



## AUS-SPEC

### Infrastructure Specifications

#### 0010 Quality Requirements for Design

**0010 QUALITY REQUIREMENTS FOR DESIGN**

IMPORTANT: This document has been adapted from the NATSPEC suite of specification templates for use in the Cessnock City Council area by both Council and industry. NATSPEC regularly updates the base templates (currently in April and October each year), and Council may incorporate changes into its version of AUS-SPEC from time to time. To assist in highlighting any changes made by Council to the NATSPEC templates, the following conventions are used.

- See ANNEXURE M at the end of this document which contains (where practical) Cessnock City Council customisations (also known as 'office master' text). References to the Annexure are to also be inserted at relevant clauses in the main body of the document.
- Where content is added to the main body of the document, it is to be shown **in brown text like this**.
- Where content is deleted or excluded from the main body of the document, it is to be shown ~~struck through like this~~. Such clauses are to have no effect.

Where there is a conflict between main body text and Cessnock City Council specific clauses, Council's specific clauses shall prevail.

## 1 GENERAL

### 1.1 INTRODUCTION

#### Worksection application

Description: This worksection is applicable to providing a quality management system consistent with AS/NZS ISO 9001 for engineering design processes required by Council for engineering works. The requirements are applicable to all design work whether undertaken by designers within Council, a Consultant or a Subconsultant. **This will include a Quality management system to manage design, and design checklists to assist with design development and review.**

### 1.2 RESPONSIBILITIES

#### General

Requirement: Provide a quality management system (QMS) for design as documented.

### 1.3 STANDARDS

#### General

Standard: To AS/NZS ISO 9001 (2016).

### 1.4 INTERPRETATION

#### Abbreviations

General: For the purposes of this worksection the following abbreviations apply:

- **CPEng: Chartered Professional Engineer (accreditation by Engineers Australia).**
- **NER: National Engineering Register by Engineers Australia.**
- **RPEng: Registered Professional Engineer (accreditation by Professionals Australia).**
- **RPEQ: Registered Professional Engineer of Queensland.**
- **QMS: Quality management system.**

#### Definitions

General: For the purposes of this worksection the definitions given in AS/NZS ISO 9000 (2016) and the following apply:

- **Accreditation: Certification by a statutory or approved authority of the facilities, capabilities, objectivity, competence and integrity of an organization or individual to provide a specified service and/or required operation.**
- **Certification: A written assertion of facts.**

- Designer: a professional engineer or Registered Land Surveyor with relevant experience and who is responsible for signing off on the completed design before it is implemented. Submit details of accreditation and qualifications along with the design.
- Hold point: A mandatory verification position in the contract beyond which work cannot proceed without the designated authorisation.
- Non-conformance: The non-fulfilment of documented requirements.
- Professional engineer: A person who is:
  - . If legislation is applicable: A registered professional engineer in the relevant discipline who has appropriate experience and competence in the relevant field.
  - . If legislation is not applicable: ~~Registered in~~ **Accredited in the** relevant discipline **as a CPEng, NER, PEng and/or RPEQ** on the National Engineering Register (NER), ~~a corporate member of Engineers Australia or eligible to become a corporate member registered on (NER),~~ and has appropriate experience and competence in the relevant field.
- Quality design checklists: Forms completed during the design process verifying key steps, and records.
- Records: Documents and data, no longer subject to alteration, that provides evidence of activities performed.
- Validation: Confirmation, through the provision of objective evidence, that requirements for a specific intended use or application have been fulfilled.
- Verification: Provision of evidence or proof that a performance requirement has been met or a default exists.

## 2 QUALITY MANAGEMENT SYSTEM FOR DESIGN

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### 2.1 GENERAL REQUIREMENTS

#### System requirements

QMS: Plan, develop and maintain a documented QMS conforming to this worksection and AS/NZS ISO 9001 (2016).

Format: If the format of the QMS documents differ from the format of AS/NZS ISO 9001 (2016), provide a matrix outlining how the documented requirements are addressed by the QMS.

Collaboration: Coordinate the different groups involved in the development of the design to provide effective communication and clear assignment of responsibility.

### 2.2 DOCUMENTATION REQUIREMENTS

#### General

QMS documentation requirements: Include the following:

- Quality policy and objectives.
- Quality plan(s).
- Procedure documents.
- Forms.
- Relevant external documents.
- Records.

Changes: Immediately implement changes to the project QMS and design Quality plan if the following occurs:

- Specification requirements are not adequately addressed.
- Non-conformity resulting from the QMS or Quality plan.
- Audit initiates changes to the QMS.
- Procedures have changed.

Records: Provide copies of any quality records within 14 days of request **and prior to final subdivision or acceptance into Defects Liability Period. See Clause M4.**

#### Design quality plan

Requirement: Provide a design Quality Plan **consistent with** to AS/NZS ISO 9001 (2016) and AS ISO 10005 (2018). **See Clause M5.** Include the following:

- Design program including stages.
- Review and verification for each stage and validation of the completed design.
- Responsibilities and authorities for design.
- Design team, including subconsultants, names of team members, roles and technical interfaces.
- Resources assigned to the project.
- Organisation chart including communication paths with the Superintendent, the Principal, other Consultants and Contractors.
- Design inputs such as requirements and acceptable criteria.
- Hold Points for the design stages.
- Programmed approvals/consultations with regulatory authorities.
- Third party review/verification/validation required by the Principal or regulating authority.
- Proposed design documentation.
- Procedure for managing design changes of project audits.
- Records of design processes and review, verification and validation.

### Design input

Requirement: Identify, document and review for adequacy the following:

- Principal's brief.
- Site information, including survey information, geotechnical reports, **Before You Dig Australia information**, environmental reports ~~and~~ hydrology and local Environmental plans, **Heritage Listings and Development Approvals**.
- Codes of practice, Development Control Plans (DCPs) and Council Engineering requirements.
- Regulatory and statutory requirements.
- Performance criteria.
- Design criteria **listed after review of abovementioned items**.
- Review: Give notice if the design inputs do not provide sufficient information for verification.

## 2.3 REVIEW, VERIFICATION AND VALIDATION

### Design review

Requirement: Conduct regular reviews to evaluate the design and identify problems and propose corrective action. Include the following:

- Principal's requirements.
- Sequence of design activities.
- Conformance with the design brief.
- Identification and control of design interfaces.
- Construction processes.
- Safety methods.
- Methods of verification.
- Consultation including Council or authority approvals, public input and existing utilities.

Records: Provide and maintain quality records by notation on documents, minutes and checklists signed off by the review leader.

### Design verification

Verification: At completion of each design stage certify the result of a given activity for conformance with the design input requirements for that activity. Include the following:

- Document the process.
- Identify responsibilities.
- Maintain records of the verification.

### Design validation

Validation: At completion of design, certify the design for conformance with the design requirements. Include the following:

- Document the process.
- Identify responsibilities.

- Maintain records of the validation.

### **Certification**

Requirement: Submit a ~~Certification Report~~ **Design Report certified** signed by the designer accompanied by drawings and specification, conforming to the design certificate and checklists included in Annexure A at the following stages:

- **Concept design stage.**
- ~~Each~~ preliminary design stage.
- **Final design stage.**
- **Issued for construction plans**
- ~~Completed design.~~

Exemption: A Certification Report is not required when submitting sketch or concept designs.

### **Design audit by Council**

Requirement: Provide all reasonable assistance for the inspection of records of designs submitted to Council.

Notice time: Minimum 24 hours for access to the designer's premises.

## **2.4 CONTROL OF NON-CONFORMANCE**

### **General**

Detection and reporting: Identify, control and report non-conformance with the design requirements.

Design variations: Record on the Certification Report checklists any aspects of the design that do not meet the design input requirements or tolerances and other applicable Council design and construction specifications.

## **2.5 CONTROL OF DESIGN CHANGES**

### **Requests for changes by Principal Certifier**

Following review, the Principal Certifier (e.g. Council) shall provide a list of changes requested for each stage of the design. Each change is to be implemented by the designer in the proceeding stage, prior to resubmission.

### **Design changes**

Requirement: Identify, review and control changes to the design. Include the following:

- Control of requests for changes.
- Review of impact of changes.
- Authorisation of changes.
- Verification of implementation of changes.

Process for changing design after issue of documents for construction: Review, verify and approve before re-release for construction.

Record: Maintain a register of design changes.

## **2.6 CONTROL OF DOCUMENTATION**

See AS/NZS ISO 9001 (2016) clause 7.5.3.

### **Documentation**

Requirement: Control and retain documents and data relating to the project, including from the Principal, other consultants or subconsultants and suppliers.

Distribution control: Maintain a master list of controlled documents. Include the following information:

- The source of data used in calculations and on drawings.
- Record of the personnel authorised to review, approve and change documents.

Design documentation and data: Provide calculations, sketches, drawings (including those retained for reference or circulated outside the design team), data sheets and specifications.

Design change register: Record changes to documents after issue for construction.

## **2.7 CONTROL OF RECORDS**

### **Records**

Requirement: Retain design records in a format readily accessible without prior knowledge of the particular design.

Copies of records: If a consultant or subcontractor is engaged in preparing the design, the copies of the records will be made available to Council upon request without charge.

Design file: Maintain a file containing records of calculations, approvals and decisions, geotechnical data and other design data that may be relevant in reviewing aspects of the design or planning future maintenance responsibilities.

Calculation record retention: Keep all calculations for the duration of the construction maintenance period.

### 3 ANNEXURE A

#### 3.1 CERTIFICATION REPORT

##### Design certificate

Project title:	
<b>Project Number</b>	
Documentation no:	
Designer:	

I certify that the documentation noted above represents a design in conformance with the following checklist:

I certify that this design conforms to current Australian or International standards, industry guidelines, Council's design specifications and specific instructions received with the exception of departures cited in the attached design checklists.

I certify that this design will not significantly impact on the environmental factors of the area as interpreted under the following:

- Any Development Consent (DA) that applies to the land,
- The Environmental Planning and Assessment Act, related Regulations and Environmental Planning Instruments including Council's Local Environmental Plan (LEP) and relevant State Environmental Planning Policies (SEPP), and
- The Protection of the Environment Operations Act.
- The NSW Heritage Act

I certify that all structural/civil/hydraulic elements have been designed by an engineer suitably experienced in the relevant field and who has or is eligible for NPER registration with Engineers Australia, RPEQ and/or RPEng registration or a Registered Land Surveyor suitably experienced in the relevant field.

Date:	
Contact phone:	
Contact postal address:	
Design Engineer/Surveyor:	
Qualifications:	
<b>Signature</b>	
ABN:	

#### 3.2 DESIGN CHECKLIST 1 – CESSNOCK CITY COUNCL DESIGN JOB CHECK SHEET (GENERAL)

**I&DS File:** ...../...../.....

Locality:

Road:

Description of proposed works

Date Received: ...../...../.....

Target Date: ...../...../.....

CCC File No:

Plan No:

Job No:

Budget: \$

Adjoining I&DS files:

**Investigation and Survey**

**File Prep**

- Topo site plan, DP's, Prop. Owners, Water, Sewer, Zoning
- Dial 1100 Before You Dig Australia search
- Traffic Data to file – If no data, arrange traffic data collection
- Search for existing adjacent engineering plans and I&DS Job files
- Inspection of Local Environmental Plan Heritage Schedule
- Acid Sulphate Soil probability map
- Proposed Survey/Work letter issued to Owners/ Occupiers
- Public Transport routes
- B Double routes
- Cycleway facilities & routes

**Survey, Inspections & Investigations**

- Survey Completed

Date: ...../...../.....

Surveyor:

- Site Inspection with Coordinator / Engineer

Date: ...../...../.....

- Inspection for Assessment under Part 5 of EP&A Act

Assessed by:

Date: ...../...../.....

- Geotechnical Investigation

By:

Requested: ...../...../.....

Received: ...../...../.....

**Design**

**In accordance with AUSPEX No 1 and RTA Road Design Guide**

- Road centreline and kerb gradings
- Vertical Curves/ Horizontal Curves
- Consider your proposed alignment, any land acquisitions required  
> liaise ASAP with TA Roads Admin Coordinator
- Sufficient levels for set-out and construction
- Kerb return profiles
- Cross sections: Examine and check information
- Check clearances to public utilities

**In accordance with AUSPEX No 1 and RTA Road Design Guide**

- Check currency of Dial Before You Dig Australia search
- Telstra/Optus
- Electricity
- Water / Sewer
- Alterations to public utilities
- Alterations to vehicular access
- Road Intersections
- Footpaths
- Alterations to postal services (mailboxes)
- Line marking
- Signage

**Drainage****AR&R**

- Revise waterway calculations
- Check pipe drainage system: Inlet flows and type, Pipe sizes, Grades & velocities, Location in road
- Ensure drainage information is on plan, long section and road cross sections
- Erosion & Sedimentation control – permanent and temporary,  
Drainage Compilation Plan to be updated at end of design stage in pencil (WAE may differ to design), and amend any differences discovered in existing drainage or any proposed drainage amended during construction.
- Grade subsoil
- Grade table drains

**General**

- General Notes sheet in plan set
- Accessibility assessed?
- Prepare quantities and estimate on standard form (Copy of estimate to file)
- Safety assessed and noted in Design Notes
- Datum, North Point and Azimuth on plan
- Streetscapes assessed and implemented
- Enter Plan Number onto and update I&DS database  
(R:\Asset\_Planning\Design\_Invest\Idsfile\IDSFILE2.xlsm)
- Check plan Title Blocks, I&DS File No., Dates, Sheet numbering, Total number of sheets, Plan No., Notes on plan etc.
- Check on plot: Plan, Longitudinal Section, Services, Access, Building descriptions, Lot & DP Numbers
- Check for: Sufficient detail and information (dimensions, survey connections, coords, stations etc. for set-out), Linework, Lettering



- Check for references to Standard Drawings
- Preliminary copy of plan to client for comments  
(Should be marked as 'Preliminary Copy') Date: ...../...../.....
- Request Land Resource Management to provide an REF  
(copy of REF to IDS file) Date: ...../...../.....
- Copy of plan for checking to Team Leader Senior Designer Date: ...../...../.....

**Plans Completed**

<b>Final copy of plans (or parts of plans) to:</b>	<b>No Copies</b>	<b>Date:</b>
<input type="checkbox"/> *Approved Design Review Checklist	1	...../...../.....*
<input type="checkbox"/> *Approved TL Design Only if land acquisitions required	1	...../...../.....*
<input type="checkbox"/> #Transport for NSW Services Only if TfNSW funded	1	...../...../.....#
<input type="checkbox"/> Development / Quality Section	1	...../...../.....
<input type="checkbox"/> IDS File	1 + REF + Final Estimate	...../...../.....
<input type="checkbox"/> Client	2 + REF + Schedule of Quantities	...../...../.....
<input type="checkbox"/> Telstra	1	...../...../.....
<input type="checkbox"/> Water Services	1	...../...../.....
<input type="checkbox"/> Essential Energy	1	...../...../.....

3.3 DESIGN CHECKLIST 2 – DESIGN REVIEW CHECKLIST

DESIGN REVIEW CHECKLIST



Job Name		Job No		Date	
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Item	Description	Required Y	Required N	Concept	Preliminary	Final	For Construction	Reviewer	Date	Action/Comment
<b>1 Site Plan</b>										
1.1	Notes	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
1.2	Limit of Contract	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
1.3	Legend	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2 General Arrangement</b>										
2.1	Horizontal Centre Alignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.1.1	Width of Carriageways/Lane Configuration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.1.2	Linemarking	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.1.3	Horizontal Curve \Ddata	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.1.4	Intersection Geometry	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.2	Kerb Returns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.2.1	Limit of K&G Construction	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.2.2	What do krs match to? Existing K&G or tabledrains	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

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Item	Description	Required Y	Required N	Concept	Preliminary	Final	For Construction	Reviewer	Date	Action/Comment
2.2.3	If tabledrain, is tailout required?	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
2.2.4	Pram Ramps	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.3	Horizontal Kerb Alignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.3.1	Footpath width within CCC minimum standards?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.3.2	Does kerb alignment clear existing features - trees, powerpoles, services, pits etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.3.3	Remove existing kerb and gutter	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.3.4	Clearance to longitudinal service alignments. Are watermains under proposed kerb?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>2.4 Drainage Layout</b>										
2.4.1	Pits are clear of driveways, access crossing and kerb return tangent points.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.4.2	Pits match lowpoints along kerb and gutter alignments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.4.3	Drainage line annotation, line number etc. is clear, pit chainages are in pit schedule	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.4.4	Subsoil drainage includes flushing points and ties to stormwater pits.	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>2.5 Services</b>										
2.5.1	Major mains are labelled size and type	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.5.2	Caution notes cover all road and drainage crossings	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
2.5.3	Watermain house connections are shown	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			

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Item	Description	Required Y	Required N	Concept	Preliminary	Final	For Construction	Reviewer	Date	Action/Comment
<b>2.6 Typical Section</b>										
2.6.1	Lane width and linemarking match that shown on General Arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.6.2	Pavement design matches Geotech Report /Design	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.6.3	Subsoil Drainage shown	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.6.4	Are typical Sections representing all shapes of proposed road formation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.6.5	Check comparative levels	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>3 Road Longitudinal Sections</b>										
3.1	Are vertical curves designed to RTA sight distance and rider comfort standards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.2	Is pavement strategy represented for full length of design, cuts and fills	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.3	Lowpoints well drained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.4	Longitudinal grades within CCC standard maximums and minimums	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.5	Services crossings plotted	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.6	Is there enough clearance to vertical and horizontal obstructions?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.7	Proposed drainage crossings plotted.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>4 Road Cross Sections</b>										

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4.1	Batters within CCC standards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
4.2	Pavement Strategy represented across full width of road formation.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>5 Driveways</b>										
5.1	Profiles designed to CCC maximum and minimum standards	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5.2	Check extension of driveways into properties, use existing construction joints for limits if possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5.3	Are all driveways plotted.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5.4	Services affected by driveways in cut.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>6 Catchment Plan</b>										
6.1	Check stormwater layout - match general arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
6.2	Check Q5 hydrology and hydraulic (width of flows), Q100 hydrology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>7 Setout</b>										
7.1	All centreline, kerb, drainage, KR's, linemarking and medians are clearly setout.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
7.2	Distances shown for pegs offset feature.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
7.3	Existing features shown, trees, existing kerbs, driveway and bitumen areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>8 Drainage Location</b>										

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Item	Description	Required Y	Required N	Concept	Preliminary	Final	For Construction	Reviewer	Date	Action/Comment
8.1	Cover to pipe	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
8.2	Service clearances	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
8.3	Check that drainage pits and lines are annotated correctly	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
8.4	HGL plotted and line type is correct.	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>8.5 Drainage Longsection Annotation</b>										
8.5.1	Pipe Flow m3/s	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.2	Velocity m/s	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.3	HGL	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.4	Design Frequency (Q5, etc)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.5	Depth to invert	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.6	Design Levels (top of kerb) of FSL	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.7	Invert Levels	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.8	NS	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
8.5.9	HGL Levels	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			

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Item	Description	Required Y	Required N	Concept	Preliminary	Final	For Construction	Reviewer	Date	Action/Comment
8.6	Flows, velocity etc. match the calculation sheets.	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>9 Road Safety Audit</b>										
9.1	Audit Undertaken	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
9.2	Audit Issues Addressed	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
<b>10 Project Drawings</b>										
10.1	Sediment & Erosion Control (x5)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
10.2	Site Facilities Layout Plan/ Traffic Movement	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			
10.3	Additional Blank Layout Sheets (x5)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			

ENGINEERING OFFICER (Print Name)	ENGINEERING OFFICER (Signature)	DATE	CHECKED (Print Name)	CHECKED POSITION TITLE	CHECKED (Signature)

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**3.4 DESIGN CHECKLIST 43 - DOCUMENTATION OF EXISTING SITE FEATURES**

This checklist is applicable to the following design requirements:

- 0021 Site regrading.
- Council's survey brief and any policies including environment, heritage, etc.

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
4.1 3.1	Check detail survey by site inspection for existing drainage. <b>Pipe diameter and drainage to be included.</b>	.....	...../...../.....	<input type="checkbox"/>
4.2 3.2	Check detail survey by site inspection for existing property descriptions, boundaries, <b>structures, fences</b> and accesses.	.....	...../...../.....	<input type="checkbox"/>
4.3 3.3	Check detail survey of contours as representative of site terrain.	.....	...../...../.....	<input type="checkbox"/>
4.4 3.4	Document trees <b>&gt;150mm Ø</b> and significant environmental features affected by the works <b>including within the roadside safety Clear Zone.</b>	.....	...../...../.....	<input type="checkbox"/>
4.5 3.5	Document significant features to heritage within the Works boundaries.	.....	...../...../.....	<input type="checkbox"/>
4.6 3.6	Document existing public and private property likely to be affected by the design.	.....	...../...../.....	<input type="checkbox"/>
4.7 3.7	Document survey (of contours and features) and benchmarks of the site and up to 3 metres within neighbouring lot's.	.....	...../...../.....	<input type="checkbox"/>
3.8	<b>Document existing public utility services (DBYDA) and house / property service connections horizontally and vertically</b>	.....	...../...../.....	<input type="checkbox"/>
3.9	<b>Document existing property accesses and show driveway alteration in accordance with CCC relevant Standard Drawings</b>	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

<b>Drawings including general layout, drainage and road layout plans</b>
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


### 3.5 DESIGN CHECKLIST 24 - HORIZONTAL ROAD ALIGNMENT

This checklist is applicable to the following design requirements:

- 0041 Geometric road design – sealed.
- 0044 Pathways and cycleways (Design).
- 0052 Geometric rural road design – unsealed.
- 0061 Bridges and related structures.

#### Checkpoints

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
2.1 4.1	Check that alignment is compatible with design speeds.	.....	.../.../....	<input type="checkbox"/>
2.2 4.2	Check that alignment is adequate in relation to clearance of roadside hazards.	.....	.../.../....	<input type="checkbox"/>
2.3 4.3	Check that there is adequate horizontal sight distance for drivers and pedestrians, including at driveways.	.....	.../.../....	<input type="checkbox"/>
2.4 4.4	Check that there is approved conflict with existing services by reference to BEFORE YOU DIG AUSTRALIA.	.....	.../.../....	<input type="checkbox"/>
2.5 4.5	Check that road widths and lanes conform to Council's traffic design requirements.	.....	.../.../....	<input type="checkbox"/>
2.6 4.6	Check that bridge alignment is compatible with the road alignment.	.....	.../.../....	<input type="checkbox"/>
2.7 4.7	Check for adequate pedestrian, pram, bicycle and parking provisions.	.....	.../.../....	<input type="checkbox"/>
2.8 4.8	Check for adequate provision for large vehicles such as buses, garbage trucks and emergency vehicles.	.....	.../.../....	<input type="checkbox"/>
2.9 4.9	Check that intersections conform to the turning requirements of design traffic, including emergency vehicles.	.....	.../.../....	<input type="checkbox"/>
2.10 4.10	Check adequate pavement width tapers and merges, including Limit of Works link up with existing carriageway to CCC Standard Drawings.	.....	.../.../....	<input type="checkbox"/>
2.11 4.11	Identify and resolve any levels of conflict with existing utility services.	.....	.../.../....	<input type="checkbox"/>
2.12 4.12	Document horizontal road alignment set out data.	.....	.../.../....	<input type="checkbox"/>
2.13 4.13	Check provision of superelevation and superelevation development lengths.	.....	.../.../....	<input type="checkbox"/>
2.14 4.14	Check adequate sight distance for corners.	.....	.../.../....	<input type="checkbox"/>
2.15 4.15	Check adequate Overtaking sight distance and Manoeuvre sight distance.	.....	.../.../....	<input type="checkbox"/>
2.16 4.16	Check widening of lanes on curves.	.....	.../.../....	<input type="checkbox"/>
4.17	Verify that all of the proposed road works are within the Road Reserve or document the extent of potential acquisitions	.....	.../.../....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including general layouts, typical road plans, cross-sections and longitudinal sections, intersection layouts
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.6 DESIGN CHECKLIST 35 - VERTICAL ROAD ALIGNMENT**

This checklist is applicable to the following design requirements:

- 0041 Geometric road design – sealed.
- 0044 Pathways and cycleways (Design).
- 0052 Geometric rural road design – unsealed.
- 0061 Bridges and related structures.

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
3.1 5.1	Check that grades conform to maximum and minimum requirements as per Austroads guides.	.....	.../.../....	<input type="checkbox"/>
3.2 5.2	Check that vertical clearances to overbridges, other structures and services conform to standards.	.....	.../.../....	<input type="checkbox"/>
3.3 5.3	Check that there is adequate vertical sight distance for drivers and pedestrians, including at driveways.	.....	.../.../....	<input type="checkbox"/>
3.4 5.4	Check that there is adequate cover to drainage structures or services.	.....	.../.../....	<input type="checkbox"/>
3.5 5.5	Check that there is adequate vertical alignment for disposal of surface drainage from properties and road.	.....	.../.../....	<input type="checkbox"/>
3.6 5.6	Check that grades conform to 1:100 year flood levels (or required planning flood return frequency).	.....	.../.../....	<input type="checkbox"/>
3.7 5.7	Check that vertical alignment is compatible with property access.	.....	.../.../....	<input type="checkbox"/>
3.8 5.8	Check that gradients on intersecting roads do not exceed the cross slope of the through pavement and no greater than 3% at give way and stop signs.	.....	.../.../....	<input type="checkbox"/>
3.9 5.9	Check that there is acceptable sight distance for all accesses to roundabouts (or systems for reducing speed are provided).	.....	.../.../....	<input type="checkbox"/>
3.10 5.10	Check that alignment coordination with horizontal alignment is in conformance with the Austroads design guides referenced in the AUS-SPEC specifications.	.....	.../.../....	<input type="checkbox"/>
3.11 5.11	Identify and resolve conflict with existing public utility services and not referred to construction.	.....	.../.../....	<input type="checkbox"/>
3.12 5.12	Document vertical road alignment set out data on the longitudinal sections.	.....	.../.../....	<input type="checkbox"/>
3.13 5.13	Check that sag curves are designed for headlight sight distance.	.....	.../.../....	<input type="checkbox"/>
3.14 5.14	Check that intersections are located as per AUS-SPEC design specification.	.....	.../.../....	<input type="checkbox"/>
5.15	Check for potential for aquaplaning, interaction between grades / crossfalls.	.....	.../.../....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including road plans, longitudinal sections and cross-sections.



List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.7 DESIGN CHECKLIST 46 - ROAD CROSS-SECTIONS**

This checklist is applicable to the following design requirements:

- 0041 Geometric road design – sealed.
- 0044 Pathways and cycleways (Design).
- 0052 Geometric rural road design – unsealed.
- 0061 Bridges and related structures.

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
4.1 6.1	Document complete dimensions on typical cross-sections.	.....	...../...../.....	<input type="checkbox"/>
4.2 6.2	Document kerb & gutter or edge of seal/asphalt, road safety barrier, guide posts, subsurface drainage and surface drainage on typical cross-sections.	.....	...../...../.....	<input type="checkbox"/>
4.3 6.3	Document batter slopes and batter treatment where appropriate.	.....	...../...../.....	<input type="checkbox"/>
4.4 6.4	Document pavement description and surface treatment on typical cross section including geotechnical reference with reference to pavement compaction requirements.	.....	...../...../.....	<input type="checkbox"/>
4.5 6.5	Document property boundaries, fences, service allocations and location of known existing underground services and pathway treatments.	.....	...../...../.....	<input type="checkbox"/>
4.6 6.6	Document cross-sections to define all variations and width transitions.	.....	...../...../.....	<input type="checkbox"/>
4.7 6.7	Document cross-sections allowing for assessment of impact of road level on adjoining property including driveway slopes and sight distance.	.....	...../...../.....	<input type="checkbox"/>
4.8 6.8	Verify the stability of embankment slopes, batters and retaining walls as satisfactory.	.....	...../...../.....	<input type="checkbox"/>
4.9 6.9	Check that cross section reference level conforms with vertical road alignment.	.....	...../...../.....	<input type="checkbox"/>
6.10	Ensure no conflict between driven barrier fence posts and drainage culverts or provide for alternative	.....	...../...../.....	<input type="checkbox"/>
6.11	Document existing edge of seal on all cross sections	.....	...../...../.....	<input type="checkbox"/>
6.12	Document guardrail warrants for drop offs	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including road plans, cross-sections and longitudinal sections.
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.8 DESIGN CHECKLIST 57 - ROAD AND INTERALLOTMENT DRAINAGE**

This checklist is applicable to the following design requirements:

- 0021 Site regrading.
- 0043 Subsurface drainage (Design).
- 0074 Stormwater drainage (Design).

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
5.1 7.1	Document existing surface drainage and upstream catchments.	.....	...../...../.....	<input type="checkbox"/>
5.2 7.2	Check that hydrological data is current.	.....	...../...../.....	<input type="checkbox"/>
5.3 7.3	Make hydrologic and hydraulic design calculations available for audit.	.....	...../...../.....	<input type="checkbox"/>
5.4 7.4	Check that underground drainage and structures do not conflict with public utility services.	.....	...../...../.....	<input type="checkbox"/>
5.5 7.5	Check that the designed drainage lines are compatible with existing incoming lines and outgoing lines.	.....	...../...../.....	<input type="checkbox"/>
5.6 7.6	Document pipeline length, type, size, class and bedding requirements for each drainage line.	.....	...../...../.....	<input type="checkbox"/>
5.7 7.7	Check that height of fill over drainage lines is within recommended practical limits.	.....	...../...../.....	<input type="checkbox"/>
5.8 7.8	Document drainage provisions for local depressions, e.g. median areas or areas adjacent to fills.	.....	...../...../.....	<input type="checkbox"/>
5.9 7.9	Check that the effect of headwater and back-up water on private property is satisfactory and non intrusive. <i>Note: The Principal Certifier (Council) may request further investigations depending on the severity of impact.</i>	.....	...../...../.....	<input type="checkbox"/>
5.10 7.10	Document subsurface drainage by line and level if required.	.....	...../...../.....	<input type="checkbox"/>
5.11 7.11	Document batter drains for fills and cuttings if required.	.....	...../...../.....	<input type="checkbox"/>
5.12 7.12	Consider the height and energy level of downstream drainage including exit velocity.	.....	...../...../.....	<input type="checkbox"/>
5.13 7.13	Locate drainage structures and flowpaths to ensure safe vehicular and pedestrian transit.	.....	...../...../.....	<input type="checkbox"/>
5.14 7.14	Document drainage structure number, set out, type and pipe on the drainage plans and schedule of drainage elements.	.....	...../...../.....	<input type="checkbox"/>
5.15 7.15	Identify emergency overland flowpaths to minimise impact on private property. <i>This includes possible property/easement acquisition.</i>	.....	...../...../.....	<input type="checkbox"/>
5.16 7.16	Check that road drainage conforms with Council's drainage design criteria.	.....	...../...../.....	<input type="checkbox"/>
5.17 7.17	Check that interallotment drains conform with Council's Pipe size and pits Specification and ARR (2019) rainfall data. <i>This includes potential provision for interallotment drainage on the downstream lot</i>	.....	...../...../.....	<input type="checkbox"/>

		By	Date	NA
	where interallotment drains do not exist on an upstream lot.			
5.18 7.18	Document appropriate land stabilisation and velocity controls to pipe systems, open channels and embankments to prevent scour.	.....	...../...../.....	<input type="checkbox"/>
5.19 7.19	For flood controlled allotments ensure, the floor height controls are compatible with road and drainage levels as specified by town planning or from a flood study.	.....	...../...../.....	<input type="checkbox"/>
7.20	Ensure that nominal cross road drainage pipe and pipe spacings are in accordance with the relevant worksections 0041 Geometric road design and 0052 Geometric rural road design - unsealed	.....	...../...../.....	<input type="checkbox"/>
7.21	Ensure that stream crossings are selected in accordance with 0052 Geometric rural road design - unsealed.	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including drainage plan, schedule of drainage elements, drainage profiles and drainage structure details.
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.9 DESIGN CHECKLIST 68 - PAVEMENT DESIGN**

This checklist is applicable to the following design requirements:

- 0042 Pavement design.
- 0044 Pathways and cycleways (Design).
- 0052 Rural pavement design - unsealed.

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

	By	Date	NA
6.1 8.1 Document pavement design and surface treatment on the typical road and/or pathways and cycleways cross-sections. Document any variations on the specific cross-sections.	.....	...../...../.....	<input type="checkbox"/>
6.2 8.2 Check that the pavement design conforms to 0042 Pavement design, 0052 Rural pavement design - unsealed and/or 0044 Pathways and cycleways (Design) for adequacy.	.....	...../...../.....	<input type="checkbox"/>
6.3 8.3 Assess geotechnical data and keep records of design calculations for pavement design recommendations.	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including typical road cross-sections.
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.10 DESIGN CHECKLIST 79 - BRIDGE/MAJOR CULVERT DESIGN**

This checklist is applicable to the following design requirements:

- 0061 Bridges and related structures.

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
7.1 9.1	Check that the design engineer is suitably experienced in the relevant field and who has or is eligible for NER registration with Engineers Australia.	.....	...../...../.....	<input type="checkbox"/>
9.2	Check that options for the structure type have been considered and assessed, and that the option chosen is appropriate for the overall project objective. This includes consideration of construction techniques.	.....	...../...../.....	<input type="checkbox"/>
9.3	Define the design criteria, including flood immunity, external authority requirements, aesthetics etc.	.....	...../...../.....	<input type="checkbox"/>
7.2 9.4	Assess geotechnical data for adequacy and keep records.	.....	...../...../.....	<input type="checkbox"/>
7.3 9.5	Check that the type and functional dimensions of the bridges conform to AS 5100 series, AS 4100 (2020), AS 3600 (2018), AS 1684 series, AS/NZS 1170 series and AS/NZS 5131 (2016). Consider fish passage, compliance, inspection access. Note: The Principal Certifier (Council) may request further investigations and Review of Environmental Factors (REF) depending on the works and potential impact.	.....	...../...../.....	<input type="checkbox"/>
7.4 9.6	Document the type and class of all materials.	.....	...../...../.....	<input type="checkbox"/>
7.5 9.7	Keep records of all significant design calculations and make available for audit.	.....	...../...../.....	<input type="checkbox"/>
7.6 9.8	Check that the exit-velocity for flow upstream, through and on the downstream side of the structure will not cause scour erosion.	.....	...../...../.....	<input type="checkbox"/>
9.9	Check road alignment with the bridge, inlet/outlet controls identified, hydraulic analysis.	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including structural general arrangements, sections, reinforcement and foundation details
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.11 DESIGN CHECKLIST 810 - EROSION AND SEDIMENTATION CONTROL PLANS (ESCP)**

This checklist is applicable to the following design requirements:

- 0022 Control of erosion and sedimentation (Design).
- 0074 Stormwater drainage (Design).

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		By	Date	NA
8.1 10.1	Check that the ESCP and supporting design documents conforms to 0022r Control of erosion and sedimentation (Design) for the construction and operational phase and includes: - Construction detail drawings. - Remedial action plans for areas requiring corrective action.	.....	...../...../.....	<input type="checkbox"/>
8.2 10.2	Check that the erosion and sedimentation control conforms to development consent conditions and state environmental legislations.	.....	...../...../.....	<input type="checkbox"/>
8.3 10.3	Check that the soil management plans and water management plan conforms to 0022r Control of erosion and sedimentation (Design), to the LANDCOM 'Blue Book' and to state and local government authority requirements.	.....	...../...../.....	<input type="checkbox"/>
8.4 10.4	Check that stormwater management conforms to 0074r Stormwater drainage (Design).	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Soil and Water Management Plan if warranted by the scale of the proposal with reference to Managing Urban Stormwater: Soils and construction – Volume 1 ('the blue book')
Erosion and Sediment Control Plans and drawings
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.




**3.12 DESIGN CHECKLIST 11 – PATHWAYS AND CYCLEWAYS DESIGN**

This checklist is applicable to the following design requirements:

- 0044 Pathways and cycleways

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		<b>By</b>	<b>Date</b>	<b>NA</b>
11.1	Check that the pathway location and features are in accordance with 0044 Pathways and cycleways (Design).	.....	...../...../.....	<input type="checkbox"/>
11.2	Check that there is approved conflict with existing services by reference to Before You Dig Australia.	.....	...../...../.....	<input type="checkbox"/>
11.3	Check that cycleway and shared pedestrian lane widths conform to 0044 Pathways and cycleways (Design).	.....	...../...../.....	<input type="checkbox"/>
11.4	Check that the vertical and horizontal alignment is adequate in relation to clearance of other hazards.	.....	...../...../.....	<input type="checkbox"/>
11.5	Check that there is adequate horizontal sight distance for cyclists and pedestrians.	.....	...../...../.....	<input type="checkbox"/>
11.6	Check that the design pavement structure is in accordance with 0044 Pathways and cycleways (Design).	.....	...../...../.....	<input type="checkbox"/>
11.7	Check that the path surface drains away without ponding and that adjacent drainage systems are properly designed and functioning.	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

Drawings including general layout plans.
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.13 – DESIGN CHECKLIST 9 – WATER SUPPLY**

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

	<b>By</b>	<b>Date</b>	<b>NA</b>	
9.1	Check that the design engineer is suitably experienced in the relevant field and who has or is eligible for NPER registration with Engineers Australia for water supply.	.....	...../...../.....	<input type="checkbox"/>
9.2	Check that a practicing registered Surveyor performed the survey.	.....	...../...../.....	<input type="checkbox"/>
9.3	Assess geotechnical data for adequacy and keep records.	.....	...../...../.....	<input type="checkbox"/>
9.4	Check that the type and functional dimensions of the reticulation and any pump station meet the State Department of Public Works and Services guidelines and the appropriate Australian Standards, and are compatible with WSA 03 generic code (2011) and WSA 03 regional code (2022).	.....	...../...../.....	<input type="checkbox"/>
9.5	Document the type and class of all materials, fittings, joints, and plant, pumps special requirements for crossings and protection.	.....	...../...../.....	<input type="checkbox"/>
9.6	Keep records of all significant design calculations and make available for audit.	.....	...../...../.....	<input type="checkbox"/>
9.7	Check that the design conforms to requirements of all Statutory Authorities.	.....	...../...../.....	<input type="checkbox"/>
9.8	Check the design conforms to any development consent conditions.	.....	...../...../.....	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

-
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


**3.14 – DESIGN CHECKLIST 10 – SEWERAGE SYSTEM**

**Checkpoints**

Initial and date the following checkpoints or tick box if not applicable.

		<b>By</b>	<b>Date</b>	<b>NA</b>
10.1	Check that the design engineer is suitably experienced in the relevant field and who has or is eligible for NPER registration with Engineers Australia for sewerage design.	.....	.../.../...	<input type="checkbox"/>
10.2	Check that a practicing registered Surveyor performed the survey.	.....	.../.../...	<input type="checkbox"/>
10.3	Assess geotechnical data for adequacy and keep records.	.....	.../.../...	<input type="checkbox"/>
10.4	Check that the type and functional dimensions of the reticulation and any pump station meet state Department of Public Works and Services guidelines and the appropriate Australian Standards, and are compatible with WSA 02 generic code (2014) and WSA 02 regional code (2022).	.....	.../.../...	<input type="checkbox"/>
10.5	Document the type and class of all materials, fittings, joints, plant, pumps and special requirements for crossings and protection.	.....	.../.../...	<input type="checkbox"/>
10.6	Keep records of all significant design calculations and make available for audit.	.....	.../.../...	<input type="checkbox"/>
10.7	Check that the design conforms to requirements of all Statutory Authorities.	.....	.../.../...	<input type="checkbox"/>
10.8	Check that the design conforms to development consent conditions.	.....	.../.../...	<input type="checkbox"/>

**Certified documents**

Include the following certified documents:

-
List additional certified documents provided:

**Non-conformance**

Describe any special features of the project and document any variations from Council or State Government Authority requirements.


#### 4 ANNEXURE B - REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS/NZS 1170		Structural design actions
AS 1684		Residential timber-framed construction
AS 3600	2018	Concrete structures
AS 4100	2020	Steel structures
AS 5100		Bridge design
AS/NZS 5131	2016	Structural steelwork - Fabrication and erection
AS/NZS ISO 9000	2016	Quality management systems - Fundamentals and vocabulary
AS/NZS ISO 9001	2016	Quality management systems - Requirements
AS ISO 10005	2018	Quality management systems - Guidelines for quality plans
AS/NZA ISO 10006	2018	Quality management systems – Guidelines for quality management projects
ARR	2019	Australian rainfall and runoff (ARR) - A guide to flood estimation
AUSTROADS		Guide to Road Design
AUSTROADS		Guide to Pavement Technology
AUSTROADS		Guide to Traffic Management
Landcom	2004	Managing urban stormwater, Soils and construction (the 'Blue Book')
Cessnock City Council		Development Engineering Handbook
Cessnock City Council		AUS-SPEC Infrastructure Specifications
WSA 02		<del>Gravity sewerage code of Australia</del>
WSA 02 Generic code	2014	<del>Gravity sewerage code of Australia</del>
WSA 02 Regional code	2022	<del>Gravity sewerage code of Australia – Regional NSW edition version 1</del>
WSA 03		<del>Water supply code of Australia</del>
WSA 03 Generic code	2011	<del>Water supply code of Australia</del>
WSA 03 Regional code	2022	<del>Water supply code of Australia – Regional NSW edition version 1</del>

#### 5 ANNEXURE M – CESSNOCK CITY COUNCIL SPECIFIC CLAUSES

M1.	Variations to or non-conformances with Council's AUS-SPEC are to be evaluated with reference to the procedure in Council's <i>Development Engineering Handbook</i> . Acceptance is to be obtained in writing from:  a) an authorised representative of Council's Director of Infrastructure and Engineering Services.	<b>Variation procedure</b>
M2.	This specification applies in addition to any development consent (DA) conditions. If there is any inconsistency, the conditions of consent shall prevail.	<b>DA Conditions</b>
M3.	Refer to the Cessnock City Council Development Engineering Handbook for final inspection, works-as-executed and handover requirements.	<b>Completion</b>
M4.	(See Clause 2.2) Project-specific quality records relating to the project stage are to be provided to the Principal Certifier (e.g. Council) as part of any application for a Subdivision Certificate or acceptance of infrastructure into a Defects Liability Period.	<b>Provide quality records</b>
M5.	(See Clause 2.2) Where the design of infrastructure is funded by private Developers, any design Quality Plan is not required to provide details of design resourcing or timelines. Relevant qualifications and experience of personnel are to be included.	<b>Designs for developers</b>

**6 AMENDMENT HISTORY**

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0	15/01/2024	First Published
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