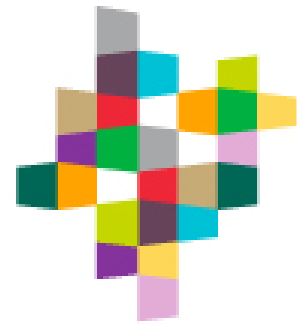


**QPRC**



**QUEANBEYAN PALERANG  
REGIONAL COUNCIL**

**DEVELOPMENT  
CONSTRUCTION  
SPECIFICATION**

**CQS**

**QUALITY SYSTEM  
REQUIREMENTS**

**VERSION 1 – DECEMBER 2018**

**Amendment Record for this Specification Part**

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

<b>Amendment Sequence No.</b>	<b>Key Topic addressed in amendment</b>	<b>Clause No.</b>	<b>Amendment Code</b>	<b>Author Initials</b>	<b>Amendment Date</b>
VERSION 1	Concurrence provisions added for release of Hold Points.	CQS4	A	KD	13/04/10
	Definitions of Principal Certifying Authority, Water Authority and Sewer Authority added				
	Abbreviations added – PCA, SA, and WA	CQS5	A		
	Concurrence provision added	CQS14.3.2	A		
	Additional categories added	CQS-B	A		
	Blasting added	CQS-C1	A		
	Excavation by blasting added	CQS-C2	A		
	Standards added	CQS-C6	A		
	Protective treatment for signs, standards added	CQS-C15	A		
	PVC-M, PVC-O and steel pipe added	CQS-C17	A		
	Polypropylene (PP) and steel pipe added	CQS-C18	A		
	References to QPRC updated	Various	M	EE	4/06/18

**SPECIFICATION CQS**

**CONTRACT QUALITY SYSTEM REQUIREMENTS – VERSION 1**

CLAUSE	CONTENTS	PAGE
<b>GENERAL .....</b>		<b>1</b>
CQS1	SCOPE.....	1
CQS2	PREAMBLE.....	1
CQS3	REFERENCE DOCUMENTS.....	1
CQS4	DEFINITIONS .....	2
CQS5	ABBREVIATIONS .....	4
<b>QUALITY MANUAL AND QUALITY PLAN .....</b>		<b>5</b>
CQS6	QUALITY MANUAL.....	5
CQS7	QUALITY PLAN.....	5
CQS8	ANNEXURES TO QUALITY MANUAL .....	6
	CQS8.1 Organisation Structure	6
	CQS8.2 Addendums to System Requirement Descriptions	6
	CQS8.3 Register of Method Statements	6
<b>JOB SPECIFIC REQUIREMENTS.....</b>		<b>6</b>
CQS9	GENERAL.....	6
CQS10	METHOD STATEMENTS .....	6
CQS11	DOCUMENT CONTROL.....	7
CQS12	MEASURING AND TESTING EQUIPMENT.....	7
CQS13	PURCHASING .....	7
CQS14	INSPECTION AND TEST PLANS.....	7
	CQS14.1 Documentation	7
	CQS14.2 Sampling and Testing	7
	CQS14.3 Hold Points	8
	CQS14.4 Content	8
CQS15	INSPECTIONS.....	9

## QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG

CQS16	IDENTIFICATION.....	9
	CQS16.1 Lots	9
	CQS16.2 Lot Numbering	9
	CQS16.3 Lot Identification	10
CQS17	TRACEABILITY.....	10
CQS18	SURVEYING CONTROL .....	10
CQS19	RECORDS .....	11
CQS20	NONCONFORMANCE.....	11
CQS21	DISPOSITION OF NONCONFORMANCE .....	12
CQS22	CORRECTIVE ACTION .....	12
CQS23	STATISTICAL TECHNIQUES.....	13
CQS24	QUALITY AUDITS.....	13
	<b>SPECIAL REQUIREMENTS .....</b>	<b>13</b>
CQS25	RESERVED.....	13
CQS26	RESERVED.....	13
	<b>MEASUREMENT AND PAYMENT.....</b>	<b>14</b>
CQS27	PAY ITEMS .....	14
	<b>ANNEXURES</b>	
CQS-A	RANDOM SAMPLING	
CQS-B	METHOD STATEMENT REQUIREMENTS	
CQS-C	MAXIMUM LOT SIZES AND MINIMUM TEST FREQUENCIES	
CQS-D	NONCONFORMANCE REPORT FORM	

**SPECIFICATION CQS**  
**QUALITY SYSTEM REQUIREMENTS – VERSION 1**

**GENERAL**

**CQS1 SCOPE**

1. This Specification covers the contractual requirements for the Quality System documentation and operation.

**CQS2 PREAMBLE**

1. The Contractor shall establish, implement and maintain a Quality System in accordance with this Specification and the requirements of AS/NZS ISO 9001

**Standards**

2. The Quality System as expressed in the Quality Plan shall be used throughout the course of the Contract to ensure that the quality of the Contractor's and any sub-contractor's work complies with the requirements of the Contract Documents. This shall apply to all work under the Contract, both on site and off site.

**Applicable to Work On and Off Site**

3. Notwithstanding any statements to the contrary in the Contractor's Quality Manual or Quality Plan, no part of the Quality System shall be used to pre-empt, preclude or otherwise negate the requirements of any part of the Contract Documents. Quality System requirements shall be used as an aid in achieving compliance with the Contract Documents and documenting such compliance. In no way shall they relieve the Contractor of its responsibility to comply with the Contract Documents.

**Compliance with Contract Documents**

**CQS3 REFERENCE DOCUMENTS**

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Documents Standards Test Methods**

- AS/NZS ISO 9000 Quality management systems - Fundamentals and vocabulary
- AS/NZS ISO 9001 Quality management systems -- Requirements
- AS/NZS ISO 10013 Guidelines for quality management system documentation
- AS/NZS ISO 19011 Guidelines for quality and/or environmental management systems auditing
- Handbook HB 90.3 The Construction Industry Guide to ISO 9001:2000
- NSW RTA (Q2-Q6) Quality Management Systems specification

2. Clause references shown on the right margin (keyword column) relate to AS/NZS ISO 9001 Additional guidance is provided in HB 90.3.

**CQS4**

**DEFINITIONS**

**Synonym or Abbreviation**

1. For the purpose of this Specification, the definitions as in AS/NZS ISO 9000 and those below apply:

**Corrective Action**

Measures, including preventative measures, taken to rectify conditions which have caused or might cause nonconformity.

**Corrective Action**

**Corrective Action Request**

A formal advice/instruction from the Superintendent regarding departures from the Quality System or Methods as approved in the Quality Plan. Unless specifically noted, it will not require raising of a Nonconformance Report.

**CAR**

**Disposition**

Action to be taken to resolve nonconformance. (Lot Specific)

**Rectification**

**Hold Point**

A defined position in the construction/manufacturing stages of the Contract beyond which work shall not proceed without mandatory verification and acceptance by the Superintendent. Where indicated, the Superintendent shall seek concurrence from the Council, Principal Certifying Authority, Water Authority or Sewer Authority (as applicable) before granting acceptance.

**HP**

The issue of a Nonconformance Report (NCR) or a Notice of Nonconformance (NNC) automatically creates a Hold Point.

**Inspection and Test Plan**

The working document which identifies the specific inspections and tests to be carried out for works required by the Contract.

**ITP**

**Lot**

A lot consists of any part of the works which has been constructed/manufactured under essentially uniform conditions and is essentially homogeneous with respect to material and general appearance.

The whole of the work included in a lot shall be of a uniform quality without obvious changes in attribute values.

**Method Statement**

A document that specifies the key steps and sequence in the manufacture/construction for an activity; what, how and by whom it shall be done; what materials and equipment shall be used to achieve the required quality standards.

- **Procedures**  
 - **Technical Procedures**  
 - **Process Descriptions**  
 - **Specific Procedures**

**Nonconformance Report**

A mandatory (standard format) report submitted by the Contractor that details the nonconforming work and the Contractor’s proposed disposition of the non-conformance.

**NCR**

	Synonym or Abbreviation
<p><b>Notice of Nonconformance</b></p> <p>Formal instruction from the Superintendent regarding product non-conformance from that specified. It automatically creates a Hold Point and requires a Nonconformance Report from the Contractor.</p>	<b>NNC</b>
<p><b>Performance Audit</b></p> <p>An examination to evaluate whether established methods and procedures are being adhered to in practice.</p>	<ul style="list-style-type: none"> <li>- <b>Process Audit</b></li> <li>- <b>Technical Procedure Audit</b></li> <li>- <b>Methods Audit</b></li> </ul>
<p><b>Principal Certifying Authority (PCA)</b></p> <p>As defined in S 109E of the Environmental Planning and Assessment Act 1979)</p>	<b>PCA</b>
<p><b>Product Audit</b></p> <p>An assessment of the conformity of the product with the specified technical requirements.</p>	<ul style="list-style-type: none"> <li>- <b>Conformance Audit</b></li> <li>- <b>Service Audit</b></li> </ul>
<p><b>Quality Assurance</b></p> <p>The management actions covering planning, quality control testing, inspection and verification procedures integrated with production to provide a product fit for the purpose.</p>	<b>QA</b>
<p><b>Quality Assurance Representative</b></p> <p>Appointed by the Principal for a specific project and responsible for the auditing, review and surveillance of procedures and documentation required by the Contractor's approved Quality Plan.</p>	<b>QAR</b>
<p><b>Quality Check Lists</b></p> <p>Forms completed during the manufacture/construction process verifying key steps, and records required for the Quality Register. Check lists apply to each identified lot of work.</p>	
<p><b>Quality Management Representative</b></p> <p>Appointed by the Contractor for a specific project with the authority and responsibility for the implementation and operation of the Quality Plan, to ensure that Quality System requirements are not subordinated to design and productivity.</p>	<b>QMR</b>
<p><b>Quality Manual</b></p> <p>A document setting out the general quality policies, procedures and practices of an organisation.</p>	<b>QM</b>
<p><b>Quality Plan</b></p> <p>The Quality Assurance documentation specific to a Contract which comprises of the Corporate Quality Manual with its job specific annexures, method statements, inspection and test plans and check lists.</p>	<b>QP</b>

**Quality Register**

The files containing all quality control records such as test results, completed check lists, certificates of compliance, consignment dockets for materials procured.

**QR**

**Quality System Requirements**

The administrative activities affecting quality that need to be implemented and controlled to ensure that the product or a service meets specified quality requirements.

**Quality Management System Requirements**

**Sewer Authority**

**SA**

Queanbeyan Palerang Regional Council is the Sewer Authority for Queanbeyan local government area

**Special Processes**

Those processes, the results of which cannot be directly examined to establish full conformance. Assurance of satisfactory conformance depends on evidence generated during the process.

**System Audit**

An examination of the documented Quality System represented by the Quality Manual, Quality Plan and Quality Register to evaluate their effectiveness in meeting the requirements of Australian Standards and the Specification.

**Water Authority**

**WA**

Queanbeyan Palerang Regional Council is the Water Authority for Queanbeyan local government area.

**Witness Point**

A nominated position in the manufacture/construction stages of the Contract where the option of attendance may be exercised by the Superintendent, after notification of the requirement.

**WP**

**CQS5 ABBREVIATIONS**

1. Abbreviations used in this specification are:

- CAR - Corrective Action Request
- CQS - Contract Quality System
- HP - Hold Point
- ITP - Inspection and Test Plan
- NATA - National Association of Testing Authorities
- NCR - Nonconformance Report
- NNC - Notice of Nonconformance
- PCA - Principal Certifying Authority
- QA - Quality Assurance
- QAR - Quality Assurance Representative (Principal)
- QM - Quality Manual
- QMR - Quality Management Representative (Contractor)
- QP - Quality Plan
- QR - Quality Register
- SA - Sewer Authority
- SRD - System Requirement Description
- WA - Water Authority
- WP - Witness Point



QUALITY MANUAL AND QUALITY PLAN

**CQS6 QUALITY MANUAL**

1. The Company Quality Manual shall cover and include the requirements for Quality System Documentation as specified in AS/NZS ISO 9001, with guidance to preparation in AS/NZS ISO 10013 and HB 90.3.
2. It shall incorporate all applicable System Requirement Descriptions with reasons for those not regarded as applicable. Additionally it should include standard Method Statements and Inspection and Test Plans for the activities usually undertaken by the Contractor. It would be normal to have these in separate volumes.

**SRDs**

**CQS7 QUALITY PLAN**

1. The Quality System shall be incorporated in the project Quality Plan. The Company Quality Manual with its System Requirement Descriptions, standard Method Statements and Check Lists and the project specific components make up the Quality Plan. This is illustrated conceptually in Figure CQS1.

**Content of QP**

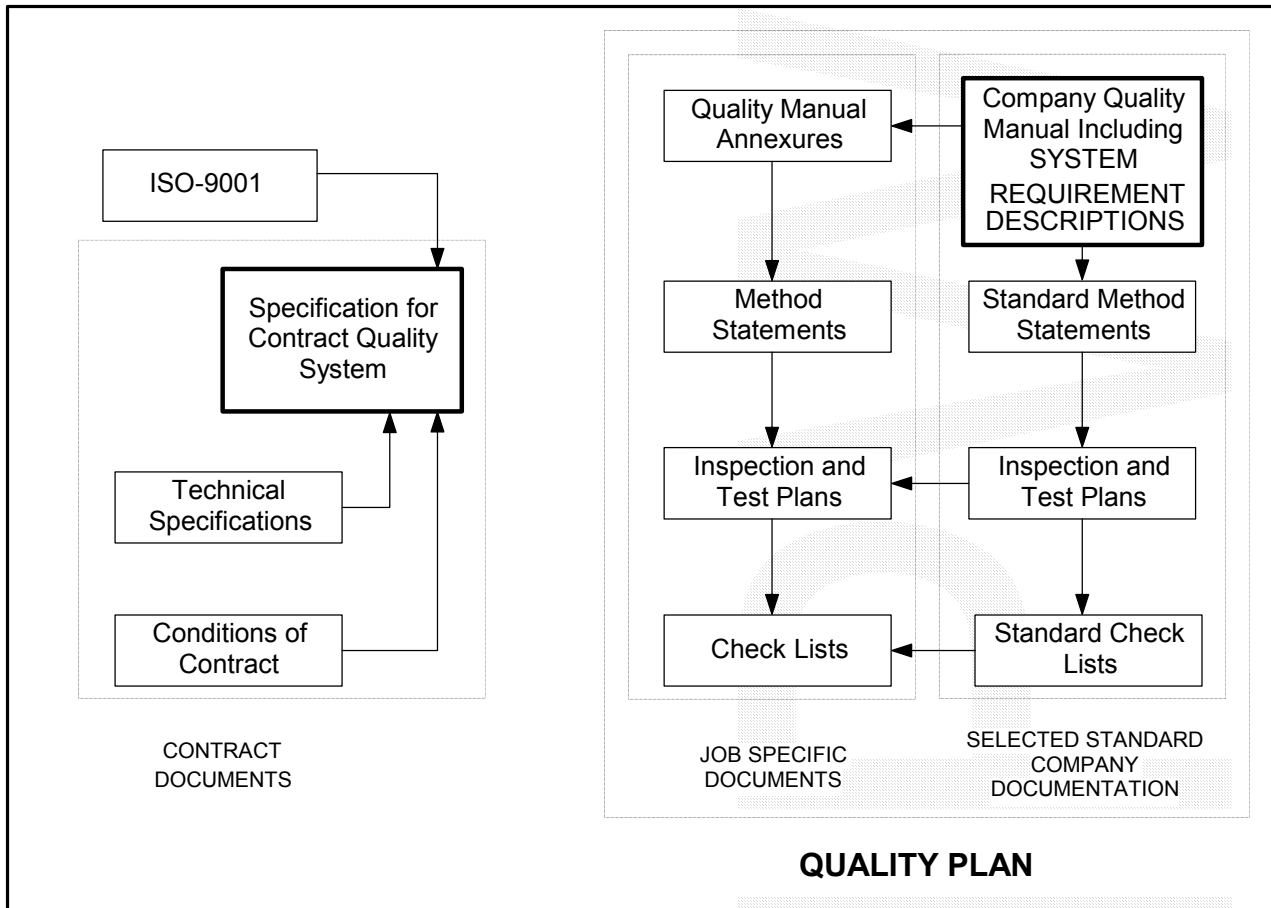


Figure CQS1 - Project Quality System Documentation

**CQS8 ANNEXURES TO QUALITY MANUAL**

The following details shall be provided by appropriate annexures to the Company Quality Manual:

**CQS8.1 Organisation Structure**

- The organisation structure for the management of the project with details of the specific responsibilities and authorities of the nominated key personnel. **Structure**
- The Quality Management Representative (QMR) including this person's qualifications, technical experience and present position together with responsibilities and authorities to resolve quality matters. **QMR**
- The personnel or contracted testing organisations who will be conducting each type of compliance inspection of testing of completed works, their experience, qualification and responsibilities. **Personnel**
- The person authorised to change construction processes on site. **Authority for Changes**

**CQS8.2 Addendums to System Requirement Descriptions**

The System Requirement Descriptions in the Company Quality Manual shall be augmented with suitable addendums to satisfy the requirements of this Specification. **Additional SRDs**

**CQS8.3 Register of Method Statements**

A Register of Method Statements giving the title, identifier and revision status, shall be provided. This Register shall list all Method Statements that are to be included in the Quality Plan for the Contract and shall include any suitable Method Statements already incorporated in the Company Quality Manual. **Content**

**JOB SPECIFIC REQUIREMENTS**

**CQS9 GENERAL**

1. In the Quality Plan, the System Requirement Descriptions in the Company Quality Manual may need augmentation to cover the requirements of AS/NZS ISO 9001 and this Specification. This shall be provided in the form of suitable Annexures or where applicable included in the Method Statements or Inspection and Test Plans.

**Clause 7.1, 7.5**

**CQS10 METHOD STATEMENTS**

1. Method Statements shall be provided for all activities scheduled in Annexure CQS-B. This requirement applies to both contract and subcontracted work. The documentation shall cover, as applicable, planning, methods, verification and control. **Documentation**
2. The presentation of Method Statements may be either descriptive, in the form of flow charts or a combination of both. In either case it must be accompanied by a Check List which shall include the relevant inspection and test points, surveying control points and Hold Points and the officer responsible to verify each check point. **Presentation**
3. A system audit of each Method Statement shall be carried out by the Contractor whilst the process is in effect. **System Audit**

4. The absence of a Method Statement for activities where it has been specified will automatically create a **Hold Point**. *Requirement*

**CQS11 DOCUMENT CONTROL**

*Clause 4.2.3, 4.2.4*

1. In addition to the requirements of AS/NZS ISO 9001, the Quality Plan shall specify the method of keeping Quality Registers, tracking and handling of NCRs and NNCs and site correspondence. *Records*

2. A copy of AS/NZS ISO 9001 shall be kept on site. *AS on Site*

**CQS12 MEASURING AND TESTING EQUIPMENT**

*Clause 7.6*

1. The Quality Plan shall include the latest NATA advice of the terms of registration and current signatories for the laboratories which will be providing the compliance test reports. *NATA Registration*

2. Inspection, testing and measuring equipment shall be capable of producing the precision and/or degree of accuracy specified in the referenced Test Methods and this shall be demonstrable by records of calibration. *Equipment Accuracy*

**CQS13 PURCHASING**

*Clause 7.4*

1. Except where the contract documents already stipulate another quality system standard for specific products or services, the quality assurance provisions detailed in this Specification shall apply to all subcontracted products or services which constitute work under the Contract. *CQS to Cover All Work*

2. The Contractor shall ensure that the requirements of AS/NZS ISO 9001 and the requirements of this clause are included in all such subcontracts. *Subcontracts*

**CQS14 INSPECTION AND TEST PLANS**

*Clause 7.1, 8.1*

**CQS14.1 Documentation**

1. The Quality Plan shall include all inspections, tests and documentation necessary to ensure that the Works comply with Contract Documents. *General Inclusions*

**CQS14.2 Sampling and Testing**

1. All compliance inspections and tests shall be based on lots. *Lots*

2. The Inspection and Test Plans shall include details of the sampling methods. Sampling shall not be restricted to locations dimensioned or otherwise defined for setting out the Works in the Drawings or Specification, but shall be undertaken in a random or unbiased manner, as approved by the Superintendent, at any location within the Works to demonstrate its compliance with the Specification. *Random Sampling*

3. The maximum lot sizes and minimum testing frequencies are listed in the Annexures to the relevant Specifications and/or in Annexure CQS-C to this Specification. Where no minimum frequency of testing, or maximum lot size is stated in the Specification, the Inspection and Test Plan(s) shall nominate appropriate frequencies for the Superintendent's approval. *Lot Sizes Frequency of Testing*

4. The Inspection and Test Plans shall also uphold any time limits for testing which may be imposed by the Technical Specifications. *Time Limits*

5. Where Test Methods are nominated in the Technical Specifications, sampling *Sampling and*

## QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG

and testing shall be carried out by a NATA registered laboratory accredited for those test methods and sampling procedures. Sampling shall be conducted by personnel from the NATA registered laboratory which has been accredited for that sampling procedure and shall be supervised by the approved signatory from that laboratory. Test results shall be reported on NATA endorsed test documentation which shall include a statement by the approved signatory certifying that the correct sampling procedures have been followed.

**Testing**

6. In special circumstances the Principal may accredit a laboratory that is not NATA registered for specific tests or inspection procedures.

**Special Accreditation**

7. Every testing agency or person providing written test reports for any and all testing undertaken shall use unique consecutive project specific serial numbering of the reports for identification and auditing purposes.

**Consecutive Numbering**

8. The Contractor shall reinstate all core holes, test holes, excavations and any other disturbance resulting from any testing activity. The reinstatement shall be to a standard which is at least equal to the specified requirements for the particular work.

**Reinstatement**

9. The responsibility for completion of inspections, tests and documentation shall be stated in the Quality Plan.

**Testing Responsibility**

### **CQS14.3 Hold Points**

1. To assure compliance with the specified standards and requirements, mandatory Hold Points shall apply. Hold Points are those stages during the construction/manufacturing process where the Technical Specifications require "approval by the Superintendent" or where a NCR or NNC has been issued. The Contractor shall not proceed past the HP until approval has been received from the Superintendent to proceed. For ease of identification Hold Points may also be annotated on the margins of Technical Specifications.

**Superintendent's Approval to Proceed**

2. To obtain the approval to proceed from the Superintendent, the Contractor shall:

**Requirements for Approval to Proceed**

- provide the information required by the Technical Specifications
- ensure and certify that the particular lot/process is conforming;
- ensure and certify that all underlying and adjacent lots affected by the lot in question are conforming;
- submit the appropriate form (Check List, NCR or NNC) at least 24 hours prior to the time the Contractor wishes to proceed with the placement/construction of the next lot, unless some alternative arrangements have been agreed with the Superintendent. Where the Superintendent is required to obtain concurrence by the Council, PCA, Water Authority or Sewer Authority for an item, an alternative arrangement shall not be agreed without such concurrence.

3. If the HP has resulted from a NCR or NNC, the Superintendent's approval may be conditional on a Witness Point being included.

**Witness Point**

### **CQS14.4 Content**

1. As a minimum, the Inspection and Test Plans shall contain the following information:

**Information to be Provided**

- item number/lot type reference(s)
- activity description
- specification requirements or where impractical: specification reference
- sampling method
- test method

- test frequency

2. Inspection and Test Plans will typically have an associated Check List which shall require completion for each particular lot.

**Check List for Each Lot**

**CQS15 INSPECTIONS**

1. Incoming inspections shall be required for deliveries of materials that will be subsequently included in one or more lots. When completing Check Lists for particular Lots the inspection status shall be cited.

**Clause 7.4.3, 8.2.4**

2. In-process and compliance inspections shall be completed by a responsible officer nominated in the Check List and certified by the Contractor's QMR indicating that the work has been completed in accordance with the Contract Documents.

**Clause 8.2.3, 8.2.4**

3. The Contractor shall establish and maintain a system to ensure and demonstrate that all products or parts of products requiring inspection and/or testing are so inspected and/or tested.

**Clause 8.2.4**

4. The Contractor shall also establish and maintain a system for identifying the inspection status for all lots of work.

**Clause 7.5.3, 8.2.4**

**CQS16 IDENTIFICATION**

**Clause 7.5.3**

**CQS16.1 Lots**

1. All items of work shall be subdivided into lots.

2. Lots shall be chosen by the Contractor but shall be within the limits given in Annexure CQS-C. In general, the size of the lot shall not exceed one day's output for each work process designated for lot testing.

**Lot Size**

3. Lot numbers shall be used as identifiers on all Quality System data.

**Lot Numbers**

4. The Contractor shall determine the bounds of each lot before sampling and shall physically identify each lot clearly. The physical identification of a lot shall be maintained until the Contractor has ensured that the lot has achieved the specified quality.

**Lot Identification**

**CQS16.2 Lot Numbering**

1. Each lot shall be given a unique lot number. The allocation of lot numbers shall be carried out by the Contractor to suit the circumstances, provided the lot numbering system complies with the following requirements:

**Numbering System**

- the lot number shall be entered in the Quality Register which shall provide at least the following information:
  - three dimensional location of the lot (chainage of the start and finish points, lateral location and layer location) and/or the particular structure (e.g. pier or abutment number, pour number)
  - indication of conformance or nonconformance
  - summary of test results (e.g. characteristic value) and
  - location of test sites, test identification numbers and test results
- for nonconforming lots a new number, or numbers, shall be allocated to the resubmitted/subdivided lot(s), but reference shall be maintained to the original lot number.

**Non-conforming Lots**

**CQS16.3 Lot Identification**

1. To ensure all site personnel can readily identify where the particular lots are in the field, the Contractor shall implement a field identification system which will clearly identify the bounds of each lot and the lot number. This identification system shall be detailed in the Quality Plan and shall be maintained during all stages of construction of the lot.

**Field Identification**

2. The boundaries of a lot may be changed if subsequent events cause the original lot to be no longer essentially homogeneous. This will require appropriate notation in the Quality Register by the QMR.

**Lot Boundaries**

**CQS17 TRACEABILITY**

**Clause 7.5.3, 4.2.4**

1. The lot identification system, site records and sample numbering system shall allow test results to be positively identified with material incorporated in the works.

2. Traceability is required for concrete loads, asphalt loads and steel plate as follows:

**Materials for Traceability**

- (a) Concrete used in bridge components, cast-in-place box culverts, retaining walls, road pavement subbase and base. Asphalt used in wearing courses, intermediate courses and drainage layers.

The trace shall start at the batch plant and finish at the location where the concrete or asphalt is incorporated in the Works. Records shall be kept of the batch quantities, mix and despatch time, testing details and location of placement.

- (b) Steel plate in bridge girders and bridge columns.

The trace shall start at the steelworks and finish at the location of the plate in the girder or column. Records shall be kept of the steel heat number, testing details and location of the plate in the girder or column.

**CQS18 SURVEYING CONTROL**

1. Surveying Control shall be treated as a separate System Requirement and shall include all measurement, calculation and record procedures necessary to:

**Requirements**

- (a) set out the Works
- (b) verify conformance to the Drawings and Specification in relation to dimensions, tolerances and three dimensional position,
- (c) determine lengths, areas or volumes of materials or products, where required for measurement of work.

2. The Method Statements for Surveying Control shall describe the process control parameters for special processes which cannot be fully verified by subsequent inspection and test.

**Clause 7.5.2, 8.2.3**

3. The Contractor shall appoint qualified surveyors who are eligible for membership of the Institution of Surveyors, Australia or the Institution of Engineering and Mining Surveyors, Australia to supervise and take responsibility for all Surveying Control.

**Surveyor Qualifications**

4. The procedures and equipment used must be capable of attaining the tolerances nominated in the Specification.

**Equipment**

5. Sampling for conformance verification purposes shall not be restricted to the locations used to set out the Works.

**Sampling Locations**

- |  |                                    |
|--|------------------------------------|
| <p>6. The Contractor shall submit a Survey Conformance Report for each lot or component where design levels, position and/or tolerances have been specified. The Survey Conformance Report shall show 'specified vs. actual' for position (defined by co-ordinates or chainage and offset), level and tolerance as appropriate and shall be certified by the qualified surveyor responsible for the verification survey.</p>   | <p><b>Conformance Report</b></p>   |
| <p>7. Where work is to be covered up after conformance has been achieved, a <b>HOLD POINT</b> shall apply until the Survey Conformance Report has been submitted.</p>  | <p><b>Submission of Report</b></p> |
| <p>8. All survey records shall be included in the Quality Records and recorded in the Quality Register. Verification field book pages shall be clearly labelled, dated and signed by the surveyor with cross indexed references to equipment used, lot/component identification and associated Survey Conformance Reports. Where automatic data recording systems are used for verification surveys, a printout of both raw (field) data and reduced data shall be retained in a similar manner as conventional field books.</p> | <p><b>Quality Register</b></p>     |

**CQS19 RECORDS**

**Clause 4.2.4**

- |  |   |
|--|---|
| <p>1. The Contractor shall keep and maintain all Quality System records as required by AS/NZS ISO 9001 and this Specification. They shall be systematically recorded, indexed and filed so as to be retrievable and accessible to the Superintendent or an appointed Quality Auditor on a job basis within one working day of requisition.</p> | <p><b>Quality Register</b></p>                    |
| <p>2. Conformance records shall be stored and maintained such that they are readily retrievable and in facilities that provide a suitable environment to minimise deterioration or damage and to prevent loss.</p>   | <p><b>Storage</b></p>                             |
| <p>3. The Contractor shall make the quality records available to the Superintendent at all reasonable times. If requested by the Superintendent, the Contractor shall provide copies of the records or test results at no cost to the Principal.</p>   | <p><b>Copies of Records Contractor's Cost</b></p> |
| <p>4. If requested by the Principal, within one month from the date of Practical Completion, the Contractor shall provide the Superintendent with a copy of the Quality Register, or parts thereof.</p>  | <p><b>Finalisation</b></p>                        |
| <p>5. The Contractor shall supply the Superintendent progressively with advice in writing of any amendments to design details for inclusion in Work-As-Executed Drawings (W.A.E).</p>  | <p><b>W.A.E.</b></p>                              |

**CQS20 NONCONFORMANCE**

**Clause 8.3**

- |   |                                  |
|---|----------------------------------|
| <p>1. All nonconforming works detected by the Contractor's Quality System shall be reported to the Superintendent via a Nonconformance Report within one working day of being detected. Nonconformance Reports shall be submitted with all records which indicate a departure from the requirements of the Contract Documents. The NCR shall indicate the proposed disposition.</p> | <p><b>NCR Within One Day</b></p> |
| <p>2. If the disposition of the nonconformance cannot be determined within one working day, the Contractor shall submit a partially completed NCR identifying the nonconformance.</p>   |                                  |
| <p>3. The nonconforming product shall not be covered up unless a disposition has been accepted/approved by the Superintendent and implemented by the Contractor.</p>  | <p><b>Disposition</b></p>        |
| <p>4. Where nonconformance can be overcome by simply reworking the lot with the original process, a NCR will be required but a Hold Point will not apply.</p>   | <p><b>Reworking</b></p>          |

## QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG

5. With the exception of circumstances described in paragraph 3 above, a NCR will automatically create a HOLD POINT which shall apply until conformance has been achieved and the Superintendent has signed the Authorisation to Proceed. **Authorisation to Proceed**
6. The Superintendent will issue a Corrective Action Request (CAR) when he detects nonconformance to the Contractors Quality System or Methods. Unless specifically stated, this will not create a Hold Point. **CARs**
7. Where the Superintendent's inspections, surveillance or audits detect product nonconformance, he will issue a Notice of Nonconformance (NNC). This will immediately create a Hold Point and the Contractor is required to submit an NCR in accordance with this Clause. **NNCs**
8. In instances where there is a discrepancy between the test results obtained by the Superintendent and those provided by the Contractor, the results from the Superintendent shall prevail except where the Superintendent may determine a specific audit test procedure to resolve the discrepancy. **Inspection and Rectification**
9. The Contractor shall utilise the standard form for use as an NCR. This form is included as Annexure CQS-D to this specification. All actions shall be signed off by authorised representatives of the Contractor and Superintendent as applicable. **Standard Form**
10. The Contractor shall establish a suitable numbering and registration system for all NCRs and NNCs, including cross referencing as required. **Register of NCRs & NNCs**
11. The Contractor shall nominate a proposed disposition for any nonconformance within five working days or shall show cause to the Superintendent for any further delay. Under no circumstances will the deliberation on disposition of a nonconformance justify an extension of time to the Contract period. **Disposition in 5 Days**

### **CQS21 DISPOSITION OF NONCONFORMANCE**

**Clause 8.3**

1. The Contractor shall advise the Superintendent in the NCR of the proposed disposition of the particular nonconformance. This proposed disposition will constitute corrective action for the lot or lots referred to in the NCR and may comprise one of the following:

**Proposed Disposition**

- (a) propose additional works to bring the lot up to the specified standard; or
- (b) replace all or part of the lot to bring it up to the specified standard; or
- (c) request utilisation of a lot for a reduced level of service if such a clause exists in the relevant Technical Specification; or
- (d) for incidental defects, request that the Superintendent accept the lot without alteration as an exception with or without alteration to the respective unit rates.

2. Any proposed disposition shall be subject to the approval of the Superintendent. Reworked/replaced lots shall be verified to conform to the specified requirements.

### **CQS22 CORRECTIVE ACTION**

**Clause 8.5.2**

1. The Contractor will be required to indicate on the NCR corrective action appropriate to ensure that the Quality Plan is effective in avoiding recurrence of the nonconformance and continues to be effective.

**QP Corrective Action**



**CQS23 STATISTICAL TECHNIQUES**

*Clause 8.2.3,  
8.2.4, 8.4*

1. Random sampling techniques shall be used for each lot for the control of compaction of each continuous layer of earthworks, flexible pavement and asphalt.
2. Annexure CQS-A defines the method to be used for determining test locations of random sampling in each lot.
3. Annexure CQS-C lists the maximum lot sizes and minimum test frequencies for the specified activities.
4. For compaction control of processes other than layers of earthworks, flexible pavement and asphalt, the sampling procedure will be proposed by the Contractor in his method statement and will require the approval of the Superintendent. In such cases the samples shall be each considered to be representative and all test results will be required to meet the appropriate tolerances for the lot.

*Random  
Sampling*

*Test Locations*

*Lot Sizes and  
Test  
Frequencies*

*Sampling  
Procedure for  
Compaction*

**CQS24 QUALITY AUDITS**

*Clause 8.2.2,  
8.2.3*

1. The Contractor's Quality Audit Schedule shall be included in the project Quality Plan. Guidance for the requirements of the auditing process is given in AS/NZS ISO 19011.
2. The Audit Reports shall be provided for the Superintendent.

*Audit  
Schedule*

*Audit Reports*

**SPECIAL REQUIREMENTS**

**CQS25 RESERVED**

**CQS26 RESERVED**

## MEASUREMENT AND PAYMENT

### CQS27 PAY ITEMS

1. Payment shall be made for all activities associated with the planning, establishment, implementation, operation and maintenance of the Quality System for the project. These costs shall include all investigation, inspections, testing, rectification and maintenance of the Quality Register.
2. Cost adjustments, if applicable, will apply the same as to any other Pay Item in the Schedule.

#### Pay Item QP1 QUALITY SYSTEM DOCUMENTS AND RECORDS

1. A lump sum for this item shall be provided for all costs associated with the preparation and submission of the Quality Plan, the provision of the QMR on site and the maintenance of the Quality Records during the course of the Contract.
2. Progress payments shall be calculated on the basis of 30% of the L.S. when the complete Quality Plan is available and the remainder on pro rata based on the monthly value of work done.

#### Pay Item QP2 QUALITY VERIFICATION AND CONTROL

1. The Lump Sum for this item shall include all costs for inspections, conformance surveys and testing required to verify that all aspects of the work under the Contract comply with the Quality Assurance provisions of the Contract.
2. Payments shall be made pro rata on the monthly value of work done.

**ANNEXURE CQS-A**

**RANDOM SAMPLING**

**CQS-A1 GENERAL**

1. Random sampling of test locations shall be used to control relative compaction of each layer of:

- (i) continuous layer of earthworks
- (ii) selected subgrade zone
- (iii) flexible pavement layers
- (iv) asphalt layers
- (v) coring in concrete pavements

which are generally rectangular in area.

**CQS-A2 SAMPLING RATES**

1. The number of samples (n) per lot shall be as indicated in the specific Specification Parts which are summarised in the Sub-Annexure to this Quality Requirements Specification.

**CQS-A3 RANDOM SAMPLING LOCATIONS**

1. Sampling locations within a lot for the control of relative compaction shall be determined as follows:

- (i) Representing the lot as a rectangle, sub-divide the lot lengthwise into equi-area sub-lots in accordance with the number of samples selected (n).
- (ii) Establish six grid lines within the lot, as illustrated in Figure CQS-A2;
- (iii) Throw a die to select a number between 1 and 6. This determines which grid line to use for the sample location in sub-lot 1;
- (iv) Throw die to select a group (1-6) in Table CQS-A1;
- (v) Throw die twice to select two random numbers (between 1 and 6) for row and column in Table CQS-A1 and obtain random fraction R;
- (vi) Length co-ordinate for sample location in Sub-lot 1 =  $RL/n$ ;
- (vii) For sample location in next sub-lot:-  
Add  $L/n$  to previous length co-ordinate.  
Add 1 (on a cycle of 6) to previous grid line.

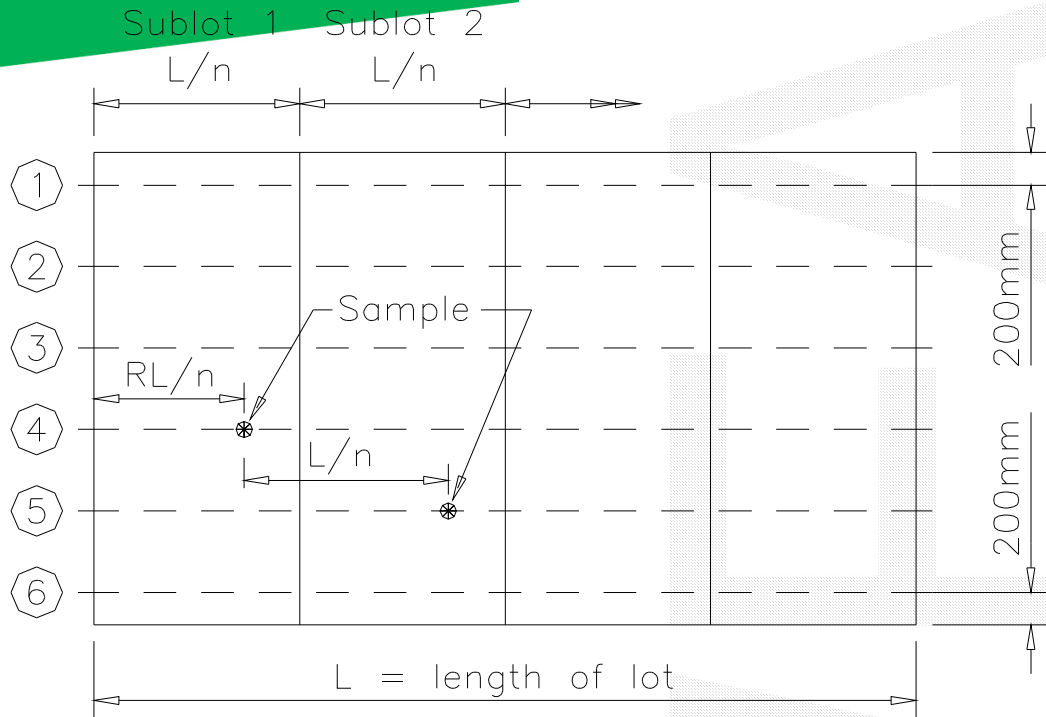


Figure CQS-A2 Sampling Locations for Rectangular Lot

**QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG**

GROUP	ROW	COLUMN					
		(1)	(2)	(3)	(4)	(5)	(6)
(1)	(1)	0.78178	0.45467	0.00347	0.27296	0.00020	0.36517
	(2)	0.59678	0.67931	0.25434	0.59054	0.32444	0.41504
	(3)	0.14464	0.17269	0.61154	0.18291	0.83242	0.50776
	(4)	0.89010	0.44764	0.07451	0.20428	0.49513	0.91440
	(5)	0.91941	0.47726	0.33160	0.30670	0.65114	0.36852
	(6)	0.51085	0.38148	0.22169	0.66578	0.67050	0.69559
(2)	(1)	0.81891	0.48626	0.88892	0.82994	0.16941	0.81528
	(2)	0.37410	0.60232	0.12070	0.79017	0.32981	0.34908
	(3)	0.45921	0.15648	0.58052	0.37413	0.08124	0.97145
	(4)	0.86614	0.94719	0.78872	0.91972	0.45149	0.15107
	(5)	0.26590	0.41140	0.95477	0.81267	0.24018	0.07324
	(6)	0.95205	0.39438	0.73697	0.59427	0.71146	0.00575
(3)	(1)	0.18694	0.36502	0.17828	0.84312	0.57003	0.58583
	(2)	0.91211	0.86936	0.43030	0.27672	0.47393	0.10342
	(3)	0.80714	0.34295	0.00775	0.90855	0.33368	0.21842
	(4)	0.67579	0.92686	0.18005	0.00645	0.11256	0.05278
	(5)	0.03184	0.69876	0.16676	0.43346	0.86992	0.03275
	(6)	0.15623	0.02905	0.72763	0.19095	0.80847	0.39729
(4)	(1)	0.72109	0.17970	0.22505	0.35561	0.98935	0.27818
	(2)	0.37348	0.19381	0.43331	0.75033	0.99963	0.42232
	(3)	0.12129	0.32386	0.56705	0.87165	0.84460	0.92955
	(4)	0.54948	0.08844	0.47061	0.78419	0.18731	0.93485
	(5)	0.15097	0.44967	0.48759	0.84161	0.19212	0.05146
	(6)	0.32360	0.66850	0.99382	0.94050	0.96449	0.96217
(5)	(1)	0.68091	0.54191	0.10910	0.94237	0.23161	0.15167
	(2)	0.97121	0.83626	0.70896	0.45296	0.69475	0.11264
	(3)	0.19723	0.98260	0.57429	0.94789	0.64457	0.20809
	(4)	0.84036	0.14095	0.29451	0.40256	0.34521	0.64924
	(5)	0.97500	0.98056	0.82276	0.97130	0.77329	0.89855
	(6)	0.83244	0.30828	0.06882	0.68471	0.71081	0.91649
(6)	(1)	0.75892	0.29685	0.70044	0.91238	0.53356	0.45239
	(2)	0.13229	0.19701	0.36074	0.32254	0.62045	0.26691
	(3)	0.34789	0.22179	0.91891	0.87651	0.91011	0.97469
	(4)	0.97211	0.68943	0.12831	0.50006	0.20793	0.61151
	(5)	0.24954	0.17809	0.56093	0.51524	0.69135	0.68967
	(6)	0.10062	0.11852	0.47089	0.64765	0.44644	0.35548

**Table CQS-A1 - Table of Random Fractions**



**ANNEXURE CQS-B  
METHOD STATEMENT REQUIREMENTS**

**CQS-B1      GENERAL**

1. Method Statements are required to describe the key steps and sequence in the construction activities, how and by whom each step shall be undertaken and what materials and equipment shall be used. Method Statements may include a flow chart to clarify the sequence of key steps. One or more Method Statements may address a Construction Activity.
2. Each Method Statement will be supported by a Check List which shall identify relevant inspections, test points, materials requirements and Hold Points. Each requirement on the Check List will have an officer responsible identified and will require the nominated officer to sign off the requirement so indicating its satisfactory execution.
3. Method Statements and Check Lists shall be compatible with the appropriate Inspection and Test Plan. Check Lists will be completed for each lot of work during construction and compiled with other documents to comprise the Quality Register.
4. The Contractor shall submit Method Statements and Check Lists to describe the key steps in those Construction Activities listed below in Table CQS-B1 that are identified with a preceding asterisk (\*).

Table CQS-B1 - Construction Activities

Item	Enter * here if required	Activity	Specification Number
1		Control of Traffic	C201
2		Temporary Roadways and Detours	C201
3		Control of Erosion and Sedimentation	C211
4		Clearing and Grubbing	C212
5		Earthworks - Cut	C213
6		Earthworks - Unsuitable Material	C213
7		Earthworks - Embankment	C213
8		Compaction and Quality Control	C213
9		Siting, Excavation, Bedding, Backfilling and Compaction of Stormwater Drainage	C220
10		Installation of Pipe Drainage	C221
11		Installation of Precast Box Culverts	C222
12		Siting and Installation of Drainage Structures	C223
13		Construction of Lined Open Drains including Kerb and Gutter	C224
14		Stabilisation of Pavement or Subgrade Materials	C241
15		Provision of Subsurface Drainage as subsoil drains, pavement drains or free draining layer	C230-C233
16		Construction of Flexible Pavement Layers	C242
17		Construction of Concrete Pavement Layers	C247-C248
18		Construction of Asphaltic Concrete Pavement Layers	C245
19		Sprayed Bituminous Surfacing	C244
20		Bituminous Microsurfacing	C255
21		Construction of Segmental Paving	C254
22		Pavement Marking	C261
23		Minor Concrete Works	C271
24		Landscaping	C273
25		Trenchless Conduit Installation	C305
26		Road Openings and Restorations	C306
27		Water Reticulation	C401
28		Sewerage System	C402
29		Bushfire Protection	C501



**ANNEXURE CQS-C  
MAXIMUM LOT SIZES AND MINIMUM TEST FREQUENCIES**

**GENERAL**

1. The maximum lot sizes and minimum test frequencies are separately specified for all major activities covered by the Technical Specifications as listed hereunder.
2. The requirements applicable to this Contract are identified with an asterisk indicating that only these details are attached in this Annexure.
3. Where material/product quality certification can be obtained from the supplier, tests listed per contract/separable part need not be repeated.

**Contents of Annexure CQS-C**

Item	Sub-Annexure	Required (*) for this Contract	Reference Specification	Sub-Annexure Heading
1	C1		C213	Earthworks
2	C2		C220 C221 C222 C223 C224	Stormwater Drainage - General Stormwater Drainage - Pipe Culverts, Box Culverts, Open Drains, Kerb & Gutter, Drainage Structures Drainage Structures Open Drains including Kerb and Gutter
3	C3		C230 C231 C232 C233	Subsurface Drainage - General Subsurface Drainage Pavement Drains Drainage Mats
4	C4		C241	Stabilisation
5	C5		C242	Flexible Pavements
6	C6		C244	Sprayed Bituminous Surfacing
7	C7		C245	Asphaltic Concrete
8	C8		C247 C248	Ready Mixed Concrete Production and Supply
9	C9		C247	Mass Concrete Subbase
10	C10		C248	Plain or Reinforced Concrete Base
11	C11		C255	Bituminous Microsurfacing
12	C12		C254	Segmental Paving
13	C13		C271	Minor Concrete Works
14	C14		C261	Pavement Markings
15	C15		C262	Signposting
16	C16		C273	Landscaping
17	C17		C401	Water Reticulation
18	C18		C402	Sewerage System

**Sub-Annexure C1  
EARTHWORKS (Specification C213)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Stripping Topsoil	Surface Levels	10,000m <sup>2</sup>	1 Cross Section per 25m	Survey
Excavation	Geometry	10,000m <sup>2</sup>	1 Cross Section per 25m	Survey
Flood of Cuttings	Material Quality - CBR	5,000m <sup>2</sup>	1 per 1,000m <sup>2</sup> *	AS1289.6.1.1
	Compaction	10,000m <sup>2</sup>	1 per 500m <sup>2</sup>	AS1289.5.4.1 or AS1289.5.7.1
Blasting	Ground vibration / noise control	1 day's blasting	Continuous monitoring	
Foundation for Embankments	Compaction	5,000m <sup>2</sup>	1 per 500m <sup>2</sup>	AS1289.5.4.1 or AS1289.5.7.1
Embankments - General	Geometry	One layer 10,000m <sup>2</sup>	1 Cross Section per 25m	Survey
	Material Quality - CBR	One layer 5,000m <sup>2</sup>	1 per 800m <sup>3</sup>	AS1289.6.1.1
	Compaction/Moisture Content	One layer 5,000m <sup>2</sup>	1 per 250m <sup>3</sup>	AS1289.5.1.1 AS1289.5.4.1 AS1289.5.7.1
Road Carriageway Embankments - Select Zone	Geometry	One layer 10,000m <sup>2</sup>	1 Cross Section per 25m	Survey
	Material Quality - Maximum Particle Size	10,000m <sup>2</sup>	1 per 1,000m <sup>3</sup> *	AS1289.6.1.1
	- CBR	10,000m <sup>2</sup>	1 per 500m <sup>3</sup> *	
	Compaction/Moisture Content	One layer 5,000m <sup>2</sup>	1 per 250m <sup>3</sup>	AS1289.5.1.1, AS1289.5.4.1 AS1289.5.7.1
Fill Adjacent to Structures: Bridges, Retaining Walls and Cast-in-Situ Culverts	Material Quality			
	- Maximum Particle Size	1 Structure	1 per 200m <sup>3</sup> *	AS1289.3.3.1
	- Plasticity Index	1 Structure	1 per 200m <sup>3</sup> *	
	Compaction/Moisture Content	1 Structure	1 per layer	AS1289.5.1.1, AS1289.5.4.1 AS1289.5.7.1

\* Note: or part thereof, per lot.

**Sub-Annexure C2**

**STORMWATER DRAINAGE - PIPE CULVERTS, BOX CULVERTS, OPEN DRAINS INCLUDING KERB & GUTTER, DRAINAGE STRUCTURES (Specifications C220, C221, C222, C223, C224)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Supply of Precast Units	Precast Quality - Suppliers documentary evidence and certification	1 batch	1 per type/size/class per batch	
Siting and Excavation	Geometry	1 drainage line/structure	1 per drainage line/structure	Survey
Excavation by Blasting	Peak particle velocity	1 drainage line / structure	1 per drainage line / structure	Measure
Foundation	Compaction	1 drainage line/structure	1 per 20 lin m *	AS1289.5.4.1
Material surrounding Steel Structures	Material Quality - pH/Electrical Resistivity	1 drainage line/structure	1 per material	AS1289.4.3.1 AS1289.4.4.1
Bedding	Material Quality - Particle Size Distribution	1 contract	1 per 200m <sup>3</sup> *	AS1141.11
	Compaction/Moisture Content	1 drainage line/structure	1 per layer, per 20 lin m	AS1289.5.7.1, AS1289.5.4.1
Concrete Bedding or Lining	Geometry		1 Cross Section per 25m	Survey and 3m Straight Edge
Installation of Precast Units	Geometry	1 drainage line/structure	1 per drainage line/structure	Survey
Selected Backfill	Material Quality - Maximum Particle Size	1 contract	1 per 100m <sup>3</sup> *	
	- Plasticity Index	1 contract	1 per 100m <sup>3</sup> *	AS1289.3.3.1
	Compaction/Moisture Content	1 drainage line/structure	1 per 2 layers per 50m <sup>2</sup>	AS1289.5.7.1, AS1289.5.4.1
Rock Fill for Gabions/ Wire Mattresses	Material Quality: - Wet Strength	1 contract	1 per contract	AS1141.22
	- Wet/Dry Strength Variation	1 contract	1 per contract	AS1141.22
Kerb and Gutter	Geometry		1 Cross Section per 25m	Survey and 3m Straight Edge

\* Note: or part thereof, per lot.

**Sub-Annexure C3**  
**SUBSURFACE DRAINAGE (Specifications C230, C231, C232, C233)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD	
Material Supply	Material Quality - Supplier's documentary evidence and certification of:				
	Pipe	1 contract/size	1 per type/size		
	Filter Material				
	- Grading (Type A, B, C, D)	1 contract/size	1 per type	AS1141.11	
	- Coefficient of Permeability (Type B)	1 contract/size	1 per type	AS1289.E5.1 ASTM-D2434-68	
	- Grading Variation after Treatment (Type B)	1 contract/size	1 per type	AS1141.11	
	- Wet Strength (Type C, D)	1 contract/size	1 per type	AS1141.22	
- 10% Fines Wet/Dry (Type C, D)	1 contract/size	1 per type	AS1141.22		
	Geotextile	1 contract	1 per type		
Excavation - Trench Base	Line and Grade	1 drainage line	1 per drainage line	Survey	
	Compaction	1 drainage line	1 per 200 lin m*	AS1289.5.4.1	
Bedding and Backfill					
	- Filter Material	Compaction	1 drainage line	1 per drainage line	AS1289.5.4.1
	- Selected Backfill	Compaction	1 drainage line	1 per 200 lin m*	AS1289.5.4.1
- Earth Backfill	Compaction	1 drainage line	1 per 200 lin m*	AS1289.5.4.1	
Drainage Mat	Geometry	2000m <sup>2</sup>	1 Cross Section per 25m	Survey	

\* Note: or part thereof, per lot

**Sub-Annexure C4  
STABILISATION (Specification C241)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Material Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Cement	1 contract	1 per 100t	AS3972
	- Quicklime			
	· Available Lime (CaO content)	1 contract	1 per 100t	AS3583.12
	· Slaking Rate	1 contract	1 per 100t	T432
	· Particle Size Distribution	1 contract	1 per contract	AS1141.11
	- Hydrated Lime			
	· Available Lime (CaOH <sub>2</sub> )	1 contract	1 per 100t	AS3583.12
	· Residue on Sieving	1 contract	1 per contract	AS3583.14
	- Ground Blast Furnace Slag	1 contract	1 per month	AS3583.2
- Flyash	1 contract	1 per month	AS3583.1	
- Blended Stabilising Agent	1 contract	1 per month		
- Water				
Chloride ion content	1 contract	1 per contract	AS3583.13	
Sulphate ion content	1 contract	1 per contract	AS1289.4.2.1	
Undissolved solids	1 contract	1 per contract		
Mix Design	NATA certification - Supplier's documentary evidence and certification	1 mix	1 per mix	
Stationary Mixing Plant	Application rate of stabilising agent	1 day's production	1 per 100t	
	Compressive strength of product	1 day's production	1 per 400t	AS1289.6.1.1
In-Situ Spreading	Spread rate	1 layer 1,000m <sup>2</sup>	1 per lot or 1 per 500m <sup>2</sup>	
Trimming and Compaction	Geometry	1 layer 2,000m <sup>2</sup> , max 1 day's placement	One cross section per 25m	Survey
	Surface Quality	"	10 per 200m lane length *	3m Straight Edge
	Average Layer thickness	"	1 per lot	
	Average Width	"	1 per lot	Measure/Survey
	Relative Compaction/Moisture Content	"	3 per lot	AS1289.5.7.1 AS1289.5.8.1

\* Note: or part thereof, per lot.

**Sub-Annexure C5  
FLEXIBLE PAVEMENTS (Specification C242)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Base and Subbase Supply	Material Quality - Supplier's documentary evidence and certification	1 contract		
	- Particle Size Distribution		1 per 1,000t	AS1289.3.6.1
	- Fine Particle Size Distribution Ratio		1 per 1,000t	AS1289.3.6.3
	- Liquid Limit		1 per 1,000t	AS1289.3.1.1
	- Plastic Limit		1 per 1,000t	AS1289.3.3.1
	- Plasticity Index		1 per 1,000t	AS1289.3.3.1
	- Maximum Dry Compressive Strength		1 per 5,000t	T114
	- Particle Shape		1 per 1,000t	AS1141.14
	- Aggregate Wet Strength		1 per 5,000t	AS1141.22
	- Wet/Dry Strength Variation		1 per 5,000t	AS1141.22
	- Modified Texas Triaxial Classification		1 per contract	T171
	- Unconfined Compressive Strength (Modified)		1 per 5,000t	T116
- Unconfined Compressive Strength (Bound)	1 contract	1 per mix design	T131	
Placement	Geometry: Alignment & Level	One layer 2,000m <sup>2</sup> or max 1 day's placement	1 Cross Section per 15m	Survey
	Width & Surface Trim		10 per selected 200 lin m*	Measure & 3m Straight Edge
	Deflection Control - Benkelman Beam	One layer 5,000m <sup>2</sup> or max 1 day's placement	4 per 1,000m <sup>2</sup> minimum 10 per lot	T160
Compaction/Moisture Content/ Dry Density Testing	One layer 5,000m <sup>2</sup> or max 1 day's placement	10 per 5,000m <sup>2</sup> layer or 3 per lot if less	AS1289.5.2.1, T130, AS1289.5.4.1 AS1289.5.8.1	

\* Note: or part thereof, per lot.

Sub-Annexure C6

**SPRAYED BITUMINOUS SURFACING (Specification C244)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Suppliers documentary evidence and certification of:			
	- Class 170 Bitumen	1 tanker load	1 per tanker load	AS 2008
	- Refinery Cutback Bitumen	1 tanker load	1 per tanker load	AS 2157
	- Polymer Modified Binder	1 tanker load	1 per tanker load	AS 2341.21
	- Bitumen Adhesion Agent	1 delivery	1 per delivery	
	- Cutback Oils	1 delivery/ tanker	1 per delivery/tanker	AS 2758.2
	- Aggregate Precoating Agent	1 delivery/ tanker	1 per delivery/tanker	
	- Aggregate	1 contract	1 per 400m3	AS2758.2
Application Rates	Binder	1 day's operation	Calculate per spray run	
	Aggregate	1 day's operation	Calculate per spray run	

† One per Contract or change in material

\* Note: or part thereof, per lot

**Sub-Annexure C7  
ASPHALTIC CONCRETE (Specification C245)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	<p>Material Quality - Supplier's documentary evidence and certification of:</p> <ul style="list-style-type: none"> <li>- Coarse &amp; Fine Aggregates                             <ul style="list-style-type: none"> <li>· Grading</li> <li>· Moisture Content</li> <li>· Wet Strength</li> <li>· Wet/Dry Strength Variation</li> <li>· Particle Shape</li> <li>· Fractured Faces</li> <li>· Polishing Agg Friction Value</li> </ul> </li> <li>- Mineral Filler</li> <li>- Bitumen Binder</li> <li>- Polymer Modified Bitumen                             <ul style="list-style-type: none"> <li>· Elasticity Recovery at 60°C</li> <li>· Viscosity on ER at 60°C</li> <li>· Torsional Recovery at 25°C</li> <li>· Viscosity at 180°C</li> </ul> </li> <li>- Bitumen Adhesion Agent                             <ul style="list-style-type: none"> <li>· Resistance to Stripping</li> </ul> </li> <li>- Reclaimed Asphalt Pavement (RAP)</li> <li>- Bitumen Emulsion</li> </ul>	<ul style="list-style-type: none"> <li>1 wk's prod'n</li> <li>1 wk's prod'n</li> <li>1 contract</li> <li>1 contract</li> <li>1 contract</li> <li>1 contract</li> <li>1 contract</li> <li>1 contract or 1 month's production</li> <li>1 refinery batching</li> <li>1 production batch by supplier</li> <li>1 contract</li> <li>1 stockpile</li> <li>1 contract</li> </ul>	<ul style="list-style-type: none"> <li>1 per day</li> <li>1 per day</li> <li>)</li> <li>) 1 per</li> <li>) contract</li> <li>) or change in</li> <li>) material</li> <li>contract or 1 per month's production</li> <li>1 per tanker load</li> <li>1 per tanker load</li> <li>1 per contract or change in material</li> <li>1 per stockpile</li> <li>1 per contract or change in material</li> </ul>	<ul style="list-style-type: none"> <li>AS2758.5</li> <li>AS1141.11</li> <li>AS1289.2.1.1</li> <li>AS1141.22</li> <li>AS1141.22</li> <li>AS1141.14</li> <li>AS1141.18</li> <li>AS1141.42</li> <li>AS2357</li> <li>AS2008</li> <li>MBT 21</li> <li>MBT 21</li> <li>MBT 22</li> <li>MBT 11</li> <li>T230 or nominated equivalent</li> <li>AS1141.11</li> <li>AS1160</li> </ul>
Mix Design - Nominated Mix	Approval of mix and NATA certification. Supplier's documentary evidence and certification	1 mix per contract	1 per mix	
Production Mix	Temperature Moisture Content Grading Binder Content	C245.7 from Spec C245 Asphaltic Concrete as included as separate table below. Additionally, max lot size one 12 hr shift's production.	1 per truck load	Measure AS2891.10 AS2891.3.3 AS2891.3.1
	Resistance to Stripping	1 production mix	1 per mix per 5000t or once per month (whichever is the most frequent)	T640



**QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Laying and Compaction	Temperature	1 day's laying per site	1 per truck load	Measure
	Levels	1 day's laying per site	1 cross section per 25m	Survey
	Shape	1 day's laying	10 per 200m* lane length	3m Straight Edge
	Relative Compaction/Layer Thickness	1 day's laying	6 cores per lot 10 nuclear density tests per lot	AS2891.9.3 or Nuclear Density Meter

\* Note: or part thereof, per lot

Quantity of Asphalt in production lot	Minimum Frequency of Testing
Less than 100 tonnes	One per 50 tonnes or part thereof
101 to 300 tonnes	One per 100 tonnes or part thereof
301 to 600 tonnes	One per 150 tonnes or part thereof
Over 600 tonnes	One per 200 tonnes or part thereof

**Table C245.7 Minimum Testing Frequencies for Asphalt Production**

**Sub-Annexure C8**  
**READY-MIXED CONCRETE PRODUCTION & SUPPLY**  
**(Specifications C247, C248)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Raw Materials Supply	Material Quality - Supplier's documentary evidence and certification of:-			
	Cement	1 month's production	1 per week	AS 3972
	Flyash	1 month's production	1 per month	AS 3582.1
	Water	1 contract	1 per contract	AS3583.13, AS1289.4.2.1
	Admixtures	1 month's production	1 per month	AS 1478
	Fine Aggregates (C248 only)			
	- Grading	1 week's production	1 per 200m <sup>3</sup> concrete*	AS1141.11
	- Moisture Content	N/A	1 per day	
	- Sulphate Soundness	1 contract	1 per contract	AS1141.24
	- Bulk Density	1 contract	1 per contract	AS 2758.1
	- Unit Mass (particle density)	1 contract	1 per contract	AS 2758.1
	- Water Absorption	1 contract	1 per contract	AS 2758.1
	- Material Finer 2µm	1 contract	1 per contract	AS 2758.1
	- Deleterious Material (Impurities/Reactive)	1 contract	1 per contract	AS 2758.1
	- Combined Aggregates (C247 and C248)			
	- Grading	1 week's production	1 per 200m <sup>3</sup> concrete*	AS1141.11
	- Moisture Content	1 week's production	1 per day	
	- Wet Strength	1 contract	1 per contract	AS1141.22
	- Wet/Dry Strength Variations	1 contract	1 per contract	AS1141.22
	- Sulphate Soundness	1 contract	1 per contract	AS1141.24
	- Particle Shape	1 contract	1 per contract	AS1141.14
- Fractured Faces	1 contract	1 per contract	AS1141.18	
- Bulk Density	1 contract	1 per contract	AS 2758.1	
- Unit Mass (particle density)	1 contract	1 per contract	AS 2758.1	
- Water Absorption	1 contract	1 per contract	AS 2758.1	
- Material Finer 75µm	1 contract	1 per contract	AS 2758.1	

**QUALITY SYSTEM REQUIREMENTS – QUEANBEYAN-PALERANG**

<b>ACTIVITY</b>	<b>KEY QUALITY VERIFICATION REQUIREMENTS</b>	<b>MAXIMUM LOT SIZE</b>	<b>MINIMUM TEST FREQUENCY</b>	<b>TEST METHOD</b>
Raw Materials Supply (Cont'd)	- Weak Particles	1 contract	1 per contract	AS 2758.1
	- Light Particles	1 contract	1 per contract	AS 2758.1
	- Deleterious Materials (Impurities/Reactive)	1 contract	1 per contract	AS 2758.1
	- Iron Unsoundness	1 contract	1 per contract	AS 2758.1
	- Falling/Dusting Unsoundness	1 contract	1 per contract	AS 2758.1
Mix Design	Compressive Strength	1 contract mix	1 per mix per contract	AS1012.9
	Aggregate Moisture Content	1 contract mix	1 per mix per contract	
	Consistency – Slump	1 contract mix	1 per mix per contract	AS1012.3.1
	Air Content	1 contract mix	1 per mix per contract	AS1012.4 Method 2
	Shrinkage	1 contract mix	1 per mix per contract	AS1012.13

\* Note: or part thereof, per lot

**Sub-Annexure C9**  
**MASS CONCRETE SUBBASE (Specification C247)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Refer Sub-Annexure C8: Ready-Mixed Concrete Production and Supply			
	Concrete/Air Temperature	50m <sup>3</sup>	1 per 50m <sup>3</sup>	Measure
	Air Content	50m <sup>3</sup>	1 per 50m <sup>3</sup>	AS1012.4 Method 2
	Consistency – Slump	50m <sup>3</sup>	1 per load	AS1012.3.1
	Compressive Strength (7 day)	50m <sup>3</sup>	1 pair per 50m <sup>3</sup>	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	50m <sup>3</sup>	1 pair per 50m <sup>3</sup>	AS1012.1 AS1012.8 AS1012.9
Placement	Thickness	50m <sup>3</sup>	5m grid on plan area	Survey and check with subgrade survey
	Geometry	50m <sup>3</sup>	1 cross section per 15m	Survey and 3m Straight Edge
Curing	Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	AS3799 AS1160
	Application Rate	1 day's work	1 per 1000m <sup>2</sup> *	
Joints	Geometry	50m <sup>3</sup>	All joints	Survey

\* Note: or part thereof, per lot

Sub-Annexure C10

PLAIN OR REINFORCED CONCRETE BASE (Specification C248)

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Concrete Supply	Refer Sub-Annexure C8: Ready-Mixed Concrete Production and Supply			
	Concrete/Air Temperature	50m <sup>3</sup>	1 per 50m <sup>3</sup>	Measure
	Air Content	50m <sup>3</sup>	1 per 50m <sup>3</sup>	AS1012.4 Method 2
	Consistency – Slump	50m <sup>3</sup>	1 per load	AS1012.3.1
	Compressive Strength (7 day)	50m <sup>3</sup>	1 pair per 50m <sup>3</sup>	AS1012.1 AS1012.8 AS1012.9
	Compressive Strength (28 day)	50m <sup>3</sup>	1 pair per 50m <sup>3</sup>	AS1012.1 AS1012.8 AS1012.9
Placement	Relative Compaction			
	- Machine Placed	50m <sup>3</sup>	1 per 50m <sup>3</sup> *	AS1012.14
	- Hand Placed	Area between 2 consecutive const. joints or 50m <sup>3</sup> (whichever is the lesser)	2 per lot	AS1012.14
	Thickness	50m <sup>3</sup>	5m grid on plan area	Survey
	Geometry	50m <sup>3</sup>	1 cross section per 15m	Survey and 3m Straight Edge
Ride Quality	Profile Factor	1000m <sup>2</sup>	10/lane/lot	3m Straight Edge
Surface Texture	Texture Depth	1000m <sup>2</sup>	2 per lot	Survey
Curing	Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	AS3799 AS1160
	Application Rate	1 day's work	1 per 1000m <sup>2</sup> *	
Joints	Sealant Material Quality Supplier's documentary evidence and certification	1 contract	1 per production batch	
	Geometry	50m <sup>3</sup>	All joints	Survey

\* Note: or part thereof, per lot

**Sub-Annexure C11  
BITUMINOUS MICROSURFACING (Specification C255)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Bitumen (prior to emulsification)	1 contract	1 per contract or change in material	AS2008
	- Bitumen Emulsion · Residual Binder Content (Residue from Evaporation)	1 contract	2 per bulk delivery	AS1160, App.D
	- Mineral Aggregates · Degradation Factor	1 contract	1 per contract or 6 month period	AS1141.25
	· Los Angeles Value	1 contract	"	AS1141.23
	· Aggregate Wet Strength	1 contract	"	AS1141.22
	· Wet/Dry Strength Variation	1 contract	"	AS1141.22
	· Polished Aggregate Friction Value	1 contract	"	AS1141.42
	· Sand Equivalent	1 contract	"	AS1289.3.7.1
	- Mineral Filler	1 month's prod'n	"	AS2357
- Combined Aggregate Grading	1 contract	"	AS1141.11, AS1141.12	
Mix Design - Nominated Mix	Approval of mix and NATA certification - Supplier's documentary evidence and certification	1 contract	1 per mix	
Production Mix	Grading	1 day's production or 50m <sup>3</sup> (whichever is the lesser)	2 per 50m <sup>3</sup> *	AS2891.3.1
	Residual Binder Content		2 per 50m <sup>3</sup> *	AS2891.3.1
Laying	Levels	1 layer, max 200m <sup>3</sup>	1 cross section per 15m	Survey
	Surface Quality	1 layer, max 200m <sup>3</sup>	10 per 100m* lane length	3m Straight Edge

\* Note: or part thereof, per lot

**Sub-Annexure C12  
SEGMENTAL PAVING (Specification C254)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Concrete Segmental Paving Units	1 contract	1 per contract	
	- Clay Segmental Paving Units	1 contract	1 per contract	
	- Bedding Sand · Grading	1 contract	1 per contract or change in material	AS1141.11
	- Joint Filling Sand · Grading	1 contract	1 per contract or change in material	AS1141.11
Base	Geometry	One layer 5000m <sup>2</sup> , max 1 day's placement	One cross section per 25m	Survey
	Surface Quality	"	10 per 200m <sup>2</sup> or lot	3m Straight Edge
Edge Restraints	Refer 'Minor Concrete Works'	1 day's placement	1 per 10 lin m	Measure/Survey
Laying Paver Units	Joint Width	1 day's placement	All joints	Measure
	Geometry	1 day's placement	One cross section per 15m	Survey
	Surface Quality	1 day's placement	10 per 200m <sup>2</sup> or lot	3m Straight Edge

\* Note: or part thereof, per lot

**Sub-Annexure C13  
MINOR CONCRETE WORKS (Specification C271)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Subgrade	Compaction	1000 lin m or 1000m <sup>2</sup>	1 per 200 lin m or 200m <sup>2</sup>	AS1289.5.4.1
Gravel Subbase Construction	Compaction	1 day's placement	1 per 100 lin m or 100m <sup>2</sup>	AS1289.5.4.1
	Subbase Geometry	1 day's placement	1 per 25 lin m	3m Straight Edge
Steel Supply	Material Quality - Suppliers documentary evidence and certification	1 delivery	1 per production batch	
Ready-Mixed Concrete Supply	Material Quality - Suppliers documentary evidence and certification	1 contract	1 per mix type	
	Consistency - Slump	15m <sup>3</sup>	1 per load	AS1012.3 Method 1
	Compressive Strength (7 and 28 day)	15m <sup>3</sup>	2 pairs per 15m <sup>3</sup>	AS1012.1, AS1012.8, AS1012.9
Concrete Placement	Finished Levels	15m <sup>3</sup>	1 cross section per 15m	Survey and 3m Straight Edge
	Surface Dimensions	Single Fabrication	As required to confirm design dimensions	measure
Backfilling	Material Quality			
	- Maximum particle size	1 contract/ material type	1 per 200m <sup>3</sup> or lot	
	- Plasticity Index	1 contract/ material type	1 per 200m <sup>3</sup> or lot	AS1289.3.3.1
	Compaction	1 day's work or max 200m <sup>2</sup>	1 per 200m <sup>2</sup> or lot	AS1289.5.4.1
Sprayed Concrete	Test Panels and Cores	1 contract	3 test panels and 4 cores per mix design	AS1012.4, AS1012.9 AS1012.14
	Compressive Strength Cores	15m <sup>3</sup>	2 per 15m <sup>3</sup>	AS1012.4, AS1012.9 AS1012.14
	Curing Material Quality - Supplier's documentary evidence and certification	1 contract	1 per production batch	

\* Note: or part thereof, per lot



**Sub-Annexure C14  
PAVEMENT MARKINGS (Specification C261)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Paint	1 contract	1 per contract or change in material	
	- Glass Beads	1 contract	"	
	- Thermoplastic Material	1 contract	"	
	- Raised Pavement Markers	1 contract	"	
Paint Application	Wet Film Thickness	1 contract	1 per site visit or change in pressure settings	AS 1580.107.3
	Application Rate of Glass Beads	1 contract	1 per site visit or change in pressure settings	Annexure C261-A
Thermoplastic Application	Cold Film Thickness	1 contract	1 per site visit or change in pressure settings	Measure by micrometer
	Application Rate of Glass Beads	1 contract	1 per site visit or change in pressure settings	Annexure C261-A

**Sub-Annexure C15  
SIGNPOSTING (Specification C262)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- Sign Blanks	1 contract	1 per contract, or change in material	AS 1743
	- Aluminium Extrusion Backing	1 contract	"	AS 1866
	- Retro-reflective Material	1 contract	"	AS 1743
	- Non-reflective Paint	1 contract	"	
	- Non-reflective Sheet Material	1 contract	"	
Steel Sign Support Structures	Grade	1 contract	"	AS 1627.9
	Protective Treatment	1 contract		AS 4680 & AS 1214
Concrete Foundations	Refer 'Minor Concrete Works'			

**Sub-Annexure C16  
LANDSCAPING (Specification C273)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Seed	Certification of Authenticity for the prescribed Mix	1 contract	Certification for each production batch delivered	
Imported Topsoil	Material Quality			AS4419
	- pH	10,000m <sup>2</sup>	1 per 500m <sup>3</sup> *	
	- Organic Content	10,000m <sup>2</sup>	1 per 500m <sup>3</sup> *	
	- Soluble Salt Content	10,000m <sup>2</sup>	1 per 500m <sup>3</sup> *	
Mulch for Planting	Material Quality	1 contract	1 contract	AS4454

\* Note: or part thereof, per lot.

**Sub-Annexure C17  
WATER RETICULATION (Specification C401)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- PVC-M Pipes	1 contract	1 per contract	AS/NZS 4765
	- PVC – O Pipes	1 contract	1 per contract	AS/NZS 4765
	- Ductile Iron Pipes	1 contract	"	AS/NZS 2280 and AS2129
	- Steel Pipes	1 contract	1 per contract	AS 1579 and AS/NZS 1594
	- Copper Pipe	1 contract	"	AS1432
	- Polyethylene Pipe	1 contract	"	AS/NZS 4130
	- Stop Valves Material	1 contract	"	AS2638 and AS2129
- Non Return Valves	1 contract	"	AS3578	
- Spring Hydrants	1 contract	1 per contract	AS2544 or AS3952	
Siting and Excavation	Geometry	1 line	1 per line	Survey
Bedding	Material Quality - Grading	1 contract	1 per contract per source	AS/NZS 2032
Thrust and Anchor Blocks	Refer Sub-Annexure C13			
Concrete Encasement	Refer Sub-Annexure C13			
Chamber Covers and Frames	Geometry	1 cover/frame	1 per cover/frame	survey
Testing of Pipelines	Pressure testing	1 line	1 per line	As specified C401.28
Backfill and Compaction	Compaction	1 line	1 per 2 layers max 100m <sup>2</sup>	AS1289.5.7.1
Switchgear and Controlgear Assembly	Electrical function	each installation	1 factory test per installation	AS3439
Commissioning of Pumping Station	Certification testing of electrical installation in accordance with relevant Australian Standards	1 installation	1 per installation	

**Sub-Annexure C18  
SEWERAGE SYSTEM (Specification C402)**

ACTIVITY	KEY QUALITY VERIFICATION REQUIREMENTS	MAXIMUM LOT SIZE	MINIMUM TEST FREQUENCY	TEST METHOD
Materials Supply	Material Quality - Supplier's documentary evidence and certification of:			
	- PVC-U Pipes	1 contract	1 per contract	AS/NZS 1260
	- Polypropylene Pipes	1 contract	"	AS/NZS 5065
	- Ductile Iron Cement Lined (DICL) Pipes	1 contract	"	AS2280 and AS2129
	- Steel Pipes	1 contract	"	AS 1579 and AS/NZS 1594
	- Precast Access Chambers	1 contract	"	AS/NZS 1477, AS 2033 or AS4198
Siting and Excavation	Geometry	1 line/ structure	1 per line/ structure	Survey
Bedding	Material Quality - Grading	1 contract	1 per contract per source	AS 1152
Concrete Bedding	Refer Sub-Annexure C13			
Laying and Jointing of Pipes, Access Chambers, Structures	Geometry	1 line	1 per line	Survey
Thrust and Anchor Blocks	Refer Sub-Annexure C13			
Concrete Encasement	Refer Sub-Annexure C13			
Cast-in-situ Access Chambers	Material Quality			
	- Tri-Calcium Aluminate Content	1 contract	1 per contract per source	AS3972
	- Fineness Index	1 contract	"	AS3972
	- Minimum Cement Content	1 contract	"	AS3972
Acceptance Test of Gravitation Mains and Access Chambers	- Compressed Air Testing	1 line	1 per line	As specified C402.36 C402.37
	- Hydrostatic Testing	1 per test length Test length = 1370m pipeline dia.(mm)	1 per line	As specified C402.38
Backfill and Compaction	Compaction	1 line	1 per 2 layers max 100m <sup>2</sup>	AS1289.5.7.1
Switchgear and Controlgear Assembly	Electrical Compliance	each installation	1 factory test per installation	AS3439
Commissioning of Pumping Station	Certification testing of electrical installation in accordance with relevant Australian Standards	1 installation	1 per installation	



ANNEXURE CQS- D

NONCONFORMANCE REPORT

NCR No: .....

EXAMPLE

Date: .....

CONTRACT: .....

PRODUCT OR SERVICE:.....

SUB-CONTRACTOR (if appropriate):.....

INSPECTION & TEST PLAN No:.....

LOT No & DESCRIPTION/LOCATION: .....

DETAILS OF NONCONFORMANCE:.....

PROPOSED DISPOSITION: .....

IS A SUPPLEMENTARY REPORT ATTACHED: YES  NO

CLIENT APPROVED  COMMENT:.....

REJECTED

CLIENT SIGNATURE:..... DATE:.....

DISPOSITION COMPLETED (CONTRACTOR)..... DATE:.....

RELEASE OF HOLD POINT (CLIENT)..... DATE:.....

CLOSE OUT OF NONCONFORMANCE REPORT:

CONTRACTOR QMR: ..... DATE:.....

