ACOUSTICS AND VIBRATION IN THE RAIL SECTOR

“advanced analyses of rail corrugation and acoustic roughness factors”

SLR provides project certainty through a superior understanding of technical risks and best practices in railway noise and vibration control.

SLR undertakes specialised analysis of rail corrugation and acoustic roughness, a critical aspect in railway noise and vibration assessment. If the track is corrugated or rough, excessive noise and vibration will be produced so it is important that this aspect is studied.

SLR uses a Rail Corrugation Analysis Trolley (CAT) to analyse and determine the state of rail acoustic roughness and corrugation to ISO 3095 and ISO EN 15610. Based in Australia, the lightweight Rail CAT requires only one operator and can cover around 600m of track section per hour, meaning assessment on relatively short notice with minimal disruption and downtime.

HOW SLR CAN HELP

We work on all forms of rail transport systems, from tunnelled urban passenger rail networks to heavy-haul interstate freight operations, at all stages of design, procurement and operation. Our experience includes all types of rail support facilities including intermodal terminals, stowage facilities and maintenance depots.

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OUR SERVICES

Environmental Noise and Vibration
- Environmental Assessment (EIS, REF, SEE)
- Community Consultation, Noise Simulations
- Baseline Noise and Vibration Measurements
- Operational Noise and Vibration Management Plans
- Construction Noise and Vibration Management Plans
- Noise and Vibration Monitoring During Construction

Rail-Track / Rail-Vehicle Studies
- Rail Vehicle Compliance Tests
- Modal Analysis

• Locomotive Vibration and Noise Control
• Sound Intensity Measurements
• Interior Noise and Vibration
• OHS Noise Assessments
• Automated Wheel Condition Monitoring Systems
• Wheel Squeal Studies
• Rail Roughness Measurement and Analysis

Elevated Rail Lines
• Bridge Dynamics and Vibration Control
• Radiated Noise from Elevated Structures
OUR SERVICES (continued)

Building and Infrastructure
Over Rail Lines
- Regenerated Noise and Vibration Predictions
- Noise and Vibration Measurements
- Optimisation of Rail Fastening Systems
- Floating Slab Track Design
- Building Vibration Isolation
- Station Acoustics and PA System Design

Underground Rail Projects
- Regenerated Noise and Vibration Predictions
- Noise and Vibration Measurements
- Rail Line Vibration Mitigation
- Floating Slab Design
- Station Acoustics and PA System Design
- Community Consultation, Noise Simulations
- In-train Noise Predictions

Noise Mitigation
- Source Mitigation Measures
- Noise Barrier Design and Optimisation
- Community Consultation
- Computer Noise Modelling and Barrier Simulations
- Pre and Post-Installation Noise Measurements

OUR EXPERIENCE

Environmental Noise and Vibration
- Thornlie to Cockburn Rail Extension
- Perth City Link Rail Alliance
- Perth Stadium Transport Infrastructure
- Aubin Grove Train Station
- Sydney-Canberra Very High Speed Train (VHST) Project
- Canberra Capital Metro Light Rail
- Epping to Chatswood Rail Line
- Metropolitan Rail Expansion Program (NW Rail Link, SW Rail Link, CBD Rail Link)
- CBD and South East Sydney Light Rail Extension
- New Southern Rail Line – Sydney Airport Link
- Gold Coast Light Rail
- Standard-Gauge Rail Link to Fisherman Island IAS and Noise Barrier Design
- Network Noise Management Plan – Shorncliffe Line, Ipswich Line, Mackay / Townsville
- Claisebrook Rail Depot

Forrestfield Freight Depot
- WA Road and Rail State Planning Policy
- 5.4 Review, Vibration Studies
- Dubai Metro Purple Line

Building and Infrastructure over Rail Lines
- ANA Hotel and John Maddison Tower (Courts)
- Vibration Control for Microelectronics Facility above Olympic Rail Line Loop
- Subiaco Urban Renewal Project and Lakeside Cinema Complex
- Federation Square

Rail-Track / Rail-Vehicle Studies
- Forrestfield Airport Link
- In-car Noise Study, Public Transport Authority
- Rail Damper Noise and Vibration Control Trial, Public Transport Authority
- Rail Wheel Squeal Investigations at Claisebrook and Nowergup
- SRA Wheel Squeal Review and Recommendations

Underground Rail
- Epping to Chatswood Rail Line
- New Southern Rail Line – Sydney Airport Link
- Olympic Rail Line Loop – Ballast Mat Design
- Sydney North West Rail Link
- Brisbane Cross River Rail Tunnel
- Forrestfield Airport Link
- New Perth MetroRail-City
- Perth City Link Tunnel – Fremantle Line
- City Rail Link
- Singapore Circle and Downtown Lines

- QR 1550/2300 Locomotive Silencer Design 2800 Class
- QR Coal Wagon Low Frequency Noise Control
- QR 2400 Class Locomotive Cab Noise Design
- Rail Acoustic Roughness Measurements - Subiaco Tunnel
- Commissioning Tests for VariousLocomotives and Wagons