

# Project Controls

## Master Specification

## PC-QA2 Quality Management Requirements for Major Projects

### Document Information

KNet Number:	14377427
Document Version:	1
Document Date:	August 2020

DEPARTMENT FOR  
INFRASTRUCTURE  
AND TRANSPORT



**Government of South Australia**  
Department for Infrastructure  
and Transport

## Document Amendment Record

Version	Change Description	Date
1	Initial issue	August 2020

## Document Management

This document is the Property of the Department for Infrastructure and Transport and contains information that is confidential to the Department. It must not be copied or reproduced in any way without the written consent of the Department. This is a controlled document and it will be updated and reissued as approved changes are made.

Contents

Contents	3
PC-QA2 Quality Management Requirements for Major Projects	4
1 General	4
2 Quality Management System	4
3 Management Responsibility & Authority	5
4 Project Quality Plan	7
5 Resource Management	8
6 Planning for Quality Outcomes	9
7 Provision and Production of the Works	12
8 Control of Non-Conforming Products	14
9 Performance Evaluation & Improvement	16
10 Principal's Verification Activities and Audits	16
11 Schedule of Quality Information	17
12 Hold Points & Witness Points	18

## PC-QA2 Quality Management Requirements

### 1 General

- 1.1 This specification is intended for use in Department major projects delivered as an Alliance, Design and Construction Contract or Delivery Partner.

#### Definitions

- 1.2 The definitions in AS 9000 "Quality Management Systems – Fundamentals and Vocabulary" (unless stated otherwise) and the following definitions apply to this Contract.
- 1.3 The following words and expressions appearing within the Contract, Contract Scope, Contract Requirements and the Department Master Specification have the following definitions:

**Table PC-QA2 1-1 Definitions**

Term	Definition
Corrective Action Request (CAR)	Request to the Contractor from the Principal to rectify, remove or re-submit any non-conforming product, work activity or process that does not comply with the Requirements and / or undertake action to prevent the reoccurrence or mitigate the unacceptable risk to the Principal of potential non-conformance of the product.
Documented Information	Information that is required to be controlled and maintained by an organisation.
Engineering Authority	The position(s) and person(s) delegated to make and approve engineering decisions on behalf of the asset owner.
Hold Point	An identified point in a work activity or process beyond which the stated activity must not proceed without the written acceptance from the Principal. Refer to Clause 3.12 and 3.13 for further information on Responsibilities for Hold Point release.
Inspection	Measuring, testing or examining of Works, materials or goods and services, (including raw materials, components and intermediate assemblies) for determining conformity with the Requirements.
Inspection and Test Plans (ITP)	The planned Inspections and Tests for individual work processes or activities.
Inspection Record	Evidence to demonstrate the conformity of a work process to a Requirement.
ITP Forms	The forms that accompany ITPs that record evidence of the inspections undertaken and test results of individual Lots.
Lot	A discrete area of Work under the Contract consisting of a continuous portion of homogenous and / or representative service, material or construction process produced under essentially constant conditions.
Measuring	Checking for line, level, dimensional accuracy and quantity.
Non-Conformance Report (NCR)	Report provided to the Principal by the Contractor on non-conforming products indicating the proposed rectification method and supporting information.
Requirement	Need or expectation that is stated within Legislation, the Contract, Contract Scope, Contract Requirements or the Department Master Specification.
Test	Taking of samples and specimens and work for testing to an accredited laboratory for testing by an accredited method.
Traceability	Ability to follow the history, application, design, installation, testing and final location of an object within completed Works.
Witness Point	A point in a work activity or process where the Contractor must provide evidence the activity has successfully achieved the Requirements, and provide the option for the Principal to review, comment, or inspect the activity and endorse the Contractor proceeding beyond the Witness Point. Refer to Clause 3.14 and 3.15 or further information on Witness Point Responsibilities.

### 2 Quality Management System

- 2.1 The Contractor shall establish, implement, maintain and audit a Quality Management System.

- 2.2 The Contractor's Quality Management System shall be based on AS9001 Quality Management Systems – Requirements.
- 2.3 The Contractor's Quality Management System shall achieve the National Pre-qualification System, Criteria 3.1 Quality Management minimum requirements for the stated Contract prequalification category (e.g. R2 / B2).
- 2.4 Evidence of the Contractor's Quality Management System shall be included in the Project Quality Plan and shall constitute a **Witness Point**.
- 2.5 Further information on the minimum Quality Management requirements can be located at [https://www.dpti.sa.gov.au/data/assets/pdf\\_file/0008/499247/PDF\\_Prequalification\\_Guidelines\\_-\\_Roadworks\\_and\\_Bridgeworks\\_031018.pdf](https://www.dpti.sa.gov.au/data/assets/pdf_file/0008/499247/PDF_Prequalification_Guidelines_-_Roadworks_and_Bridgeworks_031018.pdf)

## Electronic Quality Management System

- 2.6 The Contractor may elect to utilise an electronic Quality Management System for the storage, retrieval and management of quality information (rather than by hard copy).
- 2.7 The electronic Quality Management System shall comply with PC-PM5 "Information Management".
- 2.8 The Contractor shall include details of the Electronic Quality Information Management System in the Project Quality Plan.
- 2.9 Where the Contractor proposes to utilise an electronic Quality Management System, it shall provide full access to the Principal (and its agents) to the extent as necessary for the Principal to undertake its responsibilities (as determined by the Principal).
- 2.10 The Contractor shall provide training to the Principal (and its agents) on the Electronic Quality Management System in accordance with PC-PM5 "Information Management".
- 2.11 The Contractor shall provide the Quality Management Records in PDF format in accordance with PC-PM5 "Information Management".

## 3 Management Responsibility & Authority

- 3.1 The Contractor's Management shall demonstrate leadership and commitment to the Quality Management System in accordance with AS9001 Clause 5.1 "Management Commitment".
- 3.2 The Contractor's Corporate and Project Management representatives shall establish a customer focus in accordance with AS9001 Clause 5.2 "Customer Focus".

## Principal's Responsibility

- 3.3 The Principal owes no duty to the Contractor to review any Quality Documentation submitted by the Contractor for compliance with Legislation, the Contract, Contract Scope or Contract Requirements.
- 3.4 The Principal (or its agents) owes no duty to the Contractor to review, measure, test or examine the Works, materials, goods or services for non-compliance to the Requirements, or detect any defect or error in the Contractor's Work at a Witness Point or Hold Point or during surveillance or audit.

## Payment Claims

- 3.5 The Principal is not obliged or responsible to make any payment for a Work activity or process under the Contractor which is the subject of a payment or progress claim in which:
  - a) the work activity or Lot has not achieved a Hold Point;
  - b) a work activity or Lot beyond a Hold Point has commenced without the written approval of the Principal; or
  - c) a work activity or process where the Principal has deemed a Witness Point has not achieved the Requirements and issued a CAR to direct the Contractor to rectify, re-work and / or re-submit the stated activity.

## Engineering Authority

- 3.6 The delegated Engineering Authority of elements of Work under the Contract shall be determined by the individual assets owner including, but not limited to:
- a) Rail Commissioner;
  - b) Commissioner of Highways;
  - c) Local Council(s); and
  - d) Individual Utility Service (e.g. SAPN, SA Water, Telecommunications & Gas services, etc.).
- 3.7 The scope of Engineering Authority extends to the approval of technical specifications and Requirements, acceptance of departures (or waivers) to the technical specifications and Requirements, and acceptance of Issued for Construction (IFC) design documents.
- 3.8 The Contractor shall submit to the Principal for confirmation of the delegated Engineering Authority for each work activity, Lot and / or element of Works.
- 3.9 Submission and confirmation of the delegated Engineering Authority shall constitute a **Witness Point**.

## Contractor's Responsibility

- 3.10 The Contractor's Quality Management System does not negate any Requirement or responsibility specified within Legislation, the Contract, Contract Scope or Contract Requirements.
- 3.11 The Contractor will not be relieved from any of its obligations, responsibilities or liabilities under this Contract or any applicable legislation by:
- a) the implementation and compliance with any part of the Contractor's Quality Management System;
  - b) the acceptance or approval (or non-acceptance or non-approval) of any part of the Contractor's Project Quality Plan by any person authorised under this Contract to approve or accept work under the Contract;
  - c) acceptance of the Contractor's disposition for non-conforming product;
  - d) compliance with any Witness Point or Hold Point processes; or
  - e) the failure by any person to detect any defect or error in the Contractor's work or documentation at a Witness Point or Hold Point or during surveillance or audit.
- 3.12 The Contract shall not proceed beyond a Hold Point without the written approval of the Principal.
- 3.13 The Principal's approval of a Hold Point or endorsement of a Witness Point does not relieve the Contractor of responsibility for satisfactory execution or performance of the work that a Requirement has successfully been achieved.
- 3.14 Where the Principal deems the Witness Point has not successfully achieved the Requirements, the Principal may issue a Corrective Action Request (CAR) to direct the Contractor to rectify, re-work and / or re-submit the stated activity associated with a Witness Point, prior to proceeding beyond the Witness Point.
- 3.15 Where the Principal elects not to inspect a work activity or Lot, and the Contractor continues Work beyond a Witness Point without inspection or the endorsement of the Principal:
- a) any such work beyond the Witness Point is entirely at the Contractor's risk;
  - b) the Principal's decision not to inspect the Work does not constitute an endorsement of work activity or Lot associated with the Witness Point;
  - c) the Contractor shall record evidence of compliance of the work activity or Lot to the Requirements;
  - d) at the Contractor's expense, the Principal may direct the removal, re-work or remediation of any work activity or Lot which is subsequently deemed to be non-conforming to the requirements; and

- e) the Contractor indemnifies the Principal against any additional costs that the Contractor incurs as a consequence of proceeding without endorsement of the Witness Point.

## Project Quality Representative

- 3.16 The Contractor shall provide a Project Quality Representative who is directly responsible to the Contractor's senior management and has defined Authority and responsibility for ensuring the Quality Management System and Project Quality Plan are complied with.
- 3.17 At all times, the duties of the Project Quality Representative, with regard to ensuring compliance with this Part, shall take precedence over any other activity undertaken by the Project Quality Representative.
- 3.18 The Project Quality Representative shall be available to attend meetings on site within 24 hours' notice by the Principal.
- 3.19 The Project Quality Plan shall include:
- a) the relationship between the Project Quality Representative, Corporate Management Representatives, the Project Manager and Project team;
  - b) the qualification and experience required of the Project Quality Representative; and
  - c) the location (if not on site) and contact details of the Project Quality Representative.

## 4 Project Quality Plan

- 4.1 The Contractor shall develop, implement and comply with a Project Quality Plan to direct its personnel about the specific quality practices, management responsibility, resources, controls and checks that have to be implemented to complete the Work under the Contract.
- 4.2 Further information on the information to be provided within the Project Quality Plan are provided within AS9001, this Part and Clause 11 "Schedule of Quality Information".
- 4.3 The Contractor shall submit the completed Project Quality Plan to the Principal prior to commencing the Work on Site and within 30 days after the Award of the Contract, or at a date(s) agreed with the Principal.

**Table PC-QA2 4-1 Project Quality Plan Hold Points**

Hold Point	Project Quality Plan
Item Held	Commencing the Works on Site
Submission Details	Project Quality Plan
Release of Hold Point	The Principal will review the Project Quality Plan
Response time	Ten (10) Working Days

## Staged Submissions of the Project Quality Plan

- 4.4 The Contractor may request a staged submission of the Project Quality Plan subject to the following conditions:
- a) the Principal has accepted the Contractor's baseline Contract Program in accordance with PC-PM2 "Contract Program"; and
  - b) an initial submission of the Project Quality plan is submitted to the Principal in accordance with Clause 4.7.
- 4.5 The Principal reserves its right not to accept a staged submission of the complete Project Quality Plan and associated documents.
- 4.6 The completed Project Quality Plan and all associated quality management documents are to be submitted prior to the expiration of 50% of the Contract period.
- 4.7 The initial submission of the Project Quality Plan shall include as a minimum:
- a) information on the Contractor's Quality Management System;
  - b) a detailed index describing the full content of the Project Quality Plan;

- c) a detailed program and schedule for submission of associated quality management documents;
  - d) information on project specific resources;
  - e) work Lot identification and register (design and construction);
  - f) list of proposed inspections and test plans that will be used to verify the Works;
  - g) the method(s) proposed to assure the quality of all suppliers and subcontractors' products or services;
  - h) the audit schedule proposed for the Contractor's Quality Management System; and
  - i) quality management documents of Work activities or processes to be completed within the first month of the Contract Program.
- 4.8 Subsequent submissions of the Project Quality Plan and documents are to be submitted within 10 working days of the detailed program and schedule.
- 4.9 Work activities and processes requiring controlled conditions, inspection and / or testing shall not commence until 5 working days after acceptance of the associated quality document by the Principal.
- 4.10 Submission of the Subcontractor's Project Quality Plan is provided no later than 10 working days prior to commencing any subcontract work activity including testing work.
- 4.11 Where the Contractor does not achieve any of the conditions to a staged submission of Project Quality Plan, the Hold Point, as detailed in Clause 4.3 shall be deemed not to be achieved.

## 5 Resource Management

- 5.1 The Contractor's Quality Management System Management shall manage resources in accordance with AS9001 Clause 7 "Support".

### Organisational Knowledge

- 5.2 The Contractor shall determine the organisational knowledge and experience of personnel (including subcontractors) necessary to deliver the Works in accordance with the Contract, Contract Scope and Contract Requirements (Refer AS9001).

### Human Resources

- 5.3 The Contractor shall ensure people undertaking the Works are aware of:
- a) the Contractor's Quality Management Policy and Project Quality Plan;
  - b) their contribution to the effectiveness of the Project Quality Plan; and
  - c) implications of not conforming to the Project Quality Plan.
- 5.4 The Project Quality Plan & Records shall include:
- a) a site-specific induction and training plan including, but not limited to:
    - i) who is to be trained;
    - ii) when and how the training will be undertaken; and
    - iii) the proposed training information.
  - b) evidence of training and inductions; and
  - c) evidence of competency of individuals within the project team.

### Competencies

- 5.5 The Contractor shall ensure personnel (including subcontractors) are competent, with the appropriated education, training and experience to undertake their duties to manage the Works and achieve product realisation.



- 5.6 The Project Quality Plan shall detail the minimum competency requirements of persons undertaking the Work and the quality records shall provide evidence of competencies.

## Documented Information

- 5.7 The Contractor shall manage all Quality Management information in accordance with AS9001 Clause 7.5.3 "Control of Documented Information".
- 5.8 The Contractor shall manage documents and electronic information in accordance with PC-PM5 "Information Management".

## 6 Planning for Quality Outcomes

- 6.1 The Contractor shall plan the procedures, processes, systems, tests, inspections, acceptance criteria and resources needed to achieve conformity of the Works with the Contract, Contract Scope and Contract Requirements.

## Responsibility for Testing

- 6.2 The Contractor is responsible for verifying that its work complies with the Requirements of Legislation, the Contract, Contract Scope and Contract Requirements including completing all necessary testing, inspection, commissioning (where appropriate) and examination to provide evidence of compliance with the Requirements.

## Traceability

- 6.3 The Contractor shall ensure traceability of materials, work processes and activities to confirm compliance through the product lifecycle from the design, specification, supply, manufacture and installation including the location where the product is incorporated into the Works.
- 6.4 Records shall be kept of the time of manufacture, inspections, testing, transportation, storage (where appropriate), and location of placement of materials, work processes and activities.
- 6.5 The Project Quality Plan shall document details on how identification and traceability will be completed in accordance with AS9001.

## Identification of Work Lots

- 6.6 Work under the Contract must be sub-divided into Lots of discrete work areas.
- 6.7 The Contractor must develop, document (in the Project Quality Plan), and implement a Lot Management System and Lot Register which:
- a) enables each Lot to be identified;
  - b) provides a unique Lot number compatible with any activity numbering in the Contract Program and item numbers in the payment schedule;
  - c) identifies the type of service, material, manufacturing or construction technique;
  - d) records measurements / quantities (where appropriate) associated with the Lot;
  - e) records the part numbers (and where appropriate, individual serial numbers) of manufactured items incorporated into the Works;
  - f) identifies all records associated with the Lot;
  - g) records the status of the Lot (including any NCRs or CARs); and
  - h) enables recording of the Principal's endorsement that a Lot is closed (i.e. work on the Lot is complete and all records are available to demonstrate compliance with this Contract).
- 6.8 Provision of the Lot Register (including monthly status updates) shall constitute a **Witness Point**.

### Design Lots (Design Packages)

- 6.9 The Contractor shall develop Design Lots (design packages) in accordance with PC-EDM1 "Engineering and Design Management".
- 6.10 The Design Lots (design packages) shall be compatible with, and aligned to, the Construction Lots to enable traceability of the product.

### Construction Lots

- 6.11 Before work commences on a Lot, the Contractor shall predetermine the bounds of that Lot and, if requested, provide written advice of the pre-determined bounds and its identification.
- 6.12 A Lot must consist of a continuous portion of homogenous and / or representative material, work activity or process, produced under essentially consistent conditions. Acceptance criteria may have different Lot boundaries.
- 6.13 Discrete portions of a Lot that are visually non-homogenous and / or non-representative must be excluded from the Lot and must be either treated as a separate Lot or re-worked to achieve conformity to the Requirement.
- 6.14 The Principal reserves the right to reject a Lot that is visually non-homogeneous and / or non-representative.
- 6.15 The Lot Management System and Lot Register within the Project Quality Plan shall:
  - a) record the start and finished chainages or location (easting and northing) and lateral location;
  - b) record the vertical three dimensional (3d) location; and
  - c) record the relationship to adjacent Lots and preceding Lots to confirm that the Lots represent the total work.

## Inspection and Test Plans & Forms

- 6.16 The Contractor shall develop, implement, maintain and comply with Inspection and Test Plans (ITPs).
- 6.17 The details for the acceptance criteria and frequency of inspection and testing detailed on the ITP must replicate the nominated requirements of the Contract Requirements and design documents.
- 6.18 The Project Quality Plan shall include an ITP register and ITP forms, and the status of each ITP and ITP form.
- 6.19 The Inspection and Test Plans shall include:
  - a) description of the activity and / or identification of applicable stages of construction / manufacture / commissioning;
  - b) reference to:
    - i) the applicable clauses of the specification; and / or
    - ii) applicable test procedures / methods or Australian Standards used for the testing.
  - c) details on how the inspection or testing is to be carried out and recorded;
  - d) details of any test procedures, sampling and equipment;
  - e) the test frequency, acceptance criteria and records produced demonstrating compliance;
  - f) when statistical analyses of test results is required;
  - g) the responsibility for testing and acceptance;
  - h) endorsement of the Inspection and Test Plan by the Designer;
  - i) any applicable Witness Points or Hold Points; and
  - j) any time constraints for inspection and testing and release of Hold Points.
- 6.20 The ITP forms shall include:
  - a) location of the inspection, testing and / or commissioning activity;

- b) person (name of) undertaking the inspection or testing;
- c) the date and time of the inspection and sampling, or date of analysis;
- d) information on the test sample (e.g. type / sample number);
- e) the outcome of the testing or inspections;
- f) a location to record comments;
- g) details of any environmental conditions or external factors that may affect the results;
- h) a location to record approval of Hold Points and / or endorsement of Witness Points; and
- i) identification of the involvement of any subcontractors in the process.

## Frequency of Testing or Inspections

- 6.21 The Contractor shall determine frequency of testing or inspections appropriate to verify conformance based on its organisational knowledge and not less than that stated in the Technical Requirements. If no minimum frequency of testing or inspections is stated in the Contract or Contract Requirements, the Contractor shall nominate appropriate frequencies.
- 6.22 Where the Contractor can demonstrate consistent process capability, the Contractor may submit a proposal to the Principal to reduce the specified minimum frequency of testing or inspections (up to a 50% reduction).

**Table PC-QA2 6-1 Reduced Minimum Frequency of Testing or Inspections Hold Points**

Hold Point	Reduced Minimum Frequency of Testing or Inspections
Item Held	Reducing the minimum frequency of tests or inspections
Submission Details	Information to support reducing the frequency by statistical analysis and / or results from previous inspections and tests verifying consistent conformity with the Requirements
Release of Hold Point	The Principal will review submission
Response time	Two (2) Working Days

- 6.23 The Principal reserves the right not to accept reduced minimum frequency of testing or inspections.
- 6.24 Where a non-conformity is detected in a material, work process or activity, the prior acceptance of reduced minimum frequency of testing or inspections as detailed in Clause 6.22 shall be deemed to be invalid, and the minimum frequency of testing shall be restored.

## Subcontractors and Suppliers

- 6.25 The Quality Management Requirements detailed within this Part and the Contractor's Quality Management System apply to all subcontracted or supplied materials, products, goods and services, and work Lots.
- 6.26 The Project Quality Plan shall detail how the quality management requirements of the Contract Documents will be included in purchasing of goods and services or subcontracting of work activities and Lots.
- 6.27 Where the Contract requires a supplier or subcontractor to have a Department (or national) pre-qualification or registration, the Supplier or Subcontractor must use their quality management system, as required of that specific pre-qualification or registration.
- 6.28 The Contractor shall obtain from subcontractors or suppliers a Quality Plan to manage the quality of their work. Alternatively, the Contractor shall develop, implement and be responsible for the Subcontractor or Supplier's Quality Management Plan.
- 6.29 The Contractor shall review (for compliance) and endorse the Subcontractor or Supplier's Quality Plan(s), and manage and audit the Subcontractor's provision and production of any work activity or work Lot.
- 6.30 The Subcontractor or Supplier Quality Plan(s) shall include the following Requirements, as applicable;
- a) information on the Subcontractor or Supplier's Quality Management System;

- b) the Subcontractor or Supplier's Inspection and Test Plans (ITPs) and forms;
  - c) the Subcontractor or Supplier's traceability systems and Lot management;
  - d) Hold Points and Witness Points to be observed by the Subcontractor or Supplier;
  - e) information and records on the calibration of the Subcontractor or Supplier's measuring and testing equipment, including any third-party accreditation (e.g. NATA);
  - f) information on the Subcontractor or Supplier's storage, location and retention of quality records and documents; and
  - g) information on the provision of warranties in the name of the Principal.
- 6.31 Submission of the Subcontractor or Supplier's Quality Plan shall constitute a **Witness Point**.

## Design and Development Services Planning

- 6.32 The Contractor (including its design subcontractor, where appropriate) shall develop an Engineering and Design Management Plan to manage the Quality of the design and development products and services in accordance with AS9001 Clause 8.3 and PC-EDM1 "Engineering and Design Management".

## Hold Points & Witness Points

- 6.33 The Project Quality Plan and associated quality management documents shall identify:
- a) a register of all Hold Points and Witness Points required under the Contract, Contract Scope and Contract Requirements;
  - b) the method of arranging release of Hold Points by the Principal;
  - c) the method and timing of providing notice to the Principal that a Witness Point has been achieved.
- 6.34 A Hold Point is reached when all information demonstrating compliance with the Hold Point release requirements has been provided in an appropriate format to the Principal.
- 6.35 The Contractor shall plan for, and make, suitable arrangements to advise the Principal prior to the achievement of a Hold Point or Witness Point.
- 6.36 The Contractor shall plan for, and mitigate, any impact to its Contract Program, including response times and / or delay for not achieving a Hold Point or Witness Point.

## Hold Points & Witness Points Response Times

- 6.37 The Contractor shall allow for the nominated response times for the release of Hold Points in the Contractor's program.
- 6.38 If a Response Time has not been specified in the Contract or Contract Requirements, the Response Time is deemed to be 10 working days.
- 6.39 Where the Response Time extends over non-working days, the time for release of the Hold Point shall be increased by the period of non-working days.

## 7 Provision and Production of the Works

- 7.1 The Contractor shall implement the procedures, processes, systems, tests, inspections, acceptance criteria and resources to provide, produce and complete the Works in accordance with the Contract, Contract Scope and Contract Requirements.

## Design and Development Services

- 7.2 The Contractor (including its design subcontractor where appropriate) shall apply its Engineering and Design Management processes and controls to ensure the design deliverables achieve the Contract Scope and Contract Requirements.

- 7.3 The Designer shall ensure review of the design deliverables in accordance with PC-EDM1 "Engineering and Design Management" to ensure compliance to the Requirements.
- 7.4 The Contractor shall undertake verification to check and ensure the design deliverables achieve the Requirements, including provision of independent verification and certification of compliance with the Requirements in accordance with PC-EDM3 "Independent Design Certification".

#### Endorsement of Validation Testing (Inspection and Test Plans)

- 7.5 The Designer shall review and endorse the proposed validation activities detailed in the Inspection and Test Plans to ensure the resulting product and completed Works comply with the Requirements and achieve the design intent.
- 7.6 Endorsement by the Designer of Inspection and Test Plans shall constitute a **Witness Point**.

#### Changes to the Design

- 7.7 Any proposed change to an "Issued for Construction" document shall be accepted and endorsed by the Designer and, where appropriate, the Independent Design Certifier, in accordance with PC-EDM1 "Engineering and Design Management".
- 7.8 Endorsement by the Designer of a Change to an "Issued for Construction" document shall constitute a **Witness Point**.

### Control of Monitoring, Testing and Measuring Devices

- 7.9 Unless specified otherwise, sampling and verification testing of Works and products shall be conducted by laboratories appropriately accredited by NATA. The NATA accreditations held shall specifically include Department Test Procedures and Australian Standards referred to in this Contract.
- 7.10 Where a test method / procedure is specified in the Requirements, the Contractor shall use that method for verification testing.

#### Inspection, Measuring and Test Equipment

- 7.11 The Contractor (and Subcontractors) shall maintain a schedule of calibrated inspection, measuring and test equipment to be used on the Works, giving the date of last calibration and next due calibration.
- 7.12 Where an item is recalibrated during the course of the Contract, the Contractor shall provide written advice of the results, any adjustments made to the equipment, and the effects any adjustments have had on work completed since the previous calibration.
- 7.13 Inspection, measuring and test equipment shall be capable of producing the degree of accuracy specified in the Contract and any applicable accepted industry standards.

### Inspections and Testing

- 7.14 The Contractor shall implement the Inspection and Test Plans (ITP) to validate the work activities and Lots, and to demonstrate the completed Works comply with the Contract, Contract Scope and Contract Requirements.
- 7.15 The Contractor shall manage the implementation of Subcontractors and Suppliers' Inspection and Test Plans (ITP) to validate the work activities and Lots.
- 7.16 The inspection, test and verification records, including completed ITP Forms for each Lot shall:
  - a) clearly complete the information on the Lot and testing as detailed in the ITP Form;
  - b) clearly identify the actual results obtained from any inspection and / or test;
  - c) demonstrate conformity with the specified requirements; and
  - d) demonstrate the control of any non-conformity is addressed.

- 7.17 ITP Forms and quality records are to be progressively maintained and updated as results of the inspection and testing are achieved.
- 7.18 ITP Forms and quality records are to be available (on site) for evaluation by the Principal.
- 7.19 All samples taken shall be registered in a Sample Register. Where a sample has been taken but not tested, the reason why shall be recorded in the register.

#### Location and Storage of Inspection and Test Records

- 7.20 Inspection and test records (hard copy) of site activities and work Lots are to be located on site and stored in a secure room (or location) accessible to the Principal with facility for inspection of the records.
- 7.21 Inspection and test records which are stored electronically (digitally) are to be accessible for evaluation on site for the Principal to undertake its responsibilities.
- 7.22 Inspection and Test Records of materials, goods and services shall be stored in a secure facility (e.g. quarry, steel fabrication facility, etc.) and be available for inspection by the Principal upon request.

### Close Out of Work Lots

- 7.23 Where a product or Work fails to pass any inspection and / or test, the Lot must not be closed out until the non-conformity has been rectified and closed out in accordance with Clause 7 "Provision and Production of the Works".
- 7.24 The Principal recognises that some specified compliance testing might take over 48 hours to complete. Work Lots may be covered up before the Lots are closed out, subject to the Contractor submitting the following information:
  - a) the timing to obtain compliance testing results is provided;
  - b) a documented method on how the work or product (that may need to be covered up) will be identified, traced, recorded and promptly verified;
  - c) what remedial action will be undertaken if conformity is not achieved with the specified requirement;
  - d) description of remedial action or re-work that will be undertaken if full conformity with the requirements is not achieved;
  - e) demonstrated evidence (on the basis of past work) that the risk (probability and consequence of the failure of the Work Lot is low; and
  - f) detail the closure method to close out the Lot after verifying the work or product has passed the completed compliance testing.
- 7.25 The Principal reserves its right not to accept a proposal for Lots to be covered up before the Lots are closed out, and acceptance of supporting information shall constitute a **Witness Point**.
- 7.26 Construction work Lots must not be closed out nor the product released or used until:
  - a) the Contractor can provide completed records and demonstrate evidence the conformity of the Lot to the Requirements; and
  - b) the release of all applicable Hold Points by the Principal.
- 7.27 The closure of construction work Lots shall constitute a **Witness Point**.

## 8 Control of Non-Conforming Products

- 8.1 The Contractor shall identify and control all products, services and work Lots that fail to achieve the Requirement's acceptance criteria in any inspection, test or audit (Refer to AS9001 Clause 8.7 "Control of Non-conforming Outputs").
- 8.2 The Contractor shall issue a Non-Conformance Report (NCR) for work which does not achieve a Requirement's acceptance criteria.

- 8.3 The NCR shall comply with the Contractor's Quality Management System and include, as a minimum:
- information of the non-conforming Lot;
  - description and details of the non-conformance;
  - relevant inspection and test records or calculations;
  - the proposed remediation actions, method or concession; and
  - the nominated Engineering Authority to accept the proposed action, method or concession.
- 8.4 The Contractor shall review and analyse the cause of all non-conformances and develop a plan of corrective actions to minimise the likelihood of recurrence. Details of corrective action shall be entered in relevant NCRs or CARs as appropriate.
- 8.5 A Non-Conformance Report shall be submitted to the Principal within two (2) working days of the Contractor detecting the non-conformance.
- 8.6 The Contractor is not to proceed with the rectification work or covering up of non-conforming Lots until the proposed remediation actions, method or concession has been accepted.

### Designer Endorsement of NCRs

- 8.7 The Designer shall review, accept and endorse in writing any proposed disposition to rectify non-conformances to an "Issued for Construction" document or applicable Requirement.
- 8.8 Endorsement by the Designer of any proposed disposition to rectify non-conformances shall constitute a **Witness Point**.

### Corrective Action Requests

- 8.9 In the event of a non-conformance being observed by the Principal, the Principal may issue a Corrective Action Request (CAR) to the Contractor.
- 8.10 The Contractor shall address CARs in accordance with arrangement for handling customer complaints, as required in AS9001 Clause 7.2.3.
- 8.11 The Contractor shall issue a Non-Conformance Report within two (2) working days of receipt of the CAR. Submission of the subsequent NCR shall constitute a **Witness Point**.

### Acceptance of Non-Conforming Products by the Principal

- 8.12 The Principal may request additional information including engineering calculations or opinions of technical experts in the field under consideration.
- 8.13 Acceptance of the proposed remediation actions, method or concession will be at the discretion of the Principal.

**Table PC-QA2 8-1 Non-Conformance Report Hold Points**

Hold Point	Non-Conformance Report
Item Held	Rectification or covering up non-conforming Lots
Submission Details	Completed NCR and supporting information
Release of Hold Point	The Principal shall review the NCR and all supporting information and documentation. The Principal may elect to consult with the Engineering Authority (where applicable), inspect the work Lot, request further information, or seek expert opinions of technical experts.
Response time	Two (2) working days - from receipt of all completed documentation and any requested information or expert opinions.

### Cost of Rectification Works

- 8.14 The cost of any remediation actions, method of non-confirming products, including any cost associated with program delay or overheads shall be borne by the Contractor.

## 9 Performance Evaluation & Improvement

- 9.1 The Contractor shall undertake “performance evaluation” of the compliance to the Requirements of Work under this Contract in accordance with its Quality Management System and the requirements in AS9001 Clause 9 “Performance Evaluation”.
- 9.2 The Contractor shall establish and maintain a corrective and preventative action register that records a summary of actions undertaken to minimise and manage Works to limit the development of conditions adverse to quality outcomes.

### Improvement

- 9.3 The Contractor shall provide to the Principal any “Lessons Learnt” for the Project in accordance with PC-PM1 “Project Management & Reporting”, Clause 10 “Lessons Learnt”
- 9.4 The Contractor shall provide the corrective and preventative action register to assist the Principal in continuous improvement. Provision of the register shall constitute a **Witness Point**.
- 9.5 The Contractor may nominate commercially sensitive actions and restrict access to third parties as agreed with the Principal.

### Audits

- 9.6 The Contractor shall undertake internal audits of its own Works, and Suppliers and Subcontractors’ Works, at planned intervals to provide information on the effective implementation and maintenance of the Contractor’s (pre-qualified) Quality Management System.
- 9.7 The intervals of internal audits shall be in accordance with the Contractor’s Quality Management System and commensurate with the complexity duration and value of the Contract.
- 9.8 The Contractor shall provide outcomes of the Contractor’s internal audits to the Principal for information. Submission of Contractor’s internal audits shall constitute a **Witness Point**.

### Management Review

- 9.9 The Contractor’s corporate management shall review the implementation of the Project Quality Management Plan in accordance with the Contractor’s Quality Management System and AS9001 Clause 9.3.

### Project Quality Representative Review

- 9.10 The Contractor’s Project Quality Representative shall undertake ongoing evaluations and review the performance of the project team, suppliers and subcontractors.
- 9.11 The Contractor’s Project Quality Representative shall review quality records for compliance with the Requirements and endorse each record within three (3) working days of that record being completed.

## 10 Principal’s Verification Activities and Audits

- 10.1 The Contractor shall allow any person authorised by the Principal to undertake inspection, testing, audit, surveillance, assessment and / or photographic recording of the Contractor, Supplier or Subcontractor’s Work (including work locations other than at the Site).
- 10.2 The Principal may engage an external party to undertake surveillance, inspection and assessment in accordance with PC-EDM4 “Construction Verification”.
- 10.3 The Contractor shall provide any reasonable assistance and access required for the purpose of undertaking inspection, testing, audit, surveillance, assessment and / or photographic recording. This includes providing access to records and other relevant documentation.



## Principal's QMS Audits

- 10.4 The Principal may elect to undertake Quality Management System audits to review any aspect of the Contractor's Quality Management System, its implementation and performance.
- 10.5 Audits of Technical Procedures and product may be conducted without notice. The Principal will provide five (5) working days' notice of an audit of the System Procedures.

## Product Audits

- 10.6 Where the Contract requires the Contractor to provide audit samples, the samples shall be delivered to the Department Laboratory, Walkley Heights or to another location directed by the Principal in the Adelaide metropolitan area. The samples will be stored by the Principal.
- 10.7 All samples shall be clearly marked and be traceable to the relevant Lot in accordance with Clauses 6.3 – 6.5 "Traceability".
- 10.8 The Contractor shall provide documentation to confirm that the samples have been received, and include this documentation in the relevant Lot package.

## Hold Point Release

- 10.9 The Principal (or any other delegated party) responsible for release of the Hold Point shall:
- release the Hold Point;
  - provide reasons why the Hold Point will not be released, including details of any non-conformance; and / or
  - provide a Corrective Action Request (CAR).

# Schedule of Quality Information

## Project Quality Plan

- 11.1 A schedule of the minimum information to be included in Project Quality Plan is summarised in Table PC-QA2 11-1.

**Table PC-QA2 11-1 Project Quality Plan Information**

Clause	information
2.3; 2.5	Evidence of the Quality Management System accreditation or prequalification
6.1; 6.19; 7.1; 7.9; 10.5	References to applicable corporate quality management system procedures
2.6 – 2.11; 5.8; 7.21	Details of any electronic Quality Management System
3.6 – 3.9	Confirmation of the delegated Engineering Authority
3.19	Relationship between the Project Quality Representative and Corporate Management
3.16 – 3.19; 9.10 - 9.11	Qualification and experience required of the Project Quality Representative
3.19	Location and contact details of the Project Quality Representative
3.19; 4	Program and schedule of staged submissions of the Quality Plan (if applicable)
5.4	Site-specific induction and training plan
5.5 - 5.6	Required competencies of persons undertaking the Work
6.3 – 6.5; 6.10; 6.30; 10.7	Details on how identification and traceability will be completed
6.7 – 6.8; 6.15	Lot Management System and Lot Register
6.18; 7.19	Register of Inspection and Test Plans and Forms

Clause	information
6.16 – 6.19; 6.30; 7.5 – 7.6; 7.14 – 7.22	Inspection and Test Plans (ITPs)
6.18; 6.20; 6.30; 7.16 – 7.18	Inspection and Test Plan Forms
4.7	Method(s) to assure the quality of all suppliers and subcontractors' products or services
6.30	Subcontractor or Supplier Quality Plan(s)
6.33	Register of Hold Points and Witness Points
8.2; 8.5; 8.11	Non-Conformance Reports
9.6 – 9.8	Internal Audit plan and schedule
N/A	Any Other items as required in the Contractor's Quality Management System

## Quality Records

11.2 The Contractor shall provide the following minimum quality records prior to the Completion of work under the Contract in accordance with Table PC-QA2 11-2.

**Table PC-QA2 11-2 Project Quality Records**

Clause	Project Quality Records
9.9	Evidence of management review of the project
5.4	Evidence of training and inductions
5.3 – 5.6	Evidence of competencies of human resources
4.7	Index of all quality records
6.20; 6.22	Records of Requirements analysis
(PC-EDM1)	Design Certificates (refer PC-EDM1 "Engineering and Design Management")
(PC-EDM3)	Independent Design Certificates (refer PC-EDM3 "Independent Design Certification")
6.30; 7.11 – 7.12	Calibration records
6.20; 7.16 – 7.17	Completed Inspection and Test Plan Forms
6.19	Test results
6.3 – 6.4; 7.22	Materials delivery dockets
10.1 – 10.3	Evidence of surveillance, inspections and assessments
8.2; 8.5; 8.11	Non-Conformance Reports
3.5; 3.14; 6.7; 8.4; 8.9 – 8.11; 10.9	Corrective Action Requests
6.7; 7.23 – 7.27	Close out of work Lots
	Correspondence relevant to Quality Management
(PC-EDM4)	Construction Verifier's Records and certificates
2.1; 4.7; 6.29; 8.1; 9.6 – 9.8; 10	Audits
9.2; 9.4	Corrective and Preventative Action Register
9.9	Evidence of management review of the project Quality management plan implementation
9.11	Project Quality Representative shall review quality records
6.19 – 6.20	Commissioning Records
(PC-CN2)	Handover report and completion records

## 12 Hold Points & Witness Points

12.1 The following is a summary of Hold Points referenced in this Part:

**Table PC-QA2 12-1 Hold Points**

<b>Document Ref.</b>	<b>Hold Point</b>
4.3	Project Quality Plan
6.22	Reduced minimum frequency of testing or inspections
8.13	Non- conformance Report (or Corrective Action Request)

12.2 The following is a summary of Witness Points referenced in this Part:

**Table PC-QA2 12-2 Witness Points**

<b>Document Ref.</b>	<b>Witness Point</b>
2.4	Evidence of the Contractor's Quality Management System included in the Project Quality Plan
3.9	Submission and confirmation of the delegated Engineering Authority
6.8	Provision of the Lot Register (including monthly status updates)
6.31	Submission of the Subcontractor or Supplier's Quality Plan
7.6	Endorsement by the Designer of Inspection and Test Plans
7.8	Endorsement by the Designer of a Change to an "Issued for Construction" document
7.25	Acceptance of supporting information for a proposal for Lots to be covered up before the Lots are closed out
7.27	Closure of construction work Lots
8.8	Endorsement by the Designer of any proposed disposition to rectify non-conformances
8.11	Submission of a Non-Conformance Report within two (2) working days of receipt of a Corrective Action Request
9.4	Provision of the corrective and preventative action register
9.8	Submission of Contractor's internal audits