

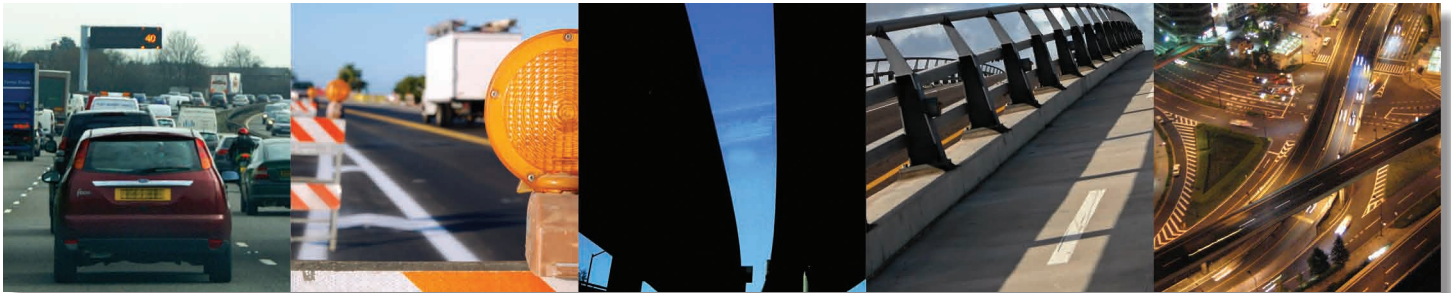
## Company Background - Overall Service Capabilities

SLR Heggies is a progressive firm of consulting engineers and scientists providing services in the following specialist engineering and environmental fields:

- Environmental Management
- Air Quality / Dust / Odour
- Climate-Meteorology Analysis
- Hazardous Materials
- OHS / Occupational Hygiene
- Wind Engineering
- Expert Evidence
- Environmental Monitoring
- Water Quality
- Site Remediation
- Structural Dynamics
- Lighting Studies
- Risk Assessment
- Community Consultation
- Acoustics & Vibration
- Energy Efficiency / ESD
- Ground Contamination
- CFD & Ventilation Studies
- Solar Studies
- FE Analysis, Fatigue
- Policy Development

Our consultants apply advanced technologies and innovation to manage risks, optimise opportunities and enhance the cost-effectiveness of project solutions. Guidance is provided from planning and design through to compliance assessment and the ongoing operational stages of industrial, transportation, building, construction, minerals extraction, infrastructure development, defence and aerospace projects.

With offices in Brisbane, Canberra, Melbourne, Newcastle, Perth, Sydney, Singapore, Townsville and Wollongong, SLR Heggies is able to provide specialist resources for projects in all states of Australia, New Zealand, Papua New Guinea, South East Asia and the Middle East. Whether the project is large or small our consultants pride themselves on providing a high standard of prompt, reliable and practical service and technical expertise.



## Company Expertise for Road Projects

SLR Heggies has a long history of involvement in road projects and over the course of many years has earned a respected and highly credible reputation with regulatory authorities and with the community in general. Most importantly, we have a practical understanding of the constraints applying to road projects and are familiar with the engineering practicalities and both the indirect and direct costs associated with the implementation of environmental control measures.

Our specific SLR Heggies road group services include:

### Noise, Vibration and Air Quality

#### Assessment

- Noise, Vibration and Air Quality Assessments (EISs, REFs)
- Community Impact and Community Liaison

#### Mitigation

- Detailed Noise Barrier Design
- Architectural Noise Treatment
- Road Treatments
- Community Consultation
- Vibration Isolation for Buildings and Bridges
- Air Quality Mitigation Programs

#### Modelling and Simulations

- 3-D Noise and Air Quality Modelling
- Noise and Air Quality Contours
- Noise and Air Quality Simulations

#### Monitoring

- Background Surveys (Noise, Dust and Air Quality)
- Vehicle Pass-by's
- Ground-Borne Vibration Surveys
- Bridge and Building Vibration Surveys
- Compliance Surveys

### Construction

#### Monitoring

- Noise and Vibration, Air Quality, Dust
- Dilapidation Surveys
- Water and Soil Quality Monitoring
- Land Contamination Surveys (Asbestos, PCBs)

#### Planning

- Construction Emissions Predictions
- Environmental Management Plans

### Planning

#### New Developments

- Approvals
- Development Applications
- Route Option Analysis and Assessment
- Acoustic Design and Construction Certification

### Systems

#### Environmental Management

- ISO14001 Systems and Training

#### OHS/Occupational Hygiene

- AS 4801 Systems and Training

## Project List

### NSW

- Westlink M7 (Western Sydney Orbital)  
- Abigroup Leighton Joint Venture
- Windsor Road Upgrade  
- NorthWest Connect Alliance Team
- Cross City Tunnel  
- RTA/PPK Infrastructure
- Western Distributor Upgrade  
New Elevated Extensions of Viaduct  
- RTA
- Woronora Bridge & Approaches  
Review of Traffic Noise Emission Impact  
- RTA
- Woronora Link Road  
Noise Assessment & Mitigation  
& Community Consultation  
- RTA
- NorthWest TransitWay (T-Way)  
- Leighton Contractors
- Cowpasture Road Upgrade Section 2  
- KBR
- M5 East Motorway Construction  
- Walter Constructions
- Old Windsor Road  
(Seven Hills Road to Abbots Road)  
- Cardno MBK
- Windsor Road Upgrade  
(Curtis Road to McGraths Lagoon)  
- Cardno MBK
- Quiet Road Surface Assessment  
- SRS & RTA
- M2 Tollway 3-Lane Widening  
- Leighton/Transurban Joint Venture
- Cowpasture Road Upgrade Sections 1  
- Cardno MBK
- Bernera Road & Kurrajong Road  
Upgrade, Preston - JWP
- Sydney Harbour Tunnel  
- Thiess/Thyssen, Kumagai, Leightons, Transfield &  
WestHam Dredging
- M2 Tollway Detailed Acoustical Design  
& Construction Phase  
- GHD & Abigroup/Obayashi JV
- Bangor Bypass EIS Review  
- Planning NSW

### NSW - REGIONAL

- Port Macquarie Link Road  
- Cardno MBK
- Great Western Highway Upgrade  
(Lawson Section 2) - GHD
- Great Western Highway Upgrade  
(Wentworth Falls)  
- GHD
- Great Western Highway Upgrade REF  
(Woodford to Hazelbrook)  
- GHD
- Traffic Noise Impact Assessment for  
Coolac Bypass  
- GHD
- Noise Assessment, Concept Alignments,  
Pacific Highway at Tweed Heads  
- GHD
- Albury-Wodonga Route Selection  
- Panel Hearing and Commission of Inquiry
- Pacific Highway Reconstruction at Korora,  
North of Coffs Harbour - Kinhill Engineers
- Albury-Wodonga External Option  
Bypass REF (2002)  
- Maunsell
- Noise Impact Assessment & Design of  
Mitigation Measures for Jugiong Bypass  
- RTA
- Gerringong to Berry Route Selection,  
Noise Impact Assessment  
- RTA
- Pacific Highway Upgrade, Lyons Road  
to Englands Road, Coffs Harbour  
- RTA
- Kings Plains Mid-Western Highway Upgrade  
- PPK Infrastructure
- Brunswick Heads Bypass Noise Impact Study  
- Kinhill Cameron McNamara
- Road Traffic Noise Impact Assessment,  
Terranora Bridge, Tweed Heads  
- Kinhill Cameron McNamara
- Great Western Highway Upgrade Detailed  
Design (Woodford to Hazelbrook)  
- URS Australia
- Piggabeen Road Deviation  
Impact Assessment Study  
- Tweed Shire Council
- Great Western Highway Upgrade  
(Lawson Section 1)  
- Hyder

### CANBERRA

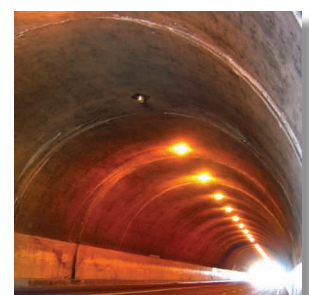
- Majura Parkway  
- SMEC
- Gunghalin Drive Extension  
Route Option Study & Mitigation Design  
- SMEC
- Pialligo Avenue Duplication  
- Airport Group (CAG)
- Federal Highway, ACT  
- SMEC
- Lanyon Drive Upgrade, Southbar  
- Queenbeyan Council
- Belconnen Bus System Improvements  
Planning Study  
- Capital Planners

### VICTORIA

- Deer Park Bypass  
Detailed Design & Review of Noise Mitigation  
- Leighton Contractors
- Calder Highway Harcourt  
Concept Noise Mitigation Design  
- VicROADS
- EASTLINK  
Indep. Review of Noise Mitigation  
- SEITA
- Calder Highway Harcourt  
Detailed Noise Mitigation Design  
- Connell Wagner
- Mitcham Frankston Freeway  
Tender Design of Noise Mitigation & EMP's  
- LAJV
- Eastern Freeway  
Noise & Air Quality Assessments  
- City of Boroondara
- Albury-Wodonga May 2002  
External Route Option Study  
- VicROADS
- Albury-Wodonga Inner Route  
Noise Impact Assessment  
- NSW RTA
- Eastern Freeway  
Noise & Air Quality Assessments  
- City of Boroondara
- Albury-Wodonga Route Selection  
Panel Hearing & Commission of Inquiry  
- GHD
- EASTLINK Tunnel  
Ventilation Study  
- United Group
- Pakenham Bypass  
Tender Design & Review of Noise Mitigation  
- Leighton Contractors
- Craigieburn Bypass  
Tender Design & Review of Noise Mitigation  
- Leighton Contractors
- Melbourne City Link  
Burnley Tunnel Portal Noise Control  
- BHBB Joint Venture
- Melbourne City Link Tunnel Ventilation  
Mechanical Plant Noise Control  
- Hyder Consulting

## QUEENSLAND

- Road Traffic Noise Management Strategy Assessments
  - Main Roads
- Northern Busway CDIMP
  - Connell Wagner / SKM Joint Venture
- Northern Link Tunnel EIS
  - Connell Wagner / SKM Joint Venture
- North South Bypass Tunnel EIS
  - Connell Wagner / SKM Joint Venture
- Pacific Motorway Re-Evaluation of Noise Barrier Treatments
  - Main Roads
- Airport Link EIS
  - Connell Wagner / SKM Joint Venture
- Hale Street Link
  - GHD
- Brinsmead-Kamerlinga Road, Cairns Noise Barrier Design
  - GHD
- Traffic Noise Impact Assessment for the Extension of Grey Street, Southbank
  - GHD
- Sunshine Motorway Acoustical Impact & Barrier Design
  - DoT & Kinhill Cameron McNamara
- Gateway Arterial Road Extension Route Options Noise Impact
  - DoT & Maunsell McIntyre
- Eastern Corridor Highway Preferred Option EIS stage
  - DoT & Rankine and Hill
- Eastern Corridor Highway Acoustical Assessment of Route Options
  - DoT & Rankine and Hill
- Gateway Upgrade Project Noise, Vibration & Air Quality
  - Leighton Abigroup Joint Venture
- Mackay Bucasia Road Upgrade Study
  - Maunsell McIntyre
- Toowoomba Range Crossing Noise Impact Assessment
  - Maunsell McIntyre
- Douglas Arterial Road Impact Assessment Study & Barrier Design
  - Maunsell McIntyre
- Mt Lindesay Highway Upgrade Impact Assessment Study & Barrier Design
  - Maunsell McIntyre
- Inner City Bypass Noise & Vibration Assessment
  - Brisbane City Council
- Garden City Bus Depot, Mt Gravatt Acoustical Design & Specifications
  - Brisbane City Council
- Brisbane Urban Corridor Noise Measurements & Analysis
  - Main Roads
- Eastern Busway CDIMP
  - Connell Wagner
- South East Transit Busway
  - Connell Wagner
- Gateway Upgrade Project EIS
  - Connell Wagner
- Bruce Highway Road Upgrade, Black Mountain Impact Assessment Study
  - Connell Wagner
- Gateway Upgrade South EIS
  - Connell Wagner
- South East Transit Busway
  - Connell Wagner
- SETP Loganlea Interchange Acoustical Impact & Barrier Design
  - Connell Wagner
- Inner Northern Busway Noise & Vibration Strategy
  - Connell Wagner
- SE Transit Project Noise Barriers, Management Plan
  - SET Project Team & Connell Wagner
- Southern Brisbane Bypass Additional Noise Modelling
  - CMPS&F
- Townsville Port Access IAS Noise and Vibration Aspects
  - Kinhill
- South Coast Motorway (North Section) Noise & Vibration Impact
  - Kinhill Cameron McNamara
- Caboolture Northern Bypass (Stage 2) Impact Assessment Study
  - Main Roads
- Gladstone Port Access Road
  - Main Roads
- Bruce Highway Traffic Noise Assessment, Apple Tree Creek
  - Main Roads
- Cunningham Highway Traffic Noise Assessment
  - Main Roads
- Caboolture Northern Bypass (Stage 2) Noise Assessment (Current)
  - Main Roads
- Nundah Bypass Detailed Noise Barrier Design
  - Main Roads
- Boggo Road Busway
  - BRB Alliance



Visit us at [www.heggies.com](http://www.heggies.com) or call **1300 434 443** to find out more.

Heggies Pty Ltd is a member of the International SLR Group  
[www.slrconsulting.com](http://www.slrconsulting.com)

## ENVIRONMENTAL SERVICES

ACOUSTICAL DESIGN	<ul style="list-style-type: none"> <li>• REF, EES, EIA, EIS Studies                     <ul style="list-style-type: none"> <li>- Road, Rail, Aircraft, Industry, Mining</li> </ul> </li> <li>• Building Acoustics, BCA compliance</li> <li>• Mechanical Services Noise / Vibration</li> <li>• Construction Noise and Vibration</li> <li>• Environmental Management Plans</li> </ul>	<ul style="list-style-type: none"> <li>• Blast and Explosion Assessment / Control</li> <li>• Silencers, Attenuators, Enclosures, etc</li> <li>• Resilient Mounts, Vibration Isolation Mats, Tuned Mass Dampers</li> <li>• Community Liaison, Expert Testimony, Regulatory Authority Meetings</li> </ul>
AIR QUALITY	<ul style="list-style-type: none"> <li>• Outdoor &amp; Indoor REF, EES, EIA, EIS Studies                     <ul style="list-style-type: none"> <li>- Industries, Transportation and other sectors</li> </ul> </li> <li>• Atmospheric Dispersion Modelling for All Airborne Pollutants and Odour</li> <li>• Monitoring All Major Air Pollutants / Odours</li> </ul>	<ul style="list-style-type: none"> <li>• Design/Operation of ambient Air Quality Monitoring Networks</li> <li>• Indoor Air Quality, Natural Ventilation</li> <li>• AUSPLUME, TAPM, CALPUFF, ISC3, ADMS3 CALINE4, AERMOD, FLUENT (CFD)</li> </ul>
WATER QUALITY	<ul style="list-style-type: none"> <li>• Water Quality Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Ground Water Sampling</li> </ul>
HAZARDOUS MATERIALS	<ul style="list-style-type: none"> <li>• Asbestos: Identification, Monitoring, Fibre Counting, Management, Training</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated Site Investigations &amp; Surveys; Due Diligence Surveys</li> </ul>
SITE CONTAMINATION	<ul style="list-style-type: none"> <li>• Monitoring for Lead, PCBs, Silica, SMFs                     <ul style="list-style-type: none"> <li>- All Major Contaminants</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Remediation Action Plans, Remediation Management, Validation Surveys</li> </ul>
METEOROLOGY and CLIMATE	<ul style="list-style-type: none"> <li>• Monitoring for a Wide Range of Meteorological Parameters</li> </ul>	<ul style="list-style-type: none"> <li>• Wind Climate Analysis, Extreme Climate Risk Assessments</li> </ul>

## ENGINEERING SCIENCE SERVICES

WIND ENGINEERING and CFD	<ul style="list-style-type: none"> <li>• Wind Tunnel Testing and Expert Opinion</li> <li>• Full-Scale Testing of Buildings, Bridges</li> </ul>	<ul style="list-style-type: none"> <li>• CFD Simulations Using FLUENT</li> <li>• Natural Ventilation, Indoor Air Quality</li> </ul>
SOLAR – ESD ENERGY STUDIES	<ul style="list-style-type: none"> <li>• Energy Efficiency, Energy Audits</li> <li>• ESD, Sustainability Studies</li> <li>• Shadows, Solar Ingress, Reflectivity</li> <li>• Natural Lighting / Lux Level Simulations</li> </ul>	<ul style="list-style-type: none"> <li>• Energy Ratings – NatHERS, BERS, FirstRate, BASIX, AccuRate (Residential Buildings)</li> <li>• ABGR / GreenStar (Commercial Buildings)</li> <li>• BCA Section J Assessments</li> </ul>
STRUCTURAL DYNAMICS and MECHANICAL DESIGN	<ul style="list-style-type: none"> <li>• Experimental Modal Analysis</li> <li>• Dynamic Finite Element Analysis</li> <li>• Machine Vibration Surveys</li> <li>• Turbine Dynamics and Monitoring</li> <li>• Vibration Isolation Systems</li> </ul>	<ul style="list-style-type: none"> <li>• Pipe / Pulsation Analysis (PULS)</li> <li>• Pipeline / Valve Acoustic Induced Vibration</li> <li>• Fatigue / Fracture / Stress Analysis</li> <li>• Mechanical Systems Design</li> <li>• ProEngineer, NASTRAN, FLUENT</li> </ul>
ADVANCED SYSTEMS	<ul style="list-style-type: none"> <li>• UAV and Aeronautical Studies</li> <li>• Safety MIL-STD 882 and Risk Engineering</li> <li>• Communications</li> <li>• AEO &amp; AMO Certification Systems</li> </ul>	<ul style="list-style-type: none"> <li>• GIS Management/Assessments</li> <li>• Blast Systems &amp; Modelling</li> <li>• Harsh Environments – MIL-STD 810</li> <li>• EMC Mil-Std 461</li> </ul>

## OTHER SERVICES

OHS and OCCUPATIONAL HYGIENE PROJECT and RISK MANAGEMENT	<ul style="list-style-type: none"> <li>• (Certified) OHS Surveys, Audits</li> <li>• Technical Due Diligence Surveys</li> <li>• Ergonomic and Workplace Assessments</li> <li>• Project Management Services</li> </ul>	<ul style="list-style-type: none"> <li>• OHS Management Systems and Training</li> <li>• RF Accumulation &amp; Testing</li> <li>• Risk Studies to AS / NZS 4360 and SAFETY</li> <li>• Health and Toxicology Studies</li> </ul>
LABORATORY and R&D SERVICES	<ul style="list-style-type: none"> <li>• NATA-Accredited to ISO 17025                     <ul style="list-style-type: none"> <li>- Air Volume Sampling, Asbestos Fibre Counting, Asbestos Identification</li> </ul> </li> <li>• Research and Development</li> </ul>	<ul style="list-style-type: none"> <li>• Laboratory and Field Testing for Air and Water Quality, Acoustics, Vibration</li> <li>• Harsh Environment – MIL-STD 810, DEF(AUST) 5168, DEF(AUST) 5681</li> </ul>
WEBSITE and MEDIA SERVICES	<ul style="list-style-type: none"> <li>• Web-based Real-time Data Management and Monitoring Interfaces</li> </ul>	<ul style="list-style-type: none"> <li>• Professional Videos for Training, Expert Testimony, Media Presentations</li> </ul>