

# QUEANBEYAN PALERANG REGIONAL COUNCIL

# DEVELOPMENT DESIGN SPECIFICATION

DQS

# QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

**VERSION 1 – DECEMBER 2018** 

QUEANBEYAN PALERANG REGIONAL COUNCIL

AUS-SPEC-1\NSW-DQS -QPRC-VERSION 1

## 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.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
VERSION 1	NSW RTA referenced, WSA codes updated, Design Checklist 12	DQS.01	А	KD	04/10
	added	DQS.03	А		
		DQS.04	А		
		DQS.07	А		
		DQS-A	A, M		
	References to QPRC updated	Various	М	EE	12/18

# **QUALITY ASSURANCE REQUIREMENTS** FOR DESIGN – QPRC – VERSION 1

# CONTENTS

CLAUSE	PAGE
DQS.01	SCOPE1
DQS.02	OBJECTIVES1
DQS.03	REFERENCE AND SOURCE DOCUMENTS1
DQS.04	CERTIFICATION
DQS.05	MINIMUM ING REQUIREMENTS2
DQS.06	DESIGNER'S QUALIFICATIONS
DQS.07	RECORDS
DQS.08	AUDIT
DQS.09	DEEMED TO COMPLY
ANNEXU	RES

- DQS-A DESIGN CERTIFICATION REPORT AND CHECKLISTS
- DQS-B EXAMPLE COMPILATION OF DRAWINGS

### QUALITY ASSURANCE REQUIREMENTS FOR DESIGN – QPRC – VERSION 1

### DQS.01 SCOPE

1. This Design Specification sets out the process for quality assurance of Designs **Quality** required by Council for development consents. The requirements are applicable to all design work whether undertaken by the Developer, the Developer's Project Manager, Consultant or a Sub-consultant.

2. The Specification refers to Engineering Design processes. Requirements which refer to the Concept Design of developments are generally covered in Council's Queanbeyan Development Control Plan (2012) and Palerang Development Control Plan (2015). The requirements of the DCP are a prerequisite to the quality requirements for Engineering Design provided in this Specification (DQS).

3. The Specification refers also to engineering design processes for developments that do not involve subdivision.

### DQS.02 OBJECTIVES

1. This Specification aims to set standards and document requirements for the execution and recording of design processes in order that the infrastructure associated with any development is designed to be fit for service and of a standard reasonably maintainable when it is accepted by Council as a community asset.

2. It is also an objective that these qualities be readily demonstrable by clear records of key design processes and that data relevant to the upkeep of the assets is available to Council's management.

### DQS.03 REFERENCE AND SOURCE DOCUMENTS

### **Council Specifications**

All Specifications for Design and Construction Council's Codes and Policies

### **Australian Standards**

AS/NZS 3905.2	Guide to quality system Standards AS/NZS 9001, AS/NZS 9002 and AS/NZS 9003 for construction.
AS/NZS 3913	Quality manuals – Guide to preparation.
AS/NZS ISO 8402	Quality management and quality assurance – Vocabulary.
AS/NZS ISO 9001	Quality systems – Model for quality assurance in design, development, production, installation and servicing.
AS/NZS ISO 9004.1	Quality management and quality system elements – Guidelines.

### Other

Section 79 (Environmental Planning and Assessment Act 1979)	
Local Government Act (1993)	
Technical Publications used as Engineering Standards (AR&R)	
Interim Policies and Guidelines	

### DQS.04 CERTIFICATION

DQS.04 CERTIFICATION	
1. The Developer shall present all engineering drawings to Council for acceptance. Each set of drawings shall be accompanied by a Certification Report which will be signed by the Developer's Engineer or suitably qualified person. The Certification Report will comprise the certificate and check lists set out in Annexure DQS-A.	Certification Report
2. Certification Reports shall be required with preliminary drawings and shall require resubmission with updates when final drawings are submitted. Certification is not required with sketch plans or concept plans.	Certification of Preliminary Drawings
3. The Certification Report shall indicate on check lists any aspects of design which do not meet requirements or tolerances set out in Council's Design and Construction Specifications for Queanbeyan-Palerang and the Development Control Plan.	Design Non- conformance
4 A copy of the relevant Certification Report must accompany each Construction Certificate issued by Council or an Accredited Private Certifier.	Construction Certificate
DQS.05 MINIMUM DRAFTING REQUIREMENTS	
1. Design drawings shall be definitive and clearly set out so as to present the design concepts in such a way that the project can be understood, specified for construction and satisfactorily built.	Criteria
2. All design drawings should be clearly numbered by the designer with separate sheets numbered as part of a set. All drawing sheets shall have an allocated space in the bottom right hand corner for an assigned number provided by Council (18 characters).	Sheet Numbers
3. The information shown on the drawings shall be logically collected on discrete sheets to avoid illogical and onerous effort in cross referencing between sheets in order to find information. Drawings should not be overcrowded with information and should not rely on colour printing or colour wash to impart information. Drawings should be on A1 or A2 size sheets and be suitable for black and white copying and photo reduction to A3 paper size without loss of clarity.	Logical Drawing Sheets
4. Drawings shall also be submitted electronically in a format agreed with Council which is consistent with the Asset Register and spatial recording adopted by Council.	Electronic Submission
5. Annexure DQS-B provides guidelines for grouping information in design drawings.	
DQS.06 DESIGNER'S QUALIFICATIONS	
1. A Civil Engineer deemed to be suitably experienced by Council and qualified so as to be accepted as a member of the Institution of Engineers, Australia or a Registered Surveyor deemed to be suitably experienced by Council shall be accepted as qualified to prepare plans for roadworks, drainage works, water supply, sewerage works (excluding pumping stations), canal works (excluding flood control structures and bridges).	Engineer Surveyor
2. A Civil Engineer qualified as detailed above shall be accepted as qualified to prepare plans for bridges, retaining walls, miscellaneous structures, buildings, pumping stations and flood control structures.	Structural Design by Engineer
DQS.07 RECORDS	
1. The Designer shall retain appropriate design records in a format such that they can be understood readily by design staff with no prior knowledge of the particular design.	

### QUALITY ASSURANCE REQUIREMENTS FOR DESIGN – QUEANBEYAN-PALERANG

2. Calculations which can readily be re-done need not be kept once the construction maintenance period of the project has expired.	Calculation Record Retention
3. A design file shall be maintained by the Developer or the Developer's Consultant containing records of calculations, approvals and decisions, geotechnical data and other design data which could be relevant in reviewing aspects of the design or planning future maintenance responsibilities.	Design File to be kept
4. Particular requirements apply to hydrological and hydraulic design data. (Refer to Council's STORMWATER DRAINAGE DESIGN SPECIFICATION).	Hydrologic, Hydraulic Design
5. Copies of records will be made available to Council on request and without charge.	
DQS.08 AUDIT	
1. Council shall have the right of audit of all processes and documents related to the project design. The Developer, the Developer's Consultant and the Developer's Accredited Certifier shall provide Council's Officers all reasonable assistance in inspecting records of designs submitted to Council for acceptance.	Provide Assistance
2. In order to provide for such audit, access to the premises of the Developer, the Developer's Consultant and the Developer's Accredited Certifier will be provided to Council on a 24 hour notice basis.	Notice of Access

### DQS.09 DEEMED TO COMPLY

1 Section DQS shall be Deemed to Comply if carried out in accordance with the requirements of Section DQS, as amended by Queanbeyan Palerang Regional Council.



### ANNEXURE DQS-A

# QUEANBEYAN PALERANG REGIONAL COUNCIL DESIGN CERTIFICATION REPORT

Project Title:	
DA No:	
Consultant's Drawing No:	
Name of Consultant:	
Name and Address of Developer:	

I certify that the subject drawings represent a design for which the attached design check lists provide a valid record.

I certify that this Design has been carried out in accordance with current standards of good industry practice and in accordance with Queanbeyan Palerang Regional Council's Design Specifications, and specific instructions received with the exception of departures cited in the attached design check lists for Council's advice.

I certify that this Design will not significantly impact on the environmental factors of the area as interpreted under Part V of the Environmental Planning and Assessment Act, 1979 (as amended).

I certify that this Design is in strict compliance with the development consent conditions and where a variance to the consent is found, written confirmation has been received from Council approving of the variance prior to the lodgement of Design Drawings (this includes designs for staged construction).

I certify that all structural elements of the Design have been designed by a competent qualified practicing Civil or Structural Engineer.

Contact Phone:

Design Engineer/Surveyor

Date

Contact Postal Address:

Qualifications

# Design Check List 1 BASE PLOT OF EXISTING FEATURES

		Check Completed By (initials)	Date	Not Applicable (tick)
.1	Initial plot verified by site inspection for existing drainage.			
.2	Initial plot verified by site inspection for existing property descriptions, boundaries and accesses.			
.3 f site t	Initial plot of contours verified as representative terrain.		/	
4	Trees and significant environmental features affected by development are clearly indicated and annotated.			
.5	Features significant to heritage considerations within the development boundaries are clearly indicated and annotated.			
.6	Existing public and private property likely to be affected by these Designs are clearly indicated and annotated.		1 1	
.7	Survey and bench-marks clearly indicated and			
	annotated.			
	annotated. DEPARTURES FROM COUNCIL OR NSW R REQUIREMENTS OR SPECIAL FEATURES TO E		I I	IORMAL
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# Design Check List 2 HORIZONTAL ROAD ALIGNMENT

		Check Completed By (initials)	Date	Not Applicable (tick)
2.1	Alignment compatible with design speed.		/ /	
2.2 roadsid	Alignment is adequate in relation to clearance of e hazards.		_ / /	
2.3	Driver and pedestrian sight distance is adequate.		/	
2.4	Conflict with existing services is minimised.		/	
2.5	Road widths and lanes meet Councils requirements and design traffic requirements.			
2.6	Alignment of bridges suits road alignment.			
2.7	Pedestrian, bicycle and parking requirements are met.		_ / /	
2.8	Provision for large vehicles such as buses, garbage trucks and emergency vehicles is adequate.		/ /	
2.9	Intersection layouts meet turning requirements of design traffic including emergency vehicles.		/	
2.10	Pavement width tapers and merges are adequate.		/	
2.11	Pedestrians and prams are catered for.			
2.12	Conflict with existing public utility services has been identified and resolved.		/ /	
2.13	Horizontal road alignment has been provided in accordance with any conditions of development consent.		/	
2.14	Horizontal road alignment setout data is clearly defined and tabulated.		/	

# Design Check List 2 HORIZONTAL ROAD ALIGNMENT (continued)



# Design Check List 3 VERTICAL ROAD ALIGNMENT

		Check Completed By (initials)	Date	Not Applicable (tick)
3.1	Grades meet maximum and minimum requirements.		/	
3.2	Vertical clearances to bridges and services meet standards.		/	
3.3	Vertical sight distance is adequate for drivers and pedestrians.		/	
3.4	Cover to drainage structures or services is adequate.		/	
3.5	Vertical alignment is adequate for disposal of surface drainage from properties and from road.		/	
3.6	Grades are satisfactory for 1:100 year flood levels.		/	
3.7	Vertical alignment is compatible with property access.		/	
3.8	The gradient on an intersecting road is not significantly greater than the cross slope of the through pavement and no greater than 3% at give way and stop signs.		/	
3.9	Sight distance is acceptable for all accesses to roundabouts.		<u> </u>	
3.10	Alignment coordination with horizontal alignment is in accordance with the AUSTROADS design guides as referenced in the AUS-SPEC specifications.		/	
3.11	Conflict with existing public utility services has been identified and resolved.			
3.12	Vertical road alignment setout data is clearly defined on the longitudinal sections.			

# Design Check List 3 VERTICAL ROAD ALIGNMENT (continued)



# Design Check List 4 ROAD CROSS SECTIONS

		Check Completed By (initials)	Date	Not Applicable (tick)
4.1	Typical cross sections have complete dimensions.		1 1	
4.2	Typical cross sections have kerb & gutter, road safety barrier and surface drainage indicated.		/ /	
4.3	Batter slopes are indicated and batter treatment is indicated where appropriate.		/ /	
4.4	Property boundaries, service allocations and location of known existing underground services and pathway treatments are indicated.			
4.5	Sufficient cross sections are shown to define all variations and width transitions.		1 1	
4.6	Cross sections are of sufficient width to fully assess impact of road level on adjoining property.			
4.7	Stability of embankment slopes, batters and retaining walls has been verified as satisfactory.		_ / _/	
4.8	Cross section reference level conforms with vertical road alignment.		/	
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REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

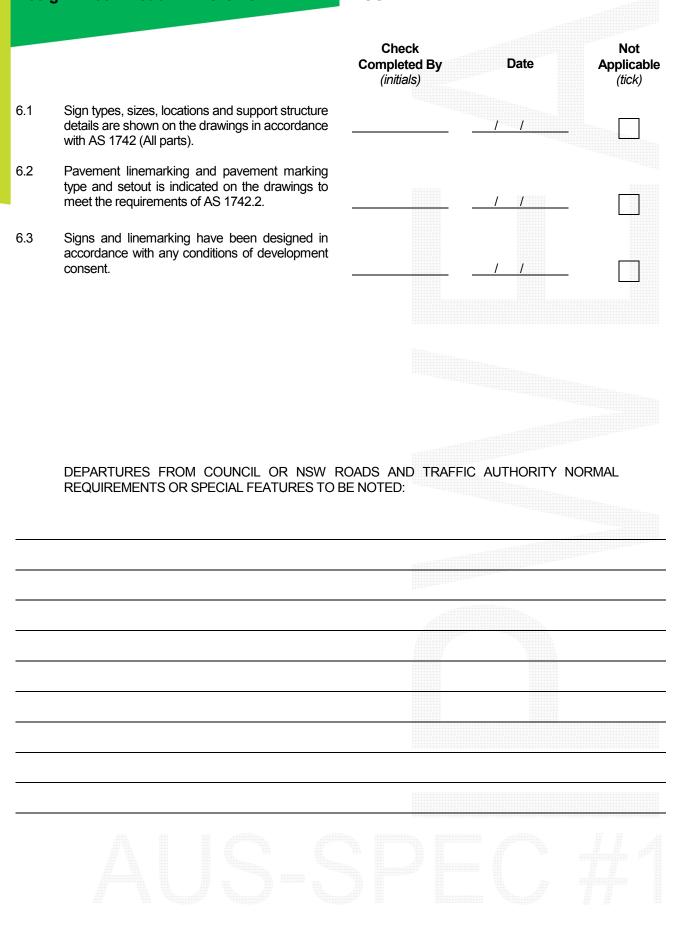
# ROAD AND INTERALLOTMENT DRAINAGE

		Check Completed By (initials)	Date	Not Applicable (tick)
5.1	Drawings indicate existing surface drainage.		1-1	
5.2	Hydrological data is the most current available.		<u> </u>	-
5.3	Hydrologic and hydraulic design calculations are complete and fully recorded and available for audit.		/	-
5.4	Underground drainage and structures do not conflict with services.		1 1	
5.5	The designed drainage lines are compatible with existing incoming lines and outgoing lines.		1 1	
5.6	The length of line, type of pipe, size, class and bedding requirements are indicated for each drainage line on the schedule of drainage elements.		1 1	
5.7	Height of fill over drainage lines is within allowable limits.		11	
5.8	Drainage is provided for local depressions eg median areas or areas adjacent to fills.			
5.9	The effect of headwater and back-up water on private property has been assessed.		11	-
5.10	Subsurface drainage has been provided when required and clearly located by line and level, with details provided		1 1	
5.11	The need for batter drains has been considered for fills and cuttings.			
5.12	The height and energy level of downstream drainage has been considered.		1 1	
5.13	Drainage structures and flowpaths are located so as to ensure safe vehicular and pedestrian transit.		/	

### QUALITY ASSURANCE REQUIREMENTS FOR DESIGN – QUEANBEYAN-PALERANG

Desi	gn Check List 5 ROAD AND INTER	RALLOTMENT DR Check	AINAGE (conti	nued) <sub>Not</sub>
		Completed By (initials)	Date	Applicable (tick)
5.14	Drainage structure number, setout, type and pipe details indicated on the drainage plans and schedule of drainage elements.		/_/	
5.15	Emergency flowpaths are located so as to minimise impact on private property.			
5.16	Road drainage has been provided in accordance with any conditions of development consent.		/	
5.17	Interallotment drains have been designed in accordance with Council's Specification and/or Australian Rainfall and Runoff (Edition 1987).		/	
5.18	Appropriate land stabilisation and velocity controls have been implemented to pipe systems, open channels and embankments.		/	
5.19	For allotments affected by flood controls, the floor height controls are to be compatible with road and drainage levels.		/	

# Design Check List 6 SIGNS AND MARKINGS



# Design Check List 7 PAVEMENT DESIGN

		Check Completed By (initials)	Date	Not Applicable (tick)
7.1	The pavement design and surface treatment is shown clearly on the drawings and any variations are indicated on appropriate cross sections.			-
7.2	The pavement design complies with Council's Pavement Design Specification.			-
7.3	Pavement design is in accordance with any conditions of development consent.			-
7.4	Geotechnical data is assessed as adequate and is held on the design file.			-

# Design Check List 8 BRIDGE/MAJOR CULVERT DESIGN

		Check Completed By (initials)	Date	Not Applicable (tick)
.1	The design has been performed by a competent practicing Civil or Structural Engineer.		1-1	
.2	Geotechnical data is assessed as adequate and is held on the design file.			
.3	The type and functional dimensions of the bridges meet AUSTROADS Bridge Design Codes 1992, AS 3600, AS 1684, AS 1170, AS 4100.			
.4	The type and class of all materials are indicated on the drawings.			
.5	Records of all significant design calculations are available for audit.		<u> </u>	
	The design conclusion with our conditions of			
.6	The design complies with any conditions of development consent. DEPARTURES FROM COUNCIL OR NSW F REQUIREMENTS OR SPECIAL FEATURES TO I		C AUTHORITY N	NORMAL
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**EROSION/AND SEDIMENTATION CONTROL PLANS** 

		Check Completed By (initials)	Date	Not Applicable (tick)
9.1	Both short term and long term erosion control plans have been prepared using the guidelines within Council's Design Specification D7 and Construction Specification C211.		/	
9.2	Erosion and sedimentation control has been designed in accordance with any conditions of development consent.			

# WATER RETICULATION

sign has been performed by a practicing red Civil Engineer. rvey has been performed by a practicing red Surveyor. hnical data is assessed as adequate and on the design file.	Check Completed By (initials)	Date	Not Applicable (tick)
red Civil Engineer. Twey has been performed by a practicing red Surveyor. hnical data is assessed as adequate and on the design file.		<u> </u>	
hnical data is assessed as adequate and on the design file.			
on the design file.			
		<u> </u>	
		1 1	
ecial requirements for crossings and		1 1	
	The and class of all materials, fittings, joints, ecial requirements for crossings and ion are indicated on the drawings. Als of all significant design calculations are le for audit. Usign meets the requirements of all any Authorities.	and is compatible with the Water   Code of Australia WSA 03-2002 (Version   be and class of all materials, fittings, joints,   ecial requirements for crossings and   ion are indicated on the drawings.   ds of all significant design calculations are   le for audit.   usign meets the requirements of all   ry Authorities.   usign complies with any conditions of	and is compatible with the Water   Code of Australia WSA 03-2002 (Version   be and class of all materials, fittings, joints,   ecial requirements for crossings and   ion are indicated on the drawings.   ds of all significant design calculations are   le for audit.   y Authorities.   y Authorities.   y in provide with any conditions of

### SEWERAGE SYSTEM

		Check Completed By (initials)	Date	Not Applicable (tick)
11.1	The design has been performed by a practicing registered Civil Engineer.			
11.2	The survey has been performed by a practicing registered Surveyor.			
11.3	Geotechnical data is assessed as adequate and is held on the design file.			
11.4	The type and functional dimensions of the reticulation meet the appropriate Australian Standards and is compatible with the Sewerage Code of Australia WSA 02-2003 (Version 2.3).		/_/	
11.5	The type and class of all materials, fittings, joints, and special requirements for crossings and protection are indicated on the drawings.			
11.6	Records of all significant design calculations are available for audit.		/	
11.7	The design meets the requirements of all Statutory Authorities.		/ /	
11.8 develop	The design complies with any conditions of ment consent.			

## VEHICULAR ACCESS DESIGN

		Check Completed By (initials)	Date	Not Applicable (tick)
12.1	The design has been performed by a practicing registered Civil Engineer.			
12.2	The access complies with the requirements of Table D13.1.			
12.3	The access is not in a prohibited location – Figure D13.1			
12.4	The driveway requirements comply with Table D13.2			
12.5	The type of crossing, materials, grades and any special requirements for crossings are indicated on the drawings.			
12.6	Driveway longsections provided where required by Clause D13.11		11	
12.7	Records of all significant design calculations are available for audit.			
12.8	The design meets the requirements of all Statutory Authorities.			
12.9	The design complies with any conditions of development consent.			
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### **QUALITY ASSURANCE REQUIRE**MENTS FOR DESIGN – QUEANBEYAN-PALERANG

# ANNEXURE DQS-B

### **EXAMPLE COMPILATION OF DRAWINGS**

### A. ROADWORKS PLANS

An example of the sequence of drawing sheets acceptable to Council in the compilation of a full set of Roadworks Drawings is set out as follows.

Sheet Nº	ТОРІС
1	Development Consent Number Locality Sketch and Index of Sheets
2	General Subdivision Plan with contour details and a clear indication of the extent of work.
3	Typical Road Cross Sections showing road widths, pavement (design) configuration, batter slopes, kerb and gutter types.
4.	Plan and Longitudinal Section of each road showing setout data and services.
5.	Drainage Plan and Schedule of Drainage Elements (Pipe lines and structures).
6.	Drainage Profiles.
7.	Drainage Structure Details.
8.	Road Cross Sections.
9.	Intersection Layout Details.
10.	Pavement Marking and Signposting.
11.	Erosion and Sedimentation Control Plans (short term and long term treatment).
12.	Structure Details – Bridges, Retaining Walls, etc.
13.	Erosion and Sediment Control
14.	Traffic Management
NOTE	1. Any one set of Roadworks Plans may require more than 1 sheet for each of the topics listed and may also require supplementary sheets for site specific details.

2. Scales are required to be nominated on all drawings and north points shown on all plan views.