



CAPABILITY STATEMENT

THE ROTHSHIRE DIFFERENCE

At Rothshire, our collaborative and open-minded approach to design puts our clients at the heart of everything we do.

Founded by people passionate about providing multi-disciplinary services to clients, we have grown into a company that employs experts across a wide range of traditional and emerging fields.

The result is a client-focused team that prides itself on integrity in all our dealings and a constantly forward-thinking, innovative approach to all we do.

Our strength in problem-solving, providing results far exceeding expectations and never walking away from a challenge fosters a relentless approach to design; this philosophy runs throughout the whole business and is a core value of our company.



'Providing a light of knowledge to last for generations'

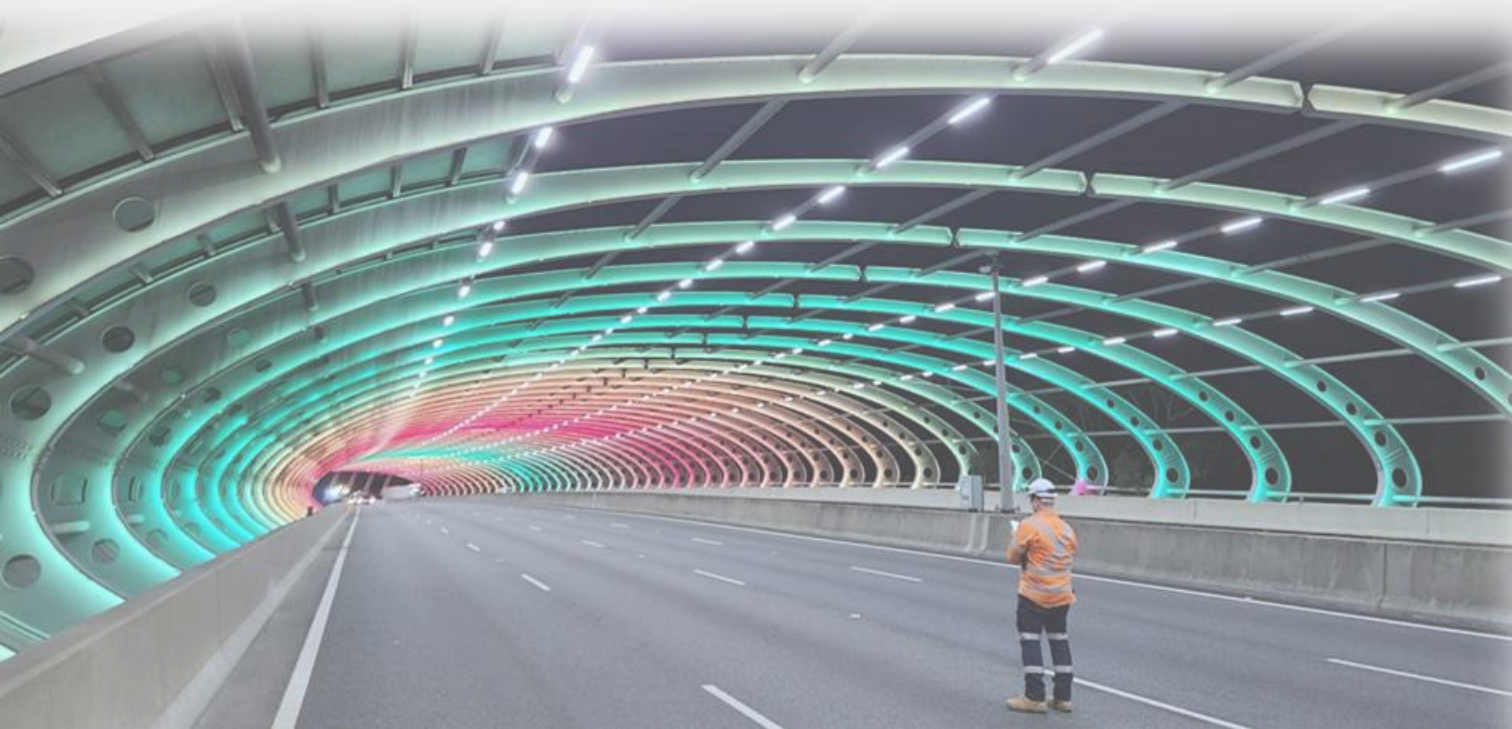
INFRASTRUCTURE

Rothshire's team undertakes maintenance and design services to a range of critical infrastructure assets in New South Wales (NSW) and Victoria (Vic). These assets include Sydney Harbour Tunnel, Western Harbour Tunnel, Eastern Distributor, Cross City Tunnel, Lane Cove Tunnel, M2, M5 and North Connex in NSW. In Vic assets include Western Link, Southern Link and West Gate Tunnel forming the City Link Melbourne. Types of infrastructure assets include bridges, tunnels, buildings, and other civil structures.

Our engineering emergency response team provides 24-hour / 7-day-a-week support for assets, including response to incidents, natural disasters and other critical events.

Our asset management and engineering services centre around effective risk management, and we focus on practical recommendations for maintaining asset operations.

We also believe it is important to include sustainability considerations in our solutions and recommendations, which typically focus on material selections, material quality and maintenance methodology.



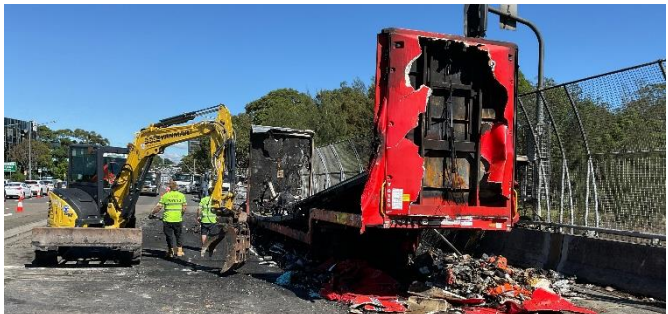
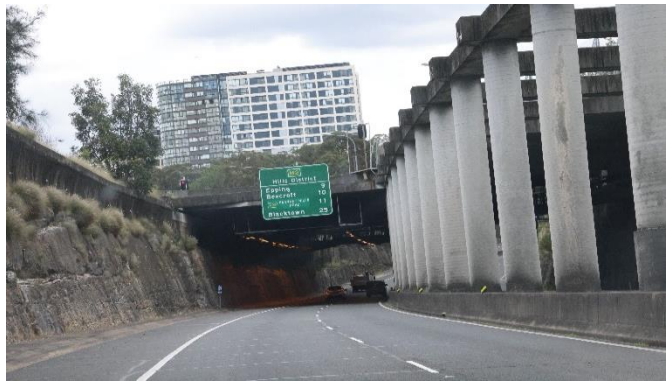
KEY SERVICES

TUNNELS

BRIDGES

ROADS

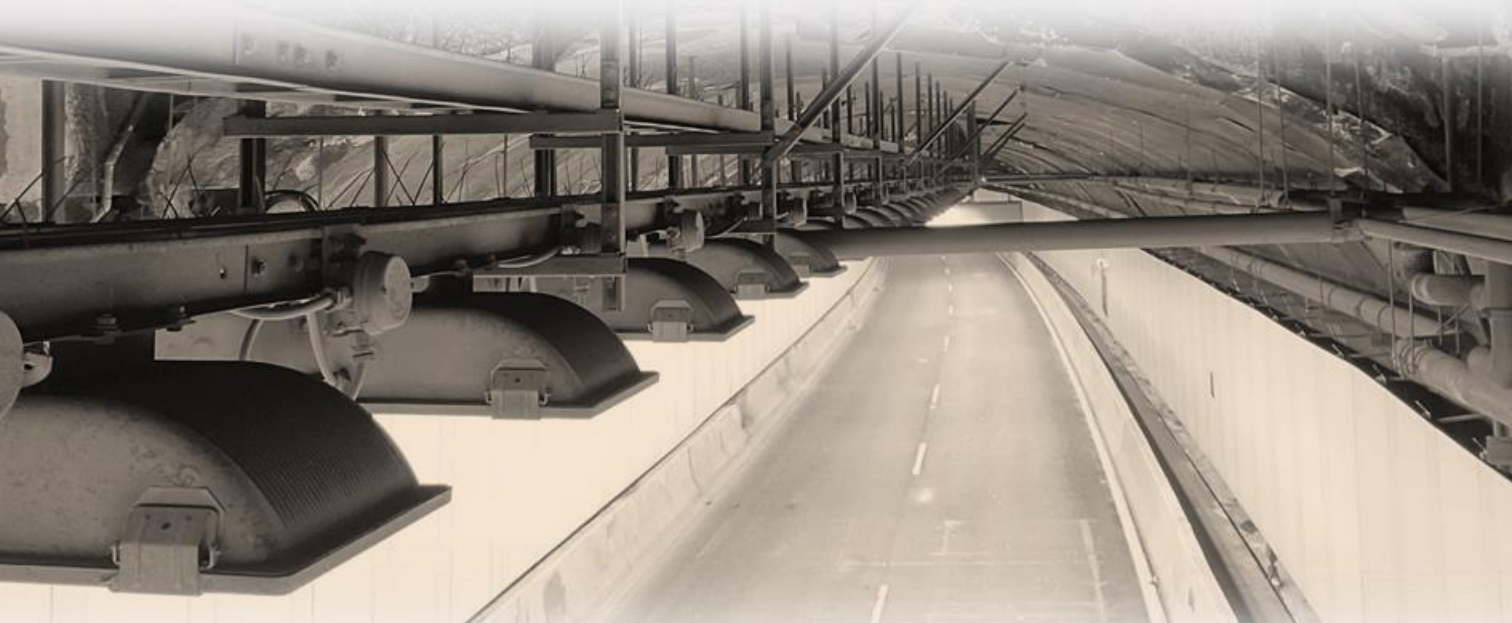
ADDITIONAL SERVICES



TUNNELS



- ▶ TUNNEL STRUCTURAL INSPECTIONS
- ▶ STRUCTURAL ASSESSEMENT OF TUNNEL FIRE DAMAGE
- ▶ STRUCTURAL ASSESSEMENTS OF OVERHEIGHT VEHICLE IMPACT BEAMS
- ▶ ASSESSEMENT OF TUNNEL GROUND WATER INGRESS
- ▶ VENTILATION SHAFT AXIAL FAN REPLACEMENT METHODOLOGY AND INSPECTIONS



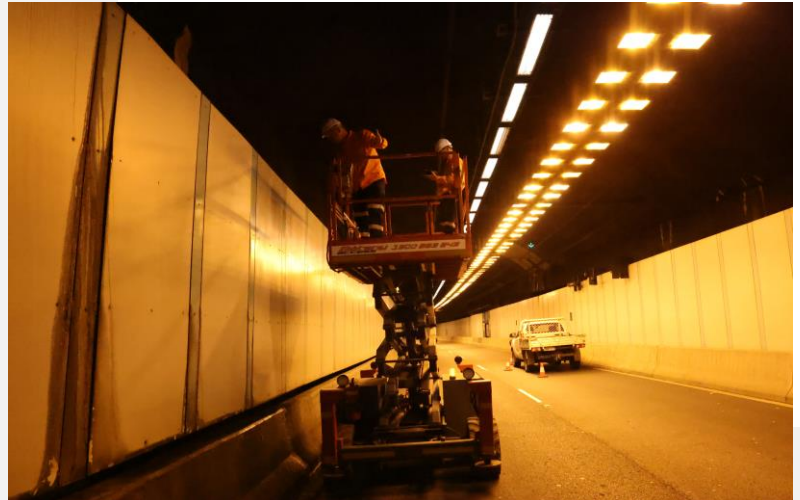
► TUNNEL STRUCTURAL INSPECTIONS

Structural inspections are the most critical structure in tunnels as they provide strength against overburden pressure, underground water and consequently, high hydrostatic pressures which are exerted on the structure. Rothshire's structural inspections aim to examine and identify signs of deterioration or damage including structural defects, cracks, and water seepage.



► STRUCTURAL ASSESSMENT OF TUNNEL FIRE DAMAGE

Rothshire we employ advanced inspection methods encompassing non-destructive testing and numerical simulations to assess the integrity and performance of tunnel linings under fire conditions.



► ASSESSMENT OF TUNNEL GROUND WATER INGRESS

We identify potential ingress points and evaluate their implications for structural integrity by deploying advanced techniques incorporating geotechnical investigations and groundwater modelling.

► STRUCTURAL ASSESSMENTS OF OVER-HEIGHT VEHICLE IMPACT BEAMS

Rothshire's assessment evaluates the beam structure's ability to withstand collision impacts of over-height vehicles and assesses compliance with safety regulations and standards. Rothshire was engaged by Ventia to conduct an emergency inspection of an over-height Barrier Beam which was impacted by a vehicle at the Lane Cove Tunnel.

► VENTILATION SHAFT AXIAL FAN REPLACEMENT METHODOLOGY AND INSPECTIONS

Rothshire expertise and services extend to include provision of concept design methodology for removal and replacement of damaged axial fans located within tunnels. DM Roads appointed Rothshire for the purpose of upgrading the ventilation axial fans for the northern ventilation building at the North Connex tunnel.



BRIDGES



- ▶ 1 AND 2 BRIDGE INSPECTIONS
- ▶ LEVEL 3 BRIDGE INSPECTIONS
- ▶ LEVEL 4 BRIDGE STRUCTURAL PROOF TESTING
- ▶ BRIDGE EXPANSION JOINT REPAIR SOLUTIONS
- ▶ LIFT SHAFT STRUCTURAL ASSESSEMENT



► LEVEL 1 & 2 BRIDGE INSPECTIONS

Rothshire has undertaken multiple level 1 and 2 bridge inspections across major assets in New South Wales. These assets include the Cross City Tunnel, Eastern Distributor, Sydney Harbour Tunnel, Lane Cove Tunnel, M2 and M5 motorway.

Our level 1 bridge inspection and culvert inspections are a visual inspection of the structure, aimed at identifying any unusual characteristics or anomalies

Our level 2 bridge inspection and culvert inspections focus on providing detailed and quantified data to formulate and prioritize maintenance..

► LEVEL 3 BRIDGE ASSESSMENTS

As part of our Level 3 bridge and culvert assessments we undertake structural engineering inspection and analysis of the structure. This may include bridge modelling (structural analysis), load testing, coring and many other destructive and non-destructive testing methods.

► LEVEL 4 BRIDGE STRUCTURAL PROOF TESTING

Level 4 bridge structural proof testing services are significant for verifying the structural integrity and load-bearing capacity of bridges. Rothshire services entail subjecting bridges to rigorous testing, including simulated extreme conditions, to ensure they can withstand anticipated loads and stresses. By providing comprehensive assessments and evaluation of bridge safety, Level 4 proof testing services contribute to the longevity and reliability of critical transportation infrastructure nationwide



► BRIDGE EXPANSION JOINT REPAIR SOLUTIONS

Rothshire implements various repair solutions for bridge expansion joints, focusing on enhancing durability and safety. Our solutions include elastomeric seals, modular joints, and asphaltic plug joints, designed to withstand traffic loads and diverse environmental conditions. By employing these repair techniques, we aim to maintain bridge infrastructure efficiently, ensuring long term service life.

► BRIDGE/CULVERT DESIGN REHABILITATION AND REPORTS

At Rothshire we employ comprehensive solutions for bridge and culvert design, rehabilitation, and repair, integrating innovative materials and techniques to improve infrastructure resilience. Our approaches include structural assessments, maintenance programs, and retrofitting techniques to prolong the service life and mitigate deterioration risks. By prioritising safety, efficiency, and sustainability, Rothshire ensures the longevity and functionality of bridges and culvert systems across diverse landscapes and climates.





ROADS

- ▶ ASSET NETWORK SURVEYS
- ▶ LEVEL 2 STRUCTURAL INSPECTIONS OF CONCRETE WALL PANELS, SOUND WALLS, LIGHT POLES, CAMERA POLES, ROAD SIGNS AND VMS GANTRIES
- ▶ ROAD PIT STRENGTHENING DESIGN
- ▶ ROAD PLATE DESIGN
- ▶ ROAD SIGNAGE COMPLIANCE CHECKS



► ASSET NETWORK SURVEY

Rothshire have recently completed an infrastructure asset survey of the Citylink network in Melbourne for Transurban. We employ a range of the latest technology such as Mobile Laser Scanners (MLS), Brumby Lidar and Real-time kinematic (RTK) GPS Rover Systems to assist with accurate infrastructure asset surveys.

► ROAD PIT STRENGTHENING DESIGN

we extensively analyze the existing pit conditions and identify potential weaknesses prior to proposing customized strengthening solutions.

Our team were engaged by Transurban to provide a bespoke detail and associated work instruction notes as part of the same detail for installation of temporary strengthening internal pit reinforcing steel plates that can be used in future planned and emergency maintenance

► ROAD SIGNAGE COMPLIANCE CHECKS

Road signs are vital to road safety and provide a guide for travelling vehicles. Rothshire have conducted signage compliance inspections at the Cross City Tunnel and M5 motorway in New South Wales.



► LEVEL 2 STRUCTURAL INSPECTIONS OF CONCRETE OF WALL PANELS, SOUND WALLS, LIGHT POLES, CAMERA POLES, ROAD SIGNS AND VMW GANTRIES.

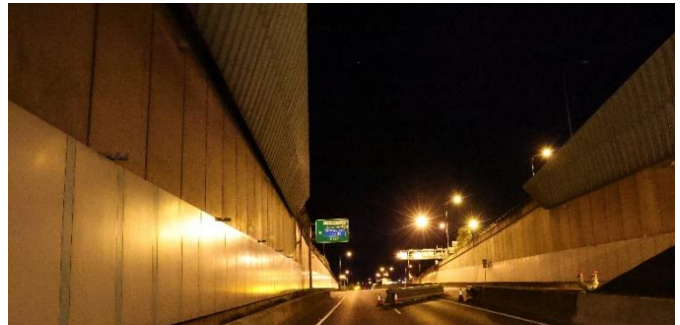
Transportation assets play an essential role in ensuring the safety of passengers, vehicles and roads as well as monitoring the overall integrity of roads infrastructure.

Level 2 inspections involve a more thorough examination of the current condition of infrastructure assets in accordance with local standards and guidelines.

Rothshire's team examines concrete wall panels and sounds walls on roads and bridges thoroughly to check for defects, spalling, cracks, and any signs of deterioration. Light poles, camera poles, road signs and Variable Message Signs, VMS, gantries are inspected for compliance, functionality, structural stability, and overall integrity.

► ROAD PLATE DESIGN

Rothshire was engaged by Transurban to provide a new bespoke steel road plate compliant with TfNSW specification M209 that can be used for future planned and emergency maintenance activities on the Eastern Distributor.



ADDITIONAL SERVICES



- ▶ EMERGENCY WORKS
- ▶ DRONE SERVICES
- ▶ NON-DESTRUCTIVE TESTING EQUIPMENT



► EMERGENCY WORKS

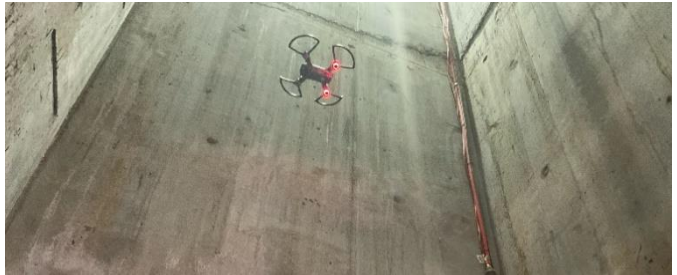
Rothshire engineering emergency response team provides 24-hour / 7-day-a-week support for assets, including response to incidents, natural disasters, and other critical events. Comprising a team of experts, Rothshire can provide its emergency services to ensure the integrity, workability, and safety of structures. Rothshire have conducted multiple emergency call-out inspections for Transurban, Ventia and Simco across most assets in New South Wales and Victoria.

► DRONE SERVICES

Rothshire specializes in delivering cutting edge drone services tailored for infrastructure projects, combining state of the art technology. Our comprehensive drone solutions encompass high resolution aerial imaging. Detailed 3D mapping enabling clients to monitor, inspect and manage their infrastructure assets with unparalleled accuracy. By leveraging advanced UAV capabilities, Rothshire ensures rapid data collection, reduced operational risks. And significant cost savings, making us a trusted partner for infrastructure maintenance, assessment and development.

► NON-DESTRUCTIVE TESTING EQUIPMENT

Rothshire offers state of the art non-destructive testing equipment services. Designed to monitor and ensure the quality of materials and structures used without causing damage. Our advanced NDT solutions encompass a variety of methods, including ultrasonic testing, GRP scanning, Dynamic Cone Penetrometer to accurately detect any flaws and measure material property.



C O N T A C T DETAILS

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