420,000 tonnes a year, based on the projected annual increase in demand of 4% per year over the same period. At present, about 60% of the truck traffic is carting sand from the quarries to market in 35–40 tonne loads. The other 40% of truck movements are larger trucks with loads of 40–45 tonnes.

As sand production increases in the SERA, the number of truck movements each year will also increase to an estimated 4,000 additional truck loads by 2030, destined for local and more distant markets. Truck movements are predicted to rise² from about 23,000 return truck trips in 2021–22 to about 31,000 return truck trips in 2030. These projections are based on a range of mixed truck types typical of quarry operations rather than being sourced directly from quarry operators.

² 23,000 return truck trips comprise 11,500 outward truck loads from the Trafalgar SERA to markets and 11,500 empty trucks returning to the SERA.

▼ Figure 23: Trafalgar SERA transport network



The volume of truck movements will likely decrease over time with the greater use of larger capacity higher-performing vehicles to reduce transport costs and emissions. This would align with the Victorian Government's 2021 *High Productivity Freight Vehicle Plan: Moving more with Less*, which intends to improve productivity, safety and environmental outcomes.

The conditions and ratings of the roads in the SERA dictate the size of trucks to be used and highlight areas where improvements may be appropriate. Old Sale Road, Trafalgar Willow Grove Road and Shady Creek Road can all take truck and trailer combinations up to 19m long, but each road varies as to the largest type of truck combination it is authorised to carry. Also, the rail crossing at Trafalgar can only take vehicles less than 26m long.

Trucks in the northern part of the SERA are likely to use Old Sale Road to access the Princes Freeway to the west and east to Moe and Latrobe Valley. This takes truck traffic through the towns of Buln Buln and Drouin West to the freeway at Longwarry or via Bloomfield Road at Nilma to join the Princes Freeway there. These routes include sensitive land uses (such as primary schools at Drouin West, Buln Buln and Nilma).

Truck traffic in the southern part of the SERA would utilise Yarragon Shady Creek Road and Trafalgar Willow Grove Road to get onto the Princes Highway at Yarragon and Trafalgar, respectively. Of these roads, only Trafalgar Willow Grove Road is zoned Transport Zone 2 Principal Road Network. Old Sale Road is a council road until it joins the Main Neerim Road at Drouin West, west of Buln Buln, where it becomes TRZ2 Principal Road Network.

Old Sale Road also links to Bloomfield Road (TRZ2) east of Buln Buln, taking traffic south to Nilma to a grade separation for the rail corridor and onto the Princes Freeway. Despite these connections, Old Sale Road is not a preferred route for quarry traffic due to its condition before it joins Main Neerim Road.

Bayleys Road, Thurlow Road, Darnum Shady Creek Road and Araluen Road are the main roads inside the SERA. These council roads are generally narrow, unsealed roads with no shoulders. Thurlow Road is rated for larger vehicles at its western end.

Local heavy traffic in the area also includes bulk milk transports, cattle trucks and other vehicles servicing primary producers and the Fonterra milk processing plant at Darnum.

The geometry and layout of some of these roads and intersections raise safety concerns, including:

- the unsigned intersection of Yarragon-Shady Creek Road and Thurlow Road
- the narrow, winding, steep alignment of some sections of Old Sale Road
- the Trafalgar and Yarragon level crossings, where traffic must negotiate both a gated level crossing and a signalised intersection with the highway in quick succession while leaving adequate room to queue to enter the highway
- lack of designated parking and rest areas for heavy vehicles, particularly away from the highway.

Increases in quarry production and a potential increase in the number of quarries in the SERA will require attention to the capacity of transport routes and the conditions of state and locally managed roads.

Proposed boundaries

Table 23 summarises the assessment of the Trafalgar Sands investigation area and the consequent determination of the proposed boundaries of the Trafalgar SERA.

▼ **Table 23: Factors in determining proposed Trafalgar SERA SRO1 and SRO2 boundaries**

FACTOR	ANALYSIS	RESPONSE TO ANALYSIS
Geoscience	The investigation area is based on the EIIA extent. The geoscience assessment indicates the sand resource is of a quality and quantity to be significant.	The proposed SRO1 seeks to maximise the coverage of the sand resource subject to other considerations.
Aboriginal cultural heritage	Identified Aboriginal cultural heritage areas are located along Shady Creek and the Latrobe River.	The cultural heritage areas are not located within the SERA and are omitted from the proposed SRO1 where possible.
Environment	The SERA has an undulating and generally modified landscape from original cover to pasture. There are large areas of remnant native vegetation to the north and scattered across the SERA. The SERA has areas subject to inundation at its edges.	The proposed SRO1 and SRO2 boundaries generally avoid areas prone to inundation and remnant native vegetation.
Land uses	The area contains farm and rural living dwellings scattered across it. Land parcels of 40 ha plus are common.	The proposed SRO1 and SRO2 boundaries seek to maximise the coverage of the EIIA.
Transport	There is one TRZ2 road and several other roads rated for heavy vehicles in and near the SERA. There are also some local sealed and unsealed roads. Quarries are encouraged to locate close to TRZ2 roads.	No transport issues have been identified with the SRO1 and SRO2 boundaries.

▼ Figure 24: Trafalgar SERA proposed boundaries

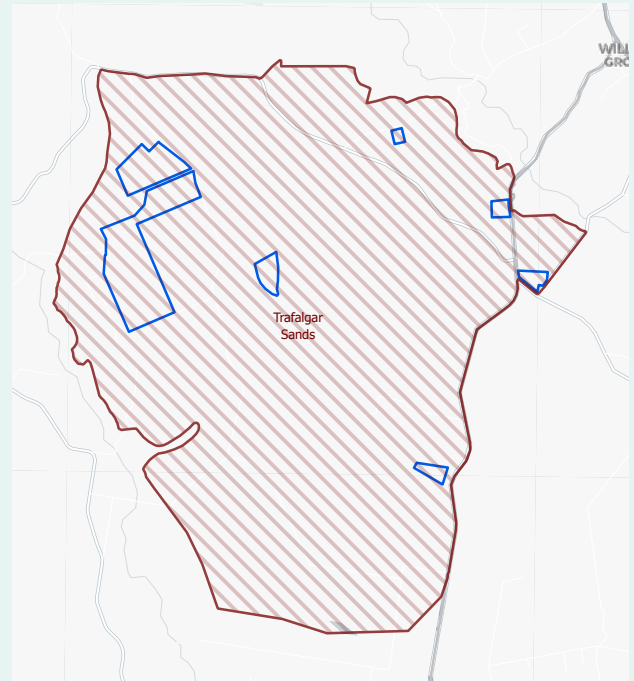
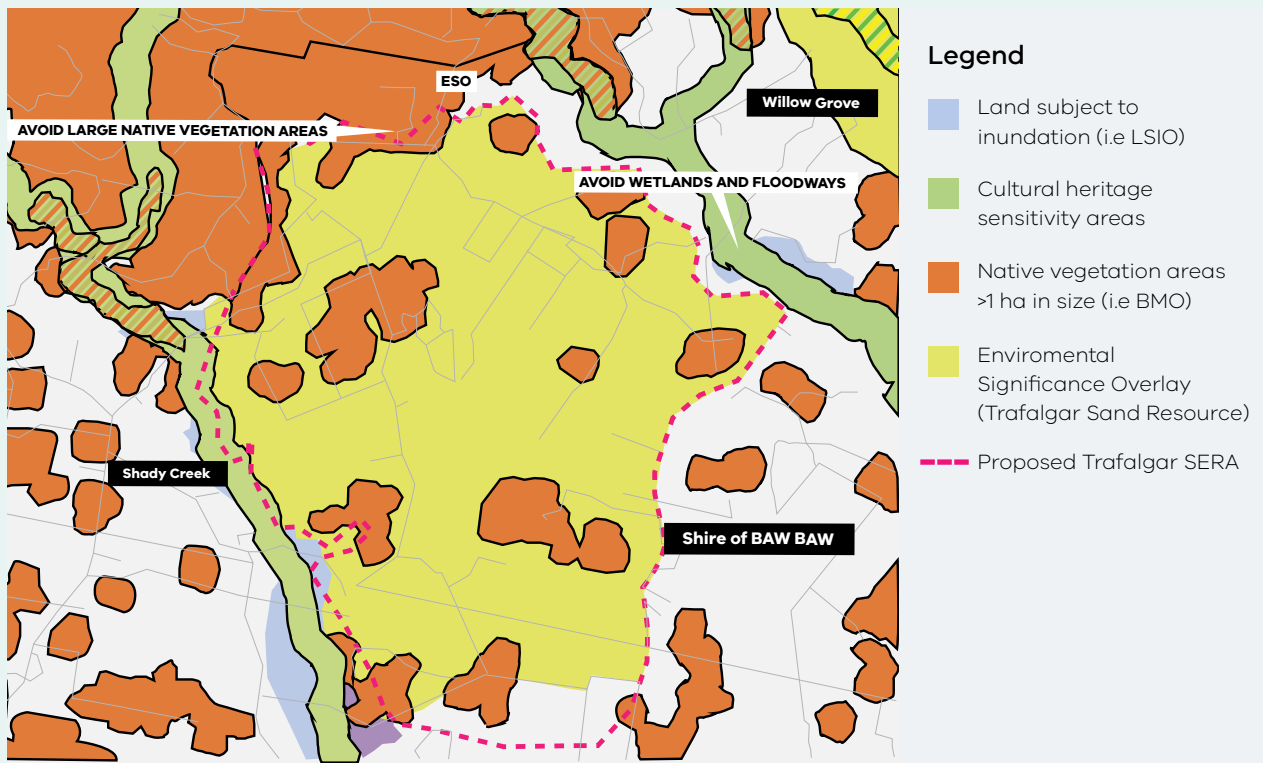


Figure 24 shows the proposed SERA boundary and WAs within the SERA. The boundary generally follows the boundary of the existing ESO3, with some variation, mostly to the north and south. This variation avoids substantial areas of native vegetation and areas that may contain Aboriginal cultural heritage adjacent to water courses.

Figure 25 shows land subject to inundation, cultural heritage sensitivity areas, areas of native vegetation over 1 ha and ESO3 in the Trafalgar SERA.

▼ Figure 25: Trafalgar SERA land subject to inundation, cultural heritage sensitivity areas, native vegetation areas and Environmental Significance Overlay



Relevant policies, zones and overlays

Table 24, Table 25 and Table 26 show planning policies, zones and overlays in the Baw Baw planning scheme relevant to the Trafalgar SERA. These apply in conjunction with the legislative and planning controls in Table 5.

▼ Table 24: Trafalgar SERA relevant policies

CAUSE	RELEVANCE TO SERA
<i>Gippsland Regional Growth Plan</i>	The plan recognises that sand and rock extractive industry is necessary to support growth in Melbourne and regional Victoria. EIAs occur within the region, which contains areas of known future interest to extractive industry. The plan identifies the Trafalgar sand resource as state-significant.
<i>Clause 02.03–3 Natural resource management</i>	Provides context and strategic direction for protecting sand resources and extractive industry at Trafalgar.
<i>Clause 14.03-1L Stone and sand resource areas</i>	To protect significant stone and sand resources to ensure a sustainable supply is available.

▼ Table 25: Trafalgar SERA relevant zones

ZONE	RELEVANCE TO SERA
<i>Clause 35.07 Farming Zone (FZ)</i>	FZ schedule 1 (FZ1) is applied to most land in the SERA. FZ1 specifies a minimum lot size of 40 ha for the subdivision of land, providing some protection to approved and future WAs.
<i>Transport Zone 2 (TRZ2)</i>	TRZ2 is applied to Principal Road Network roads. TRZ2 land within the SERA includes the north-south Willowgrove Road. Quarries must have access to major transport routes, and TRZ2 land supports the movement of extractive resources to consumers.

▼ Table 26: Trafalgar SERA relevant overlays

OVERLAY	RELEVANCE TO SERA
Clause 42.01 Environmental Significance Overlay (ESO)	ESO schedule 3 Trafalgar Sand Resource (ESO3) applies to an area that contains state-significant sand resources to supply the Melbourne region in the medium to long term. ESO3 affects most of the SERA. ESO3 provides long-term protection of sand resources from inappropriate development. It enables the extraction of sand resources while protecting the environmental values of the Sweetwater Creek Flora and Fauna Reserve, and it ensures the long-term availability of sand resources.
Clause 44.04 Land Subject to Inundation Overlay (LSIO)	The LSIO applies to some riverine areas adjacent to the SERA, indicating the extent of a 1-in-100-year inundation risk.
Clause 44.06 Bushfire Management Overlay (BMO)	The BMO affects areas of vegetation over 1 ha within the SERA, indicating the extent of bushfire risk.

Application of planning controls

This section should be read in conjunction with the draft planning controls for the Trafalgar SERA.

The draft planning controls proposed for inclusion in the Baw Baw Planning Scheme for the Trafalgar SERA would:

- rezone two lots containing current WAs from FZ1 to SUZ6
- apply State Resource Overlay 'Strategic Extractive Resource Areas' Schedule 1 (SRO1) to all land within the SERA
- apply State Resource Overlay 'Protecting Extractive Industry' Schedule 2 (SRO2) to land up to 250m outside the SERA to three lots containing a current WA inside the SERA that are close to the edge

- retain the existing ESO3 boundaries, rename this schedule from 'Trafalgar Sand Resource' to 'Protecting the Sweetwater Creek Nature Conservation Reserve' and update the schedule to remove references to extractive industry as planning controls relating to extractive industry are to be in the SRO1 and SRO2 schedules - the ESO3 schedule would continue to support environmental objectives.

SUZ

Five of the seven WAs in the Trafalgar SERA comprise only a small portion of the entire lot. These are not proposed to be rezoned from FZ1 to FZ6 because the primary land use within those lots is farming rather than extractive industry. Table 27 shows which WAs are proposed to be rezoned and which are not.

▼ **Table 27:** Application of SUZ to land parcels containing WAs within the Trafalgar SERA

WA	RESOURCE	WA SIZE (HA)	AREA OF LAND WITH WA (HA)	% OF LAND AFFECTED BY WA	REZONE TO SUZ?
WA523	Clay, sand, gravel	62.90	62.90	100	Yes
WA521	Clay, sand, gravel	186.80	190.97	97.82	Yes
WA204	Sand, gravel	20.10	258.61	7.77	No
WA103	Sand, gravel	4.30	70.04	6.14	No
WA454	Sand, gravel	12.64	50.46	25.04	No
WA23	Sand, gravel	9.63	28.24	34.10	No
WA406	Sand, gravel	12.64	39.54	31.97	No
Total (ha)	-	309.01	700.76	-	-

Consistent with *Clause 35.07 Farming Zone, Schedule 1* in the Hume Planning Scheme, subdivision of land in the SUZ6 would require a planning permit to create lots of less than 40ha. A permit could be granted for smaller lots if the subdivision is a re-subdivision of existing lots and it will not increase the number of lots or dwellings; or if the subdivision is by a public authority or utility service provider for a utility installation.

The draft planning controls for SUZ6 would also encourage land management practices and rehabilitation that minimise adverse impacts on the use and development of nearby land.

Table 28 compares the current planning permit requirements for all sensitive land uses in the RCZ1 schedule with the proposed SUZ6.

▼ **Table 28:** Planning permit requirements for all sensitive land uses in the Farming Zone Schedule 1 and Special Use Zone Schedule 6

SENSITIVE LAND USE		FZ1	SUZ6
Accommodation	– Bed and breakfast		
	– Dwelling <i>(other than a bed and breakfast)</i>	 Permit required if tests are met; otherwise prohibited	 Prohibited , except a permit is required for a caretaker's house or dependent person's unit
	– Rural worker accommodation	 Permit not required if tests are met	
	– Small second dwelling	 Permit not required if tests are met	
	– Dwelling <i>(other than bed and breakfast) if the Section 1 condition is not met</i>	 Permit required ; must meet the condition	
	– Camping and caravan park		
	– Group accommodation		
	– Host farm		
	– Residential hotel		
	– Rural worker accommodation <i>(If the Section 1 condition is not met)</i>	 Permit required ; must meet the condition	
	– Small second dwelling if the Section 1 condition is not met		
	– Accommodation <i>(other than a caretaker's house and dependent person's unit)</i>		
	– Accommodation <i>(other than bed and breakfast, camping and caravan park, dwelling, group accommodation, host farm, residential hotel, rural worker accommodation and small second dwelling)</i>		 Prohibited except permit required for caretaker's house and dependent person's unit
	– Camping and Caravan park		
	– Host farm		
	– Small second dwelling		
	– Residential building		
	– Group accommodation	Permit required if tests are met; otherwise prohibited	
	– All others		

Key:  No Permit required  Permit required  Prohibited

SENSITIVE LAND USE		FZ1	SUZ6
Crematorium		●	●
Education centre	– Primary and secondary school	●	●
	– All others	●	●
Funeral parlour		●	●
Hospital		●	●
Leisure and recreation	– Informal outdoor recreation	●	●
	– Indoor recreation facility	●	●
	– Major sports & recreation facility	●	●
	– Motor-racing track	●	●
	– All others	●	●
Place of assembly	– Cinema-based entertainment facility	●	●
	– Amusement parlour	●	●
	– Nightclub	●	●
	– All others	● Permit required if tests are met; otherwise prohibited	●
Retail premises	– Landscape gardening supplies	●	●
	– Manufacturing sales	●	●
	– Primary produce sales	● No permit required if tests are met; otherwise prohibited	●
	– Market	●	●
	– Plant nursery	●	●
	– Restaurant	●	●
	– All others	●	●
Veterinary centre		●	●
Winery		●	●

State Resource Overlay Schedule 1 (SRO1)

Applying SRO1 to the SERA would not significantly increase the planning permit triggers for landowners and occupiers.

The requirement for a planning permit for sensitive land uses under SRO1 would be similar to what is required for FZ. For example, in FZ, a planning permit is typically required to use land for accommodation — for dwellings — particularly when the land size is less than 40 ha.

Table 29 shows how the proposed SRO1 would affect permit triggers on the land to which it applied.

▼ Table 29: Trafalgar SERA proposed SRO1 impact on current permit triggers

LAND USE	FARMING ZONE
Accommodation	 Bed and breakfasts, dependent person's units, dwellings and rural workers' accommodation will now require a permit , even if more than 250m from a WA
Crematorium	 Permit required (no change)
Education centre	 Permit required (no change)
Funeral parlour	 Permit required (no change)
Hospital	 Permit required (no change)
Leisure and recreation	 Permit required (no change), except for informal outdoor recreation, which would now require a permit
Place of assembly	 Permit required (no change)
Retail premise	 Permit required (no change), except for primary produce sales, which would now require a permit
Veterinary centre	 Permit required (no change)
Winery	 Permit required (no change)

Key:  No Permit required  Permit required  Prohibited



State Resource Overlay Schedule 2 (SRO2)

As clay, sand and gravel are the identified resources within the Trafalgar SERA, the proposed SRO2 would apply a 250m buffer from the lot boundary of land containing three WAs located at the edge of the SERA: WA23, WA406 and WA454.

Other changes to planning controls

Most of the Trafalgar SERA is affected by the existing ESO3, which provides long-term protection of sand resources from inappropriate development while protecting the environmental values of the Sweetwater Creek Flora and Fauna Reserve.

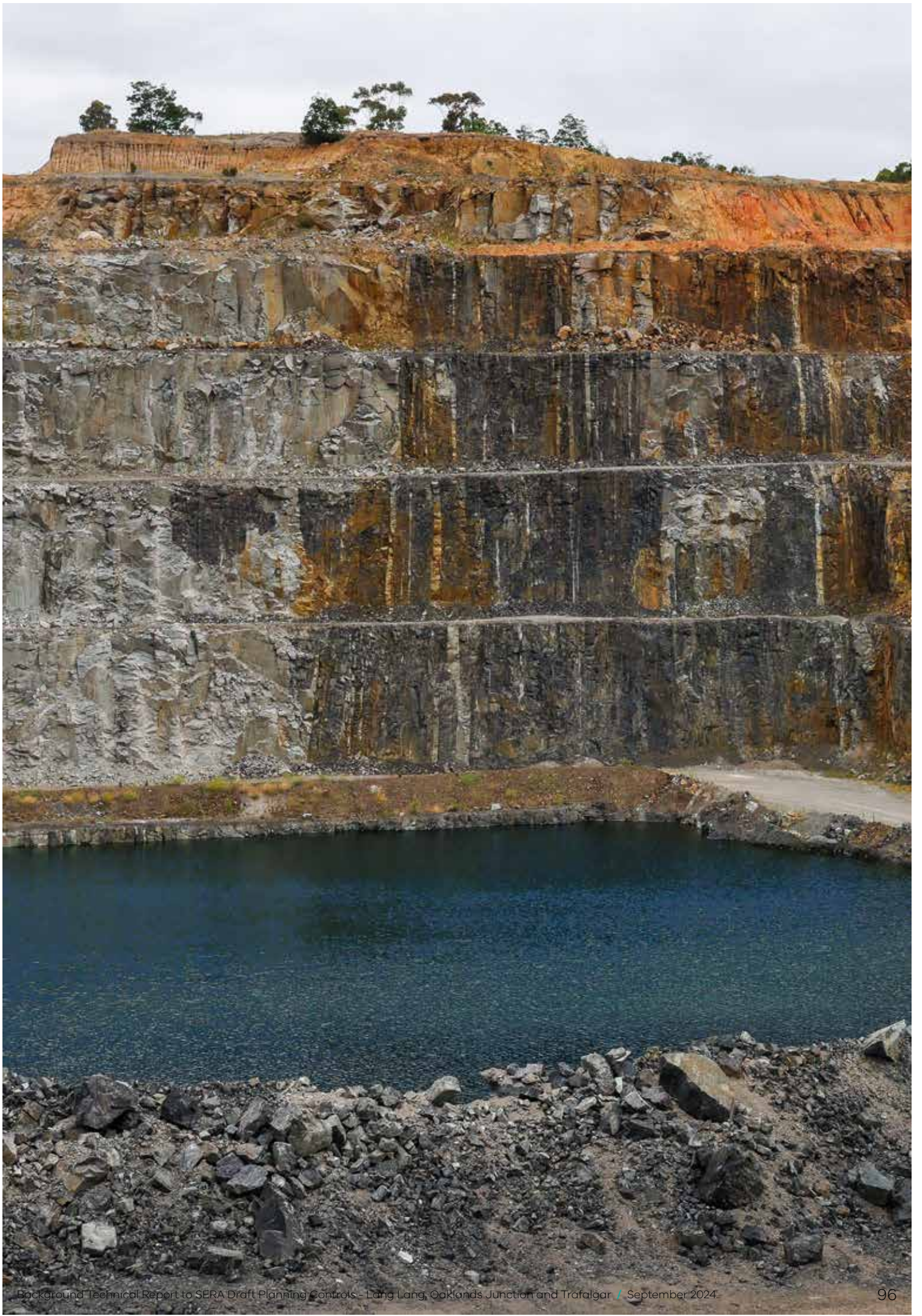
When it was introduced to the Baw Baw Planning Scheme, ESO3 was considered to be the most appropriate planning provision to protect the area's resources. The proposed SRO is an updated tool to achieve this outcome.

Accordingly, it is proposed to amend the ESO3 schedule to remove references to the identified Trafalgar sand resources and to focus the schedule solely on protecting the Sweetwater Creek Flora and Fauna Reserve. A permit would continue to be required under ESO3 to construct a building or construct or carry out works, subdivide land

or remove, destroy and lop vegetation, including dead vegetation, except for the species listed in the final dot point below that are exempt. Any buildings and works, including removing native vegetation associated with a quarry that is not exempt within ESO3, would still require a permit and consideration against the ESO3 decision guidelines. Exemptions for the need for a permit within ESO3 would continue to include:

- constructing, altering or extending a dwelling
- buildings and works in association with extractive industry
- constructing, altering or extending an outbuilding where it has and will have a floor area of less than 200m²
- earthworks ancillary to any of the above
- earthworks in association with agriculture
- removing, destroying or lopping any vegetation if the vegetation is not native vegetation or the vegetation is sweet pittosporum, sallow wattle, white sallow wattle, cedar wattle, early black wattle or Cootamundra Wattle.

These proposals would not affect areas outside the SERA within the existing EIA.



APPENDICES

Appendix 1: SERA selection criteria

The process of identifying potential SERAs commenced during preparation of the *Extractives Demand and Supply Study* which mapped key sources of sand and stone supply located close to existing and projected demand areas. From this group, a set of priority areas were named in the *Extractive Resources Roadmap*. Most candidate SERA locations were chosen because they included Extractive Industry Interest Areas (EIAs). This process culminated in the creation of 12 SERA investigation areas.

Desktop multi-criteria analysis of the 12 investigation areas was then undertaken to assess their complexity level and review their priority status as stated in the *Roadmap*. Selection criteria included the factors noted above and was also informed by planning scheme provisions, public datasets and supply and demand data. This resulted in the selection of two pilot SERAs near Nyora West and Werribee-Little River. It also resulted in the selection of the three SERAs near Lang Lang, Oaklands Junction and Trafalgar.

While the 12 investigation areas cover extensive 'greenfield' sites with a scattering of existing quarries within a wider rural setting, 'brownfield' sites covering single quarries were also considered. These sites are already in substantial production and are significant as major suppliers to the Melbourne metropolitan area. Their inclusion as a SERA supports their ongoing operation for decades to come.

Existing planning controls to protect Aboriginal cultural heritage and environmental values were also considered during the SERA selection process. As quarrying permanently alters Country and landscapes, decision-making for quarry operations is generally lengthier and more complex when these values are in abundance. It is important to build confidence in the community that the SERA program seeks to identify and preserve areas of relatively less complexity for current and potential future quarries. Quarry applications will continue to require assessments under applicable state and federal laws to protect these values. Quarries can also be proposed in areas that are not within an EIA or SERA.

The final boundaries of each SERA have been influenced by a more detailed analysis of the areas. Areas of potentially high value for cultural heritage, biodiversity and/or environmental factors have been identified and, where practical, avoided.

The high-level criteria for prioritising the SERAs are based on the factors shown in Table 30.

▼ Table 30: High-level SERA selection criteria factors

FACTOR	INCLUDES
Geoscience	– Production potential (or supply) of sand or hard rock – Likelihood of longevity of operation into the future – Proximity to demand for its products
Site-specific characteristics	– WA holder and/or peak industry body has been briefed – Substantial size of parcel – Appropriate zoning – Proximity to good road connections
Environmental and cultural values	Assessment of the impact on areas with high natural and/or Aboriginal cultural heritage values

Table 31 shows additional criteria for prioritising SERAs.

▼ **Table 31:** Additional criteria for determining the inclusion of SERA sites

CRITERIA	GREENFIELD SERA	BROWNFIELD SERA
Resource significance		
The resource (sand or stone) is in high demand	Yes	Yes
There is a projected shortfall in the type of strategic extractive resource in the subject region	Yes	Yes
The area's extractive resources support Melbourne's growth by its location, proximity to markets and transport links	Yes	Yes
The brownfield area has extractive resources of sufficient quality and quantity to yield more than 1 million tonnes a year for 15 years	N/A	Yes
The area has potential to expand quarrying operations or for the quarry 'life' to be extended	Yes	Yes
The greenfield area has significant long-term extractive resources – in excess of 15m tonnes – as verified by the Geological Survey of Victoria	Yes	N/A
SITE ASSESSMENT		
The area has manageable constraints as per planning scheme provisions (e.g. suitable zoning, buffer areas; planning policy compliance)	Yes	Yes
The area is accessible to markets via suitable transport routes that support projected truck traffic requirements (e.g. B-double trucks)	Yes	Yes
The area is likely to experience 'threats' from urban expansion or an increase in sensitive land uses, development or subdivision	Yes	Yes
The brownfield area is wholly or partly zoned SUZ for extractive industry	N/A	Yes
The brownfield area contains an existing single work authority	N/A	Yes
The greenfield area contains multiple work authorities and/or areas for potential new quarries to be established	Yes	N/A
The greenfield area contains a large proportion of land parcels greater than 40 ha	Desirable	N/A
KEY STAKEHOLDERS		
The WA's landowner agrees to a potential SERA	Desirable	Yes
The WA holder agrees to a potential SERA	Desirable	Yes
The council agrees to a potential SERA	Yes	Desirable



Appendix 2: SERA investigation areas: resource prospectivity

Purpose

The purpose of this summary is to provide a geological assessment of the tranche 1 Strategic Extractives Resource Areas (SERAs) background investigation areas. The assessment is based on available geoscience data and knowledge.

Background

With Victoria's growing population and increasing requirements for extractive resources to build homes and necessary infrastructure comes the need to secure the long-term supply of strategic extractive resources, close to areas where they will be used. The SERAs address this need by facilitating greater visibility, recognition, and planning protection of strategic extractives resources in defined locations.

A SERA provides planning controls that include:

- utilising the Special Use Zone (SUZ) for existing quarries
- applying a State Resource Overlay (SR01) to areas that have been identified as potential new or expanded quarries in the future
- applying a State Resource Overlay (SR02) around existing quarries as a buffer.

The location of a SERA is based on an assessment of source rock availability and quality, cultural sensitivity, existing land uses, supporting transport networks and proximity to markets.

Two SERAs have been implemented in the South Gippsland and Wyndham Local Government Areas (LGAs), and the Strategic Extractive Resources Roadmap outlines priority areas for further SERAs. Background investigations of priority areas commenced in September 2021, with the Geological Survey of Victoria (GSV) providing a geological assessment for these.

Scope

Priority areas for SERA background investigations have been divided into three tranches by the Strategic Resources Planning team. The focus of this assessment is on the first tranche of priority areas; Cardinia Bass and Trafalgar. The boundary for each area was provided by the Strategic Resources Planning team. No assessment of the geology and associated extractives prospectivity has been conducted outside the background investigation area boundaries. Each area has been assessed independently and no comparisons have been made between areas. Commentary regarding economic viability of a resource and distance to market is not included within the scope of this assessment.

Extractive Industry Interest Areas

Extractive Industry Interest Areas (EIIA) were first developed by the Geological Survey of Victoria (GSV) in 1993, and refined in 1996 and 2003, to assist in strategic planning for future quarry material supply across Victoria. They were based on geoscience and planning scheme desktop reviews and identified areas with potential for economically viable quarry resources.

Identification of EIAs involved a geoscientific desktop analysis of historical data, including historical GSV drilling campaigns, and regional scale geological mapping. Planning scheme reviews identified areas where there were potentially fewer land use planning constraints at the time. Although EIAs provide an indication of the extractives prospectivity of an area, they do not have any planning controls with respect to the planning scheme.

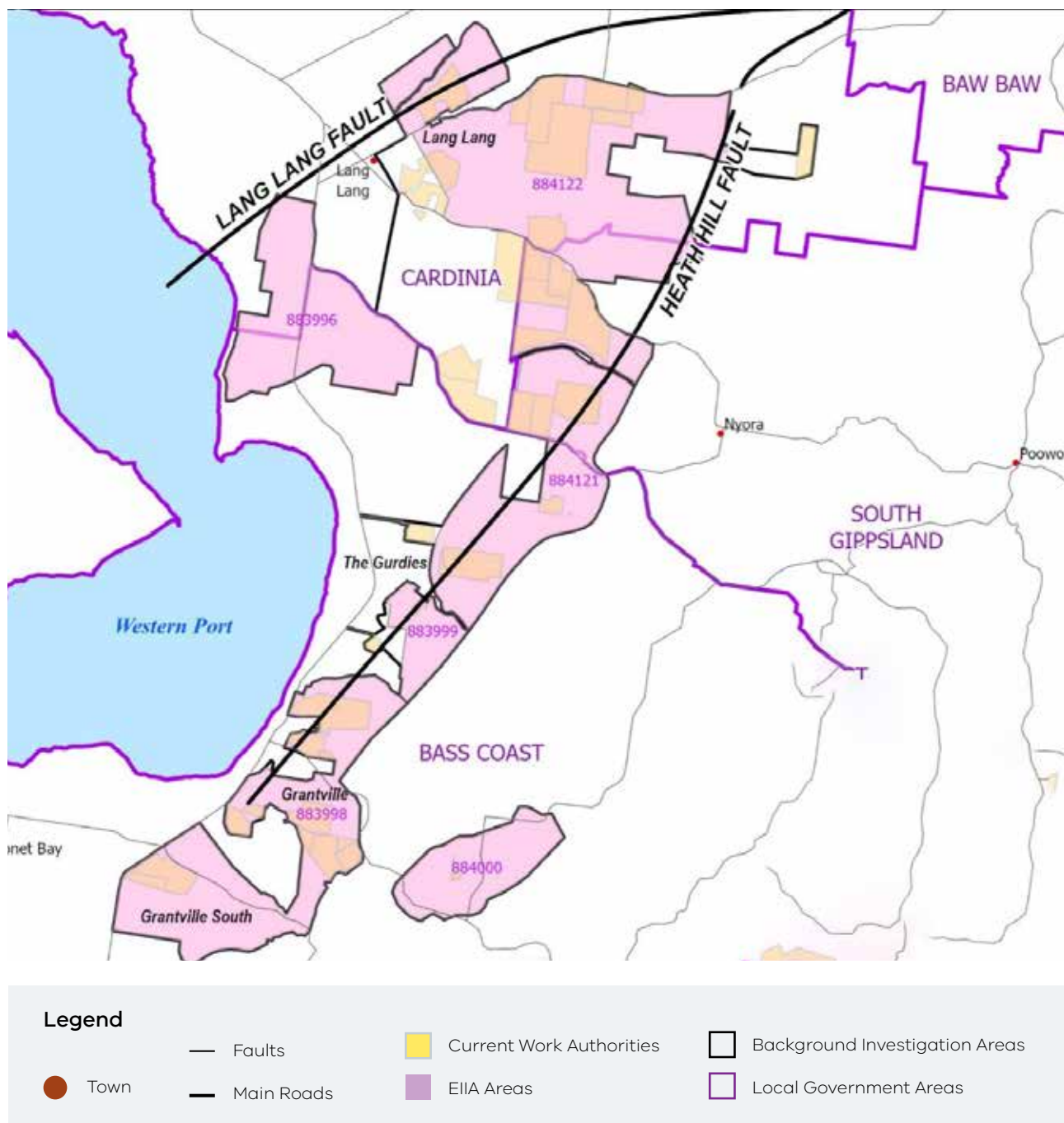
Over the 17 years since the last EIIA review there have been changes to geoscience data and knowledge, local government planning schemes and construction material consumer demands. To ensure EIAs remain a robust delineation of extractives prospectivity, EIIA boundaries were recently reviewed and updated based on current planning scheme zones and sterilisation of EIAs by incompatible land uses (e.g., urban development). EIAs referenced in this assessment are the most recent boundaries.

Cardinia/Bass extractive resource prospectivity

Regional geology

The area encompassed by the Cardinia Bass background investigation area is a major production centre for coarse and fine sand products that supply the Melbourne metropolitan and eastern growth corridors. The area of interest encompasses parts of both the Cardinia and Bass LGAs (Figure 26). In Cardinia, extraction is primarily from the Pleistocene age Cranbourne Sand and Pliocene to Miocene age Sandringham Sandstone units, while in the south, around Grantville, extraction is from the Pliocene to Oligocene age Yallock Formation. The productive sand units are structurally constrained by the Lang Lang Fault to the west and the Heath Hill Fault to the east (Figure 26). The sands from each production area differ in their physical properties, however they both achieve the necessary specifications for construction material supply.

▼ **Figure 26:** Cardinia Bass background investigation area, along with LGA boundaries, overlapping EIAs and current Work Authorities





Background investigation area

The majority of the investigation area overlaps with several EIAs, which were previously identified as being prospective for sand extraction (Figure 26). The recent review of the EIA boundaries has not substantially altered EIA coverage across the investigation area. For the purpose of this assessment, the area has been divided into production centres, shown in Figure 26, and these are as follows:

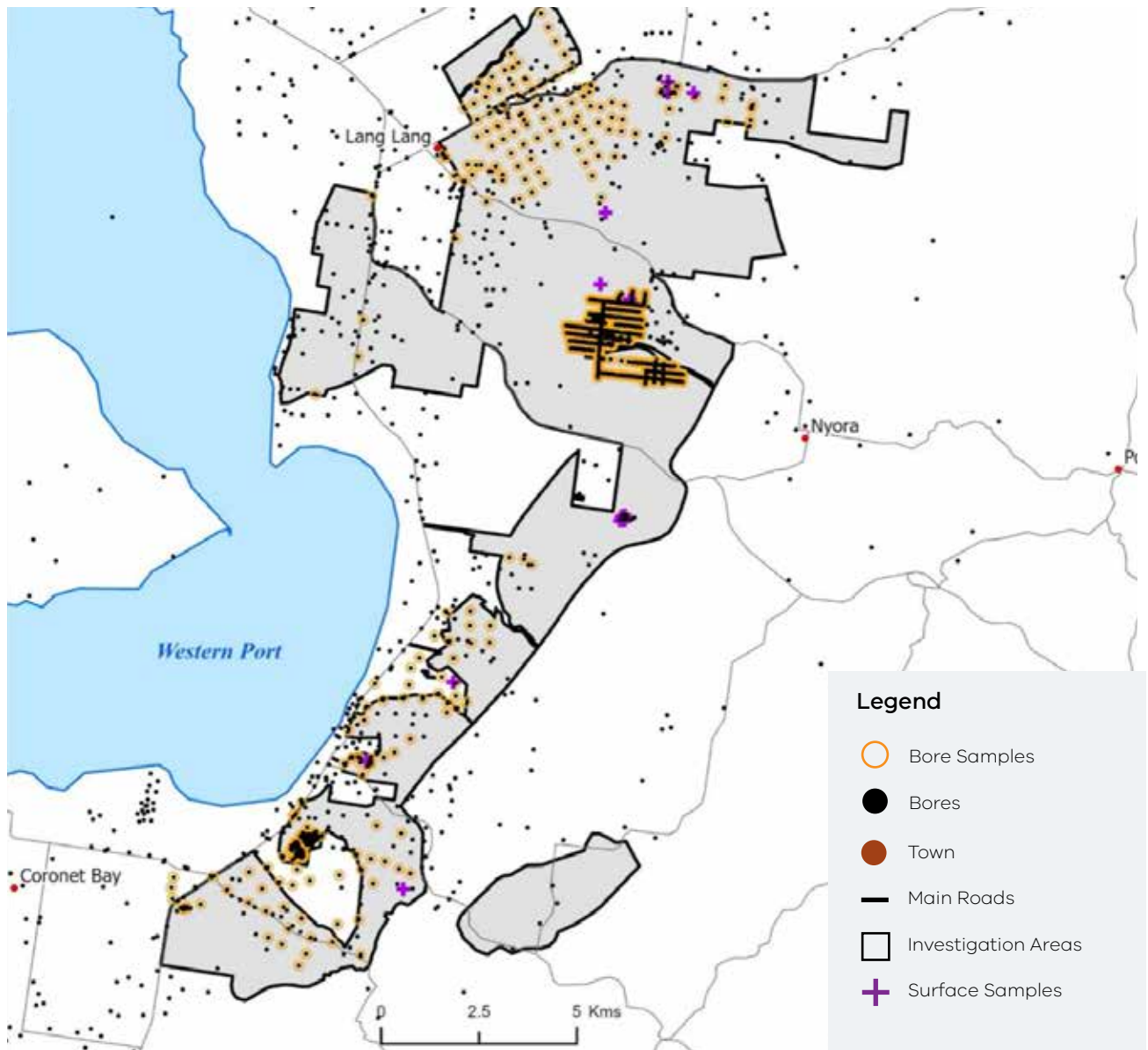
- Cardinia LGA - Lang Lang
- Bass Coast LGA - The Gurdies, Grantville and Grantville South

Available geoscience data

Recent investigations by the GSV have made new extractives geoscience data available to the public. This data comprises both new engineering geoscience data obtained during a focussed GSV quarry sampling program, and historic extractives data collected by government and industry.

The GSV borehole database shows a total of 1,241 boreholes across the background investigation area, and of these 506 boreholes have downhole lithology logs. Extractives sampling coverage comprises 2,550 individual borehole samples and 20 surface samples with extractives related testing data. Figure 27 shows the distribution of borehole and surface sample datapoints across the Cardinia Bass background investigation area. Engineering geoscience data and particle size distribution data is available for the background investigation area.

▼ Figure 27: Borehole and surface sample data points across the Cardinia Bass background investigation area



Suitability of source rock for quarrying products

Sand resources in the Cardinia Bass background investigation area are suitable for production of construction sands. There are 39 current WAs within the background investigation area, although not all WAs are currently producing. An example of a concrete sand product from the Grantville production centre is presented in Figure 28. Assessment of the available lithology data gives an average overburden thickness of approximately 3.5m and an overburden to sand ratio of 1:6, which indicates suitability for economic extraction.

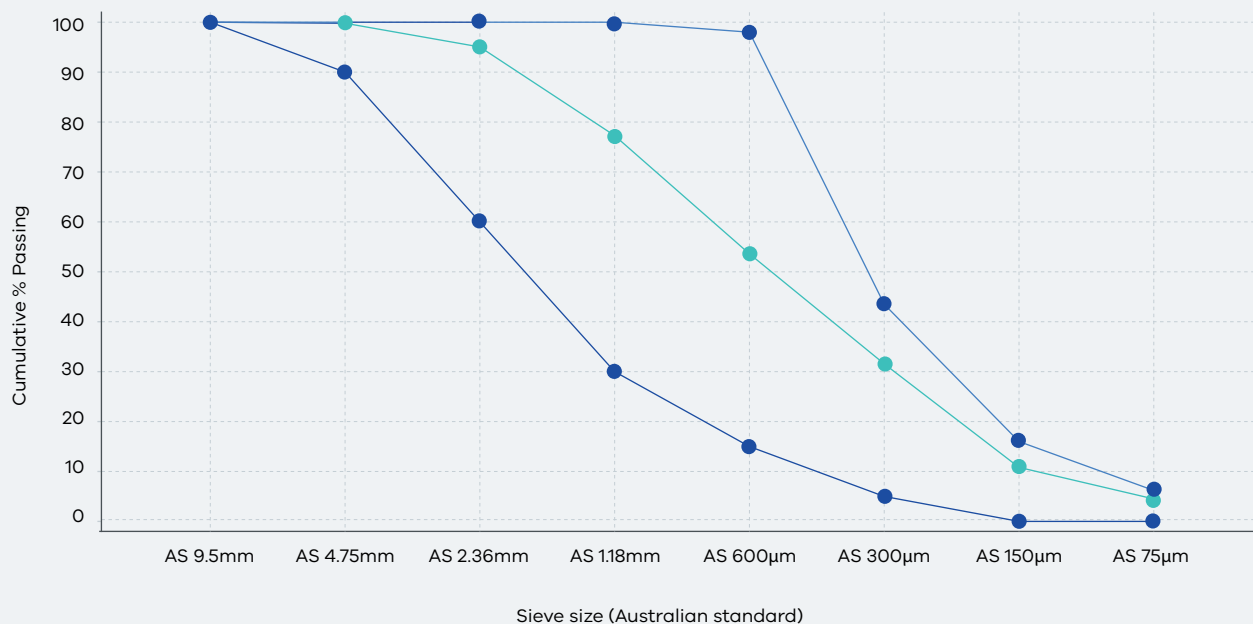
Particle size distribution data for the production centres, along with the Australian Standard AS2758.1-1985 specification curves for concrete sand and VicRoads Section 610 specification is presented in Figure 29 and Figure 30. These curves are the average of all particle size distribution data available to the GSV in each of the production centres. Although there is variation in particle size distribution between the production centres, the majority of samples fall within the Australian Standard and VicRoads specifications for concrete sand. Where the grading curves fall outside the specification envelope, they are still within the tolerance limits for achieving specification by standard production processes.

▼ **Figure 28:** Construction sand product from a current Work Authority in Cardinia Bass



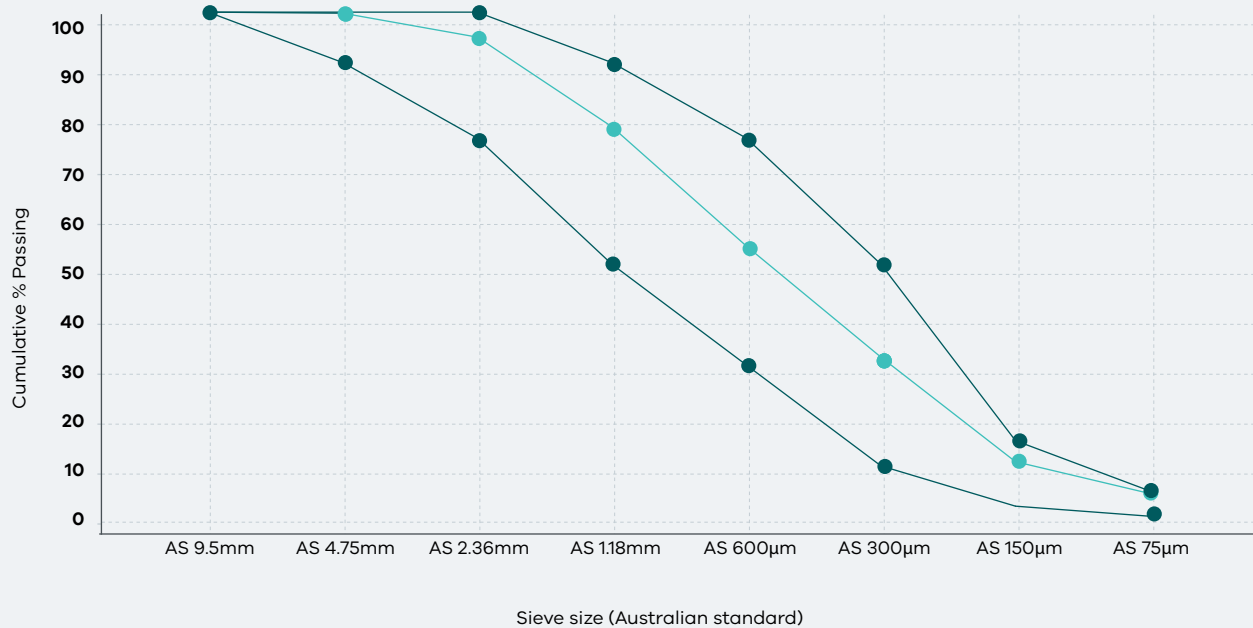
▼ **Figure 27:** Lang Lang average particle size distribution (light teal) within the specification envelope (blue) of the Australian Standard specification for concrete sand.

Note: Sand that is suitable for concrete must fall within the specification envelope (high and low range) as represented on this graph.



▼ **Figure 28:** Lang Lang average particle size distribution (light teal) within the specification envelope (dark green) of the VicRoads specification for concrete sand.

Note: Sand that is suitable for concrete must fall within the specification envelope (high and low range) as represented on this graph.







Engineering geoscience data for the background investigation area is provided in Table 30. The combination of water absorption values, clay and fine silt values and particle size distribution data indicate that the source rock is suitable for concrete sand and a range of other construction products.

▼ **Table 32:** Average, minimum and maximum values for water absorption, clay and fine silt, and fineness modulus for the Cardinia Bass background investigation area

WATER ABSORPTION %			CLAY AND FINE SILT %			FINENESS MODULUS		
Min	Max	Average	Min	Max	Average	Min	Max	Average
0.2	1.8	0.7	1	46	15.9	0.1	4.7	1.7

Trafalgar extractive resource prospectivity

Regional geology

The Trafalgar background investigation area is located in the Baw Baw LGA. The surface geology of the background investigation area is dominated by the Pliocene to Pleistocene age Haunted Hills Formation (Figure 31). The Haunted Hills Formation is overlain by a major alluvial floodplain system, and minor colluvial deposits, across the area. At the northern extent of the area, early Devonian Norton Gully Sandstone and the Late Oligocene to early Miocene Neerim Volcanic Group basalt have been mapped.

The Haunted Hills Formation is the source rock of interest for extraction and the production of construction materials. The geological characteristics of the Haunted Hills Formation are regionally variable. In the context of construction materials, this allows a variety of sand products to be produced Invalid source specified.

Background investigation area

The Trafalgar background investigation area aligns with the boundaries of EIIA 884123, which were identified as being prospective for sand extraction. The recent review of the EIIA boundaries has not substantially altered EIIA coverage across the background investigation area. Extractive sand units of interest also exist across the Darnum area to the southwest of Trafalgar, however this area has not been included in the background investigation area (Figure 31).

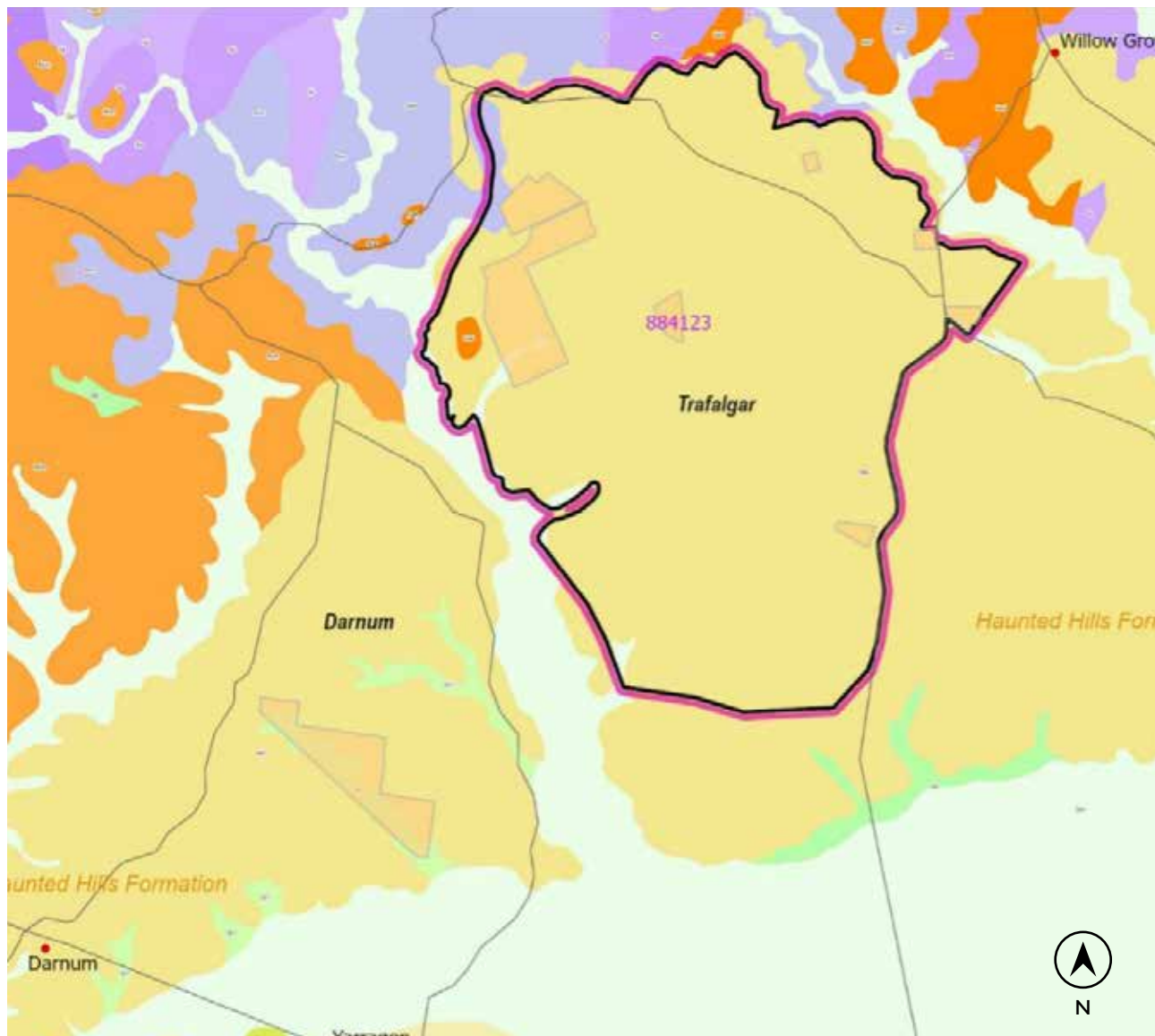
Available geoscience data

Recent investigations by the GSV have made new extractives geoscience data available to the public. This data comprises both new engineering geoscience data obtained during a focussed GSV quarry sampling program, and historic extractives data collected by government and industry.

The GSV borehole database shows a total of 181 boreholes across the background investigation area, and of these 180 boreholes have downhole lithology logs. Extractives sampling coverage comprises 451 individual borehole samples and 5 surface samples with extractives related testing data. Figure 32 shows the distribution of borehole and sample datapoints across the Trafalgar background investigation area. Both engineering geoscience data and particle size distribution data is available for the area of interest.

A contemporary resource model of the Trafalgar and Darnum area was recently completed and confirms the extractives prospectivity of the area.

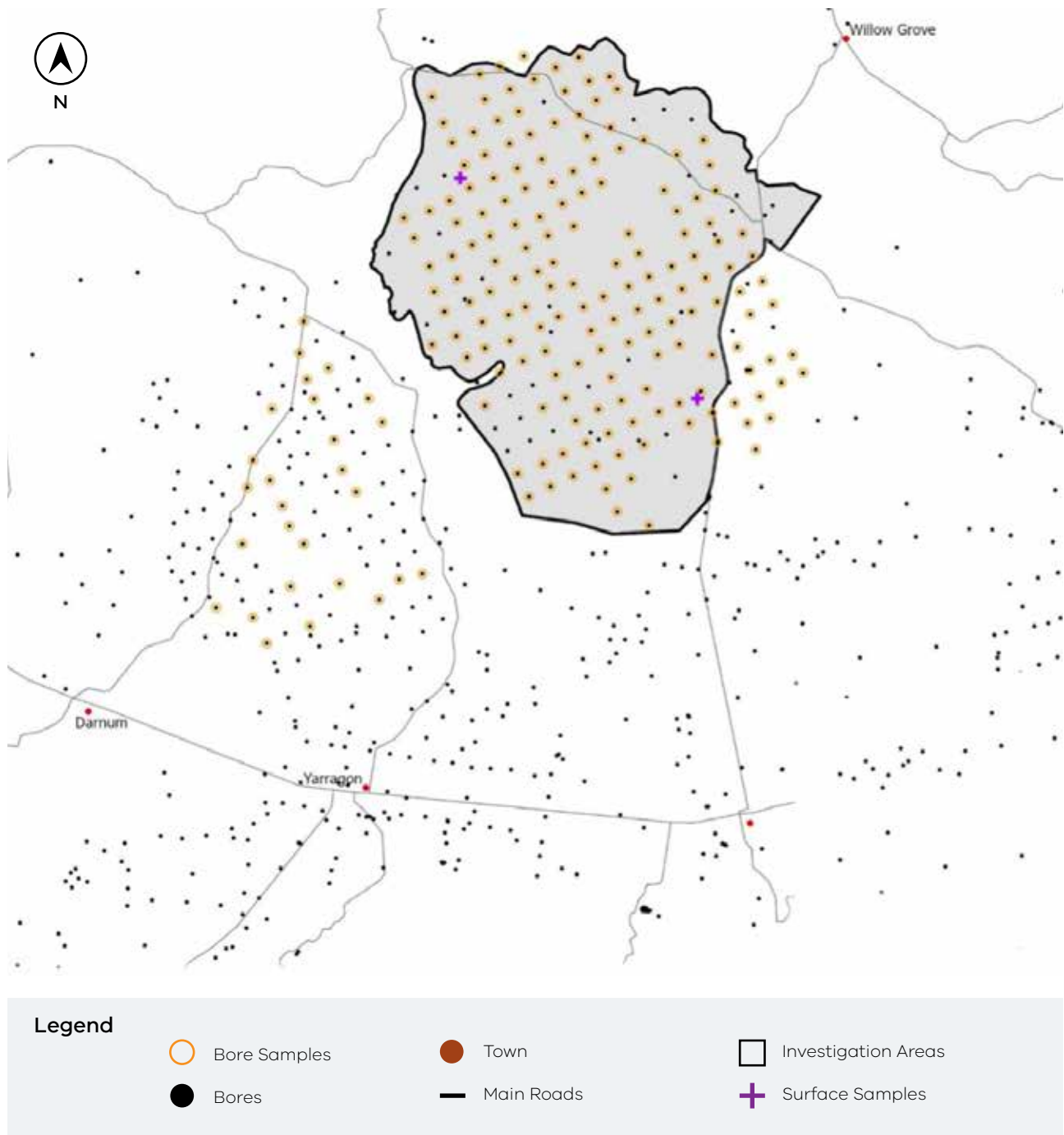
▼ **Figure 31:** Trafalgar Sand background investigation area showing EIIA boundaries, current work authorities and the surface expression of the Haunted Hills Formation



Legend

- | | | |
|---|---|---|
| ● Town | Current Work Authorities | Background Investigation Areas |
| — Main Roads | EIIA Areas | |

▼ Figure 32: Borehole and sample data points across the Trafalgar background investigation area



Suitability of source rock for quarrying products

Sand resources in the Trafalgar background investigation area are suitable for production of construction sands. There are 7 current WAs within the background investigation area, and one of these is currently producing.

An example of a raw and washed sand from a currently producing WA in the Trafalgar area is presented in Figure 33. Modelling of the Trafalgar sand resource, utilising all available borehole data, demonstrated an average sand unit thickness of 11.3m. Assessment of the available lithology data by the GSV, using a subset of the boreholes, gives an average overburden thickness of approximately 3.7m and an overburden to sand ratio of 1:5.6, which indicates suitability for economic extraction.

Particle size distribution data for the Trafalgar background investigation area, along with the Australian Standard AS2758.1-1985 specification and VicRoads Section 610 specification envelopes for concrete sand, is presented in Figure 34 and Figure 35. These curves are the average of all particle size distribution data available to the GSV within the background investigation area. The particle size distribution data falls within the envelope for both specifications, indicating suitability of the sand for high grade construction products, including use in concrete and asphalt.

Engineering geoscience data for the background investigation area can be seen in Table 31. The combination of water absorption values, clay and fine silt values and particle size distribution data indicate suitability of the source rock for concrete sand and a range of other construction products.

▼ **Figure 33:** (A) A sample of the raw feed sand from a work authority prior to being washed and screened; (B) A sample of the concrete sand product the same work authority after being washed and screened.



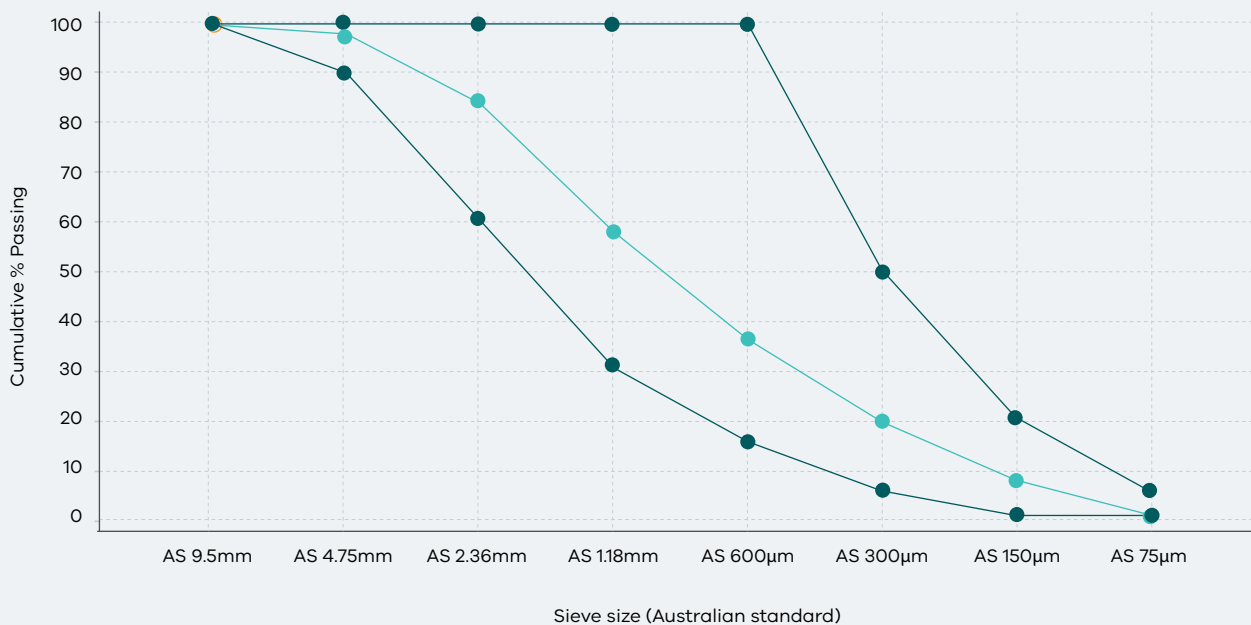
Sample A



Sample B

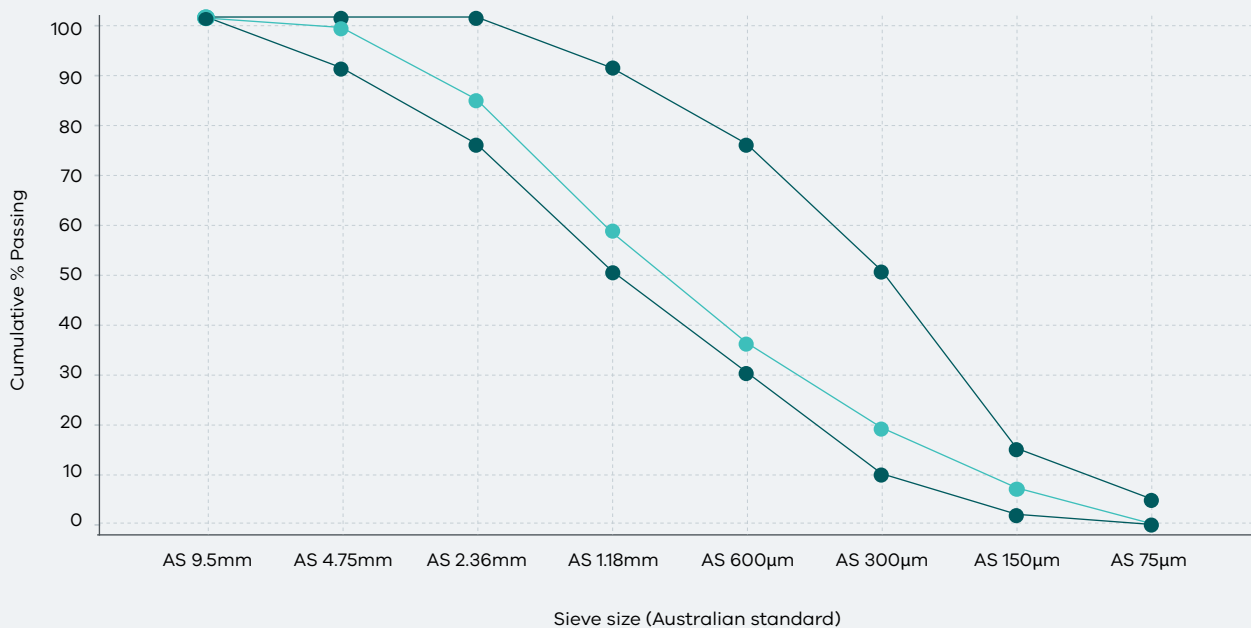
▼ **Figure 34:** Trafalgar average particle size distribution (light teal) within the specification envelope (dark green) of the Australian Standard specification for concrete sand.

Note: Sand that is suitable for concrete must fall within the specification envelope (high and low range) as represented on this graph.



▼ **Figure 35:** Trafalgar average particle size distribution (light teal) within the specification envelope (dark green) of the VicRoads specification for concrete sand.

Note: Sand that is suitable for concrete must fall within the specification envelope (high and low range) as represented on this graph.





Trafalgar resource estimate

GSV recently undertook modelling of the Trafalgar area to generate a contemporary resource estimate. This also included the Darnum area to the southwest of the Trafalgar Sand background investigation area (Figure 31). The estimate for Trafalgar and Darnum determined a total of 620 million tonnes of sand (Indicated and Inferred Resources meeting JORC 2012 guidelines) met the conditions of eventual economic extraction. Although the resource estimate encompasses both the Trafalgar and Darnum areas, modelling demonstrated that the majority and highest-grade resources occurred in the Trafalgar area.

▼ **Table 33:** Average, minimum and maximum values for water absorption, clay and fine silt, and fineness modulus for the Trafalgar Background Investigation area

WATER ABSORPTION %			CLAY AND FINE SILT %			FINENESS MODULUS		
Min	Max	Average	Min	Max	Average	Min	Max	Average
0.4	1.1	0.8	6	12	9	0.1	4.2	3



Appendix 3: SERA investigation areas native vegetation assessment

The Strategic Offsets Project is a priority action of the Helping Victoria Grow: Extractive Resources Strategy. The project will develop and implement innovative and meaningful approaches to biodiversity offsets for the extractives sector.

Executive summary

This paper provides an analysis of the location and quality of native vegetation within the Baw Baw, Cardinia and Hume investigation areas for the Tranche 1 SERA projects. An upfront native vegetation assessment has been undertaken to ensure that all biodiversity risks, issues or barriers are known early in the process. This will assist in developing the final boundaries for the SERAs and provide additional certainty to the Department of Energy, Environment and Climate Action (DEECA), operators, credit brokers and other relevant stakeholders.

DEECA has undertaken a desktop assessment using modelled data of the Cardinia investigation area and prepared risk maps to determine the areas of low and high ecological constraint. Comparing these areas to the mapped areas of the SERAs and Extractive Industries Interest Areas (EIIA) may help guide quarry development into lower-risk areas that will provide both cost and efficiency benefits to operators as well as biodiversity benefits.

This analysis has clearly identified the areas of higher-risk vegetation that may prove difficult to secure offsets for and shows locations where development would be subject to lower native vegetation risk. It is expected that this analysis could help shape the final SERA boundaries as well as providing the industry with additional confidence before committing to new developments.

DEECA's desktop assessment of the native vegetation across the Cardinia investigation area concludes that there are numerous areas that could be suitable for extractive operations development that lead to lower native vegetation offset costs and biodiversity impact.

Native vegetation risk assessment methodology

The below native vegetation risk assessment method indicates which areas within the investigation areas could be developed while avoiding and/or minimising the impact to the existing vegetation. Developing land that avoids and minimises native vegetation removal will reduce costs relating to securing offsets and time delays associated with this element of assessment and approvals.

The three investigation areas were assessed using the below method that was utilised for the Wyndham SERA case study. This method is easily replicated and can be applied to any area or specific site requested by DEECA or industry.

Step 1: Undertake a native vegetation removal assessment

Using the internal EnSym system DEECA has undertaken a desktop assessment on each parcel within the Cardinia investigation area to determine the extent of vegetation, native vegetation condition, Ecological Vegetation Class (EVC) and strategic biodiversity value.

Using modelled data, the assessment provided a report for each parcel providing information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*.

Note: An on-ground assessment, rather than modelled data, will be required to make an application.

Step 2: Undertake QGIS mapping exercise to determine higher-risk and lower-risk areas.

Using the information collected in Step 1, undertake a GIS analysis to determine the locations that contain no modelled native vegetation extent and areas containing modelled native vegetation extent. This exercise has clearly shown which areas do not have modelled native vegetation and which areas should be avoided if practical and where development should be encouraged.

Analysing native vegetation assessment maps

Native vegetation extent

The extent of modelled native vegetation is shown in green and red. This shows where modelled native vegetation exists across the landscape. These areas indicate that offsets would need to be secured as per the native vegetation regulations if the vegetation was proposed to be removed. Alternatively, the areas with no green or red areas are likely to have no native vegetation and is considered lower risk from a development perspective.

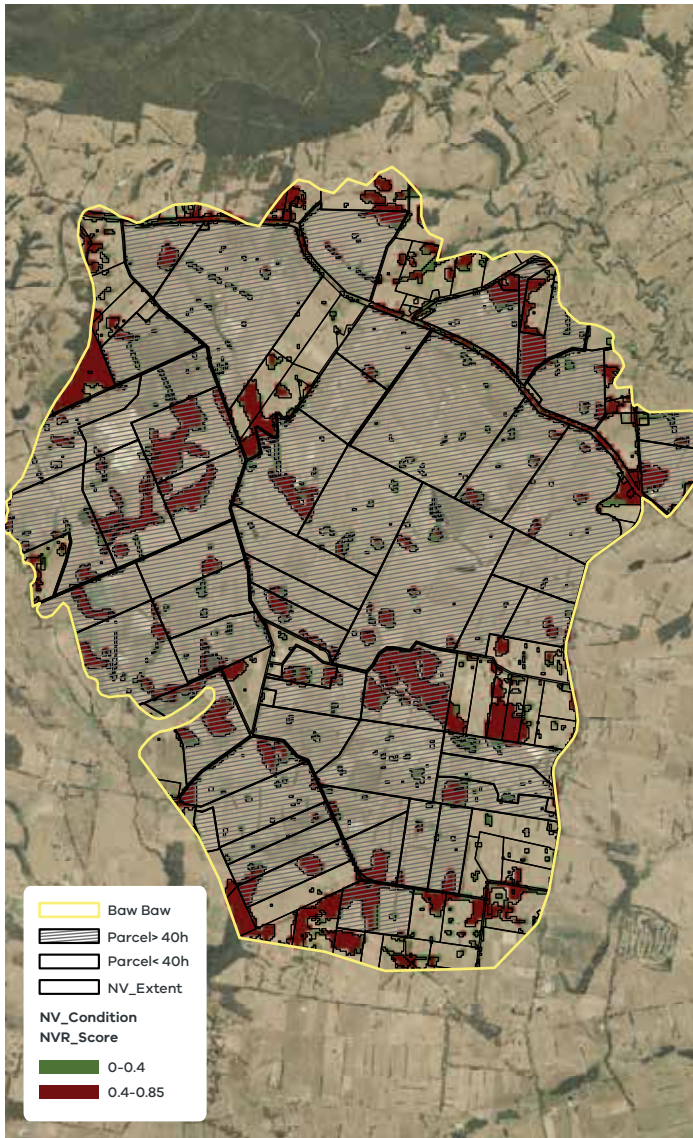
Native vegetation condition

Modelled vegetation is separated into red and green depending on strategic biodiversity value. For context, a strategic biodiversity value score above 0.8 means the site is very important for Victoria's biodiversity from a state-wide perspective. Larger or intact areas of native vegetation have higher strategic scores and a score above 0.6 is very good condition.

- **Green:** 0-0.4 (lower condition)
- **Red:** 0.4-0.85 (higher condition).

Parcel size

A subdivision minimum of at least 40 hectares is considered appropriate for extractive industry, as quarry operations are generally within this size limit. Land fragmentation is particularly an issue on previously identified EIIA areas, as it is a deterrent for prospective quarry operators to acquire land and attain approval for operations. The hatched parcels indicate that the parcel is 40 hectares or greater. The unhatched parcels are less than 40 hectares and if no modelled vegetation is present, could provide opportunities for operations that meet the Code of Practice for Small Quarries.



Baw Baw SERA – Trafalgar Sands

Site context

- Significant land clearance and alteration has resulted in fragmented distribution of native vegetation across the area.
- Small and dispersed areas of remnant native vegetation are present across the area and predominantly exist along roads and waterways. There are several larger patches spread across the area.
- The native vegetation condition is high across the area with approximately two thirds of the modelled vegetation being assessed as 0.4-0.84.

Native vegetation risk

- There are several opportunities for the lower risk expansion of existing operations or development of new operations in areas with little modelled vegetation or lower value vegetation.
- Costs relating to securing offsets could be minimised significantly if this areas with no modelled native vegetation were prioritised for operations.

Higher risk areas

- Mapped higher value vegetation in larger patches across the site. Large or intact areas of native vegetation. This vegetation would usually have higher condition and strategic biodiversity value scores.
- Mapped vegetation along roads and waterways.

Cardinia SERA

Site context

- Extent of native vegetation is minor and is predominantly located along roads.
- The native vegetation condition is high across the area with approximately half of the modelled vegetation being rated 0.4-0.84.

Native vegetation risk

- Very small portion of the site contains modelled native vegetation.
- Several opportunities for new operations.
- Costs relating to securing offsets could be minimised significantly if this area was developed for future operations.

Higher-risk locations

- Mapped vegetation within and adjacent to road reserve along Bass Hwy.
- Mapped vegetation along Jetty Lane.
- Mapped vegetation at south-west section of Area 1 close to Lang Lang Caravan Park.



Site context

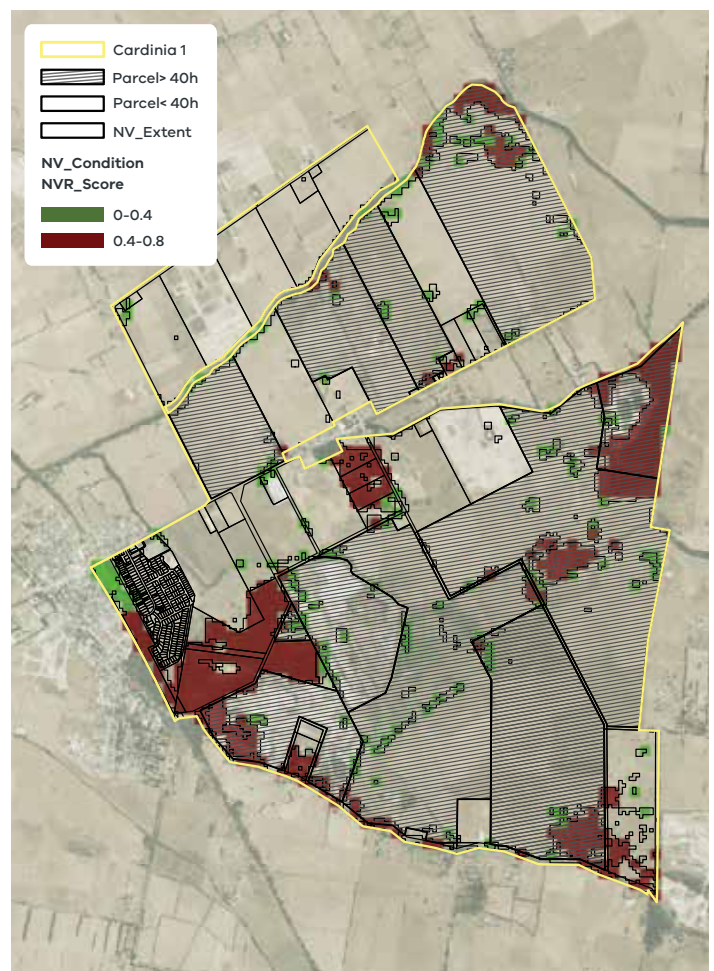
- Extent of modelled native vegetation is moderate.
- Modelled native vegetation condition is high.

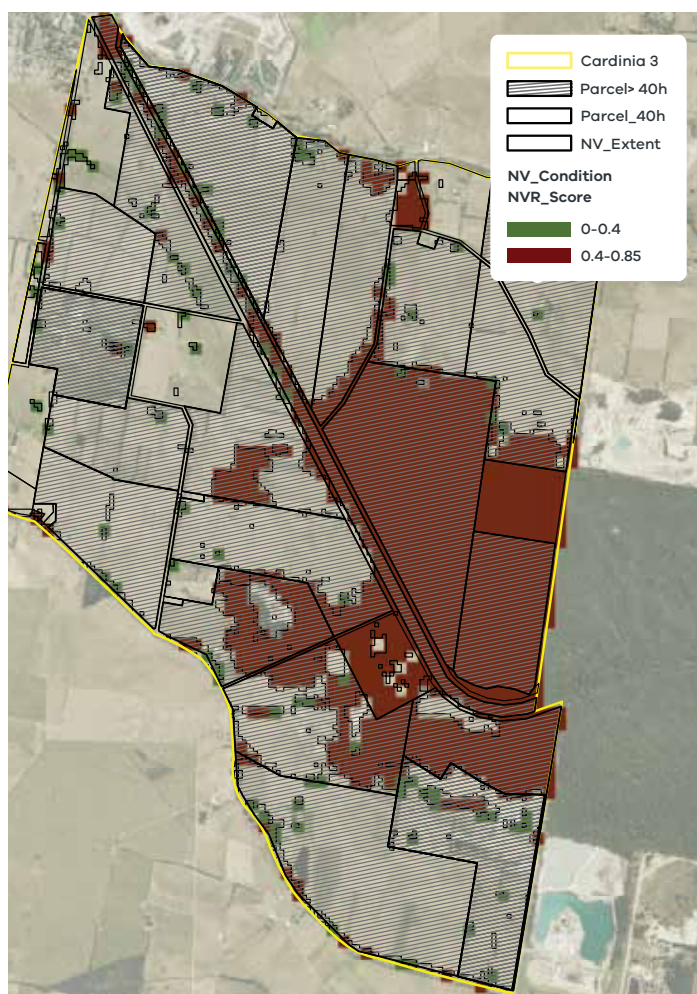
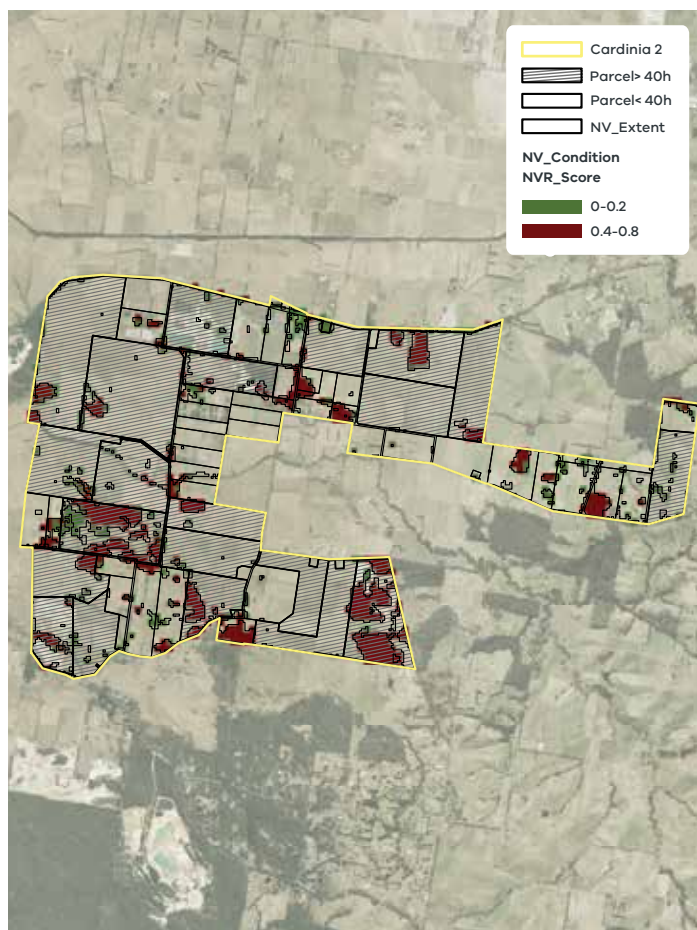
Native vegetation risk

- Small portion of the site contains modelled high value native vegetation.
- Several opportunities for new operations.
- Costs relating to securing offsets could be minimised significantly if already cleared land in this area was developed for future operations.

Higher-risk locations

- Large patches of native vegetation.
- Mapped high value vegetation clustered in the west.





Site context

- Extent of modelled native vegetation is moderate.
- Modelled native vegetation condition is high.

Native vegetation risk

- Small portion of the site contains modelled high value native vegetation.
- Several opportunities for new operations.
- Costs relating to securing offsets could be minimised significantly if already cleared land in this area was developed for future operations.

Higher-risk locations

- Mapped vegetation surrounding WA006051.
- Mapped high value vegetation clustered in south-west and south-east of area.
- Mapped vegetation surrounding WA1005.

Site context

- Extent of native vegetation is significant, predominantly adjacent to the Adams Creek Environs nature reserve. A large portion of this area is a nature conservation reserve managed by Parks Victoria.
- Modelled native vegetation condition is high.
- Any proposed native vegetation removal would likely fall within a Detailed Assessment Pathway due to the existence of endangered EVCs and potential impact on habitat for rare or threatened species.

Native vegetation risk

- Significant portion of the site contains modelled high value native vegetation.
- Several opportunities for new operations.
- Costs relating to securing offsets could be minimised significantly if already cleared land in this area was developed for future operations.

Higher-risk locations

- Mapped vegetation within and surrounding Adams Creek Nature Conservation Reserve.

Hume SERA – Oaklands Junction

Site context

- Significant extractive operations have occurred at the site resulting in very little remnant vegetation.
- Modelled vegetation is present mostly along the western boundary and south of the main parcel which acts as a visual barrier to the operations.
- The native vegetation condition is high across the area with approximately two thirds of the modelled vegetation being rated 0.4-0.84.

Native vegetation risk

- A very small portion of the site contains modelled native vegetation.
- There are several opportunities for the lower risk expansion of existing operations or development of new operations in areas with little modelled vegetation or lower value vegetation.

Higher-risk areas

- Mapped higher value vegetation along the western boundary and south of the main parcel.

Securing offsets

The Guidelines for the removal, destruction



or *lopping of native vegetation* (the Guidelines) apply to all proposals to remove native vegetation for extractive operations. The Guidelines set out how to identify, assess and offset native vegetation removal. An offset compensates for the loss in biodiversity value when native vegetation is removed.

There are two types of offsets:

- a species offset is required when the removal of native vegetation has a significant impact on habitat for a rare or threatened species
- a general offset is required when the removal of native vegetation does not have a significant impact on habitat for a rare or threatened species.

DEECA has undertaken an analysis of the

available general offsets on the Native Vegetation Credit Register (NVCR). The offset must be located within the same Catchment Management Authority (CMA) boundary or municipal district as the native vegetation to be removed. This maintains a link between the location of the offset and the site of the native vegetation to be removed. The relevant CMAs to the above investigation areas are Melbourne Water and West Gippsland.

The investigation areas have a high availability of general habitat native vegetation credits. This is likely to be a lower-risk area for development if areas with no modelled vegetation or low-quality vegetation are prioritised for development. Additional work is required by DEECA to understand the risks associated with species specific offset requirements.

▼ **Table 34: General offsets analysis for Melbourne Water**

CMA	MELBOURNE WATER	WEST GIPPSLAND
Landowner agreements / covenants	39	29
General offsets for sale	130.6	230.7
Trades since July 2019	11.1	23.4
General offsets sold per year	3.7	7.8
Predicted number of years supply	35.4	29.5

Native vegetation removal and offset examples

DEECA NVR has undertaken a native vegetation removal report for the below properties to provide an example of how future proposed native vegetation removal and offset requirements may work in practice. In the case of this example, DEECA NVR has assumed that the entire parcel will be removed of modelled native vegetation.



Baw Baw

Site

The site was chosen as it is large enough to allow extractive operations (15.75ha), it has good access to main roads and is predominantly cleared of native vegetation.

Offset requirements

- **General offset amount:** 1.258 general habitat units
- **Vicinity:** West Gippsland Catchment Management Authority or Baw Baw Shire Council
- **Minimum strategic biodiversity value score:** 0.303
- **Species specific offset amount:** 7.965 species units of habitat for Flinders Pygmy Perch
- **Large trees:** 0 trees

Offset availability

A search of the Native Vegetation Credit Register (NVCR) to determine whether third party offsets are available to meet the obligations was undertaken:

- **General offset availability:** 258 general habitat units are available for purchase on the NVCR
- **Species specific offset availability:** 7.965 species units of habitat for Flinders Pygmy Perch are not available for purchase on the NVCR.



Cardinia

Site

The site was chosen as it is large enough to allow extractive operations, it has good access to main roads and is predominantly cleared of native vegetation.

Offset requirements

- **General offset amount:** 0.053 general habitat units
- **Vicinity:** Port Phillip and Western Port CMA or Cardinia Council
- **Minimum strategic biodiversity value score:** 0.320
- **Species specific offset amount:** 15.323 species specific units of habitat for Orange-tip Finger-orchid and 12.332 species units of habitat for Strzelecki Gum
- **Large trees:** 0 trees

Offset availability

A search of the Native Vegetation Credit Register (NVCR) to determine whether third party offsets are available to meet the obligations was undertaken:

- **General offset availability:** 0.053 general habitat units are available for purchase on the NVCR
- **Species specific offset availability:** 15.323 species specific units of habitat for Orange-tip Finger-orchid and 12.332 species units of habitat for Strzelecki Gum are available on the NVCR however across a minimum of two sites.



ACRONYMS

ACRONYM	EXPLANATION
CCAA	Cement Concrete and Aggregates Australia (CCAA) – the peak industry body for heavy construction materials. Its members operate cement manufacturing and distribution facilities, concrete batching plants, hard rock quarries and sand and gravel extraction.
CMPA	Construction Materials Processors Association (CMPA) – Victoria’s peer network of independent quarrying companies.
DEECA	Department of Energy, Environment and Climate Action
DELWP	The former Department of Environment, Land, Water and Planning
DESA	Designated Extractive Supply Area
DEDJTR	The former Department of Economic Development Jobs Transport and Resources
DJPR	The former Department of Jobs, Precincts and Regions
DTP	Department of Transport and Planning
ERR	Earth Resources Regulator – the authority responsible for issuing statutory authorisations under the MRSD Act, including endorsing work plans.
EIIA	Extractive Industry Interest Areas – identify areas of prospective sand and stone close to transport links with manageable environmental and planning issues. They are referred to in Clause 52.09 of the VPP.
GSV	Geological Survey of Victoria (GSV) – the State’s geoscience agency. It is part of Resources Victoria.
LGA	Local Government Area – defined by municipal boundaries, the area within which each local government has responsibility.
MOU	Memorandum of Understanding
MRSD Act	Mineral Resource (Sustainable Development) Act 1990
PE Act	Planning and Environment Act 1987

ACRONYM	EXPLANATION
PSP	Precinct structure plan – A PSP is a high-level strategic plan that sets out the preferred spatial location of key land uses and infrastructure to guide decisions about staging of development, subdivision permits, building permits and infrastructure delivery. They provide certainty of intended outcomes but allow for some flexibility. Once prepared, PSPs are incorporated documents within the planning scheme.
RAP	Registered Aboriginal Party
SERAs	Strategic Extractive Resource Areas: land identified by the Victorian Government as potentially suitable for the SRO1 to be applied, following a technical assessment and public consultation process.
SRO1/2/3	State Resource Overlay schedule 1, 2 or 3 - a planning tool in the VPPs applied to protect areas of state significance containing minerals, stone and other resources from development that could otherwise prevent their future extraction.
SUZ	Special Use Zone – This zone in the VPPs provides for tailored provisions for a wide range of purposes, such as showgrounds, freight logistics centres and tourism precincts. Many but not all quarry sites are included in a SUZ.
UGB	The Urban Growth Boundary designates the limit of urban development within metropolitan Melbourne. In accordance with sections 46AF and 46AG of the PE Act, its location can only be changed by both Houses of Parliament ratifying an approved planning scheme amendment.
VICPLAN	Victoria's online, statewide land use planning information tool.
VPA	Victorian Planning Authority – a Victorian Government statutory authority that undertakes strategic planning and coordinates infrastructure for the future growth of Victoria's cities and regions.
VPP	The VPP is established under Part 1A of the Act as a statewide reference document or template from which a planning scheme or planning scheme provision must be sourced or constructed. It is not a planning scheme in itself.
WA	Work authority - An extractive industry licence issued under the MRSD Act is required before land can be operated as a quarry. The boundaries of a WA can either align with, be located inside, or straddle more than one title boundary.

GLOSSARY

TERM	EXPLANATION
Brownfield SERAs	Strategic Extractive Resource Areas (SERAs) that contain already operating quarries, approved via a work authority (WA).
Construction materials	Quarry products produced by extraction, crushing and/or screening. See also 'Extractive'.
Encroachment	Where an existing or proposed land use or planning control comes close to, or directly affects, an EIIA or SERA such that all or part of the EIIA or SERA is no longer viable for extraction due to the proximity of the land use or planning control.
Extractive	Earth resources, including hard rock, sand, and clay, from which construction materials can be derived by extraction and/or processing. It does not include mineral sands, gold, coal, oil, gas, or precious metals.
Extractive industry	Per Clause 73.03 of the VPPs: Land used for the extraction or removal of stone [including sand and gravel] from land for commercial use, or to use the stone for building, construction, road or manufacturing works. It includes the rehabilitation of the land and the treatment of stone (such as crushing and processing) or the manufacture of bricks, tiles, pottery, or cement or asphalt products on or adjacent to the land from which the stone is extracted or removed.
Gazettal	Where a planning scheme amendment or other planning instrument is introduced to the VPPs and/or planning scheme by being published in the Victorian Government Gazette, affirming the Victorian Government has approved it.
Geoscience	The study of the earth – in an extractive industry context, is the acquisition, analysis and integration of data to understand and define the geology of regions.
GeoVic	Online mapping resource produced by the Geological Survey of Victoria (GSV) that hosts spatial and geoscience data. It includes map layers that show the location of EIIAs, WAs and other mining and extractive licences and known extractive resources.
Greenfield SERAs	Strategic Extractive Resource Areas (SERAs) that encompass land with undeveloped extractive resources and/or approved quarries with the potential to expand.
Incompatible land use	A range of land uses that may be incapable of coexisting with extractive industry because of the sensitivity of those uses to noise, dust, emissions, etc. – see also 'Sensitive land uses'.
Overburden	The layer(s) of soil and other materials that firstly need to be removed in order to access extractive resources.
Overlay	A planning control in the VPPs that is complementary to the zoning provisions. Overlays seek to control land use and/or development as either 'as-of-right', planning permit required, or prohibited.
Prospective/Prospectivity	The potential of a portion of land to provide extractive resources having regard to geoscience data.
Relinquish	The process undertaken by Resources Victoria of identifying EIIAs that have become sterilised or made otherwise redundant, removing the EIIA designation from the VPPs and archiving it as a legacy layer in GeoVic.

TERM	EXPLANATION
Resource	Extractive material occurrence that is defined by detailed geological data (drilling), quantified volume and tonnage based on modelling, more likely than not to be suitable for eventual economic extraction.
Source rock	In-situ rock or sand unit from which construction materials can be derived by extraction and processing.
Strategic Extractive Resources Roadmap	A strategy Resources Victoria published in 2021 that sets out the objectives and body of work to deliver the SERA project and other initiatives to ensure the availability of extractive resources in Victoria over the long term.
Sensitive land uses	Land uses sensitive to noise, dust, emissions, and other impacts where nearby incompatible land uses could compromise human health and well-being, local amenity, and aesthetic enjoyment. Sensitive land uses include dwellings, childcare centres, preschools, primary schools, education centres, walking, cycling and jogging tracks, parks, picnic and barbecue areas and playgrounds.
Source rock	In situ rock or sand from which construction materials can be derived by extraction and processing, e.g., basalt, granite, hornfels and sand. See also 'Extractive' and 'Construction materials'.
Stratigraphy	The analysis and mapping, at a regional scale, of geological strata with features that characterise it as distinct from others.
Strategic supply LGAs	In 2016, DJPR commissioned <i>Extractive Resources in Victoria: Demand and Supply Study 2015–2050</i>, which included a list of the top 20 strategic supply LGAs based on prospective resources, location relative to demand, and commodity shortage in local areas. The 2012 <i>Strategic Extractive Resources Roadmap</i> was developed in consultation with councils with EIAs in their LGA. Several strategic supply LGAs were shortlisted for investigation as potential SERAs for inclusion in the roadmap.
Stripping ratio	The volume of overburden to useable source rock.
Work plan	A work plan issued under the MRSD Act comprehensively documents how a quarry site will be operated throughout its working life and how it will be rehabilitated once operations have ceased. It also documents hazard and risk mitigation. Public consultation is required for work plan preparation (see section 77K of the MRSD Act). Once approved, the work plan and other documentation are submitted to the Minister for Energy and Resources for assessment as part of the WA application process. The boundaries delineating where a work plan applies can align with or be located inside the boundaries within which a WA applies.
Zone	Zones are the primary tool for guiding the fair and orderly use and development of land. A zone is applied spatially to land. A zone sets expectations about what land use and development activity is or may be acceptable. Each zone broadly deals with a particular predominant land use theme, such as residential, commercial, industrial or Crown land uses.

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