

Appendix E:

Tunnels packages

Project summary

Works package names	Tunnels south – WPC	Tunnels north – WPD
Package lifecycle phase	Delivery, construction commenced in October 2024	Delivery, construction commenced in September 2025
Scope	- Twin tunnels from the Southern Stabling Yard (SSY) to Glen Waverley, including cross passages - Twin tunnels from the SSY to Cheltenham, including cross passages - Station boxes at Clayton and Monash (including excavation and temporary structures) - Completion of the portal structures at the SSY	- Twin tunnels from Burwood to Glen Waverley and Burwood to Box Hill, including cross passages - Station boxes at Burwood and Glen Waverley (including excavation and temporary structures) - Intervention shaft structure
Contract award date	December 2023	November 2024
Expected practical completion date	December 2030	April 2029

Source: VAGO from SRLA.

Cost overview summary

Figure E1: Cost overview summary (\$ million)

Cost component	Baseline budget (June 2023)	SRLA budget (December 2025)	Actual cost to end 2025
WPC – tunnels south and WPD – tunnels north	8,276.7	7,046.8	1,298.0
Owner's costs/minor works	827.1	782.9	266.4
Total	9,103.8	7,829.7	1,564.5

Notes: We have included high level combined summary cost information for the 2 tunnels packages to protect the commercial position of SRLA and the state in managing risk and costs under these packages. The WPC and WPD budget amounts include a contingency provision for unexpected costs, a provision to cover estimated cost escalation, and an allowance for the contracted performance KPI regime payments available to the contractors.
Source: VAGO, based on information from SRLA and DPC.

Procurement structure and timeline

The award of the first tunnelling package contract at the end of 2023 was a significant milestone in the SRL East program. The I&EW undertaken up until that point were designed so that the completed utility and other works would still provide a public benefit in the event that SRL East is cancelled.

Advice to the government at WPC contract award in December 2023 noted that this was the first major contract award decision for the SRL project and that by executing the contract, the government would be committing to the delivery of SRL East and there would be sunk costs associated with these works.

The tunnelling packages were procured sequentially using a '3-2-1' procurement approach. Under this approach, both works packages shared a single expression of interest (EOI) phase, after which 3 participants were shortlisted to bid on the first tunnelling package (WPC), with one ultimately being successful.

The 2 unsuccessful respondents for the first tunnelling package progressed to the request for proposal (RFP) phase for the second package, WPD.

SRLA chose this approach because WPC and WPD have a similar scope, meaning 'significant' procurement time efficiencies could be realised through a combined prequalification and EOI phase and a structured feedback process to help unsuccessful respondents refine their approach for the second package.

The '3-2-1' procurement approach also supported SRLA's efforts to meet public commitments made by the government that tunnel boring machines (TBMs) will be launched in 2026.

The government approved a delivery program in September 2021 requiring the tunnelling packages procurement process to commence in March 2022, with the release of the EOI, and conclude in September 2024 with the WPD contract award.

Figures E2 and E3 show that SRLA was broadly successful in achieving this timeline, with only minor delays as both contracts were awarded 2 months later than planned.

Figure E2: WPC procurement timeline comparison

Milestone	Baseline key dates	Actual dates
Release EOI	March 2022	April 2022
Release RFP	September 2022	September 2022
Preferred respondent	June 2023	August 2023
Contract award	October 2023	December 2023

Source: VAGO, based on information from SRLA and DPC.

Figure E3: WPD procurement timeline comparison

Milestone	Baseline key dates	Actual dates
Release EOI	March 2022	April 2022
Release RFP	July 2023	September 2022
Preferred respondent	April 2024	May 2024
Contract award	September 2024	November 2024

Source: VAGO, based on information from SRLA and DPC.

Project delivery

Cost, time and scope performance

Main works commenced for WPC in October 2024, and in September 2025 for WPD, in line with the target dates set at contract award.

The government has made public commitments to launch TBMs in 2026. There are 8 TBMs in total, with 4 in each package. SRLA initially planned to launch all 4 WPC TBMs in 2026, but delays related to the asbestos-containing material (ACM) removal at the SSY in Heatherton and challenging ground conditions at Clarinda have impacted tunnelling timelines. These risks are discussed further below.

SRLA advised us that the WPD TBM launch dates are still on track to meet the dates agreed at contract award.

SRLA is currently forecasting to launch the first 2 TBMs from each tunnels package in 2026, and the remaining 4 in 2027.

Apart from the potential for a fifth TBM launched from Clarinda, the scope for the 2 tunnels packages remains broadly consistent with the contracted scope. There has been some limited scope movement in each tunnelling package, resulting from:

- pre-agreed optional scope items negotiated as part of the final contracts, which relate to scope developed to give SRLA the option to direct the contractor to perform work using a variation post-contract award, for example the WPD contract includes pre-agreed optional scope for a Glen Waverley interim offset carpark
- post-contract award variations to cover minor scope transfers from other packages, mainly WPA, and other scope changes with these variations totalling \$90.7 million for WPC and \$4.1 million for WPD to 27 February 2025.

SRLA commissioned SRAs on both tunnels packages in 2023 (WPC) and 2024 (WPD). The results indicated that SRLA's target dates were likely to be exceeded but that the contractor contingency allowances and subsequent interface periods in the works schedule should be sufficient to absorb these delays.

Beyond risks to the delivery schedule, recent evidence indicates that SRLA is managing higher than anticipated contract costs for the later works packages (stations and Linewide) by using contingency initially intended for the tunnels packages. DTF advice to the government at the end of 2025 indicates that the total contingency for the tunnels packages may need to be reduced significantly to help absorb the cost increases caused by the actual procurement outcome for the Linewide package and the expected outcomes for the 2 stations packages.

This will limit SRLA's ability to manage future delays and cost increases that affect the tunnelling packages. Notably, this reduction has brought the total contingency for each tunnels package to below the range that DTF's independent cost adviser considered appropriate compared to similar recent rail projects.

Risks and emerging issues

Both packages are showing signs of delay

Despite being relatively early in the delivery phase, both tunnelling packages are facing potential delays due to real and emerging risks around ground conditions, including contamination, scope variations and site access.

The completion date for the WPC milestone to complete the tunnelling west from SSY to Cheltenham was adjusted in April 2025 from 22 August 2029 to 25 November 2029, primarily due to challenging ground conditions at Clarinda and the discovery of ACM. The revised completion date in November 2029 is pending a 'true up' process and conclusion of ACM removal.

The overall target contract completion date for WPC has been delayed from February 2030 to April 2030. However, SRLA is forecasting a completion date for WPC of December 2030. In addition to contributing to a 10-month delay in SRLA's forecast WPC practical completion date, the contamination and poorer than expected ground conditions have also caused a delay to the launch date for 2 TBMs.

The WPC contractor is currently exploring a range of options to mitigate the impacts of these delays and recover lost time, including procuring a fifth TBM, which will require a contract variation, and implementing 24/7 works. It is unclear what the financial and schedule impacts of these mitigation options will be and whether package contingency will be sufficient to cover the increase.

Advice to the SRLA board in February 2026 indicated that the combination of unforeseen challenges and delays to the WPC delivery program have impacted the TBM launch dates. As a

result, the contracted WPC TBM launch KPIs are no longer achievable and no longer act as an incentive for the contractor. To reintroduce the incentive for the contractor to meet the delivery program, SRLA has changed the definition of TBM launch from 165 metres bored, to one fully embedded permanent ring installed in the wall.

WPD is currently scheduled to meet its contracted practical completion date of April 2029 after the planned reprofiling of expenditure was abandoned. However, a one-month delay is forecast for tunnelling west from Burwood to Glen Waverley, resulting from delayed handover from the I&EW contractor. SRLA has indicated that mitigation works are underway to manage and recover this time but has not advised what these works are.

These risks may impact other works packages, and the SRL East delivery program as a whole. The tunnel works at Clarinda are on the SRL East delivery program near-critical path, meaning delays are more likely to impact the overall delivery schedule.

Contamination

Site establishment works at SSY West by the WPC contractor in October 2024 uncovered contamination that has impacted the WPC delivery schedule and costs. Soil investigations uncovered 225,000 tonnes of ACM throughout the site.

Despite SRLA conducting an extensive testing program to assess the ground conditions across the length of the SRL East rail line to inform the Geotechnical Baseline Report, ACM was not discovered at SSY until the WPA contractor took control of the site because SRLA did not conduct trenching or surface-level sampling while the previous site owner was continuing operations.

Given the location was previously used as a clean fill site, SRLA did not expect to find ACM, though it did include some risk allowance in the program to address potential contamination along the SRL East rail line.

Site remediation works and further investigations have caused a 3-month delay to the target practical completion date for separable portion 1 – tunnelling from SSY West to Cheltenham, and a 3-month delay to the completion of the SSY West earth retaining structure. SRLA is still assessing the impacts of this delay and exploring mitigation options with the contractor.

The expected cost of remediation works is \$353 million and has been included in the contracted cost for WPG.

Advice to SRLA's Audit and Finance Committee in February 2026 also referred to the impacts of ACM at Clarinda and Clayton. The extent of contamination at these sites is currently unclear.

Ground conditions

Given the nature of the tunnels packages, there are inherent risks relating to geological conditions that may impact on whether WPC and WPD can be completed on time and on budget.

SRLA advised us that:

- the majority of the WPC tunnel alignment is situated within water-bearing and unstable ground conditions, requiring ground stabilisation to allow for safe construction of cross-passages. The contractor is stabilising this ground using a ground freezing method, which has a number of benefits compared to other ground improvement techniques (for example jet grouting from the surface) and is using steel segments to support the ground freezing activities at these cross-passage locations
- WPD is expected to encounter better geological conditions than the WPC alignment, meaning ground freezing will not be required.

Advice to SRLA's board and its committees between August 2025 and February 2026 indicates further developments that pose a threat to the budget and delivery timeframes of the tunnels packages, including challenges with TBM assembly by the manufacturer.

Unforeseen ground conditions at Clarinda are causing delays and additional costs with the existence of deeper rock, extensive slimes and other obstructions limiting jet grouting productivity. The contractor has sought to mitigate delay impacts by deploying more jet grouting rigs and implementing a 24/7 work schedule to protect the TBM launch date. This will result in higher than expected reimbursable costs.

Central agencies advised the government in November 2025 that this is likely to result in additional costs and may require design changes, and impact interfaces with other packages. SRLA advice in February 2026 estimated that addressing this issue will likely add around \$102 million to the cost of WPC. Subsequent advice to the SRLA board indicated that the cost impact on WPC may be higher than \$102 million.

At this stage it is unclear to what extent the unfavourable ground conditions at Clarinda will impact WPC and the wider SRL East program. While the WPC contractor has indicated it would like to discuss cost and time relief with SRLA, it is yet to submit a formal claim.

The WPD contractor has also highlighted risks associated with fault zones along its tunnels route, particularly at cross-passage locations, and delayed delivery of design packages as key risks in its monthly report to SRLA in March 2025. However, risks associated with fault lines are unlikely to materialise until tunnelling begins in earnest.

Any delays to the delivery of the tunnels packages are likely to have significant flow-on impacts to the rest of the SRL East delivery program and the project milestones committed to by the government.

While the forecast delay to WPD is relatively small at this stage, a portion of WPD tunnelling activities is on the critical path for SRL East, meaning further delays are more likely to impact the wider program and completion date.

For WPC, the main delivery risk relates to timely completion of the test station at Cheltenham, which is critical to project completion meeting the government's Rail Day One (the day SRL East rail services start) commitments.

Tunnel spoil management

As indicated above, the tunnels packages involve inherent risks relating to geological and soil conditions along the tunnel alignment routes. Tunnelling produces spoil that needs to be assessed and managed based on its composition, including the presence of any contaminated material.

The Environment Protection Authority Victoria (EPA) regulates the classification, management and disposal of spoil material.

SRLA identified the risks associated with ground conditions and spoil management very early and has taken extensive steps to understand and mitigate them. However, unexpected contamination is creating cost and schedule risks before any of the TBMs have been launched.

Advice to the government on spoil management strategy

SRLA provided advice to the government in December 2022 on its spoil management strategy, indicating that:

- building SRL East as twin tunnels produces less spoil volume than with one larger tunnel
- the 26 kilometres of twin tunnels from Cheltenham to Box Hill will generate about 3.5 million cubic metres of spoil, meaning waste soil or rock
- SRLA had been working to classify spoil as 'fill material' to provide certainty to the market, but the EPA view was that an 'industrial waste' designation would be more appropriate based on some naturally occurring elements that exceed the criteria for spoil to be classified as fill material
- the EPA also considered that, as the spoil is being generated by TBMs, it must be disposed of to a place licensed to receive tunnel spoil.

Geotechnical Baseline Report

SRLA also implemented a Geotechnical Baseline Report (GBR) to address commercial risks associated with spoil removal and disposal from project work sites. The purpose of the GBR was to

improve value for money by avoiding excessive risk pricing from bidders for the tunnels packages for risks outside the control of the contractors and the state. SRLA advised that this was based on lessons learnt from precedent tunnelling projects, including the pricing of spoil classification risks on the North East Link project central package.

The GBR was informed by SRLA site investigations and provided an initial spoil baseline. This baseline of spoil classification was incorporated into the information provided to bidders for each tunnels package contract. Bidders were invited to bid back their own baseline quantities, with justifications for any deviations from the SRLA baseline, and then provided cost rates for each spoil classification. These rates were reviewed by SRLA when evaluating the bids for the WPC and WPD contracts.

Contractual provisions on spoil management risks and EPA designations to date

After contract award and commencement of works, the WPC and WPD contractors are responsible for seeking spoil classification designations from the EPA based on in-situ sampling and testing. This is meant to ensure that as material is excavated, it can be moved directly to a lawful receipt site, if required by the EPA spoil designation.

The tunnels contractors are entitled to a target outturn cost (TOC) adjustment if the actual spoil classification deviates from the agreed baseline. Specifically, the GBR regime in the contracts provides time and/or cost relief to the contractors if they encounter spoil conditions that differ from the agreed baseline conditions allowed for when agreeing the TOC.

Given that the first TBMs will not commence operations until late 2026, there remains significant uncertainty and risk that the actual tunnel spoil encountered may not meet the EPA criteria for classification as fill material. The contractors are required to monitor and report on site conditions to SRLA during construction.

SRLA advised us in early 2026 that it and the WPC and WPD contractors continue to engage with the EPA in finalising waste designation/classifications for re-use/disposal of material and that SRLA expects:

- that waste designations would allow management of spoil within the existing expectations of the GBR and limit any cost exposure resulting from naturally occurring metals
- the designations for the initial tunnel drives to be determined in April or May 2026.

At the end of this audit SRLA provided us with evidence on final waste designations from the EPA for the spoil material to be generated by tunnelling from Cheltenham to SSY, and SSY to Clayton under WPC. These designations are based on testing and validation work of samples from along the tunnel alignments.

SRLA advised us that these designations are consistent with the agreed baseline spoil classifications assumed in the WPC tunnelling contract. These waste designations cover around 700,000 cubic metres, or 20 per cent, of the total tunnel spoil estimate of 3.5 million cubic metres advised to the government in 2022.

SRLA advised us that it:

- has not received final spoil designations for the WPC tunnelling works between Clayton and Glen Waverley
- has received draft EPA spoil designations covering all spoil to be generated by the WPD tunnelling works and that these are consistent with the agreed baseline spoil classifications in the WPD contract.

If the remaining final EPA spoil designation decisions, or the actual spoil encountered, are significantly different from the assumptions in the GBR baselines used to inform the agreed costs in the tunnelling contracts, the state will bear any associated additional costs.

Fifth TBM strategy

As noted previously, the WPC contractor is investigating acquiring a fifth TBM to recover time lost on ground stabilisation works at Clarinda.

Originally, SRLA planned to launch WPC TBMs from the east and west tunnel portals at Heatherton. However, during the procurement phase the successful respondent suggested an optimised design that relied on launching from Clarinda to avoid the major risk of damaging the South Eastern Trunk Sewer. This contractor expected and planned for challenging ground conditions and commenced a program of geological testing after contract award.

The actual ground conditions turned out to be significantly worse than expected, with deeper and uneven rock levels, thicker slime layers within ponds, obstructions and small amounts of ACM. The contractor implemented an extensive program of ground stabilisation works in order to overcome these challenging conditions. This resulted in significant delays that are impacting the WPC practical completion date.

SRLA advice to its board indicates that should these delays continue, the contractor may request that SRLA release some of the contracted contingency provision, or seek relief from liquidated damages payable under the contract given the hours worked and extra resources needed to resolve the issues arising from poorer than expected ground conditions.

In order to recover lost time and mitigate delays to the tunnelling program, the contractor is assessing the option to deploy a fifth TBM. The fifth TBM would launch from the western shaft at Clarinda and tunnel through to the SSY eastern portal, where it would be turned around and launched back towards Clarinda. This is intended to mitigate construction delays by allowing TBMs 3 and 4 to be launched directly from SSY western portal towards Cheltenham.

SRLA advised us in early 2026 that the full costs of employing an additional TBM are currently unknown but they are likely to be significant and implementing it would require a contract variation.

SRLA's advice to its board in December 2025 noted that it is unclear whether there is sufficient contingency in the WPC budget to cover the costs of implementing this strategy but claims that a fifth TBM may reduce costs in relation to other activities on site. The contractor has identified a used TBM that is already in Australia that may be able to be retrofitted to meet the requirements of SRL East, which would reduce costs associated with manufacturing and transport.

SRLA advised us at the end of this audit that it is assessing a formal proposal from the WPC contractor in relation to use of a fifth TBM. This proposal indicates that use of a fifth TBM may be cost neutral.

Interface risks

Successful interface management is critical to ensure smooth handover between works packages and to prevent delays in one works package from rolling over into another and putting the wider delivery program at risk. For instance, WPG tunnel fit-out works cannot occur until the tunnels have been dug and all relevant works have been signed off and prepared for handover by the contractors.

SRLA has demonstrated a keen awareness of the risks associated with interface management for the tunnels packages and has factored 6-month contingency allowances at package interfaces to absorb delays. In addition, the commercial regimes in the tunnels contracts contain mechanisms to incentivise timely delivery.

The tunnels packages have multiple interfaces with the I&EW and other main works packages. These are listed at a high level below.

Key I&EW to tunnels interfaces:

- I&EW construct tunnel access shafts for WPC/WPD at Burwood and SSY
- I&EW construct bulk power supply point for WPC/WPD at SSY, Monash and Burwood
- I&EW complete site preparation and utility relocation at station and SSY sites.

Key main works interfaces:

- WPC/YPD provide temporary station/tunnel access shaft/interim ventilation shaft excavations and retaining structures to WPE/WPF/WPG which must be coordinated with the permanent building designs
 - Structural connections between WPC/YPD tunnels and WPE/WPF/WPG permanent buildings/stations
 - WPC/YPD tunnel to WPG tunnel fit-out.
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Termination provisions in the contracts

The contracts for the tunnels packages make provision for the state to terminate the contract if certain defined conditions are met, such as a major default by the contractor. The state also has the right to terminate the contracts 'for convenience'. This means that the state can terminate the contract for any reason.

The contracts also include provisions dealing with other significant events or circumstances that may impact on the project and the capacity of the parties to fulfil their obligations under the contract. This includes provisions for what are referred to as force majeure events which are outside the control of either party, and events such as changes in law which impact the project. Force majeure events include natural disasters, fire and explosions that occur at or near a project site and are not caused by the state or the contractor and that prevent work on the project.

If a works package contract is terminated due to a major default by the contractor, a force majeure event, or if the state exercises its right to terminate the contract for convenience, the contractor is entitled to a termination payment. The contracts include provisions dealing with how any termination payments will be calculated.

Under the tunnels contracts, if the state terminates for convenience the contractor is entitled to be paid all actual reimbursable costs incurred to that point, plus a range of other costs including costs reasonably incurred by the contractor in the expectation of completing the whole of the contracted works.

The tunnels contractors are entitled to corporate overhead and profit percentage on their actual reimbursable costs incurred to the point of termination, but not on other costs reasonably incurred in the expectation of completing the whole of the contracted works.

The contractors for the tunnels, stations and Linewide construction works do not have a right to terminate the contracts with the state.

The termination payments provided for under the tunnels contracts could be significant depending on how advanced delivery of the tunnelling works is at the time of termination.

The state can also direct a contractor to suspend their activities on the project. If the state suspends the contract it is still required to pay the reimbursable costs of the contractor during the period of contract suspension, except where the suspension:

- is caused or contributed to by an act or omission by the contractor
 - is due to a determination by SRLA that the actual outturn cost will or is likely to exceed the TOC by more than 100 per cent of the aggregate of the contractor's risk cap.
-