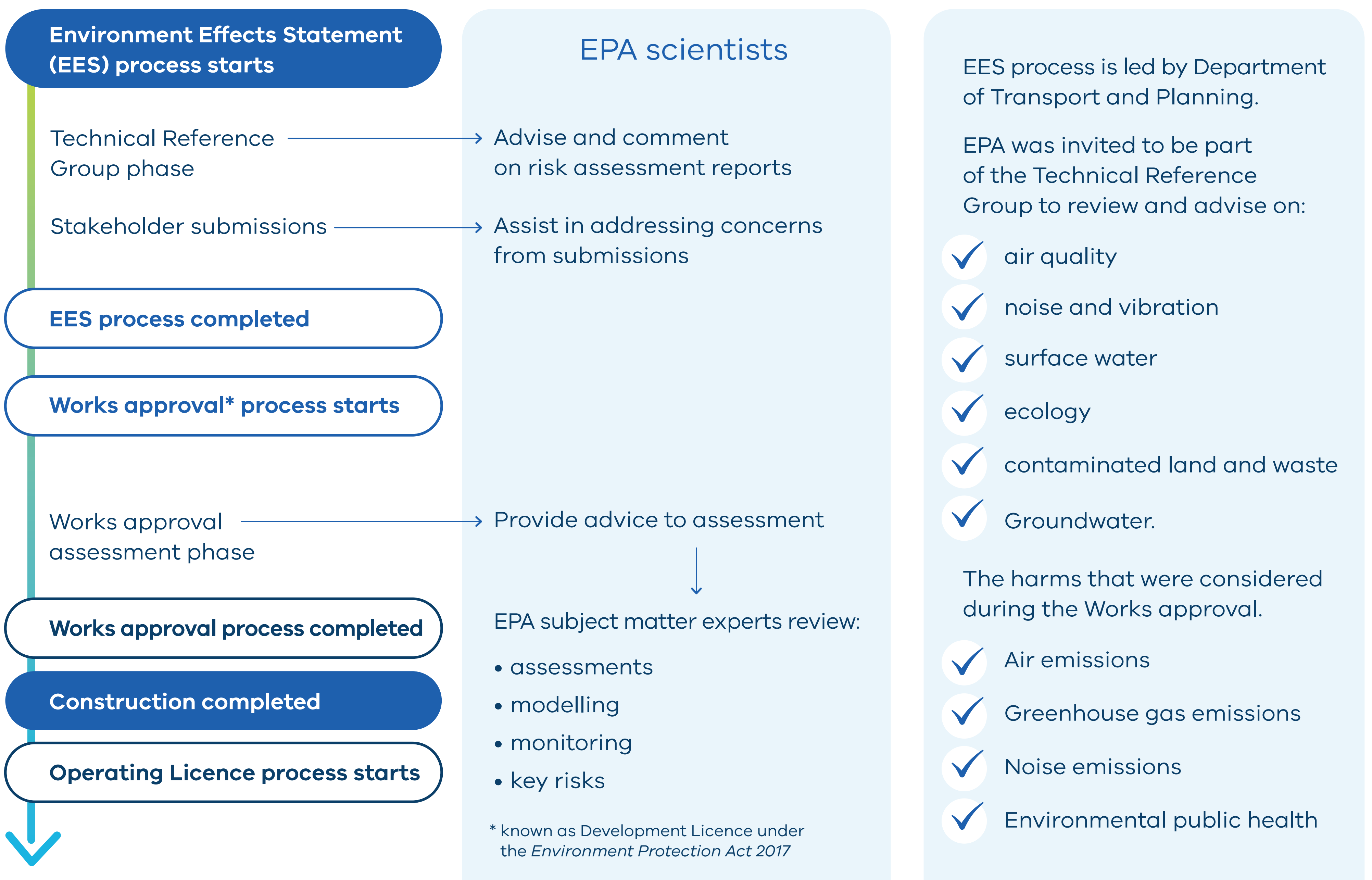


How science informs EPA's decisions



How harms were addressed in the Works approval



Harms

Air emissions →

Energy and greenhouse gas emissions →

Noise emissions →

Environmental public health →

Controls

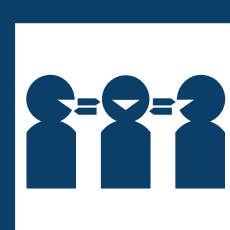
- Vehicle emissions standards
- Tunnel ventilations stack heights
- Tunnel ventilation extraction fans
- Management of extraction fans
- Acoustic design of ventilation system
- Department of Health and Human Services consulted – residual risk to human health is considered low

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Tunnel design

Air and vehicle emission controls

EPA looks at how much harm emissions may cause and decides the best ways to control it, according to the level of risk.

The aim is to push vehicle emissions away from the ground where the risk of exposure is greatest.

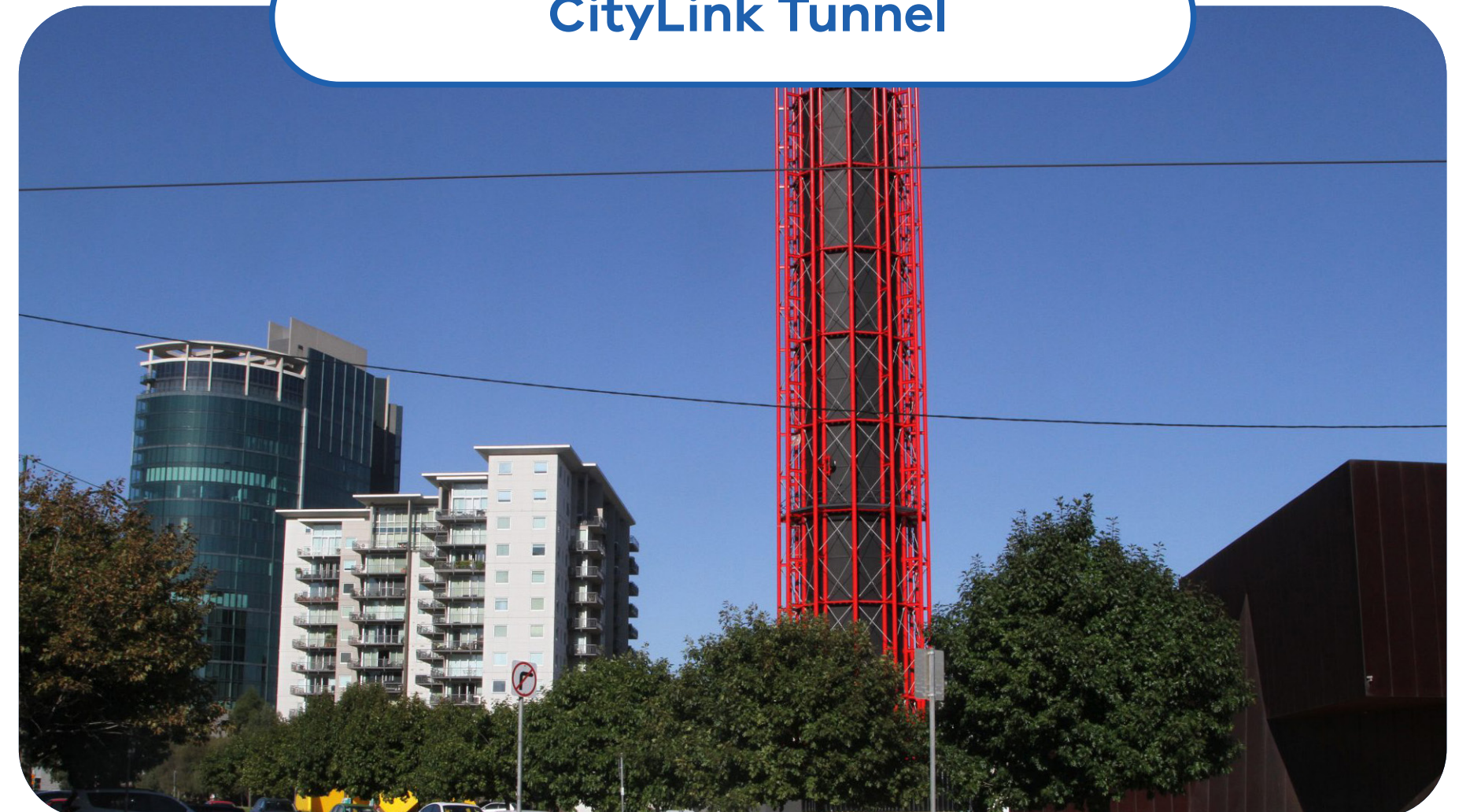
Controls include:

- tall stacks with powerful fans to blow emissions high up
- highly effective ventilation
- blowing air out at high speeds

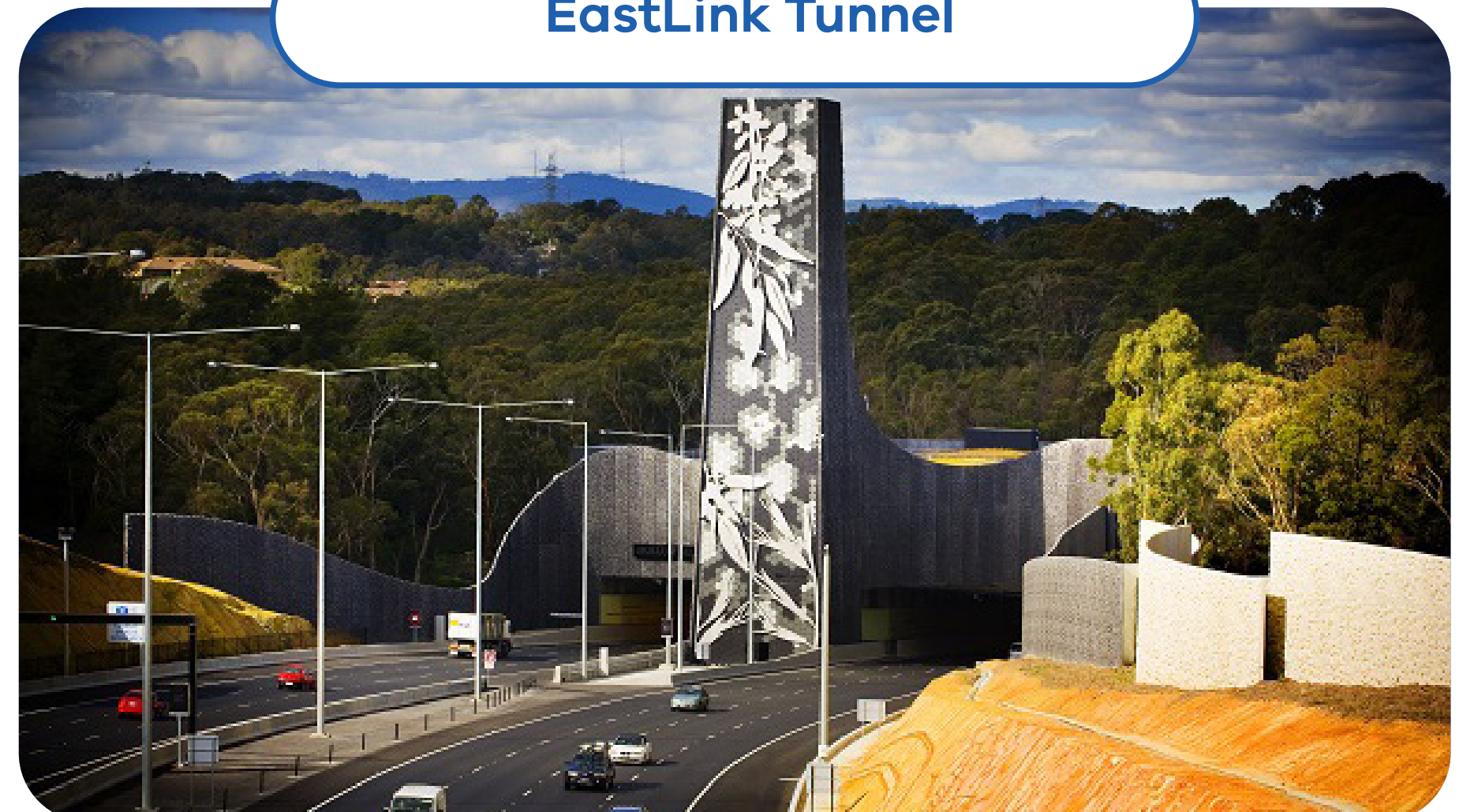
In Australia, tall stacks are used to disperse air emissions. This method is used in all tunnels in Melbourne (see images). No tunnels in Australia have air filters.

Air monitoring at EastLink and CityLink found no significant ground level or local air quality impacts.

CityLink Tunnel



EastLink Tunnel



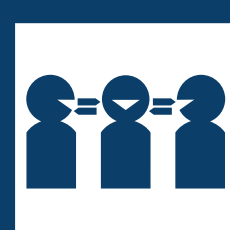
West Gate Tunnel



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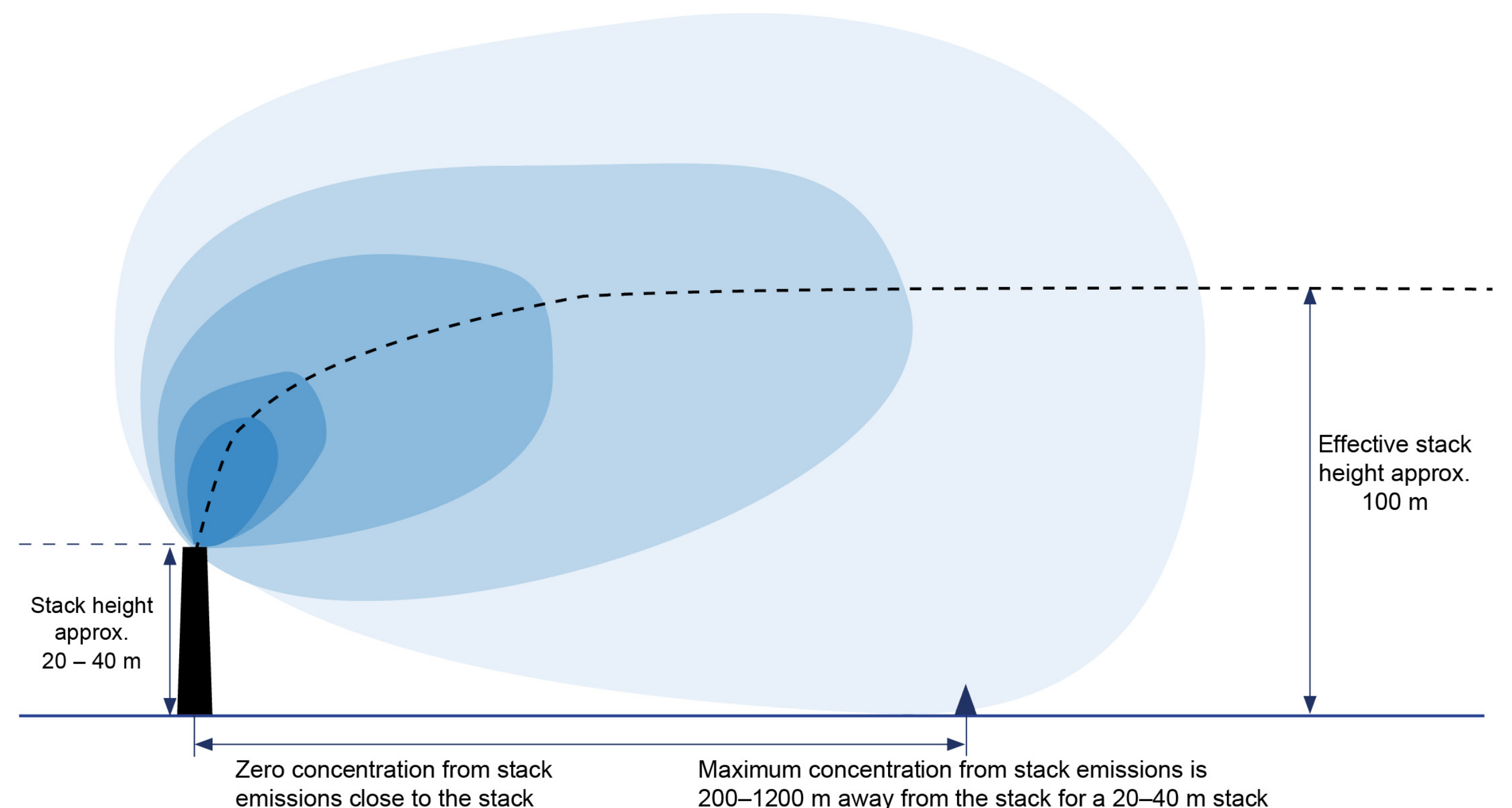
Tunnel design

What happens to emissions leaving the stack?

Dispersion of emissions from a standard stack.

Emissions leaving the stack are rapidly diluted by wind and air movements.

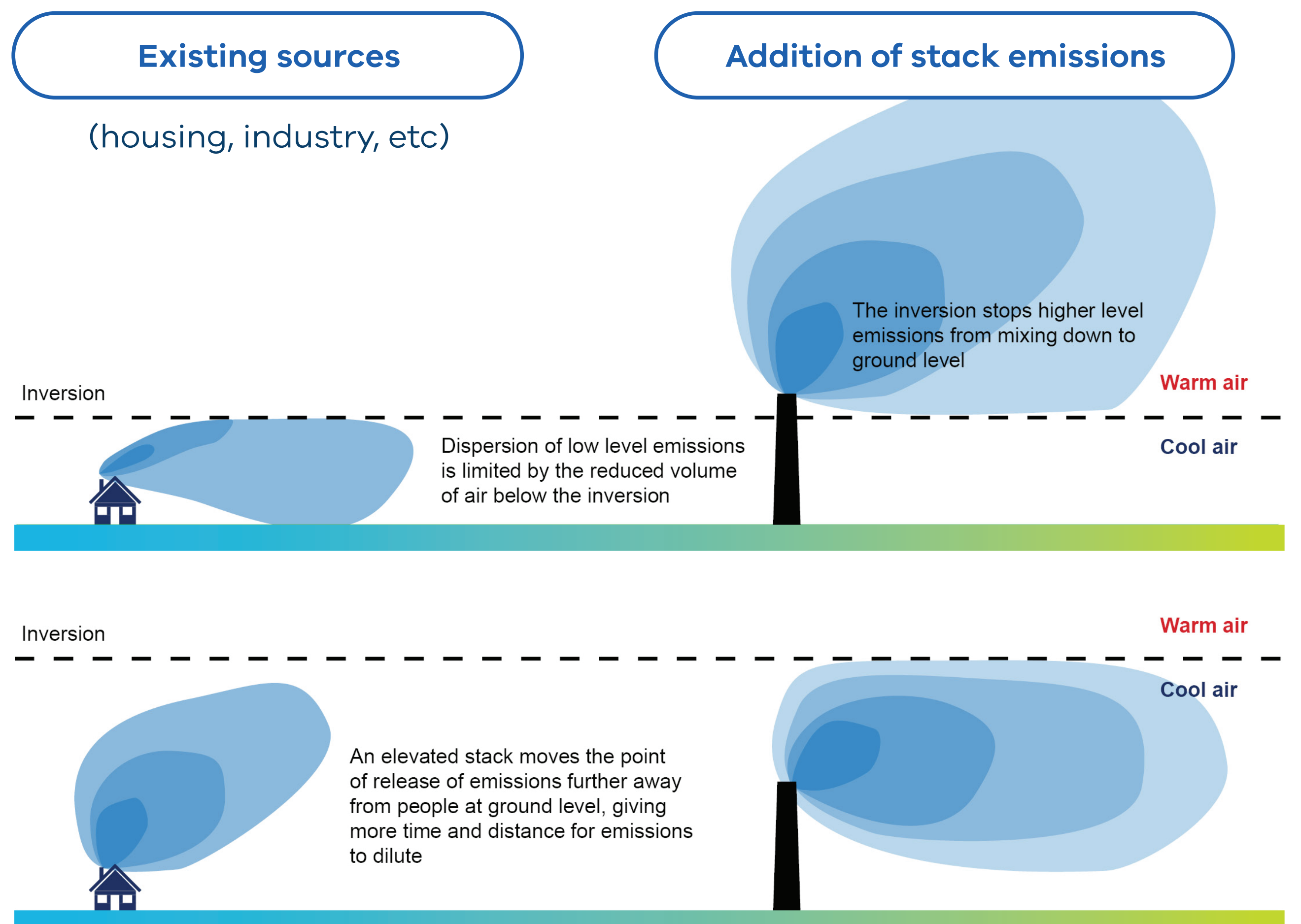
A minor amount of the plume may reach the ground while the majority remains above the height of the top of the stack.



Atmospheric inversions and different stack heights affect dispersion of emissions.

Existing sources will be present and contribute to any stack emissions that reach the ground.

An elevated stack height plus high velocity extraction fans significantly reduce any ground level impacts.

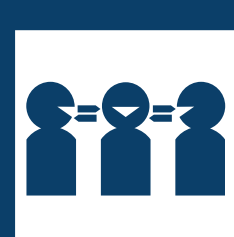


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Ongoing air quality monitoring

The proponent is required to monitor air quality for nitrogen dioxide (NO₂) and particulate matter (PM_{2.5} and PM₁₀) for five years during operations. Data will be reported daily on the operator's website.



West Gate Tunnel Project operated air quality stations

● Francis Street
 ● Primula Avenue
 ● Millers Road
 ● Yarraville Gardens
 ● Woods Street
 ● Donald Maclean Reserve



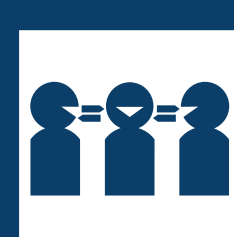
Air quality next steps

- Independent air quality impact and human health risk assessments will be conducted following 12 months of operation.
- EPA air quality assessments will review the effectiveness of controls around the West Gate Tunnel.
- Treatments and long-term controls need to match the risk level. Potential control measures may include increasing stack height, boosting fan speed or adding filtration.
- Actions will depend on the results of risk assessments and air quality data collected during operation.

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Noise and surface water controls

Noise



Acoustic design for the ventilation system considered:

- fans for the ventilation stacks
- smoke extraction fans
- fans supply fresh air to maintenance corridors
- jet fans in the tunnel
- ventilation building (e.g. walls, doors, louvres).

Image: extraction fan at southern portal ventilation stack

Surface water

The tunnel drainage system is designed to capture water, spills and firewater that enter or are generated within the tunnel.

- The tunnel drainage system includes hydrocarbon traps and wastewater storage.
- Contaminated water will be captured and disposed of.
- Clean stormwater will be redirected to a constructed wetland.
- The constructed wetland will further improve water quality before discharged to the Maribyrnong River.

Image: Greenspaces Whitehall street and Maribyrnong River factsheet, July 2022

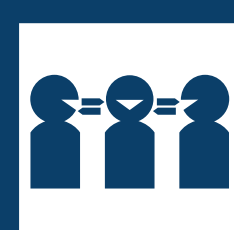


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