

# SYSTEM FOR REGISTRATION OF APPROVED ASPHALT SUPPLIERS

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## **FOREWORD**

Main Roads maintains registers for suppliers of various high cost and specialised products and services used to build its infrastructure.

Only those organisations registered as approved asphalt suppliers are engaged for manufacture of asphalt and/or placing of asphalt in road pavements on Main Roads projects, except for minor maintenance, emergency or non-critical works.

This manual defines:

- the system for establishing and maintaining the register of approved asphalt suppliers
- the criteria for determination of the suitability of asphalt suppliers for inclusion on the register
- procedures for assessment of the performance of asphalt suppliers in relation to those criteria.

This system has been defined in accordance with the framework for establishing and maintaining registers of approved specialist suppliers in *Appendix H of Volume 3 (Major Works Prequalification System) of the Main Roads Project Delivery System*.

The system has been developed in consultation with the Australian Asphalt Pavement Association (Queensland Division) under the auspices of the Main Roads/AAPA Strategic Alliance that has been established with a view to improving the performance of asphalt pavements in Queensland.

Arrangements have been made for periodic review of the system and for its updating as warranted in the spirit of continuous improvement.

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# SYSTEM FOR REGISTRATION OF APPROVED ASPHALT SUPPLIERS

## 1. INTRODUCTION

The technical requirements for manufacture of asphalt and for its incorporation in road pavements, together with the risks and variables involved in the associated processes, necessitate careful consideration of the suitability of organisations which seek to undertake such work on Main Roads projects.

Organisations which satisfy all the relevant criteria are entered on a register which is available to other parties with an interest in asphalt works including:

- contractors (including those tendering for Main Roads projects)
- suppliers of other materials and services for incorporation in Main Roads projects
- Main Roads officers.

Registered organisations are referred to as “approved asphalt suppliers”.

This manual defines the system for registration of approved asphalt suppliers which has been defined in accordance with the framework for establishing and maintaining registers of approved specialist suppliers in *Appendix H of Volume 3 (Major Works Prequalification System) of the Main Roads Project Delivery System*. It includes:

- criteria for suitability of organisations seeking to be included on the register
- processes for application by interested organisations and for consideration of applications
- processes for approval of asphalt mix designs
- requirements for surveillance and auditing of asphalt manufacture and paving operations, including associated inspection and testing
- requirements for assessment of performance of approved asphalt suppliers on Main Roads projects
- responsibilities of all parties with an involvement in establishing and maintaining the register, including those associated with project-based activities.

## 2. CHARACTERISTICS OF APPLICANTS

Criteria for suitability of applicants for listing on the register of approved asphalt suppliers are defined in the following appendices to this manual:

### Appendix B:

- expertise of staff – managers, supervisors, management system representatives, operators, trainees and testing staff
- management systems – risk, quality, safety, environment, apprentices and trainees
- proven capability – in relation to manufacture of asphalt mix and/or incorporation of asphalt in road pavements.

### Appendix C:

- suitability of equipment.

Applicants may be listed on the register for one or both of the following categories:

- approved asphalt supplier for asphalt manufacture
- approved asphalt supplier for asphalt paving.

## 3. APPLICATIONS FOR REGISTRATION

Organisations wishing to be considered for listing on the register of approved asphalt suppliers are required to complete the application form (Form MAS 209 – refer Appendix D), together with appropriate supporting details which must be concise and relevant to the criteria for suitability of applicants defined in this manual.

Applications may be submitted at any time e.g.:

- new applicants
- resubmission of relevant details in response to routine requirements for periodic review of all organisations listed on the register
- submission of significant changes in circumstances (e.g. company ownership or structure, management systems, equipment, personnel) for organisations currently listed on the register.

In the latter two cases, only those details that have changed need to be submitted.

Applications must be submitted to:

either: [principal.chemist.pmg@mainroads.qld.gov.au](mailto:principal.chemist.pmg@mainroads.qld.gov.au)

or: Principal Chemist  
Pavements Materials and Geotechnical Division  
Department of Main Roads  
35 Butterfield Street  
Herston Queensland 4006

One complete copy only of each application and supporting documentation is required.

Lodgement of applications by facsimile is not acceptable.

## 4. ASSESSMENT OF APPLICATIONS

Appendix E defines the procedure for consideration of applications for registration.

The Principal Chemist is responsible for management of the process for consideration of applications for registration and shall establish a selection panel for the purpose of evaluation of all applications.

Assessment panels shall comprise three members:

- the Principal Chemist or his delegate as chairman
- the Executive Director (Pavements, Materials and Geotechnical) or his nominee
- the Manager (Infrastructure Delivery) (M(ID)) of a Main Roads District relevant to the application or his nominee (may be from within or external to Main Roads).

The assessment panel is responsible for evaluation of applications for registration. This process shall involve examination of the applicant's submission in relation to all criteria defined in this manual with a view to determining the applicant's suitability for registration. The panel shall review the performance history of the applicant as part of its evaluation.

In the case of new applicants, the assessment panel may arrange to interview senior management personnel of the applicant and/or to inspect on-site facilities and other relevant details pertaining to the application for registration.

The Principal Chemist shall advise the applicant in writing of the result of the panel's evaluation of the application and relevant details of the intended listing on the register, including any conditions to be imposed.

Such notification shall be given within six weeks of the application unless significant issues arise, necessitating the submission of additional information. In this case, notification of the assessment will be made within three weeks of the submission of additional information.

The Principal Chemist shall forward a registration certificate to successful applicants (Form MAS210 – refer Appendix F). Where an applicant is registered as an approved asphalt supplier for asphalt manufacture, a separate certificate shall be issued for each manufacturing plant within the scope of registration.

Assessment of tenders for Main Roads projects and of applications for engagement of asphalt suppliers as contractors or subcontractors on Main Roads projects will not be held over pending completion of consideration of applications for listing on the register of approved asphalt suppliers.

## 5. DEREGISTRATION

An asphalt supplier may be deregistered or asked to undertake improvements and be reassessed if its performance is assessed to be unsatisfactory. Reasons for deregistration may include:

- failure to maintain functioning management systems
- repeated significant product non-conformances
- failure to make adequate responses to repair defective products or to improve management systems or processes
- failure to address environmental or safety issues of concern.

Consideration of deregistration may be initiated by:

- the M(ID) of the relevant District(s) following review of project related performance of the asphalt supplier
- the Principal Chemist following review of the performance assessments of the asphalt supplier in the records of the register.

Appendix G contains further details of the relevant responsibilities and procedures including:

- review of the asphalt supplier's performance and justification for deregistration
- discussion of the circumstances between the relevant M(ID)(s) and the Principal Chemist
- interview of the asphalt supplier by the relevant M(ID)(s) and the Principal Chemist
- requirements for issue of a "show cause" notice and for consideration of a response to it before an asphalt supplier may be deregistered.

## 6. APPEALS

An asphalt supplier may submit an appeal if not satisfied with any of the following decisions:

- rejection of an application for registration
- imposition of limiting conditions when an asphalt supplier is accepted for registration
- deregistration of an asphalt supplier.

Any such appeals must be in writing, together with specific details of the decision in question, and justification for the appeal and relevant supporting information. Appeals must be submitted to:

General Manager (Road System and Engineering)  
Department of Main Roads  
G P O Box 1412  
Brisbane Queensland 4001

The General Manager (Road System and Engineering) shall consider any such appeals expeditiously including seeking specialist advice as appropriate in accordance with the procedure defined in Appendix H.

The General Manager (Road System and Engineering) shall determine the date for hearing of an appeal or whether to reject the appeal and shall inform the appellant in writing of his decision within 30 calendar days of receipt of the appeal.

Appeals are to be heard by a panel of three members comprising:

- the General Manager (Road System and Engineering) or his delegate as chairman
- a senior engineer of Main Roads with relevant knowledge and experience in asphalt operations and/or road works and who is independent of the circumstances of the appeal in all respects
- a respected engineer with experience in the road construction industry who is independent of the circumstances of the appeal in all respects and is mutually acceptable to both parties to the appeal.

The panel shall assess in an appeal hearing the grounds for appeal and submissions by both the appellant and the Principal Chemist (or his delegate) in relation to the requirements for registration of an asphalt supplier as defined in this manual.

Legal representation or professional advocates will not be allowed to appear before the panel. This does not preclude either the appellant or relevant Main Roads officers (e.g. M(ID), Principal Chemist) involving their own technical experts in the appeal hearing.

Each party is to bear its own costs in the appeal.

The General Manager (Road System and Engineering Group) shall inform the appellant in writing of the result of the appeal within seven calendar days of the appeal decision.

## 7. ASPHALT MIX DESIGN AND APPROVAL

The intent of the asphalt mix design process is to design a mix which can actually be produced by a particular manufacturing plant to comply with the requirements of the relevant asphalt specification.

The aim of the mix design approval process is to assess a submitted design and to grant approval for the design, subject to specification compliance. A mix design is approved for a specific manufacturing plant.

The Principal Chemist shall notify the relevant approved asphalt supplier in writing of the results of the assessment and will:

- issue a certificate listing the approved asphalt mix design details
- issue a certificate listing all currently approved asphalt mix designs for the relevant asphalt manufacturing plant
- enter the approved mix code number(s) and mix design details in the register of approved asphalt suppliers
- notify the M(ID) in the relevant District(s) of the mix design approval details.

Details of the mix design and approval processes are given in Appendix J.

Confidentiality requirements in relation to mix design details are given in Section 11.

## **8. MANAGEMENT OF ASPHALT QUALITY**

### **8.1 Details in support of applications for registration**

Applications for registration must include the following:

- copies of typical inspection and test plans and/or associated checklists and compliance check procedures currently used
- evidence of recent use of the above in manufacture of asphalt and/or in asphalt paving on projects relevant to the application
- copies of charts and/or reports used by the applicant for analysis of test results, trends and variability for assessment of compliance of asphalt (product and/or pavement).

### **8.2 Inspection and testing requirements**

Organisations which seek to be registered as an approved asphalt supplier are required to demonstrate that their management and operations associated with testing and measurement are adequate, technically competent, reliable and in accordance with recognised industry practice as defined in guides such as those published by AustRoads and the Australian Asphalt Pavement Association.

Requirements and associated responsibilities for management of asphalt quality are defined in relation to project planning, quality control and checking product compliance.

#### **8.2.1 Project planning**

As part of their project plans, asphalt suppliers are required to prepare inspection and test plans in advance of any asphalt manufacture and/or asphalt paving operation in order to determine the appropriate inspections, measurements, observations and/or tests, records and responsibilities necessary for purposes of quality control and checking of product compliance.

These inspection and test plans should also encompass:

- requirements on raw material supplies
- particular asphalt plant and mix design characteristics and controls
- communication of relevant information.

In the case of fixed site asphalt manufacturing plants, these inspection and test plans can apply over continuous periods but there may need to be separate inspection and test plans for the different asphalt mix types to be manufactured at that site.

Generally, the inspection and test plans for mobile asphalt manufacturing plants and for asphalt paving operations will be specific to the site circumstances of the plant and/or paving operation. However, they may be based on a standard format which is customised for each site or project.

Compliance requirements for inspection and testing of asphalt and its component materials, including minimum frequencies, are defined in Main Roads standard specifications. Additional quality control requirements are defined in Appendix K.

Asphalt suppliers are required to satisfy the superintendent that their inspection and test plans are adequate and suitable for the intended asphalt manufacture or paving operation prior to commencement of manufacture or paving.

### **8.2.2 Quality control**

Asphalt manufacturers and organisations which lay asphalt in road pavements are responsible for conducting the quality control tests and measurements that are necessary to ensure conformance of the manufactured asphalt and/or asphalt pavements with specified requirements.

Asphalt suppliers are also responsible for analysis of results of quality control tests and measurements in order to determine that variation in results is controlled within acceptable limits. Control charts or other statistical quality control techniques are to be progressively maintained for this purpose and appropriate action must be taken to rectify deficiencies and/or potential non-conformances.

These quality control activities are to be undertaken in accordance with recognised industry practice and as a minimum must include the requirements for sampling, testing and analysis of test data detailed in Appendix K.

### **8.2.3 Checking compliance of asphalt**

Asphalt suppliers are responsible for carrying out sufficient testing to ensure that all raw materials, production asphalt and asphalt pavement conform with specified requirements as defined in Main Roads standard specifications and in this manual.

Requirements for submission of inspection and test records relating to compliance of completed lots of asphalt are defined in Main Roads standard specification *MRS 11.50 : Specific quality system requirements*.

## **8.3 Surveillance**

### **8.3.1 General**

Long term performance of asphalt pavements relies upon a disciplined approach to controlling a significant number of material properties and operations in both asphalt manufacture and paving activities.

Contractors and superintendents undertake planned surveillance of these activities to establish confidence that appropriate controls are implemented by the asphalt supplier. These surveillance activities may include:

- observation of asphalt manufacture and paving operations, including storage and handling of materials, setting of control lines, trial runs and compaction techniques
- off-site observation and/or audit of raw material suppliers
- assessment of test results through analysis of trends and other use of statistical parameters
- auditing of systems and processes for conformance with agreed management plans and specified requirements.

Asphalt suppliers are required to cooperate with surveillance activities of contractors and superintendents. Assessment of the suppliers' performance will include consideration of the level of cooperation and the effectiveness of these relationships.

The focus of surveillance activities of both the contractor and of the superintendent in relation to the operations of the asphalt supplier must be on the implementation of the various criteria on which the asphalt supplier's registration as an approved supplier is based and, in particular, on the following:

- asphalt pavement conforms with project requirements
- the works are carried out in a controlled and coordinated manner
- asphalt is produced in accordance with the approved mix design
- asphalt production and paving operations are undertaken with equipment and personnel of the nominated capability.

### **8.3.2 Responsibilities**

In delivery of conforming asphalt and asphalt pavements, the following responsibilities for surveillance and auditing are relevant:

#### ***Asphalt Supplier***

- ensure that manufactured asphalt and/or asphalt pavement conform with specified requirements – this responsibility inherently relies upon supervision of defined procedures which must be aligned to the basis and conditions on which the asphalt supplier has been listed in the register as an approved supplier (e.g. conformance with approved mix design, operation of suitable equipment, engagement of suitable staff)
- prepare process plans for the relevant activities (i.e. in asphalt manufacture and/or asphalt paving operations)
- prepare inspection and test plans.

#### ***Contractor***

- assess the process plans and inspection and test plans prepared by the asphalt supplier to ensure that the asphalt paving operations are adequately coordinated with other project activities and processes
- submit a project plan for assessment by the superintendent which includes (inter alia) specific plans for asphalt supply and paving operations, process plans, inspection and test plans
- undertake surveillance of the operations of the asphalt supplier, including ensuring conformance with agreed programs, process plans, quality control activities and compliance requirements.

#### ***Superintendent***

- assess the contractor's project plan
- undertake surveillance of the operations of the contractor, including the contractor's surveillance of the operations of the asphalt supplier
- accept the manufactured asphalt and asphalt pavement (in accordance with the specifications and contract requirements).

**Principal Chemist** (as nominated officer for system definition, maintenance and administration)

- ensure the above responsibilities are reflected in reports on performance of operations of approved asphalt suppliers
- initiate specific surveillance and/or audit action in relation to activities of approved asphalt suppliers, which may be directly undertaken or arranged in cooperation with the relevant Main Roads District (e.g. based on issues noted during consideration of applications for registration, in assessment of mix designs or in performance reports).

## **8.4 Auditing**

Management plans of the asphalt supplier, and surveillance plans of the contractor and of the superintendent shall all include audit activities with the following objectives:

- ensure that project objectives are met
- ensure that defined processes and procedures are followed
- confirm that compliance of production asphalt and asphalt pavement is in accordance with specified requirements
- identify aspects of processes and procedures where there is potential for improvement.

Reports from audits by the contractor, asphalt supplier, superintendent, District or the Principal Chemist on the asphalt supplier are to be made available to all these same parties. Preliminary findings shall be made available to the asphalt supplier on the day of audit.

Audit findings, observations and recommendations shall be reviewed by the above parties in consultation with a view to determination of any necessary activities e.g.:

- adjustment, correction or improvement of processes
- calibration, maintenance and replacement of equipment
- training of personnel
- modification of materials in relation to approved mix designs.

The superintendent is responsible for ensuring that any defined and agreed actions are adequately implemented in an appropriate time frame in the terms of the contract.

## **8.5 Performance requirements**

The following are the criteria for satisfactory performance by the asphalt supplier in relation to the management of asphalt quality:

- provision of adequate process plans which are coordinated with the project plans of the contractor
- implementation of appropriate supervision and quality control processes of its own operations and activities
- undertaking an appropriate amount of internal auditing of its own processes and procedures
- cooperation with the surveillance, auditing and conformance assessment activities of the contractor and of the superintendent, including:
  - participation in pre-start and other coordination activities
  - making its own supervision, testing and auditing activities available for review and discussion

- implementation of necessary corrections and/or improvements to its processes and/or procedures resulting from the surveillance and auditing activities of the contractor and of the superintendent.

Assessment of capabilities of staff and equipment for sustained performance in relation to specification requirements, recognised industry practices and changes in technology is included in each of the above criteria.

### **9. PERFORMANCE ASSESSMENT AND REPORTING**

Assessment of the overall performance of the asphalt supplier on each project is the fundamental part of this system so as to determine continuing suitability of the asphalt supplier for registration as an approved asphalt supplier and to foster an environment of continuous improvement.

These assessments shall be made in relation to the terms of contract and prevailing circumstances for each project involving more than 2000 tonnes of asphalt. Consideration should also be given to grouping smaller asphalt projects in a particular District for purposes of performance assessment of the asphalt supplier where several such projects constitute an integrated program over a defined period of time.

Appendix L provides further details on:

- performance assessment, reporting and recording processes
- report format
- performance criteria
- responsibilities.

### **10. MANAGEMENT OF THE REGISTER**

The Principal Chemist, as the nominated Register Manager (refer *Appendix H of MRPDS Volume 3*) is responsible for maintaining the register of approved asphalt suppliers, including associated asphalt mix design approvals.

Generally, listing of approved asphalt suppliers on the register shall remain for three years, at which time the Principal Chemist will advise all currently registered asphalt suppliers of requirements for renewal applications. Shorter terms for listing of asphalt suppliers shall be nominated by the Principal Chemist in the following circumstances:

- asphalt suppliers which have not previously undertaken works on Main Roads projects
- asphalt suppliers which have been listed as “conditionally approved” for any reason (e.g. unproven capability or mediocre performance).

The register database is maintained on the Main Roads intranet and is available for access by all Main Roads officers.

The Principal Chemist shall provide, on request, information on the asphalt suppliers (and their manufacturing plants) listed in the register to the following parties:

- contracting organisations eligible to tender for or who are undertaking Main Roads projects
- suppliers of other materials and services for incorporation in Main Roads projects
- Main Roads officers responsible for delivery of projects, including their nominated agents (e.g. superintendents).

## 11. CONFIDENTIALITY AND UNDERTAKINGS

The registration of organisations as approved asphalt suppliers by Main Roads is solely for the benefit of the State of Queensland acting through the Department of Main Roads.

Information provided with applications shall be retained by Main Roads for a period of five years and will not be disclosed to any other party unless:

- legally obliged to do so
- it is necessary to obtain assessment or legal advice
- the information is required for an appeal in accordance with Section 6.

Unless an asphalt supplier has requested otherwise in its application, details of approved asphalt supplier registration will be made available on request to other parties on the understanding that such registration is based on assessment of asphalt supplier details in relation to Main Roads requirements for Main Roads projects only.

Details of an asphalt supplier's mix design as listed on a mix design approval certificate will be made available for Main Roads use only, unless otherwise directed by the supplier. Access to such details is restricted to authorised Main Roads officers.

No responsibility is accepted for any consequences to an approved asphalt supplier or any other party arising from the release of any such information.

## APPENDIX A

### DEFINITIONS

The following definitions shall apply in relation to the registration of approved asphalt suppliers as defined in this manual:

**Asphalt paving** means the process of laying and compacting a pavement or surfacing course which comprises an approved mix of bituminous binder, coarse aggregate, fine aggregate, filler and/or additive, and includes all processes for handling, transfer, spreading, trimming and compacting of asphalt in accordance with relevant specifications.

**Audit** means the systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which specified requirements are adhered to in terms of any of the following:

- project objectives
- defined processes and/or procedures
- compliance of production asphalt or asphalt pavement with approved mix and specification requirements
- potential for improvement in processes and/or procedures.

**Conditional approval** (of an asphalt mix design) means application of specific conditions relating to the composition of an asphalt mix design and/or its constituent materials, or to its use as a surfacing or pavement course, which are detailed in the mix design approval certificate.

**Conditional registration** means registration of an approved asphalt supplier subject to defined conditions or limitations specified in its certificate of registration.

**Interim approval** (of an asphalt mix design) means approval of an asphalt mix design prior to completion of all necessary tests and/or assessments of the mix design and/or its constituent materials, subject to conditions defined and agreed in writing between the approved asphalt supplier and the Department of Main Roads.

**Surveillance** means a planned and continuing evaluation of the status of procedures, methods, conditions, products, processes and services, and analysis of records to establish and maintain confidence that specified requirements will be met. It involves:

- observation of asphalt manufacture and paving operations, including storage and handling of materials, setting of control lines, trial runs, compaction techniques etc
- overseeing agreed systems, management and process plans, and controls
- supervision of the management of contract activities (supply of materials and services, construction processes)
- off-site observation and/or audit of raw material suppliers
- assessment of test results through analysis of trends and other use of statistical parameters
- auditing of systems and processes to assess compliance with agreed management plans and specified requirements.

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## APPENDIX B

### CRITERIA FOR APPLICANTS

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## **APPENDIX B**

### **CRITERIA FOR APPLICANTS**

#### **B1 INTRODUCTION**

Applicant organisations are required to provide evidence of their qualifications, experience, expertise and capability for manufacture of asphalt and/or asphalt paving operations which address the various criteria defined in Sections B2 to B4, including management of their own functions in cooperation with other organisations engaged on the same projects.

#### **B2 EXPERTISE OF STAFF**

##### **B2.1 General requirements**

Applicant organisations must have adequately qualified and experienced staff for asphalt manufacture and/or asphalt paving operations. Criteria for suitability of each staff level are defined in Clauses B2.2 to B2.10.

These criteria are generally minimum requirements. Of prime importance is the combined experience of the applicant's team of managerial and operational staff. Individual members of the applicant's staff who do not have the nominated minimum experience on activities and/or works of the relevant type, scale or complexity may be accepted provided that:

- the total experience of the management team satisfies the overall intent of the various requirements
- critical requirements (e.g. those for plant operators) are satisfied
- the applicant has adequate measures in place to manage any shortcomings on the part of any members of staff with respect to the criteria of Clauses B2.2 to B2.10.

These criteria apply in the same manner to contracted staff (of applicants), or staff engaged by an applicant for a particular operation or project, and for staff of nominated subcontractors and suppliers to the applicant.

##### **B2.2 Applicant organisation experience**

The applicant organisation must be able to demonstrate sound experience over the past five years in:

- asphalt manufacture and/or
- asphalt paving works of the scale and complexity relevant to the current application for registration as an approved asphalt supplier.

Applicant organisations that do not fully satisfy this requirement must have managerial and operational staff which satisfy all of the requirements defined in Clauses B2.3 to B2.7.

##### **B2.3 Managerial staff – company level**

Company level managerial staff of the applicant should have:

- at least five years experience on projects of the type which is the subject of the application

- knowledge of relevant asphalt manufacturing and/or paving plant capabilities and an ability to manage such plant on Main Roads paving projects
- proven capability in planning of processes relevant to the application, including programming skills
- demonstrated performance in allocation of appropriate resources for successfully undertaking projects of the type relevant to the application.

It is desirable that the managerial staff of applicants include at least one qualified civil engineer. Alternatively, the applicant is required to demonstrate how it ensures that relevant technical criteria of its asphalt manufacture and/or asphalt paving operations are competently assessed and complied with.

### **B2.4 Managerial staff – project level**

Project level managerial staff must have:

- knowledge of relevant asphalt manufacturing and/or paving plant capabilities and an ability to manage such plant on Main Roads projects
- proven capability in planning of processes relevant to the application, including programming skills
- understanding of, experience with and demonstrated capability in management of quality, including implementation of project quality plans, inspection and test plans, safety and traffic management plans and environmental management plans
- preferably at least three years experience on road works involving asphalt paving operations; as a minimum, the requisite road works experience must include:
  - experience with management of traffic through and adjacent to works
  - experience with management of the public, including consultation and communication aspects
  - knowledge of and understanding of the civil works in Main Roads projects of which asphalt paving is a component.

### **B2.5 Supervisory staff – manufacturing plants**

Supervisory staff of the applicant must have:

- knowledge of relevant asphalt manufacturing plant capabilities and an ability to supervise the operations of asphalt manufacturing plants which are the subject of the application, including relevant testing requirements
- proven and/or demonstrable competency in effective supervision and process control of asphalt manufacture
- understanding of, experience with and demonstrated capability in management of quality, including implementation of project quality plans, inspection and test plans, safety and environmental management plans
- preferably at least three years experience in one of the following:
  - as a supervisor of asphalt manufacturing plants
  - in supervisory roles in road construction operations
  - a combination of the above.

## **B2.6 Supervisory staff – paving operations**

On-site supervisory staff of the applicant must have:

- at least three years experience in similar roles on projects of the type which is the subject of the application
- preferably at least two years experience on road works
- knowledge of relevant paving and associated plant capabilities and an ability to supervise the operations of such plant on Main Roads paving projects, including setting out, level and alignment controls, and testing requirements
- understanding of and experience with management of quality, including implementation of project quality plans, inspection and test plans, safety and traffic management plans and environmental management plans
- proven and/or demonstrable competency in effective supervision and control of asphalt paving operations.

## **B2.7 Management system representatives**

The applicant organisation must have appropriately qualified and experienced staff that are given the necessary authority and responsibility to ensure compliance with the organisation's management systems. Minimum requirements are:

- knowledge of relevant asphalt manufacturing and/or paving plant capabilities
- understanding of and experience with application of management systems and project specific management plans
- preferably at least three years experience on road works involving asphalt paving operations.

The applicant organisation must demonstrate how it defines the roles, responsibilities and authority of its management system representatives on projects of the type that is the subject of the application, including:

- distinctions between such roles in relation to quality, safety, traffic and environmental management systems where relevant
- relationships between these staff and managerial and supervisory staff as applied to asphalt projects.

## **B2.8 Operators**

Operators of critical plant items utilised by the applicant (asphalt manufacturing plant, asphalt pavers and compaction equipment) must satisfy the following requirements:

- at least two years experience in operation of relevant plant on asphalt manufacturing and/or paving operations
- plant operator certificate(s) relevant to the plant to which they have been nominated as the operator in the application
- proven and/or demonstrable competency in effective operation of the relevant plant.

## **B2.9 Trainee supervisors and operators**

It is recognised that supervisors and/or operators of critical plant items may be trainees. In such circumstances, it is essential that specific managerial arrangements be made to ensure that any shortcoming (on the part of the trainees) in the experience, knowledge and/or capability

requirements defined in Clauses B2.5, B2.6 and B2.8 does not jeopardise the intent of those requirements.

Trainee supervisors and operators are to be supervised by persons who meet the criteria for the respective roles defined in Clauses B2.5, B2.6 and B2.8.

### **B2.10 Testing staff**

Staff engaged for purposes of testing of asphalt and/or its constituent materials at any stage of asphalt production or paving operations, including sampling activities, shall have at least two years experience in the relevant testing methods.

Alternatively, testing staff without the above qualifications may be engaged provided their sampling and/or testing work is directly supervised by a NATA signatory for the relevant tests.

Staff engaged by contractors, superintendents and Main Roads Districts for purposes of sampling and/or testing of asphalt and/or its constituent materials shall have qualifications and experience at least equivalent to these requirements.

## **B3 MANAGEMENT SYSTEMS**

### **B3.1 Management of risk**

Applicant organisations are expected to have adequate management systems which:

- address all relevant processes including processes for assessment of all risks associated with asphalt manufacture and/or asphalt paving
- provide confidence that they have the capability to minimise the risks associated with these activities
- in the event of adverse consequences occurring:
  - minimise those consequences and their impacts
  - promptly rectify any deficiencies or errors and communicate impacts to relevant stakeholders
  - minimise risk of recurrence.

Applicant organisations are required to provide evidence of their management systems in accordance with the Clauses B3.2 to B3.5, including any significant changes to its systems or certification.

### **B3.2 Quality management systems**

Applicant quality management systems shall be certified in one of the following ways:

- certified against the requirements of *AS 9001 : 2000 : Quality management systems – requirements* (by either a second or third party certifying body)
- certified against the requirements of a construction industry based scheme which is recognised by the Department of Main Roads.

If an applicant organisation does not have any of the above certifications for its quality management systems, it may request Main Roads to initiate the second party certification process by indicating this in its application.

### **B3.3 Occupational health and safety management**

It is expected that the applicant's occupational health and safety management systems will be established generally along the lines of *AS 4801 : 2001 : Occupational health and safety management systems – specification with guidance for use*.

Applicants are expected to supply summary information which enables assessment of their occupational health and safety management systems for meeting their obligations under the *Workplace Health and Safety Act (1995)* and subsequent amendments and regulations. This information needs to include:

- summary of the site management plan formats utilised by the applicant
- summary reference to the applicant's documented safety management systems
- examples of specific applications of the above plans or systems (e.g. induction training, tool box meetings, safe work method instructions, hazard and risk assessments, emergency procedures, system reviews)
- list of recent relevant projects on which the above have been utilised.

### **B3.4 Environmental management**

Applicant environmental management systems shall be established along the lines of *AS 14004 : 1996 : Environmental management systems – general guidelines on principles, systems and supporting techniques* and in accordance with all requirements and obligations defined in the Environmental Protection Act (1994).

Applicants are expected to supply summary information to enable assessment of their environmental management systems including the following as a minimum:

- summary of the site management plan formats utilised by the applicant
- summary reference to the applicant's documented environmental management systems and/or examples of specific applications of the above plans or systems (e.g. job specific impact analyses, risk management targets, work method instructions and responsibilities, skills and training requirements, emergency response procedures, monitoring and review records)
- list of recent relevant projects on which the above have been utilised.

### **B3.5 Management of apprentices and trainees**

It is a requirement of the Queensland Government 10% Training Policy that contractors on projects in excess of \$0.5M employ, either directly or indirectly through subcontractors, a minimum of 10% of the on-site workforce as apprentices or trainees. Upskilling of existing employees to a limited extent is also permitted under this policy.

Where this requirement is relevant, the applicant organisation must supply summary information which enables assessment of their workforce and/or management of subcontractors to meet this requirement.

### **B3.6 Evidence of satisfactory use of management systems**

Applicant organisations are required to supply evidence of effective use of their management systems on projects relevant to their application. The following types of evidence are listed as a guide to applicants:

- process management plans which have been updated during projects and which include evidence of use

- inspection and test plans which incorporate compliance records
- site specific safety plans which have been updated during projects and which include evidence of use
- risk and hazard identification for safety and environmental issues, including evidence of processes for monitoring and review of performance
- records of site inductions
- non-conformance reports including evidence of corrective actions
- compliance plans, practical completion compliance reports submitted in accordance with the 10% Training Policy, Department of Education, Training and Industrial Relations (DETIR) letters confirming compliance.

Applicant organisations which are engaged from time to time as subcontractors are also required to supply evidence of the means by which their management systems and evidence of their effective use are coordinated with or otherwise linked to the relevant management systems of the contractors and other subcontractors for projects on which they have been engaged.

## **B4 PROVEN CAPABILITY**

Applicant organisations are required to supply details of recent experience in manufacture of asphalt mix and/or incorporation of asphalt in road pavements as relevant to their application. These details are to include the names and phone numbers of persons who can be contacted in order to obtain verification of satisfactory manufacture of asphalt and/or incorporation of asphalt in road pavements.

Refer also to the criteria for compliance in Appendix L.

## APPENDIX C

### PLANT AND EQUIPMENT REQUIREMENTS

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## APPENDIX C

### PLANT AND EQUIPMENT REQUIREMENTS

#### C1 INTRODUCTION

Applicant organisations must have (or have access to) plant and equipment which is capable of operation in accordance with the process requirements defined in Main Roads specifications (e.g. *MRS 11.30 : Dense graded asphalt pavements* – Clause 10.2). Organisations need to demonstrate in their applications for registration that they have (or have access to) such plant and provide evidence of its satisfactory performance in the manufacture and handling of asphalt and/or asphalt paving operations.

Requirements for sampling and testing equipment are not addressed in Appendix C as these are fully defined in the requirements of asphalt suppliers' quality management systems and the laboratory management systems necessary for NATA registration of those laboratories engaged by asphalt suppliers.

A number of the requirements defined below rely on application of adequate management control by the asphalt supplier. It is expected that asphalt supplier management systems will include documented procedures for all such critical aspects (e.g. processes for control of manual activities associated with operation of asphalt manufacturing plants).

#### C2 ASPHALT MANUFACTURING PLANTS

##### C2.1 Types of plant

The plant may be mobile or permanently located. The following types of plant will be considered acceptable provided they satisfy all of the requirements listed in Clauses C2.3 and C2.4:

- batch mixing plant
- drum mixing plant.

##### C2.2 Rated plant capacity

Asphalt manufacturing plants will be assigned a particular rating, dependent on their capacity to supply continuous output of dense graded 14 mm asphalt mix as stated below:

- **Category A** – greater than 150 tonnes/hour
- **Category B** – between 75 and 150 tonnes/hour
- **Category C** – less than 75 tonnes/hour

Continuous output shall mean maintaining the rated output over a single eight hour production period.

##### C2.3 General requirements

###### C2.3.1 Capability to produce approved mixes

Asphalt plants shall be capable of mixing controlled amounts of binder, coarse aggregate, fine aggregate, filler and approved additives to produce an homogeneous asphalt mix which complies

with the approved mix design and the requirements of the relevant asphalt standard specification (e.g. *MRS 11.30, MRS 11.33, MRS 11.34, MRS 11.36*).

All plants shall comply with the general requirements specified in Clauses C2.3.2 to C2.3.7. Individual plants shall, in addition, comply with the particular requirements for the type of plant, as specified in either Clause C2.4.1 or C2.4.2.

### **C2.3.2 Handling and storage of components**

Component materials of proven quality shall be stored at the plant or be readily available to the plant in sufficient quantities to ensure:

- an asphalt production rate that satisfies the specific circumstances of the project on which the asphalt is to be placed (e.g. capacity of paving and compaction equipment, operating conditions)
- a continuous output of asphalt manufactured in accordance with the approved mix design.

Storage and handling facilities for the component materials shall effectively prevent contamination and segregation. Provision shall be made for sampling aggregate from any of the storage and/or bin compartments.

Imported and reclaimed filler material shall be kept separately in waterproof silos and shall be added at a controlled metered rate. Where more than one filler is to be incorporated into the mix, each filler shall be separately metered. A pre-blended filler will be regarded as a single filler. Adequate provision shall be made for sampling all types of filler.

Nominated approved fibres shall be stored separately from other components in a cool and dry area.

Fibre introduction shall be by means of a suitable transfer device with metered output linked to the batching control or by manual feed of pre-weighed portions.

Binder storage tanks shall have sufficient capacity to ensure continuous production of asphalt mix which satisfies the supply requirements of the paving works for which it is being produced. All tanks shall be fitted with heating and circulation devices to maintain the binder at an essentially uniform temperature not exceeding specification requirements. Calibrated thermometers shall be fitted to provide a visual indication of the temperature of the binder at appropriate locations. Storage tanks shall include a facility to sample the binder from the tank discharge line.

Tanks for polymer modified binders and/or crumbed rubber binders shall have continuous circulation (mixing) capability so as to prevent segregation or separation of the binder.

### **C2.3.3 Metering devices – cold aggregate storage bins**

Cold aggregate storage bins shall be equipped with outlet metering devices which provide consistently proportioned feed of the various aggregate sizes to the dryer drum - there shall be a separate cold feed bin for each individual aggregate size.

### **C2.3.4 Proportioning and mixing**

The proportioning, introduction and mixing of the component materials shall be controlled to provide a consistently uniform mix which complies with the approved mix design and all other requirements of the relevant asphalt standard specification.

### **C2.3.5 Handling, storage and discharge of mix**

The mix shall be handled, stored, and discharged to delivery vehicles in a manner which effectively prevents segregation.

Storage bins for mix shall be adequate for the relevant plant rating, shall be waterproof and shall be insulated and/or include heating devices to minimise heat loss and to maintain the mix at an essentially uniform temperature throughout.

### **C2.3.6 Dust emission control**

All plants shall incorporate a baghouse or an efficient precipitation system which effectively traps dust emanating from the dryer drum – e.g. a primary dust collector of the cyclone type and a secondary dust collector which may be a wet scrubber or a dry baghouse.

### **C2.3.7 Calibration, maintenance and operation**

All metering and measuring devices in asphalt plants shall be calibrated and/or verified at specified intervals against relevant standards in accordance with procedures defined in the asphalt supplier's management systems.

Asphalt plants shall be maintained in good working order and operated so that they meet the requirements defined in this manual and the relevant specifications at all times.

## **C2.4 Particular requirements**

### **C2.4.1 Batch mixing plant**

Batch mixing plants shall comply with the following requirements in addition to those in the relevant standard specifications:

#### ***Feeders***

Variable speed belt feeders shall be used for fine aggregates. Vibratory devices may be incorporated in aggregate feeders to prevent blockages.

#### ***Dryer drum***

The dryer drum shall have sufficient burner capacity to uniformly heat the aggregates so that, when they are combined with the filler and the binder, the temperature of the resultant mix is appropriate for the specified temperature requirements of the mix type being produced.

#### ***Screens***

A deck of hot aggregate screens shall be provided with a capacity equivalent to the rated output of the plant.

#### ***Bins***

A minimum of four hot aggregate bins shall be provided having:

- a capacity of at least four times the capacity of the pugmill mixer
- suitable discharge gates designed to prevent leakage of bin contents after gate closure
- overflow outlets to ensure that any excess aggregate will not spill into an adjoining bin.

#### ***Weigh hopper***

The required mass of each size of the hot aggregates in the batch shall be measured in a weigh hopper that satisfies the following requirements:

- it shall be of sufficient size to hold a full batch without overflowing

- if the weigh hopper is of a type which is suspended on fulcrums and knife edges or load cells, its design shall be such that it cannot readily become misaligned or otherwise thrown out of adjustment
- all fulcrums and knife edges shall be maintained in a clean condition and calibrated at regular intervals no less frequently than each 12 months
- the discharge gate shall be designed to prevent leakage of hopper contents after gate closure.

### **Mixer**

The pugmill mixer shall be a twin shaft batch type which permits complete mixing at the appropriate plant rating (Clause C2.2) without overfilling the mill and shall:

- allow complete mixing of a batch within 60 seconds
- include automatic timing control for both “dry” mixing and “wet” mixing periods
- prevent leakage of the contents
- maintain satisfactory paddle condition
- at no time have a gap between the end of the paddles and the pugmill wall exceeding 10 mm
- include a discharge gate which permits complete discharge of the batch without segregation
- be equipped with an effective dust hood.

### **C2.4.2 Drum mixing plant**

Drum mixing plants shall comply with the following requirements in addition to those in the relevant standard specifications:

#### **Feeders**

Variable speed belt feeders and weighers shall be employed to meter and maintain a uniform feed of each individual aggregate size. Belt scales shall be employed to control the rate of feed of aggregates into the drum.

#### **Drum**

The construction of the drum shall:

- provide uniform mixing of the aggregates, filler and binder
- have the entry point for any component materials (including fibres) located in such a way that full incorporation of any component is achieved prior to the discharge point
- prevent binder and fibres from having contact with the burner flame
- have sufficient burner capacity to uniformly heat the aggregates such that, when they are combined with the filler, binder and other additives, the temperature of the mix discharged from the drum shall be appropriate for the specified temperature requirements of the mix type being produced.

## **C3 CONSTRUCTION PLANT – ASPHALT PAVING OPERATIONS**

### **C3.1 General requirements**

Construction plant shall comply with relevant specifications and the specific criteria defined in Clauses C3.2 to C3.5. It shall be capable of laying and compacting the mix uniformly (without segregation) to specified standards for the alignment, dimensions and compaction.

### **C3.2 Self-propelled mechanical pavers**

The tractor units of self-propelled pavers shall have sufficient power for the specific project circumstances and site conditions to overcome the drag of the floating screed and to provide adequate propulsion and traction for the paver and the delivery vehicle (as it discharges the mix).

Pavers shall be capable of spreading at least the output from the mixing plant(s) as described in Clause C2.2, be capable of operating at several speeds in forward and reverse modes, and be equipped with the following features:

- a means of pushing the delivery vehicle as it discharges the mix into the receiving hopper
- a receiving hopper or receiving bin, complete with fixed or folding sides and gates to control the flow of mix
- a conveyor or auger to transport the mix from the hopper to the auger box; material feed controls can be mechanical, paddle or sonic type with feeder controls mounted at the end of the auger tunnel in a way that ensures :
  - as the head of material drops, the conveyors and augers are automatically turned on
  - the feed is reduced when the head of material reaches the required amount in the auger box.
- an auger box, adjustable in width and in height, which distributes the mix uniformly, without segregation, in front of the floating screed assembly
- a screed assembly comprising towing arms, an adjustable floating screed, screed heating devices and automatic tampers and/or adjustable vibrator
- the screed adjustment shall allow the correct depth of uncompacted mix to be consistently achieved without tearing or causing other blemishes
- a reliable, sensitive, automatic screed control which can be operated in conjunction with a fixed control line, joint matching shoe, travelling straight edge, levelling beam or any other similar devices
- an adjustable laying width; if the laying widths for the pavement are not specified in the project documents, adjustment of width at least within a range of 2.0 m to 6.0 m shall be deemed necessary (Note: Mini pavers are not acceptable for continuous lane paving)
- effective steering control to maintain correct alignment of the paver.

### **C3.3 Pneumatic-tyred rollers**

Pneumatic-tyred rollers shall have the following features in addition to those detailed in Main Roads specifications:

- self-propelled multi-wheel units with groups of wheels arranged in staggered array on two axles
- ballasting facilities which permit adjustment of the mass of the roller to a minimum of 10 tonnes and provide a uniformly distributed load of not less than one tonne on each wheel, with provision for this load to be increased if necessary

- capability to operate with tyre pressure not less than 550 kPa, with provision for the pressure to be increased if necessary
- all tyres with a smooth rolling surface free from pits and other damage, and provided with satisfactorily functioning surface moistening and self cleaning devices
- capability to operate on paving works :
  - with smooth starting, stopping, accelerating, braking and reversing operations
  - at a steady speed in the range of 6 km/h to 10 km/h.

### **C3.4 Vibratory rollers**

Vibratory rollers should have facilities to vary frequency and amplitude of vibration. Essential features are high frequency in the range of 2500 to 3000 vibrations per minute, combined with low amplitude in the range of 0.4 to 0.8 mm.

In addition, vibratory rollers shall have the following features:

- tandem steel wheels
- self-propulsion with both wheels capable of driving in static and/or vibratory modes
- minimum width of 1.2 m
- minimum mass of six tonnes for dense graded asphalt mix or 10 tonnes for stone mastic asphalt mix
- all wheels provided with adjustable scrapers and satisfactorily functioning surface moistening devices
- capability to operate:
  - with smooth starting, stopping, accelerating, braking and reversing operations
  - at a steady speed in the range of 8 km/h to 10 km/h, except when operating in non-vibratory mode (e.g. for initial passes) not exceeding 5 km/h.

### **C3.5 Other equipment**

The following items of construction plant shall have all of the features defined in Main Roads specifications:

- surface preparation equipment
- tack coating spray equipment
- asphalt delivery vehicle
- materials transfer device
- special purpose rollers.

**APPENDIX D**

**APPLICATION FORM**

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<b>Page Number</b>	<b>Index to Contents</b>	<b>Manual appendix reference</b>
1	Cover Sheet	
2	Guidance notes for applicants	
3	Applicant experience Key personnel experience	B2.2 B2.3 to 2.7
4	Applicant experience – recent projects	B4
5	Key personnel experience – recent projects	B2.3 to 2.7
6	Management systems	B3
7	Plant and equipment	C

### **Guidance Notes for Applicants**

1. Applicants are required to complete all details of this form relevant to the scope of registration being sought.
2. Brief, pertinent and summary information only to be included in the form itself, sufficient to demonstrate evidence of all essential characteristics, capabilities and experience of applicants relevant to the scope of registration being sought. For example, provide evidence of use on projects typically undertaken (including distinction between in-house and subcontracted staff, services and resources), with specific reference to the nominated criteria.
3. Where additional information is sought (e.g. experience schedules) or is necessary to provide adequate support detail, this is to be in the form of copies of evidence of the existence of and/or application of specific requirements; these are preferred in summarised form e.g. point listings, diagrams, completed checklists of plant and equipment requirements etc. (Copies of voluminous documentation of management systems, procedures, management plans, etc will not be accepted.)
4. Applicants are expected to compile their submissions for each item in the assessment schedules in relation to the requirements in the corresponding part of the manual.
5. Applicants are encouraged to compile and submit their applications electronically.
6. Applicants for upgrading or renewal of registration need only submit details of changed circumstances and personnel, most recent experience etc. Complete re-submissions which duplicate previous submissions and registration status are not required. Asphalt suppliers currently registered are encouraged to use the relevant parts of this application form for notification of changed circumstances in accordance with requirements of Clauses 3 and 10 of the manual.

		Office Use Only		
		Cross Reference to Attachments <sup>#</sup>	Compliance ✓ or X or n/a	Assessor's Remarks
			Assessor	
<b>B2.2 Applicant Experience</b> <i>(NOTE: Complete attached Applicant Experience Schedule before completing this section)</i>				
a	Evidence of sound recent experience relevant to asphalt works -			
	Details of experience in asphalt works			
	Indicators of capability and competence (e.g. time, cost, safety, quality relationships)			
<b>B2.3-2.7 Key Personnel Experience</b> <i>(NOTE: Complete attached Key Personnel Schedule before completing this section)</i>				
a	Evidence of managerial staff having sound recent experience relevant to asphalt works -			
	Details of experience in asphalt works			
	Total years of asphalt works			
b	Evidence of professionals/para-professionals (project managers) having sound recent experience relevant to asphalt works -			
	Details of experience in asphalt works			
	Total years of asphalt works			
c	Evidence of supervisory staff having sound recent experience relevant to asphalt works -			
	Details of experience in asphalt works			
	Total years of asphalt works			

<sup>#</sup> This page is primarily for the use of the assessors- generally, the only information the applicant needs to insert is the cross references to places elsewhere in the application where the relevant information has been provided.

Office Use Only

Job Location/Road Name <sup>#</sup>	Contract Arrangements (i.e. Applicant was Contractor or Subcontractor)	Contract With (Client Name)	Mix Type and Approx. Tonnage	Completion Date (Month/Year)	Client Contact Person/Referee	Assessor Rating ✓ or X or n/a

# Only three most recent significant projects



		Cross Reference to Attachments <sup>#</sup>	Office Use Only	
			Compliance ✓ or X or n/a	Assessor's Remarks
			Assessor	
<b>B4.2 Quality Management</b>				
a	Second or third party certificate and scope of certification (AS 9001:2000)			
b	Typical management plans*			
c	Evidence of review of performance and systems			
d	Subcontractor and supplier selection and control processes identified; evidence that performance managed and evaluated			
<b>B4.3 Safety Management</b>				
a	Evidence safety management system meets requirements of AS 4801:2001			
b	Typical management plans*			
c	Evidence of review of performance and systems			
d	Traffic management processes, controls and systems identified			
<b>B4.4 Environmental Management</b>				
a	Evidence environmental management meets requirements of AS14004:1996 and MRS11.51			
b	Typical management plans*			
c	Evidence of review of performance and systems			
<b>B4.5 Management of Apprentices and Trainees</b>				
a	Evidence of satisfactory performance on prior projects: compliance plans and/or interim compliance plans if applicable.			

\* Attach evidence of completed quality plans, safety plans and environmental plans from a current/recent project. Also include examples of inspection and test plans (ITPs) as appropriate.

<sup>#</sup> This page is primarily for the use of the assessors- generally, the only information the applicant needs to insert is the cross references to places elsewhere in the application where the relevant information has been provided.

**Asphalt Plant Details**

Office Use Only

Plant Location	Plant Type (i.e drum, batch / fixed or mobile)	Rated Output (t/hr)	Fines Return Type (e.g. baghouse)	Main Roads Approved Mix Design Code Nos <sup>#</sup>	EPA / LGA Conditions <sup>#</sup>	Location of Nominated NATA Testing Laboratory <sup>**</sup>	Assessor Rating ✓ or X or n/a

<sup>#</sup>Attach details if necessary

<sup>\*</sup>Attach copies of any conditions imposed (e.g. hours of operation, noise and dust control)

<sup>\*\*</sup>Attach NATA registration details

**Asphalt Paver Details**

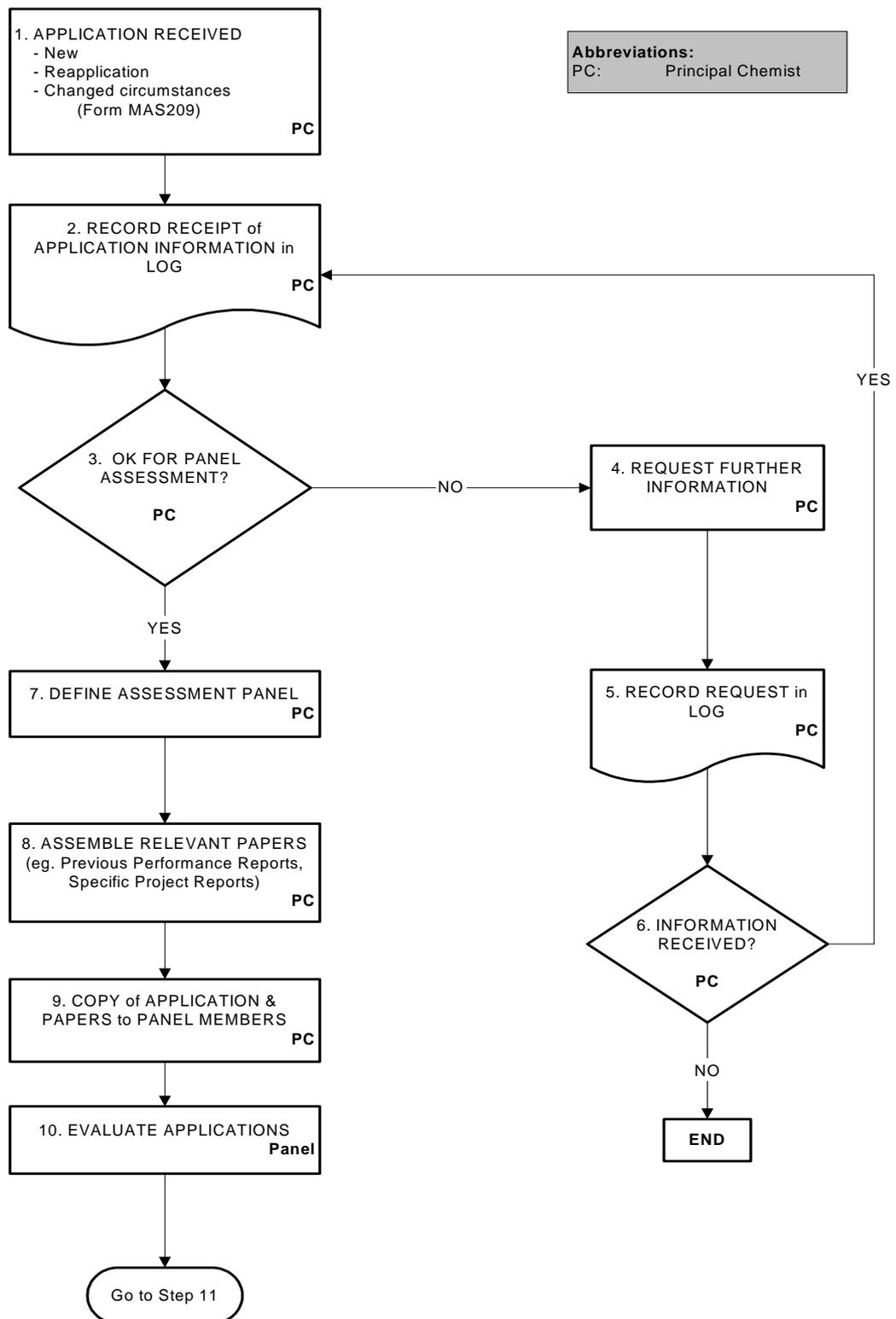
Office Use Only

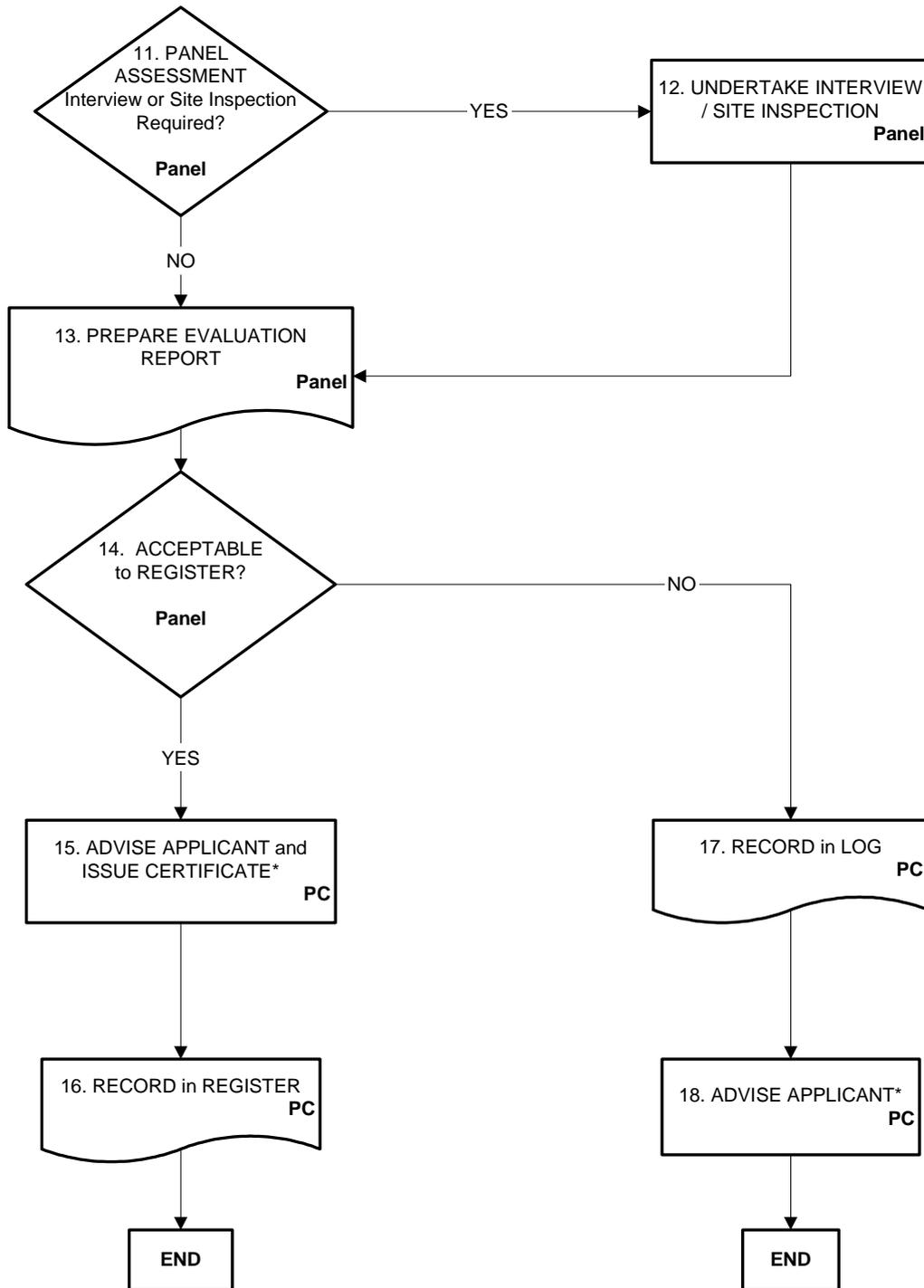
Paver Type	Maximum Width	Minimum Width	Level Control Type(s)	Assessor Rating ✓ or X or n/a

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## APPENDIX E

### PROCEDURE FOR CONSIDERATION OF APPLICATIONS FOR REGISTRATION





\*within 6 weeks of receipt of application or within 3 weeks of the receipt of additional information (via Steps 4 - 6)

## APPENDIX F

# APPROVED ASPHALT SUPPLIER REGISTRATION CERTIFICATE

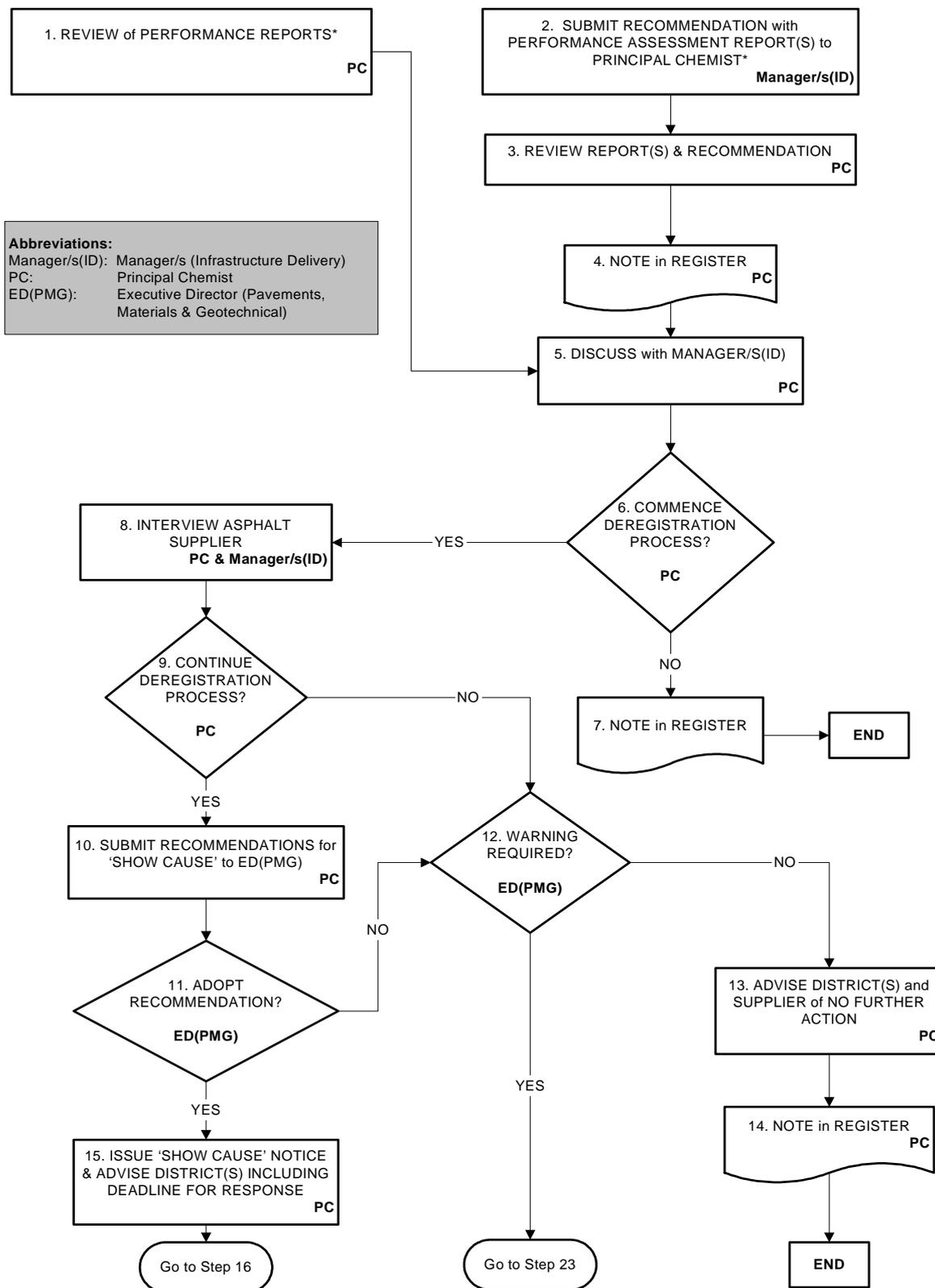
<b>APPROVED ASPHALT SUPPLIER REGISTRATION</b>	
<b>ASPHALT MANUFACTURE AND PAVING</b>	
<b>COMPANY:</b>	
Plant:	
Approval Number:	
Original Issue Date:	
Current Issue Date:	
Review Date:	
<b>Specification</b>	<b>Approved Mix Designs</b>
MRS XX.XX	XXX : XXX/XX/XXX    XXX : XXX/XX/XXX XXX : XXX/XX/XXX    XXX : XXX/XX/XXX XXX : XXX/XX/XXX    XXX : XXX/XX/XXX
MRS XX.XX	XXX : XXX/XX/XXX    XXX : XXX/XX/XXX XXX : XXX/XX/XXX    XXX : XXX/XX/XXX XXX : XXX/XX/XXX    XXX : XXX/XX/XXX
Approval Authority: _____	Date: _____
<b>Principal Chemist</b>	
 <b>Queensland Government</b> <small>Department of Main Roads</small>	

Form MAS210 (3/04)

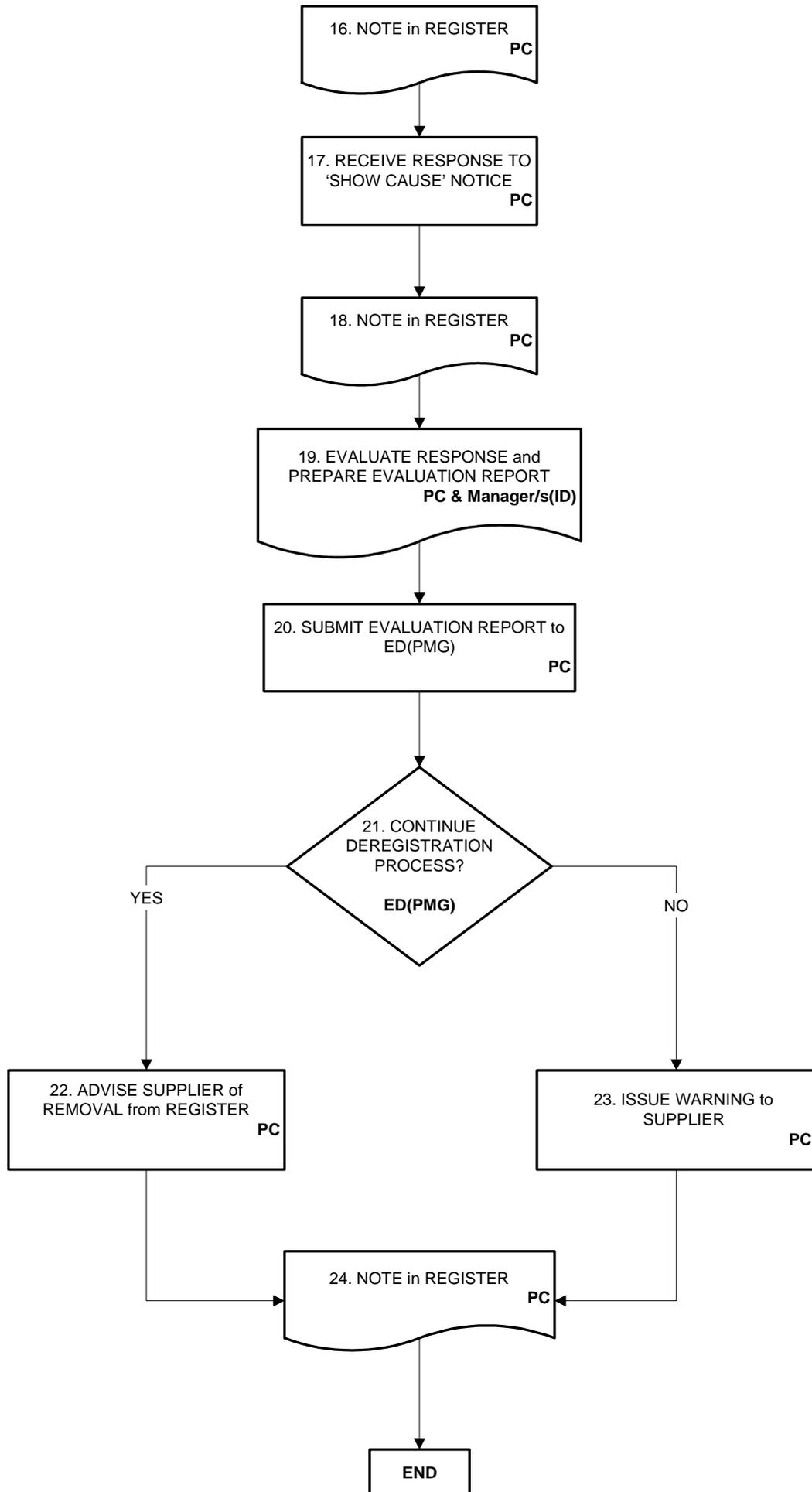
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## APPENDIX G

### PROCEDURE FOR DEREGISTRATION

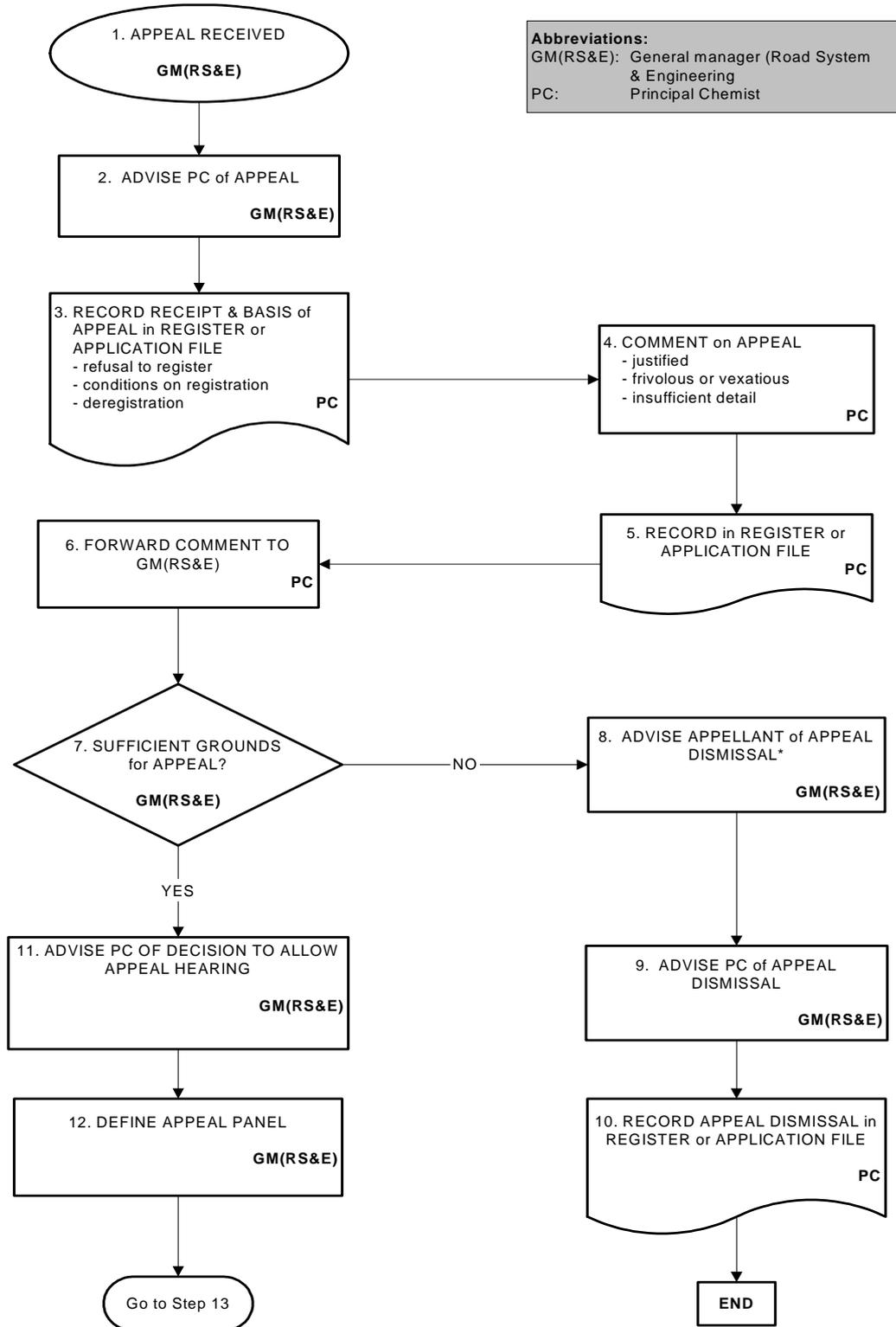


\*Recommendation for removal may be initiated by either a Manager (ID) or Principal Chemist



## APPENDIX H

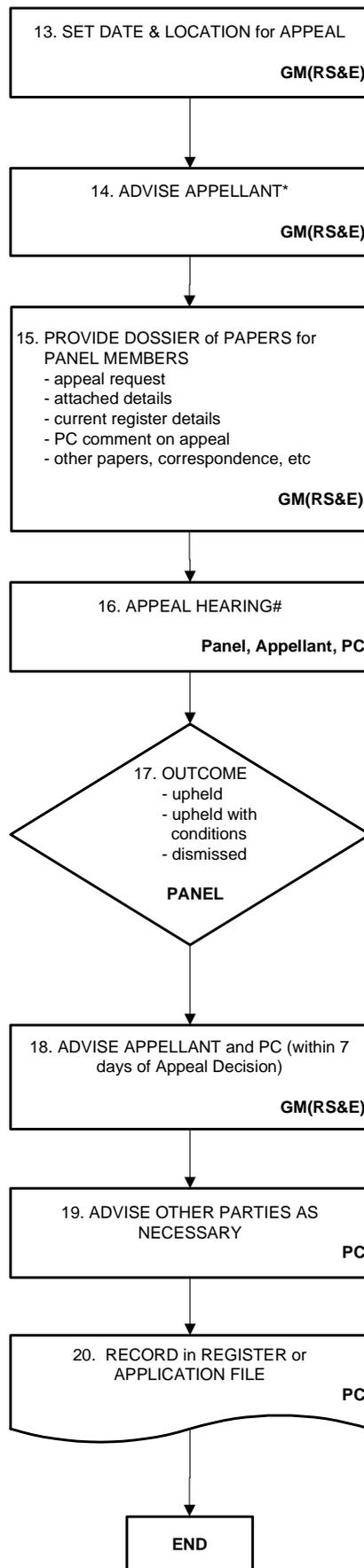
### PROCEDURE FOR CONSIDERATION OF APPEALS



\*within 30 days of receipt of appeal  
 #within 45 days of receipt of appeal

## System For Registration of Approved Asphalt Suppliers

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\*within 30 days of receipt of appeal  
#within 45 days of receipt of appeal

## APPENDIX J

### ASPHALT MIX DESIGN APPROVAL PROCESS

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## APPENDIX J

### ASPHALT MIX DESIGN APPROVAL PROCESS

#### J1 INTRODUCTION

##### J1.1 Mix design process

An asphalt mix design submitted for approval for a particular manufacturing plant must correspond to the mix to be produced by that plant, not only in terms of the mix design grading, binder content and maximum density, but also in terms of the mix components and their proportions.

In the process of mix design formulation, it is essential that the manufacturer takes account of the particular plant and materials to be used to manufacture the mix (e.g. amount and type of fines generated or lost during production). The manufacturer must also have a thorough understanding of the operational characteristics of the plant, good control over the component materials supplied to the plant and knowledge of the behaviour of the component materials during manufacture.

Aspects of the production process which need to be considered by the manufacturer include:

- the propensity for generation of fines during the production process due to aggregate breakdown
- the dust extraction system used by the plant and its effect on mix composition during manufacture viz:
  - for a baghouse system, whether the extracted material is returned directly to the mix or stored in a silo and subsequently metered back into the production mix.
  - for a wet scrubber system, how much of the filler material is lost and what proportion of each filler component is lost (i.e. imported filler, reclaimed filler, coarse/fine aggregate filler).

Prior to submission of the mix design, the manufacturer must make appropriate adjustments as needed to the theoretically determined proportions of the component materials of the mix to cater for generation or loss of fines or any other compositional changes during the production process. Evidence of the operational characteristics of a manufacturing plant will be required from the manufacturer prior to approval of a mix design for that plant.

##### J1.2 Mix approval types

This document describes the process required for the approval of asphalt mix designs for use in Main Roads works. Three categories of mix design approval apply viz:

- comprehensive
- job specific
- specialised

## **J2 COMPREHENSIVE APPROVAL**

### **J2.1 Definition**

Comprehensive approval of a mix design is granted when the design satisfies all requirements of the specification. Mix design is performed by the asphalt supplier and approved by Main Roads. Comprehensive approval allows the mix design to be used on any Main Roads job.

### **J2.2 Responsibilities**

The role of the asphalt manufacturer is to design an asphalt mix to comply with the property requirements of the relevant standard and/or supplementary asphalt specification for both the constituent materials and the mix. In addition to mix design costs, the manufacturer shall bear all costs associated with mix design assessment and approval by Main Roads.

The agent for Main Roads is Pavements, Materials and Geotechnical (PMG) Division of Road System and Engineering. The role of PMG Division is to be the sole assessor and approval authority for the asphalt mix design. PMG Division will assess each submitted mix design using the minimum amount of testing which ensures that a high level of confidence resides in the outcome of each assessment.

### **J2.3 Conditions for approval**

Comprehensive approval will only be granted where all properties of the mix, including the components of the mix, satisfy all requirements and conditions of the relevant Main Roads standard asphalt specification and of any project specific supplementary specification. Where the compliance of any aggregate property with the specified requirements is marginal, the approval will be subject to additional conditions including the frequency of testing by the manufacturer for that property.

### **J2.4 Process**

The assessment and approval process comprises six stages as follows:

- submission of proposed mix design and constituent materials
- assessment of mix composition
- assessment of constituent materials
- assessment of mix properties
- assessment and approval of proposed mix design
- recording and notification of mix design approval.

#### **J2.4.1 Submission of proposed mix design and constituent materials**

Where a manufacturer seeks comprehensive approval for a proposed mix design, the manufacturer shall submit a written request for such approval to PMG Division together with samples of the constituent materials of the mix design. The submission shall include the following:

- nominated grading and binder content for the design
- grading of each aggregate and filler constituent material used in the design
- source and plant proportion of each constituent material used in the design
- a sample of each constituent material in the quantity determined in consultation with PMG Division (Table 1), as appropriate.

As an alternative to supplying the individual coarse and fine aggregates, a sample of the combined constituent materials comprising subsamples of the different sieve size fractions prepared in accordance with Test Method Q309 may be supplied under the following conditions:

- the quantity of each subsample shall be sufficient to allow the preparation of at least three tolerance mixes and testing of both the coarse and fine fractions for water absorption
- a representative sample of each constituent material (excepting binder) is supplied from which a museum sample will be retained by PMG Division should the design be approved
- a representative sample of the combined coarse aggregate or each coarse aggregate constituent is supplied to allow testing of the coarse aggregate to confirm compliance with the specification requirements.

**Table 1  
Sample Quantity Guidelines – Comprehensive Approval**

Mix Component	Sample Quantity (kg)			
	Dense Graded	Stone Mastic	Open Graded	Fine Gap Graded
Aggregates ≥10 mm	100	100	100	-
<10 mm	75	75	75	75
Sand	50	50	50	50
Imported Filler	5	10	5	5
Reclaimed Filler	5	10	5	5
Fibre	-	2	-	-
Binder*	10	10	10	10

\* Where the mix design binder is Class 320 bitumen sourced from the BP refinery or Shell bitumen plant at Pinkenba, the requirement to supply binder shall be waived.

The manufacturer shall allow at least 28 days following its submission for notification in writing from PMG Division as to whether or not the design is approved. An additional 14 days shall be allowed for each mix design submitted concurrently.

Where a mix design is rejected on the basis of non-compliance with the specification requirements as determined by PMG Division, additional time will be required for approval of any modified design. In such cases, following receipt of any modification to the originally submitted design, a further period of 14 days shall be allowed for notification by PMG Division of approval or rejection of the modified design.

Should production mix of a proposed mix design be required in less than 28 days from its submission, PMG Division shall endeavour to achieve mix design assessment and approval by the required date with due consideration of the following:

- consulting with the manufacturer and relevant Main Roads District to rearrange mix design assessment priorities, where possible, and to agree a target date for mix design approval
- allowing assistance from the manufacturer in selected areas of the assessment process (e.g. sieving of materials), however, apart from sieving work, no work shall be performed by the manufacturer other than under the direct supervision of PMG Division
- providing interim mix design approval based on historical data for the mix design components, or on the results of two tolerance mixes only for the mix itself - the two tolerance mixes shall be the tolerance mix pair as identified in Test Method Q309.

#### **J2.4.2 Assessment of mix composition**

PMG Division shall examine the nominated asphalt mix design and raw material components and their proportions to confirm compliance with the relevant asphalt specification e.g.

- for dense graded asphalt and fine gap graded asphalt, the grading lies smoothly within the envelope specified for the respective asphalt nominal size
- the filler type and content satisfy the minimum specified requirements.

#### **J2.4.3 Assessment of constituent materials**

All constituent materials (raw materials) of a mix design shall be assessed to ensure their compliance with requirements of the relevant asphalt specification.

##### ***Binder***

PMG Division shall undertake necessary testing to confirm compliance of the binder (i.e. bitumen, polymer modified binder or other modified binder) with the specification requirements. PMG Division may waive some or all binder testing requirements. This decision will be based on the source of the binder and the recent audit history of the product quality supplied from that source.

##### ***Coarse aggregate***

PMG Division shall arrange visual assessment and testing of the combined coarse aggregate component of the mix design to ensure compliance with the specified requirements. In certain circumstances, some coarse aggregate testing may be waived by PMG Division subject to the availability of recent historical data from the same source which confirms compliance to the specified requirements. However, testing performed by PMG Division shall be in accordance with the minimum requirements of Table 2.

##### ***Fine aggregate***

PMG Division shall inspect, visually assess and/or test the combined fine aggregate component of the mix design as required to determine specification compliance.

##### ***Filler***

PMG Division shall prepare, visually assess and test a sample of the combined filler (passing 0.075 mm material) for compliance with *AS 2357 : Mineral fillers for asphalt* and the voids in dry compacted filler requirement of the specification. PMG Division shall normally waive the testing requirements of *AS 2357* unless visual assessment raises some doubt over specification compliance.

#### **J2.4.4 Assessment of mix properties**

PMG Division shall prepare and assess target and/or tolerance mixes for the submitted mix design as required of, and for compliance with, the relevant asphalt specification in accordance with Test Method Q309.

#### **J2.4.5 Assessment and approval of proposed mix design**

The proposed mix design shall be approved provided that the mix composition, constituent materials and appropriate target and/or tolerance mixes as assessed in Clauses J2.4.2 to J2.4.4 comply with the requirements of the relevant asphalt specification. Otherwise, it shall be rejected.

Where the compliance of any coarse aggregate property with the specified requirements is marginal as determined from Table 2, approval of the mix design will be conditional on testing of

the marginal property by the manufacturer at a frequency of six monthly. This time may be varied subject to the agreement of PMG Division and dependent on factors such as material consistency and turnover at the quarry.

**Table 2  
Minimum Testing Requirements – PMG Division**

Coarse Aggregate Property	Test Value*		Test Frequency	
	Ready Compliance	Marginal Compliance	Ready Compliance	Marginal Compliance
Flakiness Index (%)	All	All	Each submission	Each submission
Crushed Particles (%)	All	All	+	+
Ten Percent Fines Value (Wet) (kN)	≥170	150 - 169	Biennially	Annually
Wet/Dry Strength Variation (%)	<30	30 - 35	Biennially	Annually
Degradation Factor	≥50	40 - 49	Biennially	Annually
Water Absorption (%)	<1.5	1.5 - 2.0	Biennially	Annually
Weak Particles (%)	<0.8	0.8 - 1.0	Biennially	Annually
Polished Aggregate Friction Value	≥47	45 - 46	Biennially	Annually

\* Determined from source historical data

+ The crushed particles test should be performed only where the aggregate has been derived from other than quarry operations or where aggregate inspection raises some doubt over specification compliance.

**J2.4.6 Recording and notification of mix design approval**

Where a mix design is approved, PMG Division shall assign the mix design a mix approval code number, advise the manufacturer of the approval in writing, and issue the manufacturer with a mix design approval certificate.

***Mix approval code number***

The mix approval code number shall comprise three parts as follows:

Part 1/Part 2/Part 3

where: Part 1 is an identifier in the form “manufacturer : mix type” using abbreviations such as those given in Table 3.

Part 2 is a two digit number representing the year of approval (e.g. 03).

Part 3 is in the form “three digit number (binder type)” to uniquely identify the mix design and the binder. The three digit number is assigned sequentially in the order of mix approval. The binder type is included only if the binder is not Class 320 bitumen (e.g. 804 would be a mix design containing Class 320 binder; 804 (A5S) would be the same mix design containing A5S polymer modified binder). The abbreviations to be used are in the following form:

- 600 - Class 600 bitumen
- M - Multigrade bitumen

A5S - A5S polymer modified binder

Where the design of an approved mix is identical to a previously approved mix design with the exception that a different binder source is employed, the same code number shall be used but with an alpha modifier applied e.g.

804 (A5S) - A5S polymer modified binder (Shell Pinkenba)

804A (A5S) - A5S polymer modified binder (BP Pinkenba).

**Notification of approval**

The written notification from PMG Division to the manufacturer advising of the approval of the mix design shall also include the mix design details, mix design certificate and the test results obtained during the assessment. PMG Division shall also provide this same information to relevant Main Roads Districts via the M(ID).

**Table 3  
Code Number Details**

Manufacturer	Abbreviation	Asphalt Type	Nominal Size*	Abbreviation*
Allen's Asphalt	AL	Dense Graded	7 mm	DG7
FRH (Astec)	A	Dense Graded	10 mm	DG10
Boral Asphalt	B	Dense Graded	14 mm	DG14
Brisbane City Works	BCW	Dense Graded	20 mm	DG20
Emoleum	E	Dense Graded	28 mm	DG28
Maroochy Shire Council	M	Open Graded	10 mm	OG10
Pioneer North Queensland	PNQ	Open Graded	14 mm	OG14
Pioneer Road Services	P	Stone mastic	10 mm	SM10
-	-	Stone mastic	14 mm	SM14
-	-	Fine Gap Graded	7 mm	FGG7

\* For standard specifications. Where mix designs are approved to other than the standard specifications, other symbols may be used.

**Mix design approval certificate**

The mix design approval certificate shall provide details of the following (refer Attachment 1 – *Form MAS211 : Asphalt Mix Design Approval Certificate*):

- company name
- plant name
- mix approval code number
- specification to which the mix design was approved

- component materials and their sources and proportions
- design mix grading, design binder content, maximum density and their respective job limits.

Where conditional approval (Clause J2.4.5) and/or interim approval (Section J5) apply, the certificate shall be modified as follows:

***Conditional approval***

- the title shall read “Asphalt Mix Design Approval Certificate (Conditional Approval)”
- the conditional requirement(s) shall be stated on the certificate.

***Interim approval***

- the title shall read “Asphalt Mix Design Approval Certificate (Interim Approval)”
- the mix type within Part 1 of the mix approval code number shall be preceded by “Interim”.

### **J3 JOB SPECIFIC APPROVAL**

#### **J3.1 Definition**

Job specific approval of a mix design may be granted when the design is rejected for comprehensive approval due to its failure to comply with all requirements of the specification. Job specific approval is granted by the relevant Main Roads District and allows the mix design to be used only on a predefined job.

#### **J3.2 Responsibilities**

The responsibilities of the asphalt manufacturer and PMG Division are the same as for comprehensive approval except that the relevant Main Roads District is the approval authority for the mix design.

#### **J3.3 Conditions of approval**

Job specific approval only applies where one or more of the specified requirements for the properties of the mix or mix components have been waived or relaxed by the Main Roads District for the particular job.

Where the manufacturer seeks job specific approval for a mix design, the manufacturer shall submit a written request for such approval to the relevant Main Roads District. The submission shall include all associated test data from any assessment for comprehensive approval undertaken by PMG Division.

In consultation with PMG Division, the District shall examine the request, approve use of the design for the job where appropriate, and negotiate agreement with the manufacturer for additional conditions which need to be placed on the mix constituents or production mix (e.g. more frequent monitoring of raw material components, testing of mix volumetrics during production etc).

#### **J3.4 Process**

The assessment process is the same as that used for comprehensive approval.

## **J4 SPECIALISED APPROVAL**

### **J4.1 Definition**

Specialised approval of a mix design may be granted when the design satisfies all requirements of the specification but the mix is of a special design and/or is likely to be used infrequently. Mix design is performed by PMG Division and approved by the relevant Main Roads District. Specialised approval allows the mix design to be used on any job as determined by that District.

### **J4.2 Responsibilities**

The role of the manufacturer is to select the materials to be used in the mix design and to submit sufficient of these materials through the relevant Main Roads District to PMG Division to allow design of the mix.

The agent for Main Roads is the relevant District with PMG Division as expert advisor. The role of PMG Division is to design an asphalt mix to comply with the property requirements of the relevant standard or supplementary asphalt specification for both the constituent materials and the mix, using the materials submitted.

The relevant Main Roads District shall approve use of the mix design on the job and shall have ownership of the mix design. The manufacturer shall bear all costs associated with selection and submission of the mix design components, while all other costs associated with the design and approval process shall be borne by the District.

### **J4.3 Conditions**

Specialised approval will only be granted where all properties of the mix, including the components of the mix, satisfy all requirements and conditions of the relevant Main Roads standard asphalt specification and of any project specific supplementary specification. Where the compliance of any aggregate property with the specified requirements is marginal, the approval will be subject to additional conditions including the frequency of testing by the manufacturer for that property.

### **J4.4 Process**

The design and approval process comprises five stages as follows:

- submission of constituent materials
- assessment of constituent materials
- formulation of mix design
- approval of mix design
- recording and notification of mix design approval.

#### **J4.4.1 Submission by manufacturer**

Where a manufacturer seeks approval for a specialised mix design, the manufacturer shall submit a written request for such a design to PMG Division through the relevant Main Roads District. The submission shall include samples of the proposed constituent materials of the mix in the quantities determined in consultation with PMG Division (Table 4), as appropriate.

The relevant Main Roads District shall advise PMG Division that specialised approval rather than comprehensive approval is required.

The manufacturer shall allow at least 28 days following submission of the proposed constituent materials for design and approval of the mix. Should production mix be required within the 28

day period, PMG Division shall consult with the manufacturer and the relevant Main Roads District to rearrange mix design assessment priorities, where possible, and to agree a target date for mix design approval.

#### J4.4.2 Assessment of constituent materials

All constituent materials (raw materials) forwarded by the manufacturer shall be assessed to determine their compliance with requirements of the relevant asphalt specification, as described in Clause J2.4.3.

Where any of the constituent materials fails to comply with the specified requirements, the material(s) shall be rejected.

**Table 4**  
**Sample Quantity Guidelines – Specialised Approval**

Mix Component	Sample Quantity (kg)			
	Dense Graded	Stone Mastic	Open Graded	Fine Gap Graded
Aggregate				
≥10 mm	125	125	125	-
<10 mm	90	90	90	90
Sand	60	60	60	60
Imported Filler	5	10	5	5
Reclaimed Filler	5	10	5	5
Fibre	-	2	-	-
Binder*	10	10	10	10

\* Where the mix design binder is a Class 320 bitumen sourced from the Pinkenba BP refinery or Shell bitumen plant, the requirement to supply binder shall be waived.

#### J4.4.3 Formulation of mix design

Provided that the submitted materials comply with the requirements of the relevant asphalt specification, PMG Division shall prepare and assess sufficient target and tolerance mixes to formulate a mix design which satisfies the specification requirements using the techniques described in Test Method Q309.

PMG Division shall assign the mix design a mix approval code number and prepare a mix design approval certificate as described in Clause J2.4.6. Where conditional approval (Clause J4.4.4) and/or interim approval (Section J5) apply, the certificate shall be modified as follows:

##### **Conditional approval**

- the title shall read “Asphalt Mix Design Approval Certificate (Conditional Approval)”
- the conditional requirement(s) shall be stated on the certificate.

##### **Interim approval**

- the title shall read “Asphalt Mix Design Approval Certificate (Interim Approval)”
- the mix type within Part 1 of the mix approval code number shall be preceded by “Interim”.

#### J4.4.4 Approval of mix design

PMG Division shall forward details of the mix design and associated test results and approval documentation to the M(ID) of the relevant Main Roads District. Provided that the constituent

materials and target and/or tolerance mixes as appropriate, as determined in Clauses J4.4.2 and J4.4.3, comply with the requirements of the relevant asphalt specification, the M(ID) shall approve the design by signing the mix design approval certificate.

Where the compliance of any coarse aggregate property with the specified requirements is marginal as determined from Table 2, approval of the mix design will be conditional on testing of the marginal property by the manufacturer at a frequency of six monthly. This time may be varied subject to the agreement of PMG Division and dependent on factors such as material consistency and turnover at the quarry.

#### **J4.4.5 Recording and notification of mix design approval**

The M(ID) shall forward copies of the mix design approval certificate to the manufacturer and PMG Division.

## **J5 INTERIM APPROVAL**

Interim mix design approval may be granted in special circumstances where the production mix is required prior to all of the testing being completed in the mix design assessment process. The granting of interim mix design approval is subject to the following conditions:

- all raw material properties comply with the specification requirements or are likely to comply based on historical data
- the nominated mix grading satisfies the respective grading envelope and other grading requirements of the specification
- the test results from a minimum of two tolerance mixes (including the tolerance mix pair as identified in Test Method Q309) pass when assessed in accordance with Test Method Q309
- the manufacturer undertakes to satisfy any additional requirements imposed by the relevant Main Roads District or, where appropriate, as negotiated as described in Clause J3.3.

## **J6 MUSEUM SAMPLES**

For the duration of the mix design approval period, PMG Division shall retain representative portions of each aggregate and filler component of the mix design as museum samples for reference purposes.

## **J7 MIX DESIGN REVISION – COMPREHENSIVE APPROVAL ONLY**

### **J7.1 Rejected mix design**

Where a mix design is rejected during the assessment process, PMG Division shall immediately notify the manufacturer of the deficiency. If requested by the manufacturer, PMG Division may offer advice on possible adjustment to the design to achieve compliance with the specification requirements. However, any decision made in revision of the design remains the sole responsibility of the manufacturer.

Where a manufacturer wishes to submit a revised design for approval, the following process shall apply:

- the manufacturer shall forward a written request to PMG Division detailing the revision
- PMG Division shall examine the results of the previously non-complying mix design in conjunction with the revision and determine the number of additional tolerance mixes

necessary to assess and approve the revised mix design. Each of these tolerance mixes shall be prepared and tested in accordance with Test Method Q309

- provided that the additional tolerance mix results comply with the specification requirements, the revised design shall be approved as described in Clauses J2.4.5 and J2.4.6.

All testing costs associated with assessment/approval of the rejected/revised mix designs shall be borne by the manufacturer.

### **J7.2 Mix design modification**

Where a manufacturer wishes to modify an approved mix design without altering mix composition (i.e. same nominated grading and binder content) but by changing any of the constituent materials for supply, economic or other reasons, the following assessment process shall apply:

- the manufacturer shall forward a written request to PMG Division detailing the change and providing the associated alterations to the constituent materials and their proportions
- PMG Division shall examine the test results obtained for the approved design. Based on these results, one or more additional tolerance mixes as deemed necessary by PMG Division, shall be prepared and tested in accordance with Test Method Q309
- provided that the additional testing confirms compliance with the specification requirements, the change shall be accepted and the new mix design shall be approved with a new code number as described in Clauses J2.4.5 and J2.4.6.

Where a manufacturer wishes to modify an approved mix design without changing any of the constituent materials but by changing the mix composition (i.e. different nominated grading and/or binder content), the normal mix design assessment and approval process as described in Section J2 shall generally apply. In the event that minor changes are proposed for an approved mix design (e.g. in the proportions of constituent materials or in the grading of the mix), consideration may be given by the PMG Division to approve such changes without additional testing.

## **J8 MIX DESIGN APPROVAL DURATION**

### **J8.1 Conditions for approval retention**

An approved mix design shall initially retain its approval for up to three years provided that it continues to satisfy the following conditions:

- there is no change in the source or properties of each constituent material comprising the mix design as determined by PMG Division
- there is no change in the proportions of the constituent materials comprising the mix design
- asphalt manufactured to the approved design performs to the satisfaction of Main Roads.

However, mix design approval will be restricted to a period of six months or shorter where determined as necessary in assessment of the requirements defined in Clause J2.4.5.

### **J8.2 Review process**

In conjunction with the original issue or review of approved manufacturer certification, PMG Division shall undertake the following:

- contact the manufacturer to confirm that the manufacturer seeks approval extension for the mix design and that there is no change to the proportions of the constituent materials comprising the design

- analyse available maximum density data obtained during production of the mix design to confirm compliance with the maximum density job limits
- visually compare current aggregate and filler components comprising the design with the museum samples for the approved design to confirm that there has been no change in these components
- contact the relevant Main Roads District to confirm that the in-service performance of the mix manufactured to the design has been satisfactory.

Provided that all of the conditions of Clause J8.1 are satisfied, approval of the mix design shall be extended. The period of extension shall be three years with the exception that the duration of mix design approval shall be coincident with asphalt supplier registration and subsequent registration renewal.

If any of the conditions of Clause J8.1 are not satisfied, either at the end of the approval period or at any time during the approval period, approval for the mix design shall be withdrawn.

### **J9. CONFLICT OF INTEREST**

To avoid any perceived conflict of interest, PMG Division shall not undertake asphalt mix design where such design is also to be assessed for comprehensive approval by PMG Division on behalf of the Department of Main Roads.

## APPENDIX J

### ATTACHMENT 1

# ASPHALT MIX DESIGN APPROVAL CERTIFICATE

## ASPHALT MIX DESIGN APPROVAL CERTIFICATE

COMPANY:

PLANT:

MIX CODE NUMBER:

SPECIFICATION:

MIX COMPONENT	SOURCE	PROPORTION (%)

MIX PROPERTY	MIX DESIGN	JOB LIMITS	MIX PROPERTY	MIX DESIGN	JOB LIMITS
% Passing			% Passing		
Binder Content (%)			Maximum Density(t/m <sup>3</sup> )		

Approval Authority: \_\_\_\_\_ Date: \_\_\_\_\_  
 Principal Chemist



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# APPENDIX K

## INSPECTION AND TESTING REQUIREMENTS

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## APPENDIX K

### INSPECTION AND TESTING REQUIREMENTS

#### K1 INTRODUCTION

Applicant organisations are required to provide evidence that they have adequate procedures for planning and undertaking all tests and measurements necessary for purposes of ensuring conformance of asphalt (product and/or pavement) with specified requirements at relevant stages of their operations.

The following requirements are additional to those defined in Main Roads standard specifications and are to be provided for in the asphalt supplier's inspection and test plans, and included in quality control and product compliance records progressively compiled and analysed by the asphalt supplier.

#### K2 AGGREGATES

##### K2.1 Grading

This property must be addressed either through results obtained from the aggregate supplier together with audit testing by the asphalt manufacturer, or through testing by the asphalt manufacturer.

Constituent aggregate test results should be obtained at a minimum frequency of one test per 1000 tonnes (or one test per 700 m<sup>3</sup>) with laboratory testing performed no less frequently than each month.

##### K2.2 Flakiness index

Testing must be arranged by the asphalt manufacturer no less frequently than each three months.

##### K2.3 Wet ten percent fines

Testing must be arranged by the asphalt manufacturer no less frequently than each year, but must be no less frequent than six monthly for marginal aggregates (i.e. <170 kN).

##### K2.4 Wet/dry strength variation

Testing must be arranged by the asphalt manufacturer no less frequently than each year, but must be no less frequent than six monthly for marginal aggregates (i.e. >30%).

##### K2.5 Degradation factor

Testing must be arranged by the asphalt manufacturer no less frequently than each year, but must be no less frequent than six monthly for marginal aggregates (i.e. <50).

##### K2.6 Polished aggregate friction value

Testing must be arranged by the asphalt manufacturer no less frequently than each year, but must be no less frequent than six monthly for marginal aggregates (i.e. <47).

## **K2.7 Water absorption**

Testing must be arranged by the asphalt manufacturer no less frequently than each year, but must be no less frequent than six monthly for marginal aggregates (i.e. >1.5%).

## **K2.8 Crushed faces**

This property should be addressed but is not mandatory for asphalt plants using crushed aggregates only.

## **K2.9 Weak particles**

Testing must be arranged by the asphalt manufacturer no less frequently than each three months.

## **K3 FILLER**

### **K3.1 Imported filler**

Certification of each delivery by the supplier of the imported filler must be obtained. Such certification shall include regular test results for the voids in dry compacted filler.

The asphalt manufacturer shall arrange testing of imported filler for the voids in dry compacted filler no less frequently than each three months.

### **K3.2 Reclaimed filler**

Where reclaimed filler (e.g. baghouse dust) is a specified component of the mix design, the asphalt manufacturer shall arrange testing of the reclaimed filler for the voids in dry compacted filler no less frequently than each month.

### **K3.3 Combined filler**

The asphalt manufacturer shall arrange testing of the combined filler of a mix design (i.e. the combination of imported/reclaimed/naturally generated fillers used in the design) for the voids in dry compacted filler no less frequently than each month.

## **K4 BINDER**

### **K4.1 Delivered binder**

Certification of each delivery by the supplier of the binder must be obtained. Such certification shall include test results for:

- viscosity at 60°C for conventional and multigrade bitumens
- softening point and torsional recovery at 25°C for polymer modified binders.

### **K4.2 Stored binder**

All binders held in the manufacturer's storage tanks for more than two weeks must be tested. The asphalt manufacturer shall arrange such testing for:

- viscosity at 60°C for conventional and multigrade bitumens
- softening point and torsional recovery at 25°C for polymer modified binders.

## **K5 ASSESSMENT OF ASPHALT QUALITY**

### **K5.1 Critical sampling and testing points**

Conformance tests shall be undertaken on the following:

- production batches of asphalt at the point of loading into vehicles for delivery to road projects
- compacted asphalt pavement layers.

### **K5.2 Analysis of test data**

At least the following parameters are to be assessed for variability as well as for their compliance with specified requirements and approved mix design details:

- at the asphalt manufacturing plant:
  - combined grading results for all of the mineral constituents
  - binder content
  - maximum density
- from completed asphalt pavement:
  - compaction data
  - geometric measurements (layer depth, alignment, surface levels, roughness).

A competent and relevant statistical analysis process is to be used for assessment of variability of the above parameters e.g. trend diagrams, standard deviations, coefficients of variation.

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## APPENDIX L

### PERFORMANCE ASSESSMENT AND REPORTING

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## APPENDIX L

### PERFORMANCE ASSESSMENT AND REPORTING

#### L1 INTRODUCTION

The aims for preparing reports on assessment of performance of approved asphalt suppliers are to facilitate:

- regular assessment of their performance in relation to the terms of their certificate of registration
- determination of their continuing suitability for registration as approved asphalt suppliers
- an environment of continuous improvement.

#### L2 ASSESSMENT REPORT FORMAT

Performance assessment reports shall be compiled on Form MAS 208 (refer Attachment 1 of Appendix L). Supporting details are to be appended to these reports as warranted, e.g.

- summary evidence in support of comments on assessments (e.g. typical audit reports, letters)
- non-conformance reports
- corrective action reports to illustrate improvement initiatives.

#### L3 PERFORMANCE CRITERIA

Form MAS 208 sets out the assessment criteria to be addressed by the superintendent in compilation of performance reports and in discussion of them with the other parties.

More detailed subsets of requirements for compliance are listed against each of the performance criteria. It is intended that an assessment of the asphalt supplier's performance be made against each of these requirements for compliance.

All performance assessment reports indicating significant non-compliance with these criteria must be supported by documentary evidence such as audit reports, technical reports, photographs, correspondence, memoranda and/or site instructions which demonstrate the non-compliance together with advice on actions taken by the asphalt supplier and/or other parties to rectify the non-compliance, including adjustment of any relevant systems and/or processes.

#### L4 ASSESSMENT AND REPORTING PROCESS

Attachment 2 of Appendix L is a summary diagram of the *Procedure for Performance Assessment and Reporting*.

It is envisaged that the arrangements for performance assessment will be discussed in the pre-start conference for the project. These discussions must involve the superintendent, contractor (if other than the asphalt supplier) and the asphalt supplier. It is expected that the agreed arrangements will

then be incorporated in the project management arrangements of the contractor and the asphalt supplier as well as in the superintendent's surveillance plan.

Reports on asphalt supplier performance are initiated by superintendents (or their nominated representatives) for the various Main Roads works and are to be prepared in consultation with the asphalt supplier and (where the asphalt supplier is a subcontractor) with the contractor.

Generally, performance reports will only be compiled on completion of each asphalt supply and/or laying component of Main Roads projects where the project or group of projects involve more than 2000 tonnes of asphalt, or where specific arrangements apply for smaller quantities, irrespective of whether the asphalt supplier is the contractor or a subcontractor. Where asphalt manufacture or paving activities for a particular project are undertaken in several stages separated by significant time periods (e.g. several months), a performance report is to be completed following each stage of the asphalt manufacture or paving involving more than 2000 tonnes of asphalt.

Performance reports may be compiled at any time during the progress of any contract.

It is intended that performance reports shall be prepared in consultation between the superintendent and the asphalt supplier, including discussion with the contractor where the asphalt supplier is a subcontractor. All of these parties are to sign the report.

## **L5 MANAGEMENT OF COMPLETED REPORTS**

Completed reports shall be submitted by the superintendent to the M(ID) of the relevant Main Roads District within 14 days of completion of the asphalt paving component of the project – for each phase of asphalt paving where several stages are involved. The M(ID) shall then discuss the report with the superintendent, contractor and asphalt supplier as warranted, record the outcome of the discussions and attach this to the report.

The M(ID) shall forward the performance assessment report (including any notations and/or reports on discussions with the other parties listed above), together with his own recommendations to the Principal Chemist, Pavements Materials and Geotechnical Division within seven days of its receipt from the superintendent.

The Principal Chemist shall promptly consider all reports on performance of approved asphalt suppliers and shall:

- consult with other parties to each report as necessary in relation to any recommendations accompanying such reports for amendment of conditions of registration of an approved asphalt supplier or on other relevant issues and record the outcome of the discussions
- notify the asphalt supplier of any intended changes to the terms of its registration
- notify other parties of the intended changes as necessary
- adjust the register
- maintain a record of all reports on the performance of approved asphalt suppliers, including all related reports, correspondence and notations.

## **L6 RESPONSIBILITIES - SUMMARY**

- Superintendent responsibilities:
  - ensure assessments are conducted with the asphalt supplier
  - involve the contractor in the assessment process

- undertake assessments within 14 days of completion of asphalt paving and at key stages e.g. if there is more than one phase of asphalt works.
- M(ID) responsibilities:
  - ensure assessments are made and reports submitted on time
  - discuss reports with superintendent, contractor and/or asphalt supplier as warranted
  - record all relevant discussions with the various parties
  - keep the Principal Chemist informed as necessary on activities relating to preparation and review of assessment reports (e.g. by forwarding preliminary copies of reports and advice of action being taken with them)
  - comment on superintendent reports and report on discussions – in writing
  - forward completed reports, attachments and recommendations (if any) to the Principal Chemist within seven days of their receipt from the superintendent.
- Principal Chemist responsibilities:
  - discuss reports and issues of significance in them with the M(ID) and other parties as necessary
  - record all relevant discussions with the various parties
  - notify the asphalt supplier and other parties as necessary of any changes to the register resulting from reports
  - maintain a record of all performance assessment reports and associated papers.

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**APPENDIX L**  
**ATTACHMENT 1**

**ASPHALT SUPPLIER PERFORMANCE REPORT FORM**

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## ASPHALT SUPPLIER PERFORMANCE REPORT FORM

### Purpose of Report:

- To record satisfactory performance and completion
- To record satisfactory completion after rectifying significant defects and/or non-conformance
- To record continuing significant defects and/or non-conformance

**Job Name:**

**Job Number:**

### Job Description

Type of work (e.g. new, overlay)		Asphalt Course (e.g. wearing, base)	
Asphalt Type (e.g. DG10, SM14)		Layer Thickness	
Asphalt Tonnage		Paving Date(s)	
Circumstances (e.g. night work, traffic situation)			

### Job Contacts

Contractor		Phone
Asphalt Supplier		Phone
Superintendent		Phone
Principal's Delegate		Phone

### Report completed by:

\_\_\_\_\_ Superintendent \_\_\_\_\_ Date

### Report acknowledged by:

\_\_\_\_\_ Asphalt Supplier \_\_\_\_\_ Date

\_\_\_\_\_ Contractor \_\_\_\_\_ Date

**Superintendent –  
Forward report to Manager  
(Infrastructure Delivery) at:**

*(Main Roads District Office)*

**Manager (Infrastructure Delivery) -  
Forward report to:**

*Principal Chemist  
Pavements Materials and Geotechnical  
35 Butterfield Street  
Herston Qld 4006*

**PERFORMANCE ASSESSMENT – COMPLIANCE WITH CRITERIA**

Criteria Being Assessed		Requirements For Compliance	Assessment Summary	
			Comments	Rating
1	Management systems: <ul style="list-style-type: none"> <li>• quality management</li> <li>• safety</li> <li>• environmental</li> <li>• traffic management</li> </ul>	Adequate project specific management plans prepared by the asphalt supplier, including planning of processes, operations, verification and documentation requirements		
		Project managed in accordance with above plans and relevant systems (e.g. traffic management plans)		
		No repeated serious non-conformances (in work and/or delivered product and in use of systems)		
		Audit reports confirm compliance with defined management and process plans		
		Management systems certification maintained		
2	Expertise of staff: <ul style="list-style-type: none"> <li>• management (company and project levels)</li> <li>• supervisory staff (manufacturing and paving operations)</li> <li>• operators</li> </ul>	Effective project organisation structure		
		Management and supervisory staff directly involved in project		
		Staff adequately qualified or experienced		
		Standard of workmanship competent and complies with specified requirements		
		Low staff turnover, especially in key personnel		

**PERFORMANCE ASSESSMENT – COMPLIANCE WITH CRITERIA**

Criteria Being Assessed		Requirements For Compliance	Assessment Summary	
			Comments	Rating
3	Suitability of equipment: <ul style="list-style-type: none"> <li>• manufacturing</li> <li>• handling and transport</li> <li>• paving</li> </ul>	Manufacturing plant consistently produces approved mix design in compliance with specification requirements		
		Adequate equipment utilised for handling, transport and paving operations		
		Equipment well maintained		
4	Mix design	Complies with approved mix design requirements during production		
		Effective control at all times of raw material components		
		Arranges for mix design revision/modification and reapproval in the event of component materials changing or as indicated by performance of mix		
5	Workmanship: <ul style="list-style-type: none"> <li>• preparation of surface or underlying lots</li> <li>• production lots</li> <li>• pavement lots</li> </ul>	Provides adequate preparation of surface prior to laying asphalt		
		Acceptable variability within asphalt lots		
		Rarely warrants reduced level of service deductions or rejection of lots		
		Adjusts asphalt manufacture and/or paving operations and/or associated processes and/or management systems as warranted		

**PERFORMANCE ASSESSMENT – COMPLIANCE WITH CRITERIA**

Criteria Being Assessed		Requirements For Compliance	Assessment Summary	
			Comments	Rating
6	Inspection and testing	Uses inspection and test plans as a management tool		
		Analyses test data and trends for purposes of effective management control on individual projects and across projects		
		Makes test data and its analysis available for discussion with contractor and/or superintendent		
7	Project management	Establishes and maintains good working relationships with all relevant parties		
		Conducts all communications effectively and in a timely manner in accordance with an agreed communications plan		
		Submissions always adequate and by defined deadlines		
		Completes project in period for construction - milestones and/or targets consistently met		
		Informs contractor (and superintendent) of milestones and hold points		
		Rectifies defects during warranty period		

## PERFORMANCE ASSESSMENT – COMPLIANCE WITH CRITERIA

Criteria Being Assessed		Requirements For Compliance	Assessment Summary	
			Comments	Rating
8	Management of subcontractors	Activities of subcontractors fully integrated into project and process management plans		
		Timely and complete submissions for approval of subcontractors		
		Subcontractors consistently meet contractual requirements		
		Project not disrupted due to unsatisfactory performance by subcontractors		
		Always pays subcontractors in a reasonable time frame		

### Notes/guidance:

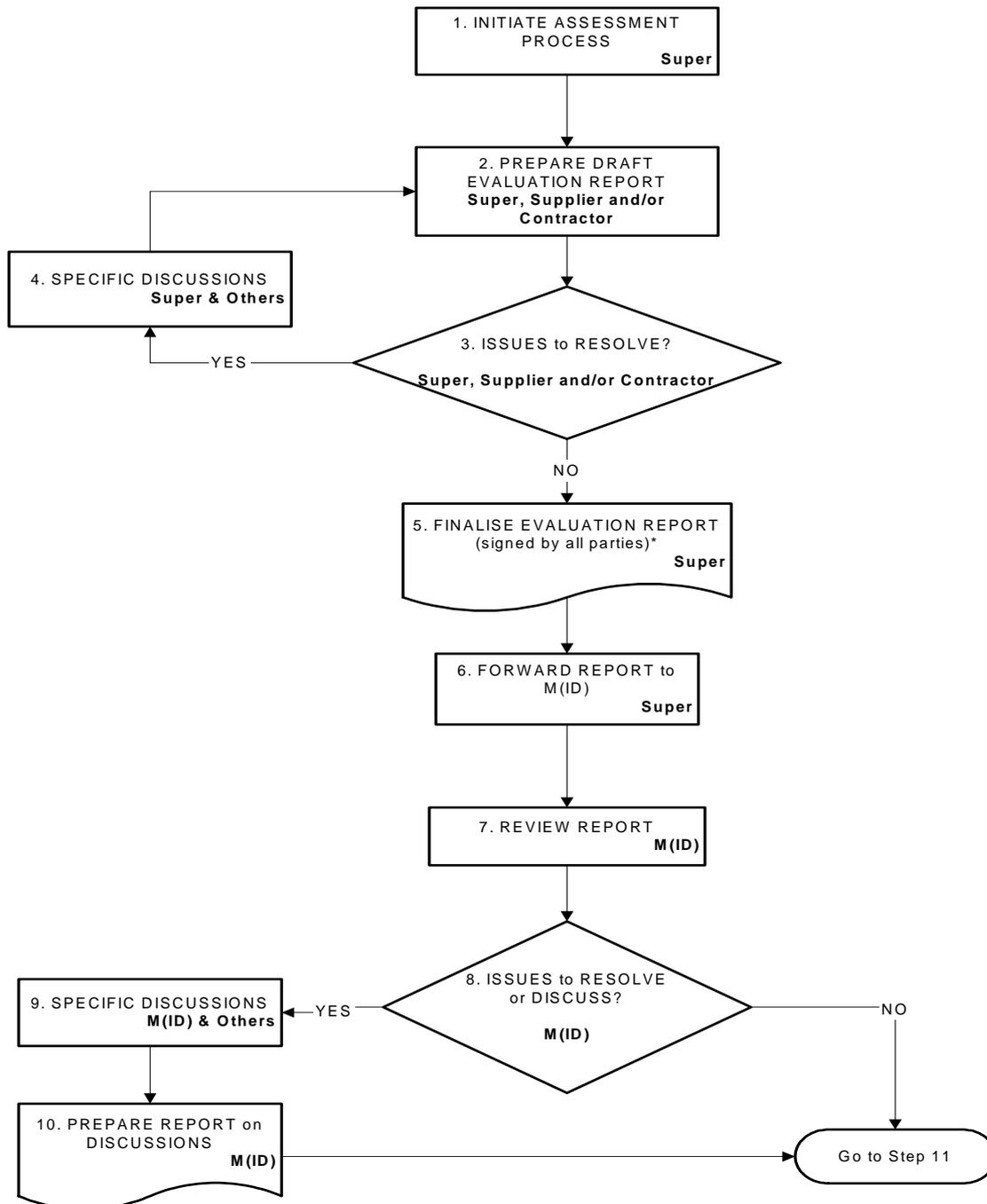
- Assessors are to insert in the rating column their conclusion for each requirement for compliance using the following legend:  
S = Satisfactory – complies with all requirements.  
O = Satisfactory – observations for improvement.  
M = Satisfactory – minor non-conformances requiring action.  
U = Unsatisfactory – major non-conformances - essential that improvements be made on any future projects.
- Assessors are to insert in the comments column a summary of the basis on which the rating for each requirement for compliance is derived.
- Summary evidence (e.g. typical audit reports, NCRs, CARs, letters, etc) in support of the above comments is to be appended to the report – reference to such reports needs to be included with comments against relevant requirements for compliance.
- Where “U” or “M” ratings are recorded against any requirement for compliance, summary evidence (succinct and relevant) is to be appended to the report; similarly it may be useful to the parties to the assessment, and/or the Principal Chemist, if succinct and relevant details are appended to assist in appreciation of “O” ratings.
- Detailed documents are not to be appended to the report (e.g. compliance reports, management plans) – only append extracts from such documents that are directly related to a “U”, “M” or “O” rating where such information can assist appreciation of the ratings and/or the overall report.
- Inclusion in the report of summary notations of relevant improvement initiatives is encouraged e.g. actions taken to implement improved quality control techniques, corrective actions that have effectively prevented recurrence of non-conformances (previously recorded with “U” or “M” ratings).

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## APPENDIX L

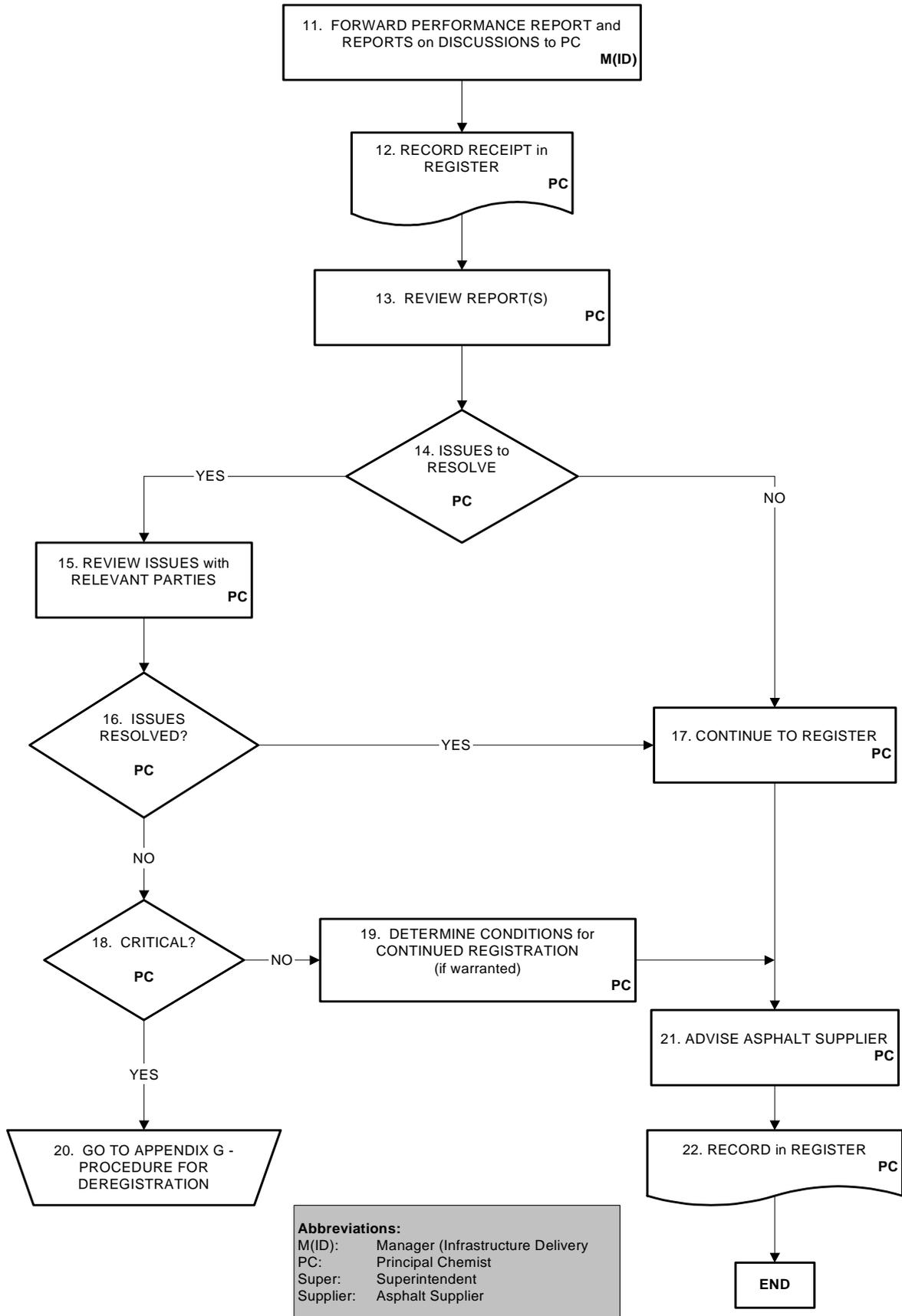
### ATTACHMENT 2

# PROCEDURE FOR PERFORMANCE ASSESSMENT AND REPORTING



\*where issues cannot be resolved, forward report and attachments (detailing issues from both parties) to M(ID)

# System For Registration of Approved Asphalt Suppliers



Filename: Asphalt Manual March 2004.doc  
Directory: R:\Publications\Asphalt Supplier Registration  
Template: C:\Documents and Settings\dascrem\Application  
Data\Microsoft\Templates\Normal.dot  
Title: Proposed briefing of DMR, Qld officers on CCF Civil  
Construction Management Code (referred to hereunder as the CCF  
scheme) and  
Subject:  
Author: Unknown User  
Keywords:  
Comments:  
Creation Date: 22/01/2004 2:03 PM  
Change Number: 13  
Last Saved On: 3/03/2004 8:11 AM  
Last Saved By: dascrem  
Total Editing Time: 4,108 Minutes  
Last Printed On: 3/03/2004 9:55 AM  
As of Last Complete Printing  
Number of Pages: 90  
Number of Words: 16,703 (approx.)  
Number of Characters: 95,208 (approx.)