

7 Engineering requirements

Engineering requirements under part 7 of this plan apply to all development, including subdivision, where permissible within the Goulburn Mulwaree local government area.

7.1 Utility services

Objectives

To provide satisfactory utility services to the development site.

Controls

Applicants are to provide connections to the following services where available to the site – water, sewerage, gas, telephone and electricity, on site.

Applicants are advised to liaise with the AGL (gas), Telstra (telephone), Country Energy (electricity) and Council (water and sewer) or other accredited provider as to the availability of these services, prior to submission of development applications.

Sewerage and water supply design to be in accordance with the Standards for Engineering Works, July 1996. Rainwater tanks are to be provided in accordance with Council Policy.

Council is not averse to applicants supplying their own power supply, provided that Country Energy approve the alternate power source.

Council may require as a condition of its consent, prior to release of Certificates or plans, that satisfactory arrangements be made for the provision of a reticulated electricity supply, telephone services and a reticulated natural gas supply.

7.2 Roads

7.2.1 Urban

- a) Roads

Objectives

To ensure all roads are designed and constructed in accordance with the current version of Council's Standards for Engineering Works.

Controls

Council's Standards for Engineering Works shall apply to new subdivisions and dual occupancy and multi dwelling housing developments.

Residential development shall be designed to:

- ensure satisfactory and safe operation within the adjacent road system
- take into account water sensitive road design practices
- have regard to contours and avoid large cuts and fills, steep slopes, prominent hilltops and creeks
- avoid long dead ends and cul-de-sac heads on the down slope end of roads
- ensure that drainage lines are not impeded
- stabilise, replant and/or top dress exposed batters and table drains and improve slope stability on all earthworks
- when using rear public and private laneways for vehicle access in dual occupancy and multi dwelling housing development the engineering design shall:
 - make provision for bitumen sealed laneway construction, the provision of passing bays, drainage, sediment control etc. from the development site to the closest public road. In the event that the above requirements cannot be achieved, for whatever reason the laneway is not to be used and access is to be provided from the public road frontage.

All proposed road, splay and road widening shall be dedicated to Council, free of cost as public roads.

Where the design of the access road involves realignment, provided the Council agrees to acquire any adjoining land, which may be necessary to effect such realignment, the applicant shall bear full cost of such acquisition.

The use of decorative paving such as brick, interlocking pavers or coloured concrete is encouraged as these materials can enhance the appearance of the street and signify to motorists its residential function and corresponding appropriate driver behaviour.

Where cul-de-sacs are included in road design, when all other options are considered, alternative cul-de-sac heads that may be considered are square offset, T-Heads and Y-Heads. Include appropriate traffic calming devices on the collector roads.

Roads should be placed between houses and open space areas/vegetation conservation areas to provide a buffer separation for fire management and vegetation preservation along with passive surveillance benefits.

7.2.2 Rural

Controls

All proposals are to be designed and constructed to comply with the current version of Council's Standards for Engineering Works for rural roads, drainage, erosion and sediment control and other special facilities covered in the standard.

Proposed road reserve width of 20 metres.

General road provisions

Subdivision proposals, including new roads and Crown roads to be transferred as public roads to Council, must front and connect to a bitumen sealed two lane road designed and constructed in accordance with the current version of Council's Standards for Engineering Works.

Access via a right of carriage way shall be limited to one lot and constructed to an all-weather pavement standard.

7.2.3 Heavy vehicle haulage development routes

Objectives

To set out the matters to be considered for selection of haulage routes for heavy vehicle haulage developments to address rural and village amenity and safety

To set out road standards for heavy vehicle haulage routes

To identify the road standard and haulage route information required to be submitted with an application for heavy vehicle haulage development.

Controls

Route selection for heavy vehicle haulage developments

Principal haulage routes needs to be nominated when submitting a development application for a heavy vehicle haulage development.

The applicant needs to justify selection of the haulage route based upon traffic engineering grounds, amenity considerations and availability of alternative options (i.e. rail). If the existing road network is unsatisfactory then upgrades will be required.

The following matters should be addressed in a development application:

1) Impact on the road network:

- Existing traffic movements along the haulage route.
- Estimated increase in traffic movements resulting from the proposed development. This includes detail of any staging proposal, truck / car ratio and the life of the project / development.
- Foreseeable increases in traffic movements resulting from other known development (i.e. subdivision of land etc).
- Heavy vehicle type and volume (i.e. rigid or articulated, covered or uncovered).
- Anticipated tonnage of material to be transported.
- Type of material transported.
- Hours of operation and frequency of movements.

2) Impact on amenity and the environment – Rural, Village Zones and generally:

- Proximity of haulage route to residence, community land etc.
- Community expectation including ambience and enjoyment of life.
- Community assets including accessibility to parks by residents and visitors.
- Noise generation.
- Vibration generation.
- Visual impact.
- Pedestrian safety and safety of other road uses.
- Impact on roadside habitat resulting from road upgrade works.
- Consistency with the objectives of all zones that the haulage route passes through.

An applicant may also wish to include details of voluntary measures that are proposed to be undertaken during the operational phase of the development to address any of the considerations outlined in this section. This could include a heavy vehicle code of practice whereby drivers of heavy vehicles agree not to exceed a particular speed limit on a haulage route for safety reasons. Selection of such measures can be informed through discussion

with Council staff and/or the responses generated from any consultation undertaken by the applicant prior to submitting an application.

Haulage Route standards for heavy vehicle haulage developments

The following road standard for haulage routes is required:

- 7m wide sealed carriageways in rural areas
- In addition to the carriageway, 1m wide shoulders on each side with a 500mm seal
- 80km/h design standard
- 9m wide culverts and bridges (i.e. from barrier to barrier).
- Minimum remaining pavement life of 10 years at the time of commencement of operations
- Asphaltic concrete surface in village areas.

Note: Intersection upgrades may also be required to accommodate turning paths for heavy vehicles.

Information to accompany an application for development involving heavy vehicle haulage should establish the existing road condition and include an assessment of the remaining pavement life. This assessment should be undertaken by an appropriately qualified professional and should factor in the estimated additional load to be generated by the heavy vehicle haulage development and the resulting impact on the existing road. Design traffic should be calculated in equivalent standard axles (ESAs).

The following information should be submitted with an application for heavy vehicle haulage development:

- Pavement testing results for the intended haulage route/s;
- An estimation of the remaining pavement life of all intended haulage routes given the anticipated additional load from the proposed development; and
- A plan and/or schedule identifying any upgrades required to the pavement to ensure that the road has a minimum pavement life of 10 years taking into account the additional load.

Council may vary the road standard and development application information requirements described above subject to consideration of the following:

- the number of proposed heavy vehicle movements

- the volume of material to be hauled
- the intended life of the development
- the condition of the road/s
- any arrangement proposed in a development application to address ongoing road repairs and maintenance whether by financial or in-kind contributions.

If such a variation is sought an applicant should:

- discuss the matter with Council staff prior to lodging a development application (pre-lodgement meetings are available on request); and
- include justification for the variation and any alternative arrangement in the Statement of Environmental Effects based on the matters for Council consideration outlined above.

Note: The arrangements for developer contributions to fund the ongoing maintenance of heavy vehicle haulage routes (once the upgrades required for the development are in place) is provided for in the Goulburn Mulwaree Section 94 Plan.

For heavy vehicle haulage developments involving a large volume of heavy vehicle movements, it may be appropriate that a Voluntary Planning Agreement is established in which the haulage routes are maintained by the developer to appropriate industry standards. This Agreement could be in lieu of a heavy vehicle contribution under the Goulburn Mulwaree Section 94 Plan.

7.3 Drainage and soil and water management

7.3.1 Drainage (urban)

Objectives

Prevent erosion and local flooding.

Ensure adequate drainage facilities are provided within the site to collect and carry stormwater to external systems.

Provide water quality management systems which ensure that disturbance to natural stream systems is minimised and stormwater discharge to service and underground receiving waters, both during construction and in developed catchments, does not degrade the quality of water in the Wollondilly River and Mulwaree Ponds.

Retain where possible roof water on-site.

Controls

Adequate measures designed in accordance with the current version of Council's Standards for Engineering Works, must be made during construction to ensure the land is stabilised and erosion is controlled, until the site is satisfactorily landscaped.

A plan identifying the location of stabilisation methods such as stacked hay bales and sedimentation fences or geotech fabric may be required by Council prior to the release of any plans.

Applicant shall have regard to the Stormwater Management Plan, April 2000. A copy is available for perusal at Council.

Relevant matters to be considered are:

- urban run-off
- interlot drainage
- design criteria
- erosion sedimentation
- floodways and retention basins
- stormwater runoff from roofs and paved areas is to be collected on-site and retained where appropriate or disposed of to the street drainage system, drainage easement, natural drainage course or infiltration trenches to the satisfaction of Council.

7.3.2 Water sensitive urban design (urban)

Principles of water sensitive urban design to be incorporated into subdivision design.

Development must comply with the neutral or beneficial effect on water quality test *State Environmental Planning Policy {SEPP Biodiversity and Conservation 2021 (Chapter 8, Sydney drinking water catchments)}*.

Drainage lines are to focus on the "natural" or existing drainage lines and integrated into the open space network.

Drainage design is to minimise run off into vegetation conservation areas to assist with ongoing preservation.

Detentions basins are required upstream of development (eg. Marys Mount Road) to regulate and control the runoff back to rates equal with "natural" runoff. Detention basins may also be required to regulate and control runoff to rates equal with "natural" runoff.

Detention ponds and other stormwater treatment devices are to be “offline” and “at source” to ensure stormwater runoff is treated prior to entering these areas.

Use of rainwater tanks will assist with minimising runoff associated with minor rainfall events.

Stormwater drainage systems are to be designed in accordance with the current version of Council’s Engineering Standards for Engineering Works.

The piped drainage system to be designed for a 1 in 5 year storm event. Higher order storms events to be based on overland flow systems along “natural” drainage lines.

7.3.3 Soil and water management

Objective

To minimise soil erosion and water pollution by minimising land disturbance and requiring control measures on-site.

To ensure the potential impacts of development on the water quality of the catchment can be quantified and evaluated in the context of Ecologically Sustainable Development.

Controls

Development proposals where the area of disturbance is less than 2500m² require an Erosion and Sediment Control Plan (ESCP) (written document and site diagrams) that indicates measures to minimise erosion and sedimentation.

Development proposals where the area of disturbance is 2500m² or greater should be accompanied by a Soil and Water Management Plan (SWMP) (written document and site diagrams), prepared by a suitably qualified person(s), that clearly identifies the constraints of soil erosion, sediment pollution and stormwater pollution.

The SWMP should contain appropriate Best Management Practices that recognise site constraints and support ESD principles. The plan should include:

- soil conservation and pollution/nutrient control measures to be installed prior to clearing and earthworks and maintained until landscaping measures are complete
- protection measures for site access and exits
- catchment drainage characteristics of existing and proposed drainage patterns
- protection of existing overland flow paths, watercourses, stormwater kerb inlets and drains.
- upslope clean surface runoff diversions around the disturbed areas

- staggered site works to minimise disturbance
- rehabilitation and stabilisation of the disturbed areas
- measures to minimise the impacts of agricultural practices (such as the use of fertilisers, cultivation practices, tree clearing and pasture management)

The SWMP should detail means to achieve no net increase in pollution of downstream waters through the use of Best Management Practices.

The Plan should balance the management of runoff between farm dam storage and the needs of the downstream environment.

Development of slopes greater than 20% should be avoided. Lands with slopes greater than 20% and having soil landscapes with a moderate to high soil erosion hazard are considered as sensitive areas. Development should minimise disturbance to these areas by minimising areas of cut and fill to depths of 1m. Development proposals within these areas should be accompanied by:

- an evaluation of the site stability (i.e. a geotechnical report)
- a schedule of earthworks
- details or appropriate construction techniques

Plant species which are non-invasive to bushland should be used in landscaping and soil and water management works.

All development proposals on potentially agricultural land should be accompanied by an assessment of the agricultural capability of soils on the property and the effect of the development on the agricultural capability of these soils on the property and the effect of the development on the agricultural capability of these soils.

7.4 Easements

a) Easements

Easements shall be required pursuant to section 88B of the *Conveyancing Act 1919*, as follows:

- sewerage and water supply easements shall be created over all existing and proposed sewer and water lines
- where applicable, easements for batter and support shall be created over lots in accordance with approved engineering plans
- all existing and proposed rights of carriageway shall be legalised
- easements for electricity purposes, if required, shall be created over existing and proposed electricity lines

- drainage reserves (or easements in exceptional circumstances) shall be created over proposed stormwater drainage lines (including floodways), in accordance with the Council's standards
- easements and reserves shall be dedicated to Council free of cost and appropriately indicated on the plan of subdivision

The final plan of survey and other associated instruments plus six copies, suitable for registration with the NSW Land and Property Information, shall be submitted to Council for endorsement prior to the development commencing operation.

7.5 Staging of development in urban release areas

The Section applies to development within the Common Street, Clyde Street, Long Street (Charles Valley) and Ducks Lane urban release areas.

- a) Council will allow staged development in the subject urban release areas only if Council is satisfied that:
 - i. adequate arrangements have been made by any developer with Council for the provision of infrastructure and services of sewerage, water, road, landscape and stormwater drainage; and
 - ii. the developer will pay for all infrastructure costs generated by their development.
- b) The areas identified in the table to this sub-clause must make provision for the specific infrastructure identified in the table in addition to other general matters specified under (a).

Area	Infrastructure
Clyde Street, Goulburn	Construction of a road connection between Clinton Street, opposite Rossville Road, and Clyde Street generally parallel to River Street.
Common Street, North Goulburn	Construction of a roundabout at Sydney Road and Common Street. Landscape buffer along Long Street to: <ul style="list-style-type: none"> ▪ Separate residential and industrial uses, ▪ Provide as landscape and wildlife connection,

	<ul style="list-style-type: none"> ▪ Assist with stormwater management.
Long Street (Charles Valley), Goulburn	<p>Provision of essential services of sewerage, water supply and stormwater drainage.</p> <p>Upgrade of Long Street.</p>
Ducks Lane, South Goulburn	<p>Provision of a landscape buffer along the western boundary to separate any industrial activity from the adjoining "Run-O-Waters" rural residential area.</p> <p>Upgrade of Ducks Lane.</p>