



PRE-QUALIFICATION SCHEME

PAVEMENT & GEOTECHNICAL ENGINEERING GROUP

Categories and levels
Eligibility Criteria

Procurement Operations
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PAVEMENT AND GEOTECHNICAL ENGINEERING GROUP			
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Group:	PAVEMENT AND GEOTECHNICAL ENGINEERING
Category:	PAVEMENT DESIGN
	<p>This category of pre-qualification incorporates works associated with the design of unbound granular pavements, bound and/or unbound flexible pavements and total pavement design.</p> <p>All pre-qualified contractors in this category will be required to participate in regular reviews of performance in relation to the performance assessment criteria for this group of suppliers.</p> <p><u>Standard Eligibility Criteria</u> <i>To be eligible a Company must demonstrate that:</i></p> <ul style="list-style-type: none"> • Personnel qualified and experienced in the area of competency described for the pre-qualification level. • Previous relevant experience and satisfactory performance in the area of competency described for the pre-qualification level. • Quality systems certified and/or approved as meeting VicRoads requirements. • Evidence that the company has a Victorian WorkCover insurance policy or proof of self-insurance which covers all personnel engaged in the delivery of services. • Appropriate levels of insurance: <ul style="list-style-type: none"> ◆ Public Liability \$10 million ◆ Professional Indemnity \$3 - 5 million
Levels:	Basic Pavement Design (ND1)
	<p>Area of Competency A basic competency level of pavement design addressing the ability to design unbound granular pavements using Appendix F of VicRoads Code of Practice RC500.22 'Code of Practice for Selection and Design of Pavements and Surfacing and any design guides and standards nominated by VicRoads from time to time.</p> <p>This level excludes works on Major Projects and National Freeways</p> <p><i>To be eligible a Company must demonstrate:</i></p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and <p><i>Knowledge and experience is required in:</i></p> <ul style="list-style-type: none"> • Detail analysis of variable impacting on granular pavement designs, such as the effect of expansive soils • Material specifications and construction methods <p><i>Familiarity required with:</i></p> <ul style="list-style-type: none"> • Pavement material field and laboratory testing procedures and interpreting their results • Demonstrable, relevant experience in current pavement design and rehabilitation technology is required • Must be able to show that similar work has been successfully completed in the last three years; or must possess appropriate tertiary academic qualifications in a related field.

Intermediate Pavement Design (ND2)

Also eligible for Unbound Granular (ND1) design work.

Area of Competency

An intermediate level of pavement design to address the ability to design bound and unbound flexible pavements (including stabilised or cement treated) using VicRoads Code of Practice RC500.22 'Code of Practice for Selection and Design of Pavements and Surfacing', the Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, and any design guides and standards nominated by VicRoads from time to time.

This level excludes works on Major Projects and National Freeways

To be eligible a Company must demonstrate:

- The standard eligibility criteria as above and
- Knowledge and experience is required in mechanistic design procedures, including computer modelling of multi-layered pavements, in accordance with the aforementioned literature.
- Understanding required of: the characterisation of asphalt and bituminous spray seals.

Advanced Pavement Design (ND3)

Also eligible for ND1 and ND2 design work.

Area of Competency

An advanced level of pavement design which addresses the ability to produce detailed designs for all types of pavements (flexible and rigid), in accordance with VicRoads Code of Practice RC500.22 'Code of Practice for Selection and Design of Pavements and Surfacing', the Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, and any design guides and standards nominated by VicRoads from time to time.

This level excludes works on Major Projects and National Freeways

To be eligible a Company must demonstrate:

- The standard eligibility criteria as above and

Extensive knowledge and experience is required in:

- Mechanistic design procedures, including computer modelling of multi-layered pavements
- Detailed concrete pavement design, including jointing methods
- Performance characterisation of all types of pavements
- Whole-of-life costing analysis of design options
- Mandatory successful completion of ND2 category type work for VicRoads
- Conditional on assessment by interview, references and portfolio of similar work

Group:	PAVEMENT AND GEOTECHNICAL ENGINEERING
Category:	PAVEMENT REHABILITATION AND MAINTENANCE
	<p>This category of pre-qualification incorporates works associated with the rehabilitation and maintenance and involving granular resheet analysis, deflection and curvature analysis and rehabilitations recommendations, detailed pavement rehabilitation and advanced pavement engineering.</p> <p>All pre-qualified contractors in this category will be required to participate in regular reviews of performance in relation to the performance assessment criteria for this group of suppliers.</p> <p><u>Standard Eligibility Criteria</u> <i>To be eligible a Company must demonstrate that:</i></p> <ul style="list-style-type: none"> • Personnel qualified and experienced in the competencies described below. • Previous relevant experience and satisfactory performance in the areas of competency described for the pre-qualification level. • Quality systems certified and/or approved as meeting VicRoads requirements. • Evidence that the company has a Victorian WorkCover insurance policy or proof of self-insurance which covers all personnel engaged in the delivery of services. • Appropriate levels of insurance: <ul style="list-style-type: none"> ◆ Public Liability \$10 million ◆ Professional Indemnity \$3 - 5 million
Levels:	Basic Rehabilitation Design - Granular (RM1)
	<p>Area of Competency A basic level of rehabilitation and maintenance for pavement work, restricted to the generation of monitoring reports for unbound granular pavements in rural situations.</p> <p>Excludes works in Metropolitan areas, Major Projects, Freeways and National Highways</p> <p><i>To be eligible a Company must demonstrate:</i></p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and <p><i>Knowledge and experience is required in:</i></p> <ul style="list-style-type: none"> • Granular pavement materials • Resheet construction techniques <p><i>Familiarity required with:</i></p> <ul style="list-style-type: none"> • Pavement material field and laboratory testing procedures and interpreting their results • Demonstrable, relevant experience in current pavement design and rehabilitation technology is required • Ability to show that similar work has been successfully completed in the last three years • Possession of appropriate tertiary academic qualifications in a related field

	<p>Basic Rehabilitation Design - Flexible (RM2) <i>Also eligible for RM1 works.</i></p> <p>Area of Competency A lower intermediate level of rehabilitation and maintenance of pavement works which is similar to RM1, however includes analysis of asphalt pavements, the ability to interpret and rationalise results into a workable rehabilitation strategy for bound and unbound flexible pavements, and an appreciation for cost effectiveness of treatments that are recommended from a whole of life costing basis.</p> <p>It addresses the ability to produce a standard rehabilitation report for metropolitan main roads that do not contain rigid pavement layers.</p> <p>Excludes works on Major Projects, Freeways and National Highways</p> <p>To be eligible a Company must demonstrate:</p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and • Mandatory successful completion of RM1 category type work for VicRoads, or another Government Road Authority • If previous work not undertaken for VicRoads, conditional on assessment by interview, references and portfolio of similar work.
	<p>Intermediate Rehabilitation Design (RM3) <i>Also eligible for RM1 and RM2 works and ND2 pavement design works.</i></p> <p>Area of Competency A higher intermediate level of rehabilitation and maintenance works which is similar to RM2, and addresses the ability to provide detailed technical knowledge and information on a variety of rehabilitation options recommended for flexible pavements, and general rehabilitation advice on all types of pavements (flexible and rigid).</p> <p>Includes works on Major Projects, Freeways and National Highways</p> <p>To be eligible a Company must demonstrate:</p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and • Mandatory successful completion of RM2 category type work for VicRoads
	<p>Advanced Rehabilitation Design (RM4) <i>Also eligible for RM1, RM2 and RM3 works.</i></p> <p>Area of Competency Advanced level of rehabilitation and maintenance works which is similar to RM3 however addresses the ability to provide detailed technical knowledge and information on a variety of rehabilitation options recommended for all types of pavements (flexible and rigid).</p> <p>To be eligible a Company must demonstrate:</p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and • Mandatory successful completion of ND3 and RM3 category type work for VicRoads • Conditional on assessment by interview, references and portfolio of similar work. <p><i>Extensive knowledge and experience is required in:</i></p> <ul style="list-style-type: none"> • Detailed rehabilitation reporting for all types of pavements • Detailed pavement designs for all types of pavements • Whole-of-life costing analysis for recommended treatments • Using mechanistic overlay design procedures, including back-calculation of layer moduli from accurate measurement of deflection bowls.

Group:	PAVEMENT AND GEOTECHNICAL ENGINEERING
Category:	PAVEMENT INVESTIGATION
	<p>This category of pre-qualification incorporates works associated with field investigation and laboratory testing</p> <p>All pre-qualified contractors in this category will be required to participate in regular reviews of performance in relation to the performance assessment criteria for this group of suppliers.</p> <p><u>Standard Eligibility Criteria</u> <i>To be eligible a Company must demonstrate that:</i></p> <ul style="list-style-type: none"> • Personnel qualified and experienced in the areas of competency described for the pre-qualification level. • Previous relevant experience and satisfactory performance in the areas of competency described for the pre-qualification level. • Quality systems certified and/or approved as meeting VicRoads requirements. • An OH&S system certified and/or approved as meeting VicRoads requirements • Evidence that the company has a Victorian WorkCover insurance policy or proof of self-insurance which covers all personnel engaged in the delivery of services. • Appropriate levels of insurance: <ul style="list-style-type: none"> ▪ Public Liability \$10 million ▪ Professional Indemnity \$3 - 5 million
Levels:	Field investigation (PT1)
	<p>Area of Competency To undertake field investigations only, in accordance with the terms of NATA registration, and requires the ability to undertake the following tasks:</p> <ul style="list-style-type: none"> • Identification of all hazards, including traffic and underground hazards, and management of these hazards to eliminate or minimise the risk posed by each hazard • Sample materials encountered in road construction technology from locations such as quarries or road sites • Excavate test holes or trenches (dippings), and report results as pavement and soil profile diagrams or borelogs • Core asphalt and concrete pavements • Cut and remove slabs of bound pavement • Identify, assess and accurately describe pavement layers, material types, general pavement condition, topography and drainage using relevant terminology • Perform Dynamic Cone Penetrometer Tests, determine estimated field CBR, and report results in the form of plots of CBR against penetration depth <p><i>To be eligible a Company must demonstrate:</i></p> <ul style="list-style-type: none"> • The standard eligibility criteria as above and • NATA accreditation for the following field inspection services: <ul style="list-style-type: none"> ▪ VicRoads Technical Bulletin No. 40 (by 31 December 1999) ▪ AS 1141.3 Methods for sampling and testing aggregates - Sampling of aggregates and rock ▪ AS 1289.6.3.2 Soil strength and consolidation tests - Determination of the static cone penetration resistance of a soil - 9kg dynamic cone penetrometer test • Completion of a VicRoads approved course on pavement investigation. • Demonstrated familiarity with geological and topographical terms, and road referencing systems. • Demonstrated implementation of an Occupational Health and Safety system • Evidence of a safe system of work in the form of a Work Method Statement, or similar. • Certificate of competency in traffic management. • Environmental management plan for field works

- Hold copies of:
 - VicRoads Technical Bulletin No. 40, Pavement Investigation, 1995
 - AUSTROADS: A Guide to the Visual Assessment of Pavement Condition, 1987
- VicRoads Worksite Traffic Management (Roadworks Signing) Code of Practice
- Possession, by a staff member of the testing authority, of an appropriate technical qualification in this or a related field is desirable but not essential
- Completion, within the last three years, of work on VicRoads projects, or another road management authority (eg a municipality) involving the field testing aspects of pavement investigation is required.

Field and Laboratory Testing (PT2)

Also eligible for Field Investigation (PT1) .

Area of Competency

To undertake field investigations and laboratory testing, in accordance with the terms of NATA registration. In addition to the requirement of the ability to undertake the tasks as described in PT1, the ability to undertake the following tasks is also required:

- Perform laboratory testing for particle size distribution, moisture content, plasticity limit, CBR
- Report test results in accordance with the terms of the NATA registration
- Provide detailed summary test reports of all test results for each test site
- Using the laboratory test results, identify and accurately describe pavement layers, material types and general condition using relevant terminology, and report results as pavement and soil profile diagrams or borelogs
- Assess test results against the material specification requirements of the current VicRoads Standard Specifications for Roadworks and Bridgeworks

To be eligible a Company must demonstrate:

- The standard eligibility criteria as above and
- Qualification as for Category PT1
- NATA accreditation for the following test methods:
 - AS 1289 Methods of testing soils for engineering purposes
 - AS 1289.1.1 Sampling and preparation of soils - Preparation of disturbed soil samples for testing
 - AS 1289.2.1.1 Soil moisture content tests - Determination of the moisture content of a soil - Oven drying method (standard method)
 - AS 1289.3.1.1 Soil classification tests - Determination of the liquid limit of a soil - Four point Casagrande method
 - AS 1289.3.1.2 Soil classification tests - Determination of the liquid limit of a soil - One point Casagrande method (subsidiary method)
 - AS 1289.3.2.1 Soil classification tests - Determination of the plastic limit of a soil - Standard method
 - AS 1289.3.3.1 Soil classification tests - Calculation of the plastic index of a soil - Standard method
 - AS 1289.3.4.1 Soil classification tests - Determination of the linear shrinkage of a soil - Standard method
 - AS 1289.3.6.1 Soil classification tests - Determination of the particle size distribution of a soil - Standard method of analysis by sieving
 - AS 1289.5.1.1 Soil compaction and density tests - Determination of the dry density / moisture content relation of a soil using standard compactive effort
 - AS 1289.5.2.1 Soil compaction and density tests -Determination of the dry density / moisture content relation of a soil using modified compactive effort
 - AS 1289.6.1.1 Soil strength and consolidation tests - Determination of the California bearing ratio of a soil - Standard laboratory method for a re-moulded specimen
 - AS 1726 Geotechnical Site Investigations, Appendix A (Description and classification of soils and rocks for geotechnical purposes)
 - Other test methods nominated in the particular task brief
- Hold a copy of the current VicRoads Standard Specifications for Roadworks and Bridgeworks
- Possession, by a supervisory staff member of the testing authority, of an appropriate technical qualification in engineering or science
- Demonstration of experience relevant to Category PT2 within the last three years for at least one current staff member of the testing authority.

Group:	PAVEMENT AND GEOTECHNICAL ENGINEERING
Category:	<p>GEOTECHNICAL SERVICES</p> <p>This category of pre-qualification involves works associated with geotechnical alignment and or bridge investigations, geo-environmental sites, geophysical surveys, ground vibration and air blast, hydrogeological investigations, dynamic pile testing and roadside hazard assessment.</p> <p>All pre-qualified suppliers in this category will be required to participate in regular reviews of performance in relation to the performance assessment criteria for this group of suppliers.</p> <p>Standard Eligibility Criteria To be eligible a Company must demonstrate that:</p> <ul style="list-style-type: none"> • Personnel qualified and experienced in the areas of competency described for the pre-qualification level. • Previous relevant experience and satisfactory performance in the areas of competency described for the pre-qualification level. • Quality systems certified and/or approved as meeting VicRoads requirements. • An OH&S system certified and/or approved as meeting VicRoads requirements • Evidence that the company has a Victorian WorkCover insurance policy or proof of self-insurance which covers all personnel engaged in the delivery of services. • Appropriate levels of insurance: <ul style="list-style-type: none"> ◆ Public Liability \$10 million ◆ Professional Indemnity \$3-5 million
Levels:	Investigation (GT-INV)
	<p>Area of competency: Undertaking geotechnical investigations in accordance with the Austroads Guide to Road Design Part 7: Geotechnical Investigation & Design and the VicRoads Supplement to this Guide</p> <p>To be eligible a Company must demonstrate: Compliance with the standard eligibility criteria and experience in undertaking geotechnical investigations for road projects within the last 3 years</p> <hr/> <p>Design (GT-DES)</p> <p>Area of competency: Undertaking geotechnical design in accordance with the Austroads Guide to Road Design Part 7: Geotechnical Investigation & Design and the VicRoads Supplement to this Guide for:</p> <ul style="list-style-type: none"> • cuts • embankments • structure foundations • reinforced soil structures • soil nails • ground improvement <p>Undertaking geotechnical verification of design assumptions during construction of excavations and foundations; Undertaking geotechnical design of excavations in or adjacent to road reserves for third parties, for submission to VicRoads for review and approval.</p>

<p>Groundwater & Hydrogeology (GT-GWH)</p>	<p><i>To be eligible a Company must demonstrate:</i></p> <p>Compliance with the standard eligibility criteria and experience in undertaking geotechnical designs for road projects within the last 3 years.</p> <p>Area of competency: Undertaking hydrogeological investigations, development and evaluation of hydrogeological models and design of groundwater contamination treatments</p> <p><i>To be eligible a Company must demonstrate:</i> Compliance with the standard eligibility criteria and experience in undertaking groundwater investigations within the last 2 years</p>
<p>Pile Testing (GT-PST)</p>	<p>This category is currently under review. If planning to apply, please contact us to discuss prior. Soil Nail testing will likely be separated into a separate level.</p> <p>Area of competency: Undertaking integrity, static and dynamic testing of driven piles, bored cast-in place piles and continuous flight auger piles in accordance with Standard Specification Sections 605, 606, 607 and 608 Undertaking all soil nail testing in accordance with Standard Specification Section 683.</p> <p><i>To be eligible a Company must demonstrate:</i> Compliance with the standard eligibility criteria and experience in undertaking pile testing and soil nail testing within the last 2 years. It shall be a fully licensed owner of an industry recognised software for Case Pile Wave Analysis Program (CAPWAP), or similar.</p> <p><i>To be eligible an Individual must demonstrate:</i> Extensive experience in undertaking pile testing and/ or soil nail design verification testing for road projects within the last 3 years.</p> <p>An Advanced rank or better in the Pile Dynamics Incorporated specific proficiency test qualification level of individuals for high strain testing or industry recognised equivalent qualification.</p> <p>For low strain testing the field testing shall be performed by an experienced technician with at least one year experience in integrity testing. The interpretation of the test results, requires extensive experience by an engineer with at least three years experience in integrity testing.</p> <p>For all soil nail testing the field testing shall be performed by an experienced technician with at least one year experience in setting up testing equipment and load reaction frame, recording loading and unloading of test loads with respect to soil nail movements.</p>

Category : Geotechnical Services (GT-PRE)

Level : Geotechnical Proof Engineering

All pre-qualified consultants/contractors in this level will be subject to regular review incorporating but not limited to the company's technical capability, on-going performance, on-going evidence of experience within road construction projects, maintenance of key personnel or notification of changes in key personnel/resources, adequate management systems and insurance, timeliness of response, etc. Failure to maintain such requirements may result in removal of prequalification status.

A formal reassessment of all Pavement and Geotechnical Engineering consultants/contractors will be undertaken every 3 years.

Companies applying for prequalification may be requested to attend an interview at VicRoads regarding its application for prequalification or at any stage in reviewing a company's prequalification.

Area of Competency:

Undertaking geotechnical proof engineering of high risk geotechnical designs for:

- cuts
- embankments
- structure foundations
- reinforced soil structures
- soil nails
- ground improvement
- slope stability treatments
- Instrumentations for ground movement monitoring and interpretation of monitoring results
- tunneling
- Slope stability treatments
- Excavations (including in or adjacent to road reserves for third parties).

Eligibility Criteria

To be eligible, the Company must demonstrate:

- Prequalification and 10 years' experience of Geotechnical Services-Design (GT-DES) level and satisfactory performance in "Area of Competency" (listed above).
- 10 years' experience in undertaking geotechnical design, investigation and monitoring instrumentations for road projects.
- Personnel experience: Individuals with demonstrated and practical geotechnical design experience in all "Area of Competency" (listed above) and in accordance with the requirements as shown under "To be eligible, the individual must demonstrate".

To be eligible, a Company must provide:

- Quality systems: 3rd party certified to AS/NZS ISO 9001- current standard with specific, auditable procedures for Proof Engineering.
- Occupational Health & Safety systems third party certified to AS4801 standard, or VicRoads approved equivalent/audited to VicRoads requirements (Part B) and an OH&S Compliance
- Evidence that the company has a Workcover insurance (Certificate of Currency) or proof of self-insurance that covers all personnel engaged in the delivery of services.

- Appropriate levels of Public Liability insurance (generally \$10M - \$ 20M) and Professional Indemnity insurance (generally \$1M - \$20M) or as specified in VicRoads tender/contract documents.

Note: Professional Indemnity insurance must have coverage for the applicable prequalification level(s) sought.

Note: Insurance company needs to be Australian Prudential Regulation Authority (APRA) approved.

To be eligible, the Individual must demonstrate

- 20 years of experience with primary responsibility for undertaking the design and analysis relating to complex geotechnical issues in all the areas listed as “Area of Competency” (shown above) and the development of geotechnical models for design and analysis relating to complex road projects.
- Engineering Qualification: National Engineering Register – Practicing Professional Civil or Geotechnical Engineer with registration number.

Definitions:

Complex Road Projects’ are:

- Where the horizontal and vertical alignment of the road has a significant consequence in the existing environment, local and national economy.

Complex Geotechnical Issues’ include:

- Prediction of long-term ground movements based on monitoring results, such as embankment settlement associated with consolidation of subsurface materials, ground settlement associated with draw-down of regional groundwater table, etc.
- Assessment of differential structure foundation settlements where changes of geology existing between foundations.
- Structure foundation settlement associated with draw-down of regional groundwater table after completion of a structure.
- Prediction of regional ground strains due to staged deep excavation, such as mining, lowering of existing grade-line of either existing roads or rail tracks.
- Risks associated with the supporting structure due to modification of the existing geotechnical conditions, such as removal of spill through abutment for road widening.