



**Engineering
Standards / Specifications
and
Planning Guidelines**

Part One – Design

**Adopted 14 July 2010
Effective 21 July 2010**

PART ONE: INTRODUCTION

1. Citation

This plan shall be cited as 'Development Control Plan No 41 – Development and Subdivision Engineering Standards and Planning Guidelines'.

2. Land to which Plan Applies

This Development Control Plan applies to all land in the Shire of Wingecarribee.

3. Purpose of the Plan

To clearly set out Wingecarribee Shire Council's requirements and engineering standards for subdivision of land and developments within the Shire and to outline planning outcomes expected from subdivision.

4. Associated Planning Instruments and Development Control Plans

This Development Control Plan shall be read in conjunction with the following environmental planning instruments and development control plans:

- Wingecarribee Local Environmental Plan (LEP) 1989
- Development Control Plan No 12 – Off Street Carparking, Loading Facilities and Vehicular Access Code.
- Development Control Plan No 14 – Historic Berrima.
- Development Control Plan No 16 – Rural and Residential Development Standards.
- Development Control Plan No 34 – Potentially Flood Affected Land
- Development Control Plan No 47 – Robertson
- Development Control Plan No 48 – Beaconsfield Road , Moss Vale development area
- Development Control Plan No 49 – Waste Minimisation and Management
- Development Control Plan No 52 – Bundanoon.

This Development Control Plan supersedes Development Control Plan No 31 – Subdivision and Development Control

~~This plan has been prepared in accordance with, and to satisfy the requirements of the *Environmental Planning and Assessment Act 1979* and the *Environmental Planning and Assessment Regulation 1994*.~~

5. Structure of the Plan

| | | |
|-------------|---|---|
| Part One: | Introduction | Describes intent of plan, Statutory background. |
| Part Two: | Objectives, Statutory background and requirements for subdivisions and other developments | |
| Part Three: | Design Specification | |
| | DQS | Quality Assurance Requirements for Design |
| | D1 | Geometric Road Design |
| | D2 | Pavement Design |
| | D3 | Structures/Bridge Design |
| | D4 | Subsurface Drainage Design |
| | D5 | Stormwater Drainage Design |
| | D6 | Site Regrading |
| | D7 | Erosion Control & Stormwater Management |
| | D8 | Cycleway & Pathway Design |

Part Three: – continued.../

D9
D11
D12
Appendix One
Appendix Two

Public Lighting
Water Reticulation
Sewerage System
Design Principles
Standard Drawings

Part Four:

Construction Specification

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C211

C212
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C224

Quality System Requirements
Quality System Requirements
Quality Control Requirements
General
Control of Traffic
Control of Erosion and
Sedimentation
Clearing and Grubbing
Earthworks
Stormwater Drainage – General
Pipe Drainage
Precast Box Culverts
Drainage Structures
Open Drains including Kerb and
Gutter

C230
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Subsurface Drainage – General
Subsoil and Foundation Drainage
Pavement Drains
Drainage Mats
Stabilisation
Flexible Pavements
Sprayed Bituminous Surfacing
Asphaltic Concrete
Mass Concrete Subbase
Plain or Reinforced Concrete Base
Segmental Paving
Bituminous Microsurfacing
Pavement Markings
Signposting
Guide Posts
Guardfence
Boundary Fencing
Minor Concrete Works
Landscaping
Water Reticulation
Sewerage System
Bushfire Protection
(Perimeter Tracks)

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Figure 2. EXAMPLE SUBDIVISION SKETCH PLAN 9

The Subdivision Application / Assessment Process

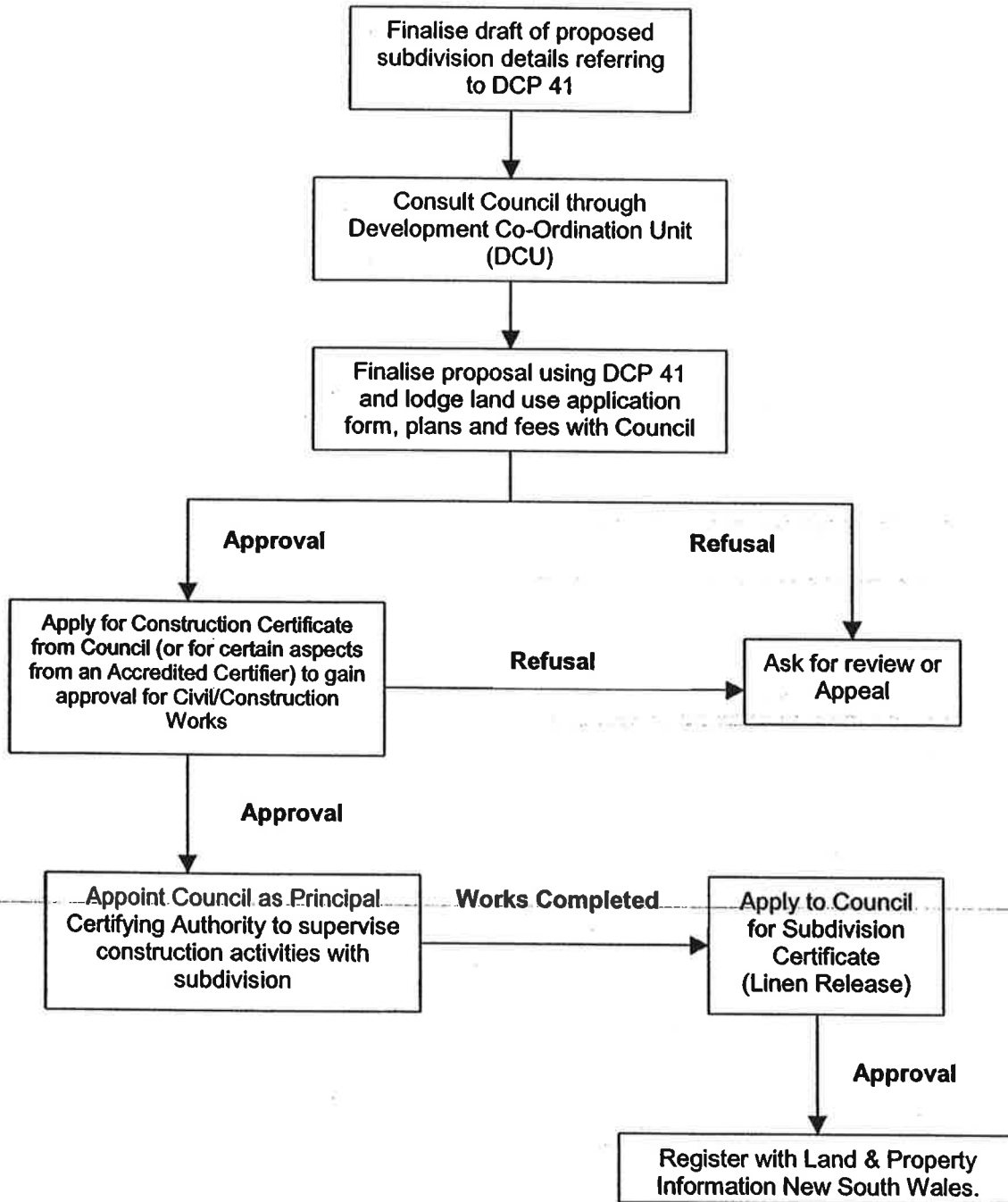


Figure 1

A. SUBDIVISION DEVELOPMENT OBJECTIVES

Council requires all new subdivision and development to result in places that are:

- Environmentally sustainable,
- Safe and comfortable,
- Convenient and accessible, and
- Aesthetically attractive.

These new places must:

- Respect and conserve the quality of the natural environment as far as is practicable,
- Not result in a reduction in water quality,
- Achieve an efficient use of water resources through the conservation and enhancement of existing natural site systems
- Maintain the scale and maintain or enhance the character of the local neighbourhood environment.
- Be provided with a satisfactory level of co-ordinated infrastructure designed, developed and capable of being operated in an environmentally sustainable and cost efficient manner,
- **Encourage the minimisation of energy consumption and where appropriate, be able to support subsequent development and activities that can be carried on in an environmentally sustainable manner,**
- **Result in improved neighbourhood accessibility, achieving better connectivity between public and private spaces where possible and appropriate,**
- ~~Promote walking and cycling as a primary means of moving about the local neighbourhood, integrated with a cost effective, safe and environmentally sustainable vehicle movement network.~~

B. APPLICATION OF PLANNING CONCEPTS TO DEVELOPMENT

The depth of assessment and information required to satisfy these objectives will vary depending on the subdivision proposal.

For subdivisions of five (5) or less new allotments, a site analysis and Statement of Environmental Effects will generally satisfy the above objectives. Applications for this scale of development will be required to consider the detailed provisions of Appendix One.

For subdivisions greater than five (5) new allotments a detailed assessment shall be submitted that considers in full the objectives and outcomes stipulated in Appendix One.

C. COUNCIL'S AUTHORITY

Council is the statutory authority responsible for the determination of applications for approval for certain types of development and works including subdivision. This authority is vested in the Council under the provisions of the *Environmental Planning and Assessment Act 1979*, *The Local Government Act 1993* and the *Water Management Act 2000*. Figure 1

provides a flow chart of the process involved in subdivision application, assessment and inspection.

D. MATTERS COUNCIL MUST TAKE INTO CONSIDERATION

In assessing applications, the Council must take into account a range of statutory provisions as provided for by the various Acts, Regulations etc, eg Section 79(1)C of the *Environmental Planning and Assessment Act 1979*.

For instance, when determining a development application, the Council is duly bound to consider the effects of environmental planning instruments such as State Environmental Planning Policies; Regional Environmental Plans; and the Wingecarribee Local Environmental Plan 1989. In addition, Council is also bound to consider applications in light of adopted Development Control Plans.

Applicants when filling out a Development Application must check to see if their application is Integrated development. This is where the proposal will require a license/permit from a State Government Authority eg a part 3A permit under the Rivers and Foreshores Improvements Act. Council may reject an application if the appropriate details are not completed. When an application is Integrated, the applicant needs to submit a cheque for \$250 made payable to the respective Government Authority.

***Integrated
Development***

The application and plans must comply with the Bushfire protection requirements outlined in the document "Planning for Bushfire Protection". The development may also be classified as "Special Protection development" and require a consent under S100B of the Rural Fires Act. This will make the development Integrated – see above section.

***Bushfire
Protection***

Applicants are reminded that strict compliance with the standards included within an environmental planning instrument or development control plan does not necessarily mean that the Council will approve an application.

In some instances, the Council is bound to refer certain applications to other government authorities for concurrence or comments, and must consider any representations made to it by such authorities prior to determining an application. In some cases, the Council cannot approve certain applications unless it has first received the concurrence of the relevant authority.

This development control plan must be read in conjunction with any environmental planning instrument and any other development control plan applying to the land the subject of an application as listed in Part One of this DCP.

E. WHAT IS NEEDED FOR A DEVELOPMENT APPLICATION FOR SUBDIVISION TO COUNCIL

A Land Use Application form is to be submitted with appropriate fees.

Appl'n Form

Land Use Applications for Subdivision are to be accompanied by five (5) copies of subdivision sketch plans drawn on one of the following paper size sheets, A1, A2, A3 or A4.

***Number of
Plan Copies***

The sketch plan shall show the following:

***Plan Detail
Required***

- a. Reduction ratio.
- b. The location, boundary dimensions, site area and north point of the land.
- c. The existing vegetation and trees on the land (attention is drawn to Council's Tree Preservation Order).
- d. The location and uses of existing buildings on the land and adjoining properties.

-
- e. Any Items of Environmental Heritage (structures and sites), or relics defined by the Heritage Act or considered to be of local significance.
 - f. Contours showing the existing levels of the site (at a one metre interval to Australian Height Datum, or lesser intervals for land with slopes less than 4%).
 - g. Any natural features of the site, including rock formations or cliffs, watercourses, flood levels, wetlands, forest areas and slip areas.
 - h. Any existing drains, easements or rights-of-way affecting the site.
 - i. Title description of land.
 - j. Details of existing and proposed subdivision pattern (including the number of lots and location of roads).
 - k. Proposed method of provision of services (stormwater, water, effluent). Location of access points to lots.
 - l. Other details relevant to consideration of the application.

In addition, the applicant is to provide details of consultation with public authorities responsible for provision, alteration or amplification of utility services required by the proposed subdivision.

**Details of
Consultation
with Public
Authorities**

Council will require proof that downstream easements from the subject property have been obtained for stormwater runoff. The easement shall be continuous from the subject property through to a watercourse defined on a topographical map or to a Council drain or drainage reserve (only permitted where classification of the land pursuant to the Local Government Act 1993 permits this to occur). Council will not permit a pumped stormwater discharge system in lieu of a stormwater easement, and appropriate disposal of stormwater through a gravity system.

**Downstream
easements**

Council may require additional information about the proposed development to be provided where that information is essential to the determination of the Development Application.

Additional information required may include but is not limited to:

- principles, assumptions and calculations behind stormwater drainage proposals;
- rationale for the design of utilities, roads, open space, bicycle and pedestrian ways, bus routes etc;
- site assessment reports relating to site contamination, flooding, geotechnical issues, bushfire risk or other potential limitations to development and effluent disposal (refer State Environmental Planning Policy (SEPP) 58).
- An assessment under the *Threatened Species Conservation Act* and SEPP 44 maybe required. The extent of this assessment will be dependent upon the scale and intensity of development or subdivision involved.

**Additional
Information**

Figure 2 provides an example of a suitable subdivision sketch plan.

Common Fees

Fees

NOTE – Other fees may apply depending on particular application.

Land Use Application fee to be paid at lodgement of Land Use Application

Construction Certificate fee to be paid with application for Construction Certificate (a Construction Certificate must have been issued prior to any civil works commencing).

Water/Sewerage connection fees. These fees must be paid with the application for water/sewer junction or cut-in before Council will provide connection to Council's mains. Contact Council's Water and Sewerage section for quote.

NOTE: The Applicant is responsible for any extensions or new mains required. This fee covers actual connection to live water or sewerage mains only.

Traffic Maintenance Bond – this is a refundable bond required to be lodged with Council and will be used if Council needs to fund Traffic control measures.

Section 94 fees and Section 64 contributions to water and sewer works to be paid prior to application for Subdivision Certificate or release of the Construction Certificate.

Water and/or sewer Compliance Certificate fee to be paid prior to application for Subdivision Certificate.

Subdivision Certificate fee to be paid with application for Subdivision Certificate.

Maintenance bond (if required) to be paid prior to application for Subdivision Certificate.

F. PROVISION OF OPEN SPACE AND CONTRIBUTIONS

In residential subdivisions, Council requires the creation of an area of public reserve (open space) useable for recreation, or payment of a monetary contribution in lieu of land or a combination of both.

Public Reserve and Contributions

Applicants will also be required to contribute towards the augmentation of water supply, sewerage headworks, roadworks and drainage works in accordance with the relevant Developer Contributions Plan.

Council's authority to impose conditions of contribution is derived from the Environmental Planning and Assessment Act 1979, Section 94 and Water Act 1912 and the Local Government Act 1993 Section 64.

Section 94 Contributions

Public reserve will not normally be required in rural subdivision, unless the subdivision contains significant areas of special scenic or public recreational value.

In rural subdivisions, and commercial or industrial subdivisions contributions of open space are less often required, however contributions towards upgrading roads and community facilities will be required as determined by the appropriate relevant Developer Contributions Plan.

G. TIME REQUIREMENTS FOR SUBDIVISION WORKS

A subdivision proposal given development consent requires substantial commencement to be made within five years of subdivision approval and the subdivision to be fully completed within a reasonable period.

5 Year Limit on Development Consent

In some cases, a development may be of sufficient magnitude that it requires staging. Where staged development is proposed, the subdivider should prepare a sketch plan showing the complete concept so that Council can see the various stages in the overall context. Each stage should comply with the standard requirements, and a separate Construction Certificate will be required for each stage.

Staged Development

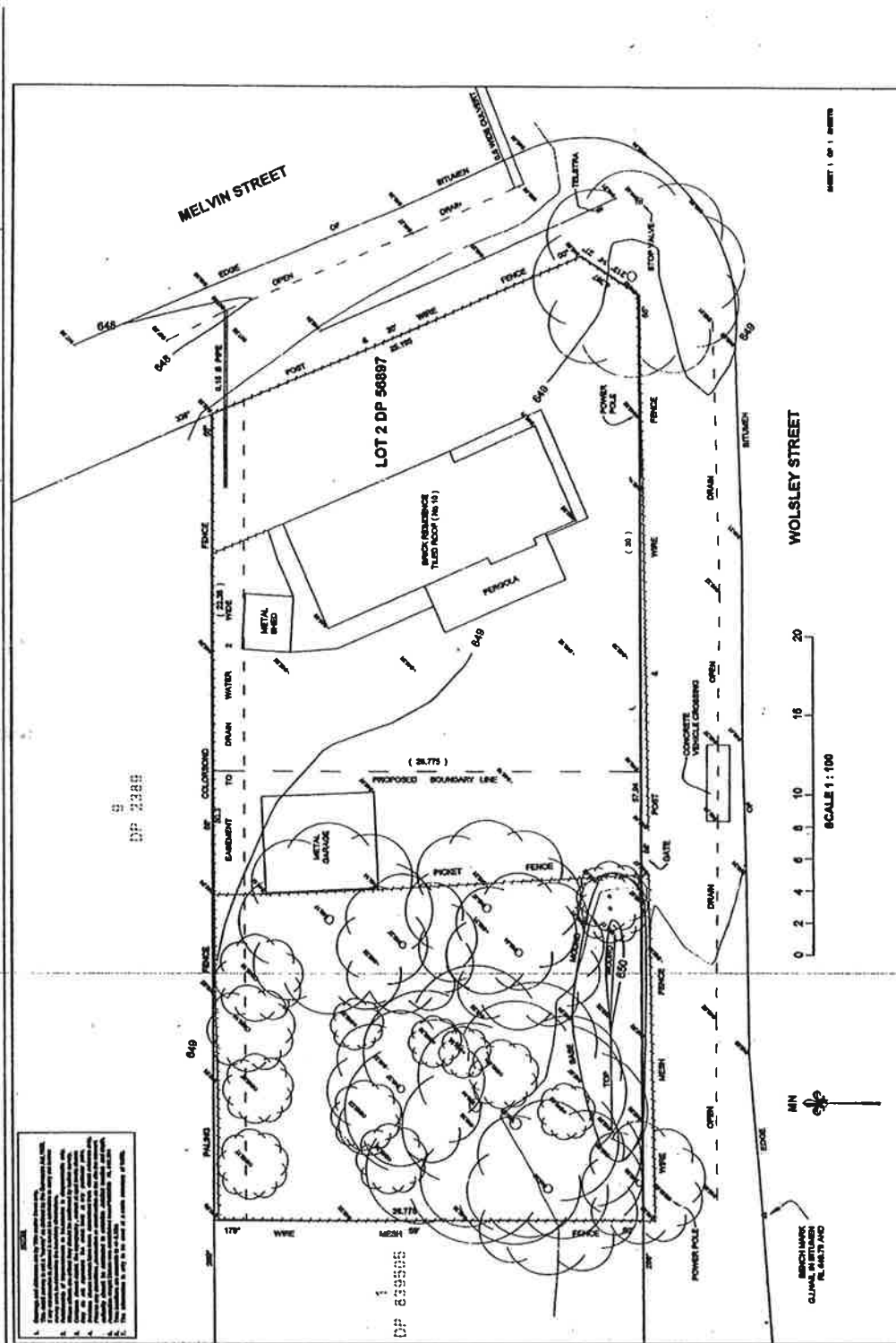


Figure 2. Example Subdivision Sketch Plan

H. ENGINEERING PLANS AND SPECIFICATIONS FOR SUBDIVISION

If development consent is issued, the next stage of the process is to apply for a Construction Certificate from Council – refer to Figure 1. This application is to be accompanied by all required Engineering plans and the appropriate fees. The application should also be accompanied by a statement detailing how all Development Consent conditions, as relevant, have been dealt with.

All plans for earthworks (site regrading), roadworks, drainage works; water supply and sewerage works are to be certified by a suitably qualified and experienced consulting engineer or registered surveyor with current professional indemnity insurance. All plans for bridgeworks, retaining walls, other major structures and pumping stations are to be prepared and certified by a qualified practicing Civil or Structural Engineer. Suitable Qualifications are those as specified in DQS.06.1 and DQS.06.2.

**Qualification
of Designers**

Standard Drawings, Design Specifications and Construction Specifications have been prepared by Council and can be purchased for use in subdivisions and other developments.

**Council's
Specification**

In summary the requirements for design plans are as follows:

- a) Earthworks (site regrading)
- b) Roadworks
- c) Road Pavement
- d) Road Furnishings
- e) Stormwater Drainage
- f) Water Supply Works
- g) Sewerage Works
- h) Landscaping Works
- i) Erosion Control Works
- j) Works & Signage Plan
- k) Traffic Control Management Plans
- l) All specified issues in Council's development consent.

The detailed design provisions for the above are specified in Part 3 Sections D1-9 of this Development Control Plan. The construction specifications are contained in Part 4 of this DCP.

I. COMMENCEMENT OF WORKS

Notwithstanding approval to the Land Use Application, no engineering works are to be undertaken until the Construction Certificate application, design plans and specifications are all formally approved by the Council. Further, all other pre-construction matters required by the consent must be satisfied and include (but are not limited to) the nomination of the Development Supervisor.

**Necessary
Conditions**

The Development Supervisor is the person appointed by the applicant and owner who is responsible for the work required for the development and is responsible for the compliance with the conditions of consent as the agent of the applicant and/or owner/developer. Approval of the nominated Development Supervisor will only be provided by Council for persons who are able to demonstrate that they have suitable skills, experience and expertise in the management of development and/or subdivision projects as is relevant. Inexperienced persons will not be accepted.

**Development
Supervisor**

All Contractor(s) and their quality-testing organisation shall also be nominated and are to be approved by the Development Engineer.

**Contractor
Nomination**

J. INSPECTIONS AND TESTING

Whether or not the works proceed under a Quality Assurance Contract, the full cost of all testing is to be met by the Developer. Test results will be required to ensure that the materials supplied and the works carried out conform to the approved specification.

**Cost of
Quality
Testing**

Similarly, joint inspections at key stages of construction are required to be carried out by representatives of both Council and the Developer. Key stages include:

Inspections

- Site regrading and clearing
- Installation of erosion control measures
- Preservation measures installed for trees, vegetation or heritage sites as determined
- Traffic control measures where applicable and as per submitted plan
- Drainage line installation prior to backfilling
- Water and sewer line installation prior to backfilling
- Water and sewer line testing
- Subgrade preparation
- Establishment of line and level for kerb and gutter placement
- Road Pavement construction
- Road Pavement Benkelman beam testing
- Road Pavement surfacing
- Practical Completion
- End of Maintenance Period
- Hold Points requiring inspections as nominated within DCP 41 - Construction
- Other important stages as specified in the development consent or nominated by Council's Development Engineer.

Council will insist on uninterrupted access at all times for the Development Engineer or their representative to enable audit inspections or testing. Records of all test results required by Council are to be made available to Council promptly when requested and tests will be undertaken strictly to prescribed test procedures by testing organisations approved by Council prior to work commencement. Certain stages of construction will be subject to a hold on works pending acceptable test results - See construction specification for details.

**Records of
Testing and
Inspections**

All re-work or additional testing required due to materials or work not meeting the specified requirements, and additional work that is, in the opinion of Council's Development Engineer, required to ensure that the work is in accordance with the specifications or accepted best engineering practise, shall be carried out at no cost to the Council.

**Work at
Developer's
Cost**

K. INSURANCES

The person supervising the construction (the Development Supervisor) shall take out and maintain professional indemnity insurance. The Development Supervisor shall seven (7) days prior to commencement of work provide Council with evidence that all contractors have obtained appropriate third party and public risk insurance satisfactory to Council's current requirements as advised by Council from time to time, and which indemnifies Wingecarribee Shire Council.

**Professional
Indemnity,
Third Party &
Public Risk
Insurance**

L. WORK-AS-EXECUTED PLANS

Following completion of the work, one full set of work-as-executed plans is to be submitted to and retained by Council. The Development Supervisor shall certify on all work-as-executed plans that all information shown on the plans is correct and accurate. Paper copies shall be submitted in all cases and in addition, a computer disk shall be supplied containing the plans in .dxf format for all subdivisions greater than five (5) lots. The plans

Certification

are to be prepared in accordance with the requirements of C101.11.

M. QUALITY ASSURANCE PRINCIPLES

Council will apply the principles of Quality Assurance to all subdivision works. In major or otherwise significant subdivisions the provisions of Australian Standard AS/NZS ISO 9000 series (1994) or AS/NZS ISO 9000 (2000) will be required to be fully applied to the construction project. This will involve the submission of a Quality Plan for all Works associated with the project. The requirement to comply with AS/NZS ISO 9000 series (1994) or AS/NZS ISO 9000 (2000) shall be confirmed with Council prior to the preparation of design plans. In all cases, Council will require the Subdivider to organise and pay for inspection and testing services such that they can certify the quality of all works and materials progressively during construction.

Quality Plan

The various specifications within DCP41 reference the AS/NZS ISO 9000 (2000) series of quality standards. Where a contractor operates to a quality system complying with an earlier quality standard such as the 1994 series, the use of this system will be considered on its merits.

Quality Standards

N. COMPLETION OF WORKS AND CERTIFICATION

On completion of construction works the Development Supervisor is to advise the Council's Development Engineer to that effect and certify that the whole of the works have been carried out in accordance with the approved plans and specification. If the Council's Development Engineer considers the works satisfactory, the Council's Development Engineer will agree to a date on which the whole of the works are considered to have entered into the maintenance period, which date shall not be earlier than the date of release of the Subdivision Certificate (linen).

Final Certification of Works

All newly constructed roads, public pathways, stormwater drainage systems, water supply, sewerage and other assets that will transfer into Council's care and control are to be maintained by the Developer for a period of twelve (12) months after the date of issue of the Subdivision Certificate. For all Water Sensitive Urban Design elements including Wetlands and Natural drainage systems, a bond period of 2 years applies. The Developer, prior to release of the Subdivision Certificate, shall lodge with the Council a maintenance bond in an amount equal to 5% of the total value of the civil works.

Maintenance Period and Bond

At this stage, the Developer's Surveyor completes the final property survey and prepares the final plan of subdivision, which is known as the "linen" plan. As indicated in Figure 1 application for the final Council Certificate is made at this stage. The final plan of subdivision shall be submitted for endorsement by Council as an original transparency and eight (8) copies together with an application for a Subdivision Certificate under the *Environmental Planning and Assessment Act 1979* along with payment of required fees. The Subdivision Certificate application form must be completed and this includes the checklist as specified. **The Subdivision Certificate application must not be made until all works are completed, Contributions paid and all development consent conditions complied with in full.** Failure to comply with these requirements will lead to a refusal of the Subdivision Certificate application. This plan will later be lodged by the Developer with the Land and Property Information NSW who will prepare title deeds and advise Council of a deposited plan (DP) number so that sale of allotments of land may proceed.

Final Survey

The maintenance period will commence for all components at the date of issue of the Subdivision Certificate and not beforehand. Some components such as water supply and sewerage reticulation pumping stations may commence a maintenance period only after satisfactory commissioning and completion of pump performance tests. Typically, the maintenance period for pumping stations and associated facilities will be twelve (12) months during which the Developer will meet all the maintenance costs associated with any failure of a component of the works.

Sewerage and Water System Commissioning

O. BONDS AND GUARANTEES OF PERFORMANCE

Council will not accept bonds for the completion of essential outstanding civil works to allow finalisation of subdivision. All civil works must be completed to the satisfaction of Council's Development Engineer prior to the application being made for a Subdivision Certificate.

**Guarantee
Bonds**

P. DEVELOPMENT OTHER THAN SUBDIVISION WHERE THIS DCP APPLIES

Whilst this DCP relates primarily to subdivision, the Engineering Standards contained in Parts 3 and 4 also relate to other aspects of development. These include carpark, pavement and stormwater design and construction for such developments as industrial sites, commercial and multi unit residential developments. In these instances the design principles in Part 3 must be utilised for development and construction certificate or complying development applications. The construction standards in Part 4 must also be used. Council will generally not inspect any works that will not be or become public property. The applicant's Development Supervisor must certify these non-public assets prior to occupation being permitted i.e issue of an Occupation Certificate

The checklist that must be completed and submitted with all Subdivision Certificate applications is attached on the following page for the convenience of developers

Checklist for Lodgement of Subdivision Certificate Application

Must be completed in all instance by owner/applicant otherwise Council will not accept the application

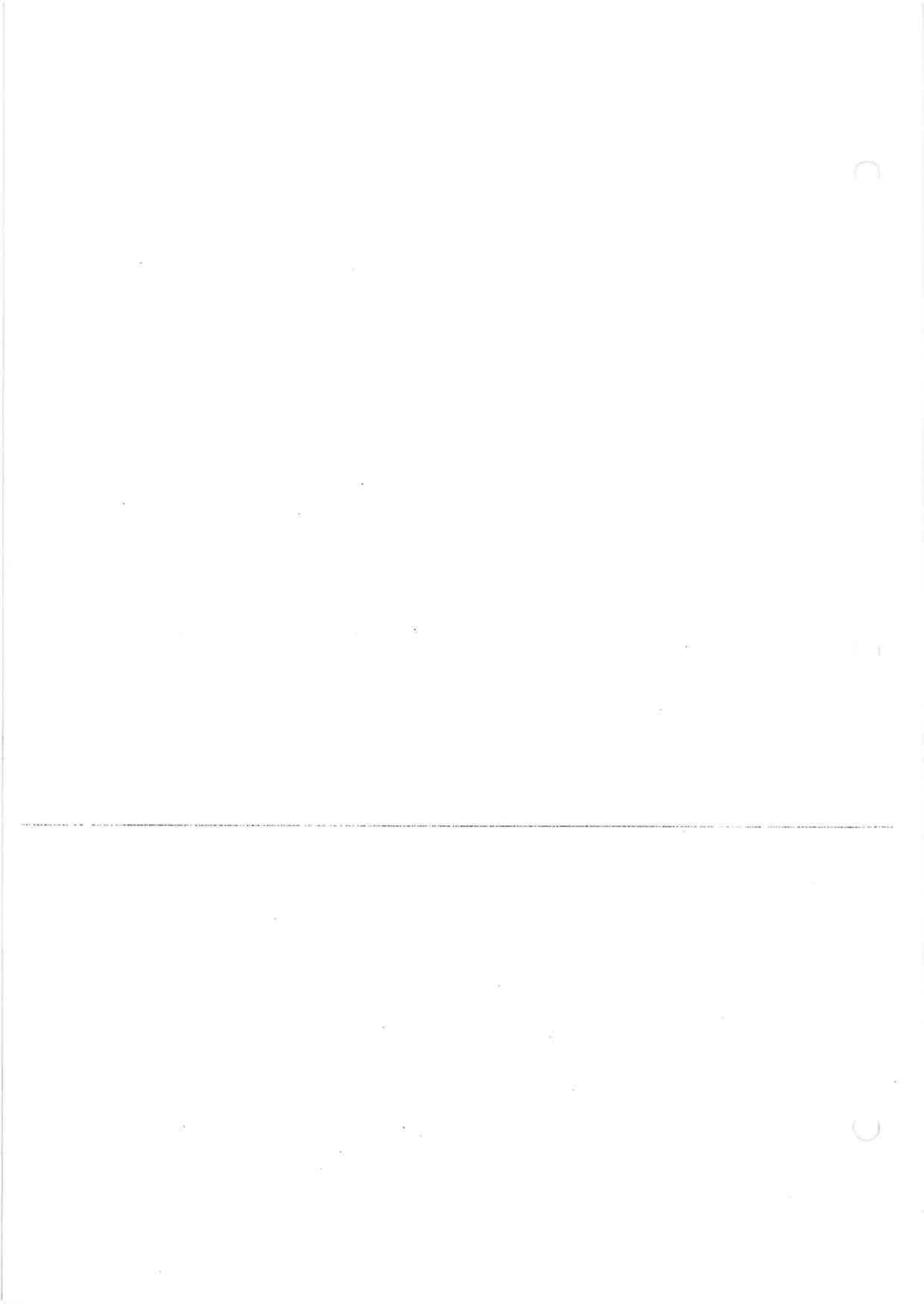
All development consent conditions have been complied with **including** the following:

| | | N/A |
|--|---|-----|
| 1. Section 94 and Section 64 contributions have been updated and paid to Council using a Bank Cheque or cash | ? | ? |
| 2. Landscape Bond lodged | ? | ? |
| 3. Landscape works completed | ? | ? |
| 4. An appropriate bond amount for infrastructure works has been agreed with Council's Development Engineer and the bond lodged with Council | ? | ? |
| 5. All Civil and Engineering works are completed and in accordance with the Construction Certificate and approved plans | ? | ? |
| 6. All Water and Sewer connections and testing completed | ? | ? |
| 7. Works as Executed Plans for Civil Works lodged with Council | ? | ? |
| 8. Engineering Certifications completed – see Appendix A | ? | ? |
| 9. The Instrument setting out Easements and Restrictions as to User under the Conveyancing Act is complete and included, noting all relevant parties | ? | ? |
| 10. Integral Energy documentation included | ? | ? |
| 11. For Strata Subdivisions – all Occupation Certificates have been issued for the development | ? | ? |
| 12. All services are contained within the property they now service – especially important when lots with an existing house are subdivided | ? | ? |

Comments _____

PART THREE:

DESIGN SPECIFICATIONS



**DEVELOPMENT DESIGN
SPECIFICATION**

DQS

**QUALITY ASSURANCE
REQUIREMENTS FOR DESIGN**

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**QUALITY ASSURANCE REQUIREMENTS
FOR ENGINEERING DESIGN**

DQS.01 SCOPE

1. This design specification sets out the process for quality assurance of Designs required by Council for development consents. The requirements are applicable to all design work whether undertaken by the Developer, its Project Manager, Consultant or a sub-consultant.
2. The specification refers to the engineering design processes for developments.

Quality Assurance

DQS.02 OBJECTIVES

1. This specification aims to set standards and to 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.

Maintenance

Records

DQS.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

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

(b) 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 9000:2000 | Quality systems - Model for quality assurance in design, development, production, installation and servicing. |

(c) Other

EP&A Act Amended (Integrated Development) 1997
Section 90 (EP&A ACT)
Local Government Act (1919) Subdivisions Pt XII
Local Government Act (1993)
Roads Act (1993)
Technical Publications used as Engineering Standards (eg AR&R)
Interim Policies and Guidelines
State Government Department Guidelines

DQS.04 CERTIFICATION

1. The Construction Certificate application and the set of engineering plans shall be accompanied by a certification report that will be completed and signed by the Developer's Design Consultant or other suitably qualified person (see requirements for qualifications in Section H. of Part Two). 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 plans and shall require resubmission with updates when final plans are submitted. Certification is not required with sketch plans or concept plans.

Certification of Preliminary Plans

3. The Certification Report shall indicate on checklists any aspects of design, which do not meet the requirements or tolerances set out in this Development Control Plan or other relevant documents.

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 plans 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.

2. All design plans should be clearly numbered by the designer with separate sheets numbered as part of a set. Each sheet must show the current revision and be marked as "Construction Issue".

Plan 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. Sheets of 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. Annexure DQS-B provides guidelines for grouping information in design drawings.

DQS.06 DESIGNER'S QUALIFICATIONS

1. A Civil Engineer sufficiently experienced and qualified so as to be accepted as a Chartered Member of the Institution of Engineers, Australia or a suitably experienced Registered Surveyor qualified to be a member of the Institution of Surveyors, Australia, shall be accepted as qualified to prepare designs and drawings for roadworks, drainage works, water supply, sewerage works (excluding pumping stations), canal works (excluding flood control structures and bridges), commensurate with that person's training, experience and qualifications. The Council may at its sole and absolute discretion recognise individual designers whom it knows to be well experienced and competent in the preparation of designs for the particular works under consideration. Designers shall hold and maintain Professional Indemnity Insurance that covers the activity undertaken, and shall upon demand make the certificate of insurance available for inspection by the Council's Development Engineer.

Engineer/Surveyor

2. A Civil or Structural Engineer qualified as detailed above shall be accepted as qualified to prepare designs and drawings 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 design staff with no prior knowledge of the particular design can readily understand them.

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. The Developer or its consultant shall maintain a design file containing all 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. Records should be kept for a minimum of 10 years.

**Design File to
be kept**

4. Particular requirements apply to hydrological and hydraulic design data. Refer to D5 of this Development Control Plan.

**Hydrologic &
Hydraulic
Design**

5. Copies of records including design calculations will be made available to Council on request, in a format convenient to Council and without charge.

**Supply of
Records**

DQS.08 AUDIT

1. Council shall have the right to audit all processes and documents related to the project design. The Developer, Developer's Consultant and the Developer's Accredited (private) Certifier shall provide Council's Officers all reasonable assistance in inspecting and auditing records of designs submitted for approval.

Assistance

**WINGECARRIBEE SHIRE COUNCIL
DESIGN CERTIFICATION REPORT**

Project Title: _____

LUA 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 checklists provide a valid record.

I certify that this design has been carried out in accordance with current standards of good industry practice, relevant design standards and codes, in accordance with Wingecarribee Shire Council's Development Control Plan No 41 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.

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 the variance prior to the lodgement of Design Plans (this includes designs for staged construction).

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

I certify that I am the holder of a current Professional Indemnity Insurance Policy.

Contact Phone: _____

_____ Design Engineer/Surveyor (Print Name) _____ Date

Contact Postal Address: _____

_____ Qualifications

Signature

Design Check List 1 BASE PLOT OF EXISTING FEATURES

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|--|--|-------------|--------------------------------------|
| Initial Plot verified by site inspection for existing drainage. | _____ | / / | <input type="checkbox"/> |
| 1.2 Initial Plot verified by site inspection for existing property descriptions, boundaries and accesses. | _____ | / / | <input type="checkbox"/> |
| 1.3 Initial Plot of contours verified as representative of site terrain and contour interval adequate. | _____ | / / | <input type="checkbox"/> |
| 1.4 Trees and significant environmental features affected by development are clearly indicated and annotated. | _____ | / / | <input type="checkbox"/> |
| 1.5 Features significant to heritage considerations within the development boundaries are clearly indicated and annotated. | _____ | / / | <input type="checkbox"/> |
| 1.6 Existing public and private property likely to be affected by these Designs are clearly indicated and annotated. | _____ | / / | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 2 HORIZONTAL ROAD ALIGNMENT

| | | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|------|---|--|------|------------------------------------|
| 2.1 | Road reserve widths comply and allow for swale drains, cycle paths etc. | _____ | / / | <input type="checkbox"/> |
| 2.2 | Alignment compatible with design speed. | _____ | / / | <input type="checkbox"/> |
| 2.3 | Alignment is adequate in relation to clearance of roadside hazards. | _____ | / / | <input type="checkbox"/> |
| 2.4 | Driver and Pedestrian sight distance is adequate. | _____ | / / | <input type="checkbox"/> |
| 2.5 | Conflict with existing services is minimised. | _____ | / / | <input type="checkbox"/> |
| 2.6 | Road widths and lanes meet Councils requirements and design traffic requirements. | _____ | / / | <input type="checkbox"/> |
| 2.7 | Alignment of bridges suits road alignment. | _____ | / / | <input type="checkbox"/> |
| 2.8 | Pedestrian, bicycle and parking requirements are met. | _____ | / / | <input type="checkbox"/> |
| 2.9 | Provision for large vehicles such as buses, garbage trucks and emergency vehicles is adequate. | _____ | / / | <input type="checkbox"/> |
| 2.10 | Intersection Layouts meet turning requirements of design traffic including emergency vehicles. | _____ | / / | <input type="checkbox"/> |
| 2.11 | Pavement width tapers and merges are adequate. | _____ | / / | <input type="checkbox"/> |
| 2.11 | Pedestrians and prams are catered for. | _____ | / / | <input type="checkbox"/> |
| 2.13 | Conflict with existing Public Utility services has been identified and resolved. | _____ | / / | <input type="checkbox"/> |
| 2.14 | Horizontal road alignment has been provided in accordance with any Conditions of Development Consent. | _____ | / / | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|--|--|----------------|----------------------------------|
| 2.15 ROUNDABOUTS: Layout approved by Council's Engineers prior to final design. | _____ | ____/____/____ | <input type="checkbox"/> |
| 2.16 WORKS IMPACTING A CLASSIFIED MAIN ROAD: Proposals referred to and approved by RTA or Local Traffic Committee. | _____ | ____/____/____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 3 VERTICAL ROAD ALIGNMENT

| | | Check Completed By (initials) | Date | Not Applicable (tick) |
|------|---|----------------------------------|----------------|--------------------------|
| 3.1 | Grades meet maximum and minimum requirements. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.2 | Vertical clearances to bridges and services meet standards. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.3 | Vertical sight distance is adequate for drivers and pedestrians. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.4 | Cover to drainage structures or services is adequate. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.5 | Vertical alignment is adequate for disposal of surface drainage from properties and from road. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.6 | Grades are satisfactory for 1:100 year flood levels. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.7 | Vertical alignment is compatible with property access. | _____ | ____/____/____ | <input type="checkbox"/> |
| 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. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.9 | Sight distance is acceptable for all accesses to roundabouts. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.10 | Alignment coordination with horizontal alignment is in accordance with the AUSTRROADS Guide for Design of Rural Roads. | _____ | ____/____/____ | <input type="checkbox"/> |
| 3.11 | Conflict with existing Public Utility services has been identified and resolved. | _____ | ____/____/____ | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|--|--|----------------|----------------------------------|
| 3.15 ROUNDABOUTS: Preliminary grading approved by Council's Engineers prior to final design. | _____ | ____/____/____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 4 ROAD CROSS SECTIONS

| | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|--|---|------|---------------------------------|
| 4.1 Typical Cross Sections have complete dimensions. | _____ | / / | <input type="checkbox"/> |
| 4.2 Typical Cross Sections have kerb & gutter, guardrail and surface drainage indicated. | _____ | / / | <input type="checkbox"/> |
| 4.3 Batter slopes are indicated and batter treatment is indicated where appropriate. | _____ | / / | <input type="checkbox"/> |
| 4.4 Pavement description and surface treatment is indicated. | _____ | / / | <input type="checkbox"/> |
| 4.5 Property boundaries, service allocations and footpath treatments are indicated. | _____ | / / | <input type="checkbox"/> |
| 4.6 Sufficient Cross Sections are shown to define all variations and width transitions. | _____ | / / | <input type="checkbox"/> |
| 4.7 Cross sections are of sufficient width to fully assess impact of road level on adjoining property. | _____ | / / | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 5 STORMWATER DRAINAGE

| | | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|------|--|--|------|------------------------------------|
| 5.1 | A Drainage Master Plan showing the proposed drainage system has been prepared for Council's asset records. | _____ | / / | <input type="checkbox"/> |
| 5.2 | Drawings indicate existing surface drainage. | _____ | / / | <input type="checkbox"/> |
| 5.3 | Hydrological data is the most current available. | _____ | / / | <input type="checkbox"/> |
| 5.4 | Hydrologic and Hydraulic design calculations are complete, fully recorded and available for audit. | _____ | / / | <input type="checkbox"/> |
| 5.5 | Underground drainage and structures do not conflict with services. | _____ | / / | <input type="checkbox"/> |
| 5.6 | The designed drainage lines are compatible with existing incoming lines and outgoing lines. | _____ | / / | <input type="checkbox"/> |
| 5.7 | The type of pipe, size and class are indicated for each drainage line as well as the bedding requirements. | _____ | / / | <input type="checkbox"/> |
| 5.8 | Height of fill over drainage lines is within allowable limits. | _____ | / / | <input type="checkbox"/> |
| 5.9 | Drainage is provided for local depressions eg median areas or areas adjacent to fills. | _____ | / / | <input type="checkbox"/> |
| 5.10 | The effect of headwater and back-up water on private property has been assessed. | _____ | / / | <input type="checkbox"/> |
| 5.11 | Subsurface drainage has been provided when required. | _____ | / / | <input type="checkbox"/> |
| 5.12 | The need for batter drains has been considered for fills. | _____ | / / | <input type="checkbox"/> |
| 5.13 | The height and energy level of downstream drainage has been considered. | _____ | / / | <input type="checkbox"/> |
| 5.14 | Drainage structures and flowpaths are located so as to ensure safe vehicular and pedestrian transit. | _____ | / / | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

| | | Check Completed By (initials) | Date | Not Applicable (tick) |
|------|--|----------------------------------|-------------|--------------------------|
| 5.15 | 100% blockage of minor system has been designed into major system. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.16 | Emergency flowpaths are located so as to minimise impact on private property. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.17 | Road drainage has been provided in accordance with any Conditions of Development Consent. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.18 | Interallotment drains have been designed in accordance with Specification D5 of this Development Control Plan, and Australian Rainfall and Runoff (Edition 1987). | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.19 | Appropriate land stabilisation and velocity controls have been implemented to pipe systems, open channels and embankments. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.20 | The Development complies with Wingecarribee Shire Council Development Control Plan No 34 – Potentially Floodprone Land, and Wingecarribee Shire Council Local Environmental Plan Clause 34.. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.21 | Agreements for discharge of water downstream of the development and any necessary easements have been acquired. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.22 | Proposals for natural channels or artificial wetlands have been discussed with Council's officers prior to detailed design. | _____ | ___/___/___ | <input type="checkbox"/> |
| 5.23 | Land tenure for drainage elements complies with the requirements of DCP 41. | _____ | ___/___/___ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 6 SIGNS AND MARKINGS

| | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|---|---|----------------|---------------------------------|
| 6.1 Signs are shown on the drawings in accordance with AS 1743. | _____ | ____/____/____ | <input type="checkbox"/> |
| 6.2 Pavement linemarking and pavement marking is indicated on the drawings to meet the requirements of AS 1742.2. | _____ | ____/____/____ | <input type="checkbox"/> |
| 6.3 Signs and linemarking have been designed in accordance with any Conditions of Development Consent. | _____ | ____/____/____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 7 PAVEMENT DESIGN

| | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|--|--|---------------|------------------------------------|
| 7.1 The pavement design is shown clearly on the drawings and any variations are indicated on appropriate cross sections. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 7.2 The pavement design complies with Wingecarribee Shire Council's, RTA and AUSTRROADS Pavement Design Specification. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 7.3 Pavement Design is in accordance with any Conditions of Development Consent. | _____ | _ / _ / _____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 8 BRIDGE DESIGN

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|---|--|----------------|--------------------------------------|
| 8.1 The design has been performed by a competent practicing Civil or Structural Engineer. | _____ | ____/____/____ | <input type="checkbox"/> |
| 8.2 Geotechnical Data has been adequate and is held on the design file. | _____ | ____/____/____ | <input type="checkbox"/> |
| 8.3 The type and functional dimensions of the bridges meet AUSTRROADS Bridge Design Codes 1992, AS 3600 (1988), AS 1684 (1992), AS 1170 (1989), AS 4100 (1990). | _____ | ____/____/____ | <input type="checkbox"/> |
| 8.4 The type and class of all materials are indicated on the drawings. | _____ | ____/____/____ | <input type="checkbox"/> |
| 8.5 Records of all significant design calculations are available for audit. | _____ | ____/____/____ | <input type="checkbox"/> |
| 8.6 The design complies with any Conditions of Development Consent. | _____ | ____/____/____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

Design Check List 9 EROSION/SILTATION CONTROL PLANS

| | Check Completed By <i>(initials)</i> | Date | Not Applicable <i>(tick)</i> |
|---|---|-----------|---------------------------------|
| 9.1 Both short-term and long-term erosion control plans have been prepared using the guidelines within Wingecarribee Shire Council DCP No 41 Design Specification D7 and Construction Specification C211. | _____ | _ / _ / _ | <input type="checkbox"/> |
| 9.2 Erosion and Sedimentation Control have been designed in accordance with any Conditions of Development Consent. | _____ | _ / _ / _ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 10 WATER SUPPLY DESIGN CHECKLIST

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|--|--|-------------|----------------------------------|
| 10.1 Standard Notes attached to drawings | _____ | / / | <input type="checkbox"/> |
| 10.2 All Lots have a service indicated, away from driveways and road junctions, and square to the boundary. | _____ | / / | <input type="checkbox"/> |
| 10.3 Hydrant spacing to be 60-70 metres in residential areas and 140 metres in rural areas. Hydrants to be provided at start and end of lines, at high points and low points in a location suitable for flushing | _____ | / / | <input type="checkbox"/> |
| 10.4 Stop valves to be provided at junctions and other intervals to allow repairs to be carried out. | _____ | / / | <input type="checkbox"/> |
| 10.5 Pipe material size to be specified i.e. 100 mm dia PVC, class 12, blue brut or similar. Minimum diameter to be 100 mm in residential and 150 mm in commercial and business | _____ | / / | <input type="checkbox"/> |
| 10.6 Water main to be 2.5 metres from boundaries and 0.5 metres from other services. Main is not to be located in roads, road shoulder, batter, table drains, nor under footpaths or cycleways. | _____ | / / | <input type="checkbox"/> |
| 10.7 Size of main being connected into to be noted on the plan. Check future upsizing requirements and accuracy of existing water plans. | _____ | / / | <input type="checkbox"/> |
| 10.8 Minimum cover to mains of 600 mm in roadways and 450 mm in footways. | _____ | / / | <input type="checkbox"/> |
| 10.9 Check bends and "T" for thrust block locations, which are to be away from other services. Details and sizes to be shown on plans. | _____ | / / | <input type="checkbox"/> |
| 10.10 Mains are to be renewed when new roadway is constructed over an existing line. | _____ | / / | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

- | | | | |
|-------|---|-----------------|--------------------------|
| 10.11 | Water service meters for battleaxe lots are to be located adjacent to the public road. Satisfactory access for a fire tanker is to be provided to battleaxe lots. Private services are to be extended from the water meter to the body of each lot. Diameter of private service is to be specified and provide adequate pressure to the property. | _____ / / _____ | <input type="checkbox"/> |
| 10.12 | Check pressure area to ascertain whether high or low pressure requirements. | _____ / / _____ | <input type="checkbox"/> |
| 10.13 | Easements 3 metres wide are required over mains in private property. Council is to be named in 88B instrument to allow any repairs to be carried out and meters to be read. | _____ / / _____ | <input type="checkbox"/> |
| 10.14 | Check for conflict with other services such as sewerage & drainage. | _____ / / _____ | <input type="checkbox"/> |
| 10.15 | Width of access handle to battleaxe lots is to be wide enough to provide 0.5m between water service connections without encroaching on driveway pavements. | _____ / / _____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 11 SEWERAGE DESIGN CHECKLIST

| | Check Completed By (initials) | Date | Not Applicable (tick) |
|---|--|---------------|----------------------------------|
| 11.1 Standard Notes attached to drawings. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.2 All lots to have a junction or sideline indicated, and away from driveways etc. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.3 Maximum distance between maintenance holes of 120 metres. Maximum distance between maintenance holes and maintenance shafts to be 80 metres. Dead ends over 10m long to be fitted with a terminal maintenance shaft (or maintenance hole) and brought to the surface. Detail of maintenance structures to be shown on the plan. Deep junctions out of maintenance holes if possible. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.4 Check that location of sewer does not affect the building area. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.5 Check the connection point to the existing sewer. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.6 Sidelines to be a minimum of 1.2% and a maximum of 10 metres without a maintenance structure. Maximum of 30 degrees total deflection at a maintenance shaft. Only one maintenance shaft permitted between maintenance holes. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.7 All Levels to AHD. Line numbers to be on plan and long section. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.8 Check loading/grade tables for minimum grade. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.9 Connecting manholes to be on the same level or shown as a drop manhole. Check fall across manholes -25° - 30mm, 45° - 40mm, 60° - 45mm, 90°- 60mm, 120° - 100mm. Minimum drop of 500 mm required for a drop manhole. | _____ | _ / _ / _____ | <input type="checkbox"/> |
| 11.10 Pipes to be minimum of 150 Ø, UPVC, rubber ring joint. | _____ | _ / _ / _____ | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

| | | | |
|--|--------------|-------------------|--------------------------|
| <p>11.11 Trench stops required > 2.5% up to 10% - (30/grade). Concrete bulkheads required > 10% (laid on concrete > 15%) - (100/grade)</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.12 Cover over pipes to be - 750mm roadways, 600mm for traffic, 450mm elsewhere.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.13 Sewer main to be 1.5m inside boundary. Check existing end of main for possible vent pipe relocation in boundary trap areas</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.14 Check for conflict with water mains, drainage pipes, fence corners etc. Show depth of affected services that are crossed on plan and long section. Minimum clearance between other services to be 200mm - horizontal and vertical. Minimum clearance from outside edge of maintenance structure to other services of 500mm.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.15 Leave stub(s) out of manhole(s) to allow for future extension.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.16 Gatic lids to be fitted to manholes in areas liable to flooding. Heavy-duty lids to be fitted in trafficable areas.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.17 Where different size mains, obverts to be matched.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.18 Check mains in embankments will retain cover during driveway construction.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.19 For large subdivisions, check possible overloading downstream. Check on potential upstream catchment area for increase in main size.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.20 Written permission of owner of affected land attached to plans</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.21 Design ground strain and Mines Subsidence Board requirements shown on plans.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |
| <p>11.22 Check actual size of main on site if relocation required. If sewer main is relocated, manholes to be completely removed and note added to DP that manhole location and old line is now uncontrolled fill, which will then affect building on lot.</p> | <p>_____</p> | <p> / /</p> | <input type="checkbox"/> |

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

- | | | | |
|--|-------|----------------|--------------------------|
| <p>11.23 Rising main to have sufficient identification posts to indicate location of main. Tracer wire to be laid with rising main. Air valve on rising main at high points - not a water supply type. Easement required over rising main in private property.</p> | _____ | ____/____/____ | <input type="checkbox"/> |
| <p>11.24 Pump stations to be dedicated to Council and fenced. Provide adequate access road width from roadway. Pump station sites to be landscaped.</p> | _____ | ____/____/____ | <input type="checkbox"/> |
| <p>11.25 No building to be within 1.2 m of a manhole. No building to be within 600mm of a main. Check zone of influence for foundations. In exceptional circumstances, the maximum length of main that can be built over is 12 metres. Registered easement required over line. Piers to be 300mm below invert with 600mm horizontal clearance from pipe.</p> | _____ | ____/____/____ | <input type="checkbox"/> |

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

MINIMUM DRAFTING GUIDELINES

A. ROADWORKS PLANS

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

| Sheet No | TOPIC |
|-----------------|--|
| 1 | Development Consent Number Locality Sketch and Index of Sheets including issue number |
| 2 | General Subdivision Plan with contour details and a clear indication of the extent of work. |
| 3 | A master plan for the stormwater drainage system |
| 4 | A master plan for the sewerage system |
| 5 | A master plan for the water reticulation system |
| 6 | Typical Road Cross Sections showing road widths, pavement configuration, batter slopes, kerb and gutter types. |
| 7. | Plan and Longitudinal Section of particular roads showing services. |
| 8. | Drainage Plan and Schedule of Drainage elements. |
| 9. | Drainage Profiles. |
| 10. | Street Cross Sections. |
| 11. | Intersection Layout Details including linemarking, pavement marking and signposting. |
| 12 | Erosion and Sedimentation Control Plans (short term and long term treatment). |
| 13 | A traffic control management plan. |

NOTE * 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.

Scales are required to be nominated on all drawings.