PART D

SCOPE OF SERVICES

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D1 INTRODUCTION

RailCorp is the operator of passenger rail operations within the state of New South Wales, Australia and is the network infrastructure owner for greater Sydney metropolitan network. RailCorp is based in Sydney, employees approximately 14,000 staff and transports approximately 1 million passengers per weekday.

As a consequence of an unprecedented level of capital investment in major rail infrastructure and rolling stock acquisitions, RailCorp are seeking the supply of qualified rail engineering resources experienced in major infrastructure projects and / or underground rail systems. These resources are required across a wide range of associated systems and will supplement existing in-house engineering capability during the period April – October 2008.

RailCorp are specifically seeking to contract the services of a single organisation (the Contractor) with significant rail engineering capability; and the ability to supplement such capability through teaming arrangements with other organisations and / or contractors as required.

The services to be provided by the Consulting Firm cover the provision of Services in support of the Epping Chatswood Rail Line (ECRL) currently being commissioned. In particular, the Consulting Firm will provide a team of Subject Matter Experts (SMEs) for the independent assessment of (engineering) safety claims made in support of ECRL.

An overview of the ECRL project is provided in Appendix 1.

The systems for which engineering resources are specifically being sought are detailed in Appendix 2.

The Request for Tender (RFT) process is limited to a selected number of organisations each of which would be expected to have a representative meet with RailCorp (where possible in person in Sydney and where not, tele-conferencing will be set up) during the tender period at the time and date nominated in Part A of this RFT. The purpose of such a meeting would be to ensure there was a clear understanding of the requirements and expectations of RailCorp.

Contractors and / or engineers who have had an active involvement in the design, construction or commissioning of the ECRL **are not eligible** for consideration due to a potential lack of independence and / or conflict of interest.

Organisations that have had an active involvement in the design, construction or commissioning of the ECRL **may be eligible** for consideration, but will need to demonstrate how sufficient levels of independence are to be managed as part of their submission.

The resources (SMEs) supplied by the Consulting Firm to perform the Services are expected to be:

a) Made available at the Sydney offices of RailCorp at the start and for the majority of the work. Where the effort required for a particular system is greater than three person months (refer to Appendix 2), the Consulting Firm may propose for the effort to be split up (e.g. provide two resources to undertake the work, undertake a limited amount of work in the UK, include a provision of a break in the middle of the work). The selected organisation will be expected to demonstrate that they will be able to organise any necessary visas to cover the entire period the resource will be required in Sydney;

b) Mobilised within the period two (2) to six (6) weeks after the contract award date; and

c) Available for a period of *up to* twenty-six (26) weeks; with the system level specific requirements are detailed in Appendix 2.

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RailCorp has developed an Independent Safety Assessment (ISA) process that is based on the principles described in the Yellow Book and the CENELEC Standards EN50126 and EN50129; which involves independent professional review of the safety claims made in connection with the design, construction and commissioning of the ECRL.

A flowchart representation of the ISA process is attached as Appendix 3.

Integral to the process is the use of Subject Matter Experts (SMEs) who are sufficiently removed from the engineering solutions being provided to undertake professional review against a separately developed Safety Claims structure.

The satisfactory validation of the these safety claims is a mandatory pre-requisite for RailCorp to obtain a variation to existing Rail Safety Accreditation from the Independent Transport Safety and Reliability Regulator (ITSRR) and forms an integral component for acceptance of the asset that is the ECRL.

In consideration of the demands on internal SME resources arising from an unprecedented level of capital projects currently in progress, it is necessary to supplement internal SME capacity and / or capability with suitably qualified and experienced SMEs sourced from the external market.

The external SME capability being sought will have a good understanding of Independent Assessment principles and have acquired applicable competencies through qualifications and applied experience that will enable the professional assessment of safety and engineering aspects of the design, construction, commissioning, operations and maintenance of nominated ECRL systems.

In conducting such assessments, SMEs will be expected to be able to apply their professional experience and knowledge of similar systems, standards and technology in the assessment of claims made with respect to the ECRL.

In the delivery of the Services, the nominated SMEs shall:

- Exercise professional independence and judgement; however will be accountable to the relevant RailCorp Discipline Head for professional performance;
- Be provided with the relevant training on the mechanisms and procedures for the Independent Safety Assessment itself;
- Conduct all activities in compliance in compliance with internal RailCorp processes; where necessary, appropriate training will be provided by RailCorp;
- Be subject to administrative direction of the nominated RailCorp Representative.

D3 TENDER ASSESSMENT CRITERIA

The following criteria will be used to assess tenders.

1) Competence of the SMEs put forward for consideration. This will be based on the following criteria
    a. The possession of relevant graduate / post graduate qualifications;

b. A minimum of 7 years practical experience in providing professional engineering services in major rail infrastructure projects and / or underground rail systems;

c. A minimum of 3 years experience providing professional engineering services in the specific system(s) for which the resource is being nominated;

d. Demonstrated experience in the preparation, review or assessment of system designs, safety cases and / or structured safety arguments.

2) Confirmation of the availability of the SMEs to undertake the work.

3) Time to placement of SMEs. Early placement of SMEs is highly desirable.

4) Ability to provide SMEs for all areas of competence. It is acceptable for supplying organisations to sub-contract for areas of competence, but costs of doing so must be transparent and CVs of proposed SMEs provided.

5) Cost.

D4 PERFORMANCE MANAGEMENT

The work to be carried out is critical to the timely deliver of the ECRL and so great dependence is placed on the performance of the Services.

The Consulting Firm must warrant the competence and performances of resources supplied and assure the availability of the nominated SMEs for the full duration of the required Services.

A nominated RailCorp Representative will manage the delivery of the Services and any performance issues that may arise in collaboration with the nominated Representative of the Consulting Firm.

Where the professional performance or underlying competence of an SME has been determined to be unsatisfactory, the Contractor is to remove the SME and, where directed, find an acceptable replacement. Such actions are to be at no additional cost to RailCorp. RailCorp will provide written description of the shortcoming but will not otherwise enter into negotiations concerning the SME being removed.

D5 DELIVERABLES

Deliverables under the Contract are the timely completion of assigned Independent Safety Assessment claims to the professional satisfaction of the relevant Discipline Head.

Given the quality of the safety claims made in support of ECRL design, construction and commissioning is outside of the control of RailCorp, it is conceivable that from time to time SME capacity may be utilised more broadly in support of the ECRL project. Under such circumstances, SMEs would be provided with specific tasks by the applicable Discipline Head and the associated Deliverable would be the timely completion of the task to the professional satisfaction of the relevant Discipline Head.

Appendix 1
An Overview of Epping Chatswood Rail Line

Project Overview

The Epping Chatswood Rail Line (ECRL) is a new dual track electrified commuter railway being built to link the main Northern Line at Epping with the North Shore Line at Chatswood to meet the following requirements:

- Provide transport access to the employment areas, retail locations and educational facilities along the North Ryde / Macquarie corridor;
- Provide additional peak train paths between Strathfield and the City;
- Balance peak load at congested Town Hall Station;
- Balance peak train movements across the Harbour Bridge;
- Provide a section of the proposed Metropolitan Rail Expansion Program (MREP).

The line provides new stations at Macquarie University, Macquarie Park and North Ryde. Additionally, new underground platforms are being provided at Epping where the existing surface station is being upgraded (thus providing dual level interchange for passengers) and a new Transport Interchange is being constructed at Chatswood (thus providing cross-platform interchange for passengers).

The capacity of ECRL will meet both the initial train movement loads and also those required for the future MREP development. The network train movement pattern that makes use of ECRL is expected to be Hornsby, Epping, Chatswood (via ECRL), City, Strathfield, Epping and return to Hornsby.

The ECRL is designed for timetabled use by all RailCorp suburban and outer suburban rolling stock. It provides for the occasional operation of Interurban trains (V-sets). The ECRL Stations, with platform lengths up to 170 m, will accommodate all these train types, except for V-sets which will be limited to 6 cars due to their longer carriage lengths. The line is not designed to accommodate freight or non-electric rolling stock except for maintenance vehicles/trains.

The project involves a material change to RailCorp's rail operation through the introduction of new infrastructure and, consequently, RailCorp is required to vary its Rail Accreditation as required by legislation.

The facilities are being designed, constructed and commissioned by the Transport Infrastructure Development Corporation (TIDC) for the NSW Government. TIDC is managing a number of contracts to deliver this project, the primary ones being:

- Thiess Hochtief Joint Venture (THJV) for design and construction of the tunnels, rail infrastructure and station structural works - THJV's primary subcontractor for the rail systems work is United Rail;
- Edwards for the fit-out of the new stations and station systems on the ECRL;
- CRI / Barclay Mowlem for the design and construction of Chatswood Transport Interchange.

Upon commissioning and subsequently hand-over of the assets, these facilities will be operated and maintained by RailCorp.

In addition to the above, RailCorp is undertaking rail interface works at Epping and Chatswood, as well as delivering systems interfaces between the new ECRL works and the wider RailCorp network systems under the direction of TIDC. An illustration of the ECRL route is as follows.

Infrastructure Changes

The ECRL consists of twin bore electric rail tunnels, with one rail track in each bore, running from Epping on the Main North Line to Chatswood on the North Shore Line via stations at Macquarie University, Macquarie Park and North Ryde. Each single-track tunnel length from Epping to Chatswood is approximately 13km including stations.

Cross passages are positioned, in between adjacent underground stations, at distances not exceeding 240 metres to link the tunnels for the provision of emergency egress. In addition, there are three underground rail crossovers between the twin tunnels. There is a purpose-built service facility at Lady Game Drive and a number of substations directly or indirectly supporting the ECRL project.

Changes will also include modification of existing network Codes, Standards, Procedures and Rules where necessary to reflect the requirements of ECRL.

The ECRL introduces some new concepts and technologies into RailCorp that have not been previously used in many (if any) areas of RailCorp's operations, including:

- Tunnel construction methods employed (Design, Construction and Commissioning Phases mainly);
- Tunnel configuration – twin circular tunnels of 6.5 metres internal diameter;
- Cross passages with a maximum distance apart of 240 metres that join the two tunnels for pedestrian emergency evacuation (cross passages also house equipment);
- Tunnel ventilation with emergency smoke management;
- Elevated walkways in tunnels for passenger evacuation;
- Aspects of the bi-directional signalling;
- Water treatment plant;
- Central Control System (CCS) provided to monitor and control station, service facility and tunnel systems.

Appendix 2
ECRL Subject Matter Expert Requirements

System	Approx Effort Required (person months)	Description of System
Fire and Life Safety	6	Fire detection and protection systems associated with the stations, tunnels, dives, cross passages and ventilation systems along with interfaces with Central Control Systems
		Tunnel and station ventilation systems (including control systems) for the control of environmental conditions under normal, degraded and emergency conditions
		Walkways to meet emergency egress and maintenance access requirements
DC Traction	1	1500V traction power system including substations at Chatswood, Lady Game Drive Service Facility, Macquarie University station, Delhi Road station and a sectioning hut at Devlin's Creek and provision for a future substation at Epping North
Signalling	1.5	Signalling equipment including signals and interlocking from Epping North to Chatswood including interfacing with the train control system (ATRICS)
Signalling control systems	1	
Tunnel and stations control systems	2	Tunnel and station control and management system to monitor and control all stations, the service facility and tunnel systems, including uninterrupted power supplies to selected functions
High and low voltage AC Power supplies	2	Substation at Chatswood North, 33kV ring main and associated switchgear from Epping to Chatswood, dual 11kV ring mains and associated switchgear from Epping to Chatswood and low voltage distribution systems associated with the works in tunnels, stations and service facility
Communications	2	Communication systems backbone (an extension of the existing ARGUS backbone on the Sydney electrified rail network), telecommunications data transfer and radio systems and mobile phone systems
Total	***15.5***	

Appendix 3
Flowchart Representation of ISA Process