Agenda Item 2.2.3
10 August 2017

Ilira Pty Ltd and Sihero Pty Ltd

Expansion of an existing beef cattle feedlot.

Goyder (Barrier) Highway, Mount Bryan

422/E003/16

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OVERVIEW

Application No	422/E003/16
Unique ID/KNET ID	11778817
Applicant	Ilira Pty Ltd and Sihero Pty Ltd
Proposal	Expansion of an existing beef cattle feedlot. The expanded facility will have a development footprint of 24.8ha and seeks to establish: water supply, storage and reticulation system, fenced pens, new site entrance and internal access roads, controlled drainage areas, solid and liquid waste management (and utilisation areas). Temporary construction and erosion control measures, bulk earthworks, and native vegetation clearance will also be required during construction. The proposed capacity of the expanded feedlot will be 16,642 head of cattle-on-feed (from 6090).
Subject Land	Mackerode Station, Barrier Highway, Mount Bryan
Zone/Policy Area	Primary Production Zone
Relevant Authority	Development Assessment Commission
Lodgement Date	27 October 2016
Council	Regional Council of Goyder
Development Plan	Goyder Development Plan Consolidated 18 October 2012
Type of Development	Merit
Public Notification	Category 3
Representations	4 submissions, 3 to be heard
Referral Agencies	Goyder Council, EPA, Transport, NRM-DEWNR
Report Author	Simon Neldner, Team Leader – Development Assessment
RECOMMENDATION	Development Plan consent, subject to conditions

EXECUTIVE SUMMARY

The application seeks to expand an existing cattle feedlot north-west of Burra. The feedlot has been in operation since 2010. The current proposal would increase the capacity of the feedlot from 6090 head to 16,642 head (58,400 head per annum).

The primary objective of the proposed development is to consistently supply market or customer requirements with grain-fed beef in terms of quality and quantity to compete with the US product on a global market, with a particular focus on the Asian market

The subject land is within a Primary Production Zone where an intensive animal keeping use is envisaged, and within close proximity of necessary inputs (grain, labour, stock). The development is seeking a change of land use from low-intensity agricultural activities to intensive animal keeping on adjacent land to the existing feedlot operation.

The main planning and environmental issues associated with beef cattle feedlots relate to the potential impacts on air quality (odour, dust), water quality (contamination), as well as noise disturbance, traffic movements and waste management.

Planning policies seek to mitigate potential impacts through the use of appropriate setbacks and buffers from more sensitive receptors, whilst bot state and nationally recognized guidelines for have been developed to ensure new feedlots are designed efficiently and sustainably in support of value-adding primary industries.

The proposed development has been sited and designed to minimise the potential for these impacts, and will be developed to a Class 1 standard (in conjunction with other

animal health, export and accreditation controls). No loss of natural character or rural amenity is envisaged with the expansion of the feedlot – although extensive earthworks are required to be undertaken to modify the natural landform.

The development application was referred to the local Natural Resource Management Boards, the Goyder Council, Commissioner of Highways and the Environment Protection Authority. The proposal was also publicly notified and four (4) representations were received. The main planning issues raised included the potential impact of the current and proposed feedlot expansion on groundwater resources and weed infestation.

The applicant undertook a further a further investigate the capacity of the groundwater resource to sustain a 152ML pa water requirement for the expanded feedlot. The study confirmed that a third existing bore – in addition to the two already approved for use with the current feedlot – was available as a supplementary resource. Whilst further long-term monitoring has been recommended, pump test results indicate that sufficient groundwater capacity exists to provide an increased production rate within sustainable limits and not fall below the current pump depth (if rates are controlled).

Consent is therefore recommended subject to appropriate conditions.

ASSESSMENT REPORT

1. BACKGROUND

The establishment of the existing beef cattle feedlot (DA 422/0064/07) was approved by the Regional Council of Goyder on 17 October 2010 subject to eighteen conditions and four advisory notes. The feedlot was established in 2010. A copy of this approval is contained in the ATTACHMENTS.

The existing development occupies a footprint of approximately 23.8 ha and includes the following components in a functional configuration:

- Licensed Beef Cattle Feedlot (maximum of 4,409 Standard Cattle Units [SCU] (6,090 head) of beef cattle and 464 SCU (3,000 head) of sheep.
- Operated as a Class 1 beef cattle feedlot only with no sheep being fed.
- Stocking density of beef cattle is 10.5m^2 per animal or 14.5m^2/SCU based on average weight of cattle at turnoff
- Use of groundwater to sustain feedlot operations.
- Fenced areas for housing cattle (production, induction, dispatch, hospital).
- Livestock infrastructure and facilities for cattle and stabling of horses.
- Feed processing and commodity storage.
- Site Access and Internal roads to ensure safe and efficient production.
- Administrative/Maintenance Infrastructure - including office, machinery workshop, weighbridge and associated facilities for example.
- Controlled drainage areas, sedimentation basins and drainage systems to manage contaminated stormwater runoff from the feedlot.
- Solid and liquid waste management areas – temporary stockpiling of solid waste such as manure and mortalities prior to utilisation on surrounding cropping land or removed off the subject property.
- Storage of liquid wastes in a lagoon, pending evaporation or application to paddocks as a partial substitute for synthetic fertilisers.

On 14 October 2016, the State Coordinator General, James Hallion, determined that the proposed expansion of the feedlot was of economic significance to the state with an estimated value of $5.5m, and would generate up to 25 FTE jobs during construction and 20 on-going operational positions.

The primary objective of the development is to consistently supply market or customer requirements with grain fed beef in terms of quality and quantity to compete with the US product on a global market, with a particular focus on the EU market (p16).

2. DESCRIPTION OF PROPOSAL

Application details are contained in the ATTACHMENTS.

The proposal seeks consent to undertake:

- the staged expansion (CD1 & CD2) of an existing beef cattle feedlot, with an increased footprint (including controlled drainage areas) of 28.91ha;
- two separate controlled drainage areas: designated CDA 1 and CDA 2, each with its own pens, cattle lanes, sedimentation basin, feed roads etc and associated infrastructure (i.e. waste storage lagoon);
- increase the current capacity of the existing feedlot from 4409 SCU (6090 head) to 13,492 SCU (16,642 head), or approximately 58,400 head per annum.
- Increased water usage of 157ML per annum (from existing bores).

The expanded development will continue to utilise existing production facilities - including grain and silage storage, vehicle wash-down, induction / hospitalisation pens, feed storage / preparation and processing infrastructure, maintenance workshop and administration areas (refer to the application documentation).

Plate 1: Feed Silos

The proposed feedlot would operate as a Class 1 feedlot, with the stocking density of cattle to be 12.9m^2 per animal or 15m^2 per standard cattle unit (SCU).

A Class One 1 feedlot has highest standard of design, operation, maintenance, pad management and cleaning frequency.

The construction of CDA1 and CDA2 will require the extensive earthworks, with CDA1 covering 14.2ha, with 211,161m^3 of cut and 193,074m^3 of fill (balance = +18,617m^3);

and CDA2 covering 18.3ha, with 271,782m^3 of cut and 298,218m^3 of fill (balance = -24,437m^3).

The composting of solid waste, including manure scraped from pens and deceased cattle, would occur on site. In excess of 3,000 tonnes per year of solid waste would be composted on site. A number of land parcels (28) over 1792ha will be used to irrigate and/or broadcast liquid and solid waste products from feedlot operations. However, in taking account of various watercourses, topography and setback requirements, only 550ha of this land area would be suitable for application of solid waste products.

The additional solid waste storage, processing and composting areas (2) would require an additional 8000m^2 and 9000m^2 for CD1 and CD2 respectively (Existing = 16,000m2).

The development would provide employment for 20 full-time equivalent personnel.

Cattle would be transported to the feedlot at a weight that approximates the target market, then fed a ration specific to that market type until they reach exit weight, then be transported to an abattoir for processing.

While cattle numbers will vary with market demands and seasonal conditions, it is expected that the development will predominantly supply the domestic market.

As outlined in the applicant's planning report:

> *The wide range of beef markets (i.e. domestic, export – Korea, Japan etc.) available to the feedlot industry means that there is a broad spectrum of market specifications for cattle. Each market may require different specifications for delivery of each of its products. Factors determining market specifications include a wide range of carcase and eating quality criteria including liveweight, fat score, marbling and age. Subsequently, it is expected that the proposed development shall have cattle targeted to a range of market types on feed at any point in time. This is also a risk minimisation strategy to provide flexibility for market conditions, such as cattle and commodity availability, buying and selling price of cattle, buying price of commodities and consumer demands (p114).*

Typically, cattle would enter the feedlot at around 9 to 12 months of age and an average of some 300-340 kg liveweight. The cattle would be fed for approximately 80 to 115 days to achieve an average exit liveweight of about 420 to 512 kg. Rations are prepared on-site in a dedicated facility, with associated commodity storage, handling and ration delivery infrastructure.

The majority of grain and hay/straw for the proposed development would be transported from the northern cereal growing areas within close proximity to the proposed development. About 6% of the annual grain requirement (2,000t) and around 45% of the annual silage requirements (3,000t) are produced on 'Mackerode' Station.

Shade structures do not form part of the current application.

3. SITE AND LOCALITY

3.1 Site Description and Locality

The development site is located on land comprising and adjacent to the existing Princess Royal Station feedlot, which forms part of 'Mackerode' Station, and comprises cultivated cropping land with scattered vegetation.

Princess Royal Station (PRS) is a regional, diversified and integrated family business, established in 2000 by the Rowe family. The business has an agricultural focus centred on beef cattle breeding, production systems, intensive finishing (cattle and sheep), cereal cropping, and associated support services such as livestock and general freight, trading cattle and artificial insemination services. Tree crops (carob) and viticulture also form a small but important part of the business.

The development site is situated 15km north-west of the Burra township, 7.5km east of the Booborowie township and approximately 5km south-west of Mount Bryan (population 138).

The subject property consists of 1578ha, and has been historically used for dryland agriculture (cereals: wheat, barley, oats) and beef cattle and sheep grazing. The feedlot will be sited in a gently sloping valley area to the east of the existing feedlot.

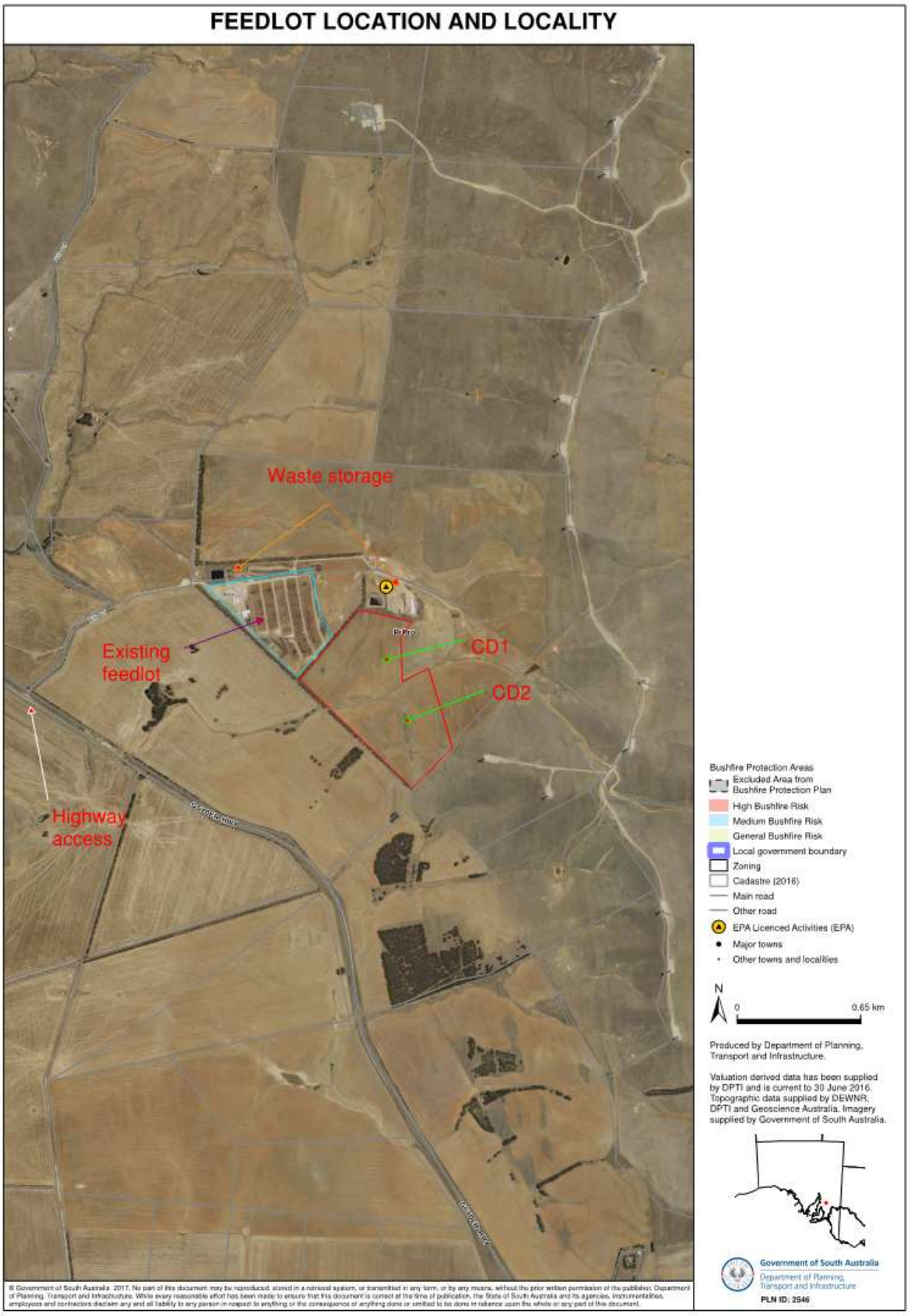
Similar rural land uses surround the property to the north, east, south and west, with scattered rural homesteads, on large rural land holdings utilised for farming, cattle and sheep grazing, irrigated and dryland agriculture.

The land currently supports infrastructure for intensive beef production in the form of an existing feedlot development and other infrastructure such as cattle handling yards, property residences, machinery/storage sheds and grain silos.

Plate 2: Ration Bins

The existing road access to the current feedlot operations will continue to be utilised: Hills Road to Goyder Highway. The feedlot expansion is proposed on Blocks 27-28, DP2033 (CT 5475/736). An existing internal road access (from Hills Road) and a proposed wastewater storage lagoon is located on Section 894, Hundred of Ayers (CT 5469/103).

Various land parcels (550ha) that form part of the larger Mackerode Station, which will also be utilised for the disposal of solid and liquid waste from feedlot operations.



The ridgeline to the east contains the southern extent of AGL's Hallett Hill Windfarm, comprising 34 Suzlon turbines (2.1MW), giving an installed capacity of 71.4MW. The windfarm became operational in May 2010 (and forms one of four separate wind farms that make up the Hallett Wind Farm group).

Mackerode Station (homestead and associated buildings) are listed state heritage places (entered onto the register in 1994). However, these buildings are on a separate title, and located approximately 2.6km to the south-east of the proposed feedlot (and further separated by an intervening ridgeline).

The nearest non-involved residence is located in excess of 2.5km north-east from the cattle feedlot, and the nearest settlement (Mt Bryan) is located 4.6km away.

The feedlot operations are not connected to the electricity network grid, but reliant on diesel powered generators. Options are being explored to supplement and/or replace this power source through renewable energy.

4. RELEVANT INDUSTRY GUIDELINES

The Australian Beef Cattle Feedlot industry – and various states like South Australia – have prepared codes of practice, guidelines and reference manuals to be used for the siting and design of feedlots, and measures to minimise adverse environmental impacts form feed lot operations. These documents have also informed planning policies.

The main reference documents being –

- EPA / PIRSA- *Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia 2nd* Edition February 2006.
- MLA - *National Guidelines for Beef Cattle Feedlots in Australia* – 3rd Edition June 2012.
- MLA - *National Beef Cattle Feedlot Environmental Code of Practice* - 2nd Edition June 2012

These documents do not override state planning policies (for which a feedlot development must be assessed) but do provide the latest industry guidance and accepted principles for establishing and operating feedlots, both locally and nationally.

The applicant has advised that these guiding documents have been used to inform the preparation of the development application.

The existing feedlot is accredited by AUS-MEAT through the National Feedlot Accreditation Scheme (NFAS) (Princess Royal Station – SA556025) and is audited annually for compliance with these standards, and state environmental legislation.

The existing feedlot is licensed by the Environment Protection Authority (EPA33182).

The proponents are also members of the Australian Lot Feeders Association.

5. COUNCIL COMMENTS or TECHNICAL ADVICE

5.1 The Regional Council of Goyder

No comment received within statutory time period.

6. STATUTORY REFERRAL BODY COMMENTS

Referral responses are contained in the ATTACHMENTS.

6.1 Environment Protection Authority

No objection. The EPA considered a number of issues in assessment related to the interface with existing land uses (and the potential for odour, dust and noise impacts that may arise from the operation of cattle feedlots).

The recommended separation distance between a feedlot and non-involved rural dwellings is 1.268km and 4.6km to towns. The proposal meets these thresholds. The potential for odour, noise and dust impacts is also unlikely to be considered a nuisance – given the setbacks achieved (i.e. 2km to nearest non-involved residence).

A waste water management system will be implemented to minimise wastewater impacted upon surface flows, watercourse or groundwater. A new wastewater lagoon is proposed to manage contaminated stormwater.

Solid and liquid wastes will be stored and composted on-site before being utilised for pasture enrichment. The majority of the water stored on the site will be directed toward dust suppression.

The estimated mortality rate of the feedlot is 0.7% or 117 head per year. Carcasses are to be removed daily and relocated to the existing solid waste storage area, then composted in separate windrows to ensure an effective aerobic composting process. In the event of mass mortalities, an emergency management plan has been developed.

The EPA will require a new licence to be authorised (if the development is approved). A total of five conditions and five advisory notes have been directed.

6.2 Office of the Technical Regulator

A signed declaration form has been provided pursuant to Schedule 5 – Clause 2A — Statement relating to electricity infrastructure – of the *Development Regulations 2008*. No referral to the Office of the Technical Regulator is required.

6.3 Commissioner of Highways

No objection. The site is accessed via he Goyder (Barrier) Highway, a road under the car and control of DPTI, with a posted speed limit of 110km/h. The Goyder Highway is also gazetted for B-Doubles up to 26m.

After further analysis of the road works required for the establishment of the feedlot (DA 422/0064/07), additional treatments are required to the Hills Road / Goyder Highway intersection. Three conditions are recommended.

6.4 DEWNR - Natural Resource Management Board

No objection. The proposed development is not located within a prescribed water resource area, but does rely on the use of ground-water.

To ensure the extraction volumes and rates are sustainable, baseline monitoring is recommended prior to the commencement of site operations, and that further conditions be adopted in relation to annual reporting of water usage and standing water levels, whilst contained surface water be contained and treated on-site.

Conditional support is also based on a management plan to minimise or prevent the spread of declared weeds and unwanted pests (i.e. biosecurity plan), manage construction impacts (dust, erosion etc), and establish a suitable vegetation buffer.

7. PUBLIC NOTIFICATION

The application was notified as a Category 3 development (pursuant to Section 38(2)(c) of the *Development Act 1993* – i.e. neither Category 1 or 2).

Public notification was undertaken (by directly contacting adjoining owners and occupiers of land, those potentially affected to a significant degree and via public notice in a newspaper with local distribution) and 4 representations were received.

Representor ID	Issue	Applicant's Response
R1	*Adequacy of water supply and recharge rate. Need for better information and monitoring of water use, and that existing groundwater supplies will not be impacted.*	*A further study was undertaken to determine groundwater availability: 'Water Supply for Feedlot Development' dated 14 July 2017 prepared by Australian Groundwater Technologies. Weed management protocols are contained in the development application documentation.*
R2	*More accurate records on groundwater use, specifically standing water levels and water usage. Will bores need to be metered? What is the alternative water source for the development?*	*See above.*
R3	*More up to date water date on water availability and quality. More effective weed control.*	*See above.*
R4	*Concern about impact on existing water table, as farming operation is fully dependent on existing groundwater supplies. Water tables have been lowered by 6m over the last few years. One well and one bore has gone dry. Odour and flies is also of concern.*	*See above.*

A total of 3 representors wish to be heard by the Commission.

A copy of each representation is contained in the ATTACHMENTS.

Figure 1: Representor Map

8. POLICY OVERVIEW

The subject land is within the Primary Production Zone as described within the Goyder Development Plan –Consolidated 18 October 2012.

Relevant planning policies are contained in Appendix 1 and summarised below.

8.1 Primary Production Zone

Key Objectives:

- The long-term continuation of primary production.
- Economically productive, efficient and environmentally sustainable primary production.
- Protection of primary production from encroachment by incompatible land uses and protection of scenic qualities of rural landscapes.
- Accommodation of wind farms and ancillary development

Desired Character – edited:

The region will support a more sustainable approach to primary production with rural production forming the core focus of the region. Sustainable land management practices will see long-term improvement in the quality of the environment and the economic activity of this region.

Incompatible development will be restricted to support the ongoing function of primary production, with the division of land restricted to maintain large allotments and the construction of new dwellings and other structures limited to only being developed where they are associated with, and essential to, primary production activities.

Alternative rural uses and value-adding enterprises that attract employment and economic development to the district will be developed in conjunction with the bulk handling activities in the Zone, but located sensitively to protect good quality land and to take advantage of existing infrastructure networks. Land of conservation and biodiversity significance will be protected from incompatible primary production activities and will be enhanced with tourism facilities to add to the diversity of the region's employment and economy.

New development in the primary production areas will be in the form of a range of different types of primary production, as well as appropriate value-adding uses.

Alternative primary production uses and value-adding uses that are not directly reliant on good quality land will be located to avoid the sterilization of quality land, to minimise adverse impacts on sensitive uses and areas, as well as to take advantage of existing infrastructure including freight networks. On land of conservation and biodiversity significance, eco-tourism and nature based tourism accommodation may be appropriate where it is located in close proximity to scenic routes, trails and conservation parks.

Development ancillary to primary production, such as farm dwellings and outbuildings including large sheds, will be developed in appropriate locations to minimise the visual impact as well as the operational impact on the primary production use. New dwellings and other structures will be set well back from all boundaries, apart from within existing minor settlements where the existing pattern of development should be followed.

New buildings will generally be associated with existing clusters of buildings and will be of complementary scale and massing to those buildings, while also being of appropriate dimensions to serve their intended function.

The open rural landscape is the dominant character element and new development will maintain that character, with new buildings appropriately sited, designed and screened by vegetation. New buildings will be constructed using materials and colours that blend with the rural landscape and are traditionally used within the rural environment including corrugated steel, stone and timber.

Envisaged Land Uses:

- tourist accommodation
- bulk handling and storage facility
- farming
- intensive animal keeping
- wind farm and ancillary development

- wind monitoring mast and ancillary development.

8.2 Council Wide

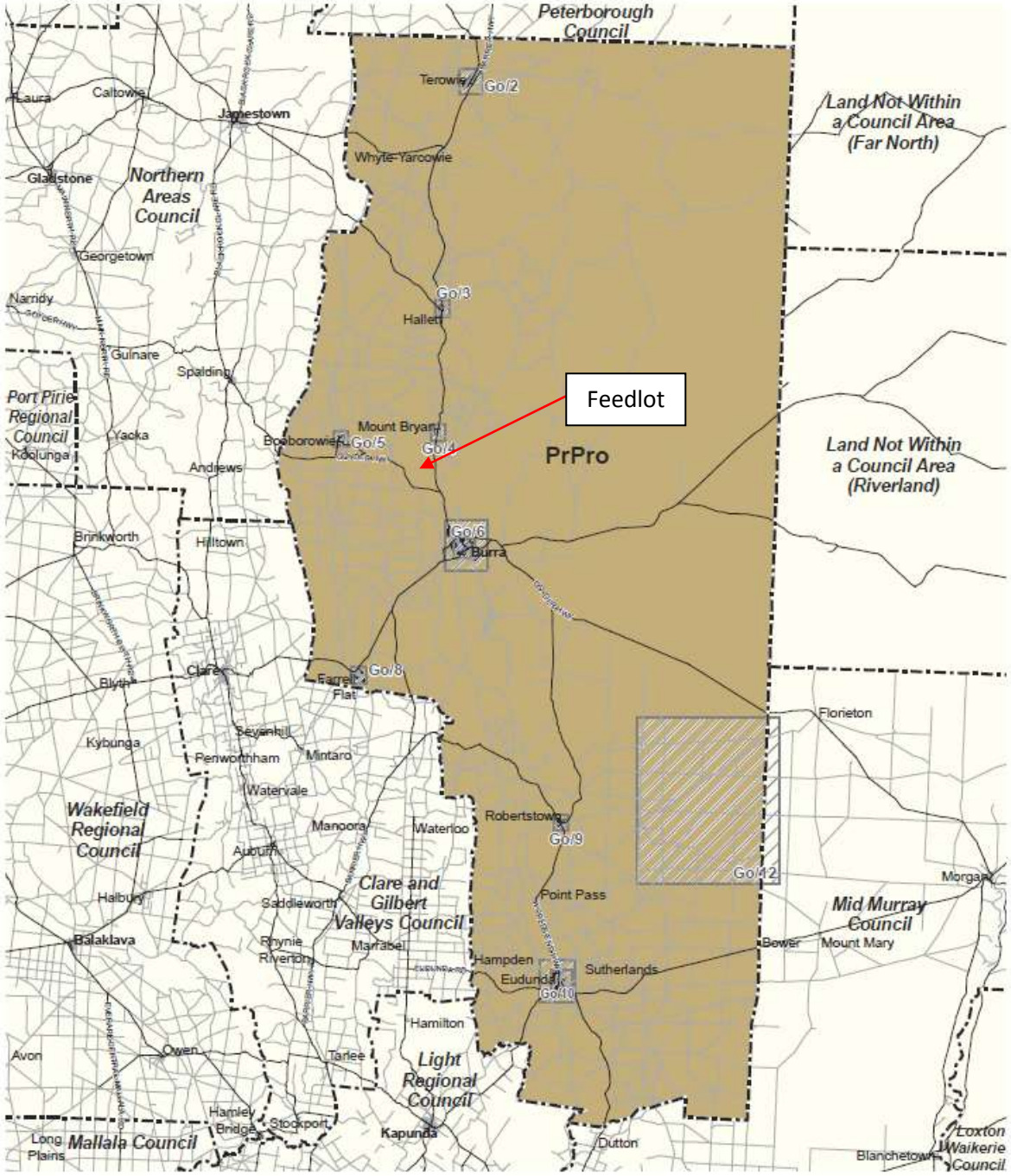
- Animals not kept at a density beyond the carrying capacity of the land.
- Animal keeping development sited and designed to avoid adverse effects on surrounding development or the environment.
- Storage facilities for manure, used litter and other wastes should be designed and sited: (a) to be vermin proof; (b) with an impervious base; (c) to ensure that all clean rainfall runoff is excluded from the storage area; (d) outside the 1 in 100 year average return interval flood event area.

- Intensive animal keeping operations and their various components, including holding yards, temporary feeding areas, movement lanes and similar, should not be located on land within any of the following areas:

  (a) 800 metres of a public water supply reservoir
  (b) the 1 in 100 ARI flood event area of any watercourse
  (c) 200 metres of a major watercourse (third order or higher stream)
  (d) 100 metres of any other watercourse
  (e) 2000 metres of a defined and zoned township, settlement or urban area
  (f) 500 metres of a dwelling (except for a dwelling directly associated with the intensive animal keeping facility.

Plate 3: Stock Water Storage

- Intensive animal keeping operations should include on site storage, treatment and disposal facilities for manure, used litter and other wastes.
- Intensive animal keeping operations should include a drainage system to direct surface runoff from uncovered areas to wastewater lagoons.
- Intensive animal keeping facilities and associated wastewater lagoons and liquid/solid waste disposal areas should avoid adverse impacts to other land.



See enlargement map for accurate representation.

Zones
PrPro Primary Production
Zone Boundary
Development Plan Boundary

Zone Map Go/1

GOYDER COUNCIL
Consolidated - 18 October 2012

Other Council-wide policies of relevance relate to: design and appearance, hazards, siting and visibility, natural resources, infrastructure, animal keeping, landscaping, orderly and sustainable development, waste, and transportation and access.

8.3 Overlays

8.3.1 Bushfire Protection Area

The subject land is not within a Bushfire Protection Area.

9. PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Goyder Council Development Plan, which are contained in Appendix 1.

The applicant has provided a comprehensive report from Ostwald Bros Rural Operations into the nature and intended operation of the expanded feedlot. These documents provide the full background to the proposal.

9.1 Quantitative Provisions

	Development Plan Guideline	Proposed	Guideline Achieved	Comment
Land Use	Intensive Animal Keeping	Existing feedlot - increase in the current capacity	YES ☒ NO ☐ PARTIAL ☐	Land Use envisaged in PP Zone.
Setbacks	800 metres of a public water supply reservoir		YES ☒ NO ☐ PARTIAL ☐	Met
	1 in 100 year average return interval flood event area of any watercourse		YES ☒ NO ☐ PARTIAL ☐	Met
	200 metres of a major watercourse (third order or higher stream)		YES ☒ NO ☐ PARTIAL ☐	Met
	2000 metres of a defined and zoned township, settlement or urban area		YES ☒ NO ☐ PARTIAL ☐	4.6km from nearest settlement
	500 metres of a dwelling (except for a dwelling directly associated with the intensive animal keeping facility		YES ☒ NO ☐ PARTIAL ☐	2.7km from nearest non-host residence

9.2 Land Use

The development of intensive animal keeping facilities (feedlot) in the Primary Production Zone is a type of land use specifically contemplated, and for the purposes of this assessment, already approved and operating on the land for that purpose under DA 422/0064/07 (Refer PPZ: OB1, PDC1). A portion of existing agricultural land

will be incorporated into the expanded feedlot, and whilst a change of land use, is simply an intensification of a primary production activity on adjacent farming land.

Plate 4: Proposed Feedlot Expansion

It is noted, however, that the development site is not within Enterprise Policy Area 2, where intensive animal keeping developments are more specifically envisaged. Whilst at minor variance with the policy framework, given that such uses are still envisaged within the Primary Production Zone, and the proposal is to enlarge an existing and lawfully approved land use, where environmental impacts (subject to appropriate controls) can be managed, the proposed land use is considered an acceptable one.

9.3 Intensive Animal Keeping

Planning policies seek to ensure that intensive animal keeping developments are sited and designed to avoid adverse effects on surrounding development (CW: Animal Keeping: OB2), with the main mitigation measures being to ensure minimum setbacks are met to water sources and more sensitive receptors (CW: Animal Keeping: PDC9).

Both the proposed and existing developments will utilise on site storage and treatment facilities for manure, used litter and other wastes and appropriate disposal of wastes (in accordance with EPA requirements).

Surface run-off from pen areas will also be directed to associated wastewater lagoons and liquid/solid waste disposal areas, which can be appropriately designed, managed and sited to avoid adverse impacts on other land uses or the environment (CW: Animal Keeping: PDC11-12).

The development complies with these policy provisions.

9.4 Environmental

(a) Odour, Dust and Greenhouse Gas Emissions

The main environmental impacts from the operation of feedlots are in relation to a diminution of local air quality (dust and odour), odours arising from the surface of pens and liquid waste storage, impacts from raised dust from cattle and vehicle movements, and greenhouse gas emissions from livestock and manure.

These impacts are proposed to be minimised by a number of mitigation measures, the situational context of the existing and proposed development, and the available separation distances to the nearest non-participating residence. The principal mitigating factor for odour is distance – the closest sensitive receptor being 2.7km from the feedlot – as it is 'not possible to completely eliminate the nuisance source'.

As explained in the applicant's planning report, *'odour at a beef cattle feedlot is generated when organic matter breaks down anaerobically in the presence of water'*, which makes the management of pens, waste storage areas, sedimentation basins and storage lagoons the principal odour point sources and where design and operational actions to limit such impacts must be deployed.

Design measures to limit odour impacts will include: appropriate separation distances, maximisation of site drainage through optimal pen design, beneficial siting of water troughs, and provision of a vegetative screen to act as a landscape break and filter.

Operational measures to limit odour impacts include: minimise the amount of organic matter available for decomposition (i.e. pen cleaning), minimise the amount of water than can mix with organic matter, dewatering of waste storage lagoons, utilising best animal production genetics, maximise feed energy, and maximise the rate of drying of wet organic matter.

Raised dust can also contribute to a loss of local air quality – with separation distance being the principal mitigation measure. Construction impacts are to be managed with dust suppression measures, and revegetation of disturbed areas. Operational measures will include adopting stocking densities, setting internal speed limits, ceasing dust generating activities in high winds etc.

Staff training in environmental awareness and quality control is also important.

Greenhouse gas emissions may also lead to localised air quality impacts (with methane emissions being estimated for beef cattle at 200g per head per day). Design measures include optimal pen and sedimentation basin layouts (to maximise drainage and remove solid waste), and to promote appropriate animal selection and husbandry practices (i.e. genetic selection, maximise ration formulations, and ensure waste management practices assist in reducing emissions).

(b) Soil profile

The local soil profile was found to have engineering properties which are well suited to the construction and operation of a beef cattle feedlot. This will reduce the need to bring additional materials onto the site. An appropriate earthworks specification will be prepared by for the bulk earthworks, with the topsoil removed and retained for embankment foundation and reinstatement of tother areas.

(c) Groundwater > Contamination risk

Poor design and operational practices can impact on water quality – such as through the leachate of liquid wastes or the inappropriate storage of fuel or hazardous chemicals. Mitigation measures to control for this risk will include appropriate setbacks, geotechnical investigations, installation of effective liner and controlled run-off systems, and to ensure both liquid and solid wastes are appropriately managed.

The design of the feedlot will incorporate erosion and sediment control measures, diversion banks to separate contaminated stormwater, and where soil lining materials are subject to traffic or increased flow velocities, to ensure they are appropriately built (i.e. increased depth) and maintained. Both stages of the expanded feedlot will have their own controlled drainage area and lagoon.

The storage, treatment and sustainable application of liquid wastes also needs to be appropriately managed (to ensure rates of land application match the ability of the soils and crops to utilised the applied nutrients, salts and organic matter under existing climatic and ground conditions).

The applicant has advised that an impermeable barrier will be constructed between the contaminant source and underlying strata using a liner made of compacted clay or other suitable material in drainage areas, sedimentation basins and storage lagoons.

(d) Surface Water > Contamination risk

The establishment of a feedlot does have the potential to impact upon drainage patterns, surface runoff yield, flow regimes and groundwater. These impacts can occur as a result of temporary construction or operational changes. The mitigation measures to be adopted include erosion control, the siting of the development above the 100-year ARI flood level*, controlled drainage areas (and how surface water flows into the sedimentation systems and storage lagoons), vegetation buffers, bunded fuel and chemical storage, and emergency / contingency planning (leaks, spills).

**Note: The feedlot site is 200m above the Booborowie Creek (with the resultant flood risk negligible).*

Plate 5: Sedimentation Basin

(e) Stormwater

The subject property has stormwater catchments areas which discharge to natural drainage lines and eventually into Booborowie Creek. During construction, temporary measures will be put in place to minimise adverse impacts (erosion), and once operational, the feedlot design will ensure that both clean and dirty water is effectively separated, controlled and, where appropriate, re-used (i.e. controlled drainage areas, sedimentation systems, storage lagoons etc).

(f) Irrigated wastewater

The development currently involves the irrigation of liquid waste to surrounding farm and grazing land. This will continue with the expanded operation, through defined waste utilisation areas.

This involves the spreading of low volumes of liquid waste and composted solid waste within appropriate areas on the subject property (taking into account the location of nearby residences, surface water / drainage lines, topography, weather conditions and groundwater) and guided by appropriate analysis and validation (i.e. soil testing / suitability assessment / nutrient composition).

Current soil analysis indicates that the pH of the soil is neutral to mildly alkaline, nitrogen is low, phosphorous levels sufficient and salinity low (136-166 uS/m). Approximately 2905t (solid) and 28.4ML (liquid) waste products would be available for farm application. The method of application for liquid waste is via slurry tanker, using a low-pressure overhead spray system.

Approximately 50-75% of the waste product generated on-site can be sustainably utilised on site, with any excess material transported off-site for utilisation (i.e. other farming properties owned by the proponent).

(g) Noise

Noise impacts may arise from the operation of plant and machinery, feed storage and processing equipment, livestock and transportation association with the delivery of feed, solid waste removal or pick-up / delivery of cattle. Construction impacts, though temporary, would be as a result of earthmoving equipment.

The main mitigation measure – endorsed by the EPA assessment – is an effective separation distance of more than 2km to the nearest sensitive receptor (which well exceeds the 500m sought by the Development Plan). The undulating land form will also assist in providing a natural barrier.

The construction of each stage (CD1-CD2) is estimated to be around 5-6 months (dependent on weather conditions). No adverse impacts are envisaged for sensitive receptors, although some restrictions on construction hours have been recommended.

Operational hours are 6am to 6pm each day, with noise levels dependent on stocking rates, plant and machinery use etc. Again, noise generation from these on-going activities is not expected to exceed the acceptable noise level criterion (with machinery use characterised by short periods of intense, continuous activity).

A number of standard mitigation measures are proposed (refer pages 195-196 of the applicant's report) – i.e. awareness training, machinery use during daylight hours, noise attenuation devices, regular servicing etc.

(h) Animal Mortality

The applicant has advised that mortalities will be removed from the pen area on a daily basis and taken to the manure stockpile area for composting. Carcasses will be covered with manure to prevent scavenging by pest animals. This method of handling deceased animals is generally applied in Australian feedlot operations.

The applicant's planning report notes that *'the mortality rate in beef cattle feedlots is generally low and constant (less than 1%). The mortality rate in the existing feedlot is about 0.9% and 0.95% for domestic and mid fed cattle respectively.'* (p90).

A contingency plan to manage the disposal of large numbers of unexpected mortalities will be developed in accordance with relevant guidelines and form part of the proposed developments quality assurance and NFAS standards.

(i) Hazardous Chemicals

A range of hazardous chemicals are stored on-site, being agricultural chemicals (but not farm herbicides), veterinary products, oil and fuel, solvents and cleaning agents. All materials stored on-site are liquids, will be located above the ground within a 6m x 2.4m shipping container, with a bunded area able to contain 25% of the total volume stored. Diesel fuel (15,000L) is stored in a separate above ground tank.

9.5 Transport and Access

Planning policy seeks safe and efficient access to and from development sites that accommodate traffic generating land uses and provide sufficient on-site manoeuvring areas for larger vehicles and carparking for employees and visitors (Refer: CW: OB2, PDC1-2, PDC8-9, PDC13, PDC21-24, PDC29-31).

Figure 2 outlines the current and estimated vehicle movements to and from the development per week.

Figure 2: Estimated Weekly Traffic Movements

Activity	Vehicle Type	Movements – Existing	Movements – Proposed (CD1+CD2)	Total
Incoming Cattle	B-Double	3	7	**10**
Outgoing Cattle	B-Double	6	10	**16**
Incoming Feed / commodities	Semi-trailer / B-Double	10	24	**34**
Employees	Light Vehicles	154	84	**238**
Sub total	**n/a**	**173**	**125**	**298**

The increase in weekly vehicle movements, from 173 to 298, or a 42% increase at project completion, can be accommodated by the local and arterial road network, taking into account a large development site, which has a number of permanent staff and a need for larger trucks to both deliver and take away materials and stock.

The existing feedlot obtains access from a local road (unsealed) to the Goyder / Barrier Highway, which is rated for B-Double vehicles. The Commissioner of Highways was referred a copy of the application and provided comment.

During the course of the assessment, it was noted that the previous conditional requirement (2007 application) to upgrade the Hills Road / Goyder Highway intersection was not completed. The status and appropriateness of these works have been further reviewed, with a revised treatment specification recommended.

No objection was raised by DPTI on the basis these requirements are met. The applicant's traffic consultant has already held discussions with DPTI to implement these works. The upgraded intersection will ensure traffic movements to and from the expanded feedlot development can be safely and efficiently undertaken.

Plate 6: Site Office, Weighbridge and parking area.

There is sufficient on-site areas for the manoeuvring of larger vehicles (including B-Doubles) and for the parking of employee and utility vehicles, either adjacent existing buildings, undercover weighing and holding areas or site office.

No planning or technical comments were received from the local Council. It is presumed that current arrangements (being a formed, compacted rubble road) from the highway to the feedlot are appropriate, and no upgrade work is required.

9.6 Groundwater > Sustainable Use

Groundwater needs to be managed to ensure sustainable drawdown rates, and not to negatively impact upon other users which rely upon this resource for both domestic needs and rural purposes (Refer CW: Animal Keeping: OB1, PDC1; Natural Resources: OB1-5, PDC1-2, PDC6-7, PDC11).

The proposed development depends on a continuous supply of groundwater of sufficient quantity, quality and reliability – and to maintain an emergency supply of water for livestock. The proposed development will utilise groundwater supplies from exiting bores/wells for stock and operational purposes.

There is no reticulated (SAW) water supply available.

As stated in the applicant's planning report [refer pages 67-68}:

> *The quantity of water consumed by feedlot cattle is mostly dependent on the environmental temperature and humidity, drinking water temperature and salt content, diet composition (nature of food and dry matter content), feed intake, size of the animal, breed, rate and composition of gain, frequency of watering and individual variation between animals (Davis & Watts, 2006).*

Based on a formula development by Watts et al. (1994):

> *the proposed development of 10,552 head will require in the order of 137 ML of water depending on the level of drinking water consumption and occupancy level. Allowing an additional 10% for other uses such as feed processing, administration and direct sundry uses such as trough cleaning, vehicle and facility cleaning and indirect sundry 'uses' such as evaporation some 152 ML of water shall be required for the proposed development.*

Stock water will continue to be reticulated to the proposed development using an underground polyethylene pipe network (gravity fed) from an elevated holding dam.

The reticulation system will be designed to supply water throughout the pens during peak demand periods. Existing on-site storage will be used to meet variations in supply and demand and to provide backup storage in case of distribution or mechanical failure.

Concerns in relation to the proposed expansion of the feedlot have been raised by each of the representors, who are nearby landowners to MacKerode Station. These concerns relate to the current and potential impact on existing groundwater supplies and the function and reliability of their own wells and bores, due to the volume of water to be extracted to support current and expanded feedlot operations.

The Booborowie Valley groundwater system is an alluvium filled valley, which provides limited but important sources of groundwater to landowners in the region.

The subject land lies outside of a Prescribed Water Resources Area (PWRA).

There are 22 registered groundwater bores that occur within 2.5 km of the existing feedlot. There are four (4) registered bores that occur within the land parcels on which the existing development and proposed development are located.

When the original application was assessed (Refer *Australian Groundwater Technologies – Well Discharge Test Analysis – Mackerode Station – AGT Report No 2008/16*), an analysis was undertaken to determine whether two existing wells (PN 129800 and PN 129292) could supply the estimated 78.5ML required to sustain the water demand for feedlot (and provide the estimated 500,000L to be stored on-site).

This report concluded that whilst a successful discharge test was undertaken, and that *'pumping from a compartmentalised/discrete fracture system is expected to have minimal impact on existing users and on the flow to the Booborowie Valley basin, the converse is that the long-term sustainable yield from well PN 129800 may be significant less than the tested short-term yield'* (p16).

To account for this uncertainly – acknowledged within the 2008 report – the Council imposed a condition (No.2) to require pre-development monitoring to establish a baseline (on both the subject land and three neighbouring landowners) and then to require a twice monthly check detailing the quantity of water extracted for use on the feedlot, with the monitoring conducted by an independent entity, and results forwarded to DWLBC (Now DEWNR), the local NRM Board and the Council.

It is not clear how these conditions were met, or if any follow-up investigations were required to be undertaken by the Council based on the results supplied.

The 2008 AGT report was also re-submitted with the 2016 development application. Given the increase water requirements, a new report was requested, to ascertain how the existing bores (and aquifer more generally) could sustainably supply the expanded feedlot – and seek to address the concerns raised by representors.

The updated report was undertaken by AGT in June/July 2017 (and is contained in the ATTACHMENTS. In providing this report, the applicant (via email on 17 July 2017), noted the following:

> *The two bores currently utilised to supply the existing site (Registered No 663003420 and Registered No 663003421) would continue to supply the current site, to reduce the reliance on the well 6630-1026, which is of a higher capacity and will supply the proposed feedlot expansion capacity.*
>
> *The two bores currently utilised to supply the existing site (Registered No 663003420 and Registered No 663003421) were tested by AGT in 2007 and a full hydrological report was completed for the original development application. In 2007 AGT concluded that the two bores had the capacity to supply the feedlot with no adverse effects on adjoining neighbours groundwater supply. These bores, along with 3 of the neighbour's bores (P.Y & B.J Wedding Bore 1100, A, P & P Stockman Bore 1104, R.W. Shattock Bore 1793) have been tested every month since development consent was granted in 2008 as a condition of development approval by the Regional Council of Goyder. SWL and salinity were tested by Graham Chandler, Princess Royal Station's Major Projects and Maintenance Manager, and sent to the Goyder Council until it was no longer necessitated. This data was compiled by myself and also supplied to AGT, which they have supplied in the appendix of their 2017 report. The depth to water (m) and salinity (ppm) have remained stable over the entire testing period, indicating no impact to groundwater supply or quality. Please notify me if you require the full logs.*
>
> *The capacity of well 6630-1026 was tested by AGT. AGT concluded that this well has the capacity to supply the development at full capacity using a maximum of 152ML/year, and made a number of recommendations for well monitoring and review to prevent overuse in the long term. AGT identified that pumping at a higher than required annual rate of 158ML/year for two years or more could potentially produce a drawdown of between 0.1m and 0.8m for wells at a distance of 2km. As no neighbouring bores are within this distance of the water source, management have proposed that bores located at 2km on the Mackerode property could also monitored by Princess Royal Station staff to test any potential adverse impacts on neighbouring groundwater sources.*
>
> *AGT and Princess Royal Station are confident that well 6630-1026 has the capacity to supply the proposed feedlot development with no adverse effects on groundwater quality or supply. Continuous long-term monitoring and reporting will further assure the capacity of supply and quality over the long-term. In the event of an extreme drought, various mitigation procedures may be implemented in consideration with Australian animal health legislative requirements and will be assessed by management at a case by case level.*

Based on this advice, the existing feedlot will continue to use the water sources (bores) as authorised by the 2007 application, with supplemental water to be provided by well 6630-1026 (that has the capacity to service the proposed development), located to the east of the feedlot (adjacent the Mackerode Station homestead). Whilst the AGT report found that this bore could supply the entire annual

demand (152 ML) through an increased production rate without the water level falling below the current pump depth, this was based on a continuous pumping rate of 5 L/s, and the need to undertake long-term monitoring.

DEWNR has reviewed both reports. No objection has been raised to the development, however an on-going monitoring program has been recommended. A number of conditions have also been proposed, both to place an operational limit on well 6630-1026, and to require specific monitoring, with collected data and an annual report to be provided to the Science, Monitoring and Knowledge Branch of DEWNR.

The specifics of this monitoring program have been recommended as a reserved matter, to be finalised with a qualified hydrologist from DEWNR and applicant's consultant, but would involve a monitoring program of local wells within a 2-3km radius, in terms of standing water and drawdown levels and volumes used (which generally accords with the applicant's position).

It is also recommended that those wells/bores that supply the expanded feedlot be individually metered and monitored, to enable real-time recording of overall use and standing water levels, and assist in the early identification of any longer-term issue or short-term disruption or break-down in available water supplies (i.e. leaking pipes etc). This should provide a sufficient level of confidence to local landowners, i.e. that a longer-term monitoring regime – based on the available knowledge and understanding of the underling aquifer and recharge rates – is in place, which also will assist the operator of the development to undertake the appropriate forward planning and due diligence associated with their investment.

The applicant's report has also considered the potential impact of an extreme drought event, which could place pressure on water availability, and have indicated that as a temporary measure, water could be transported to the site for construction needs or to reduce livestock numbers during operational use.

In terms of any future water availability issue (arising from an unknown or undetected cause), there are legislative mechanisms and statutory powers available to the Minister administering the *Natural Resources Management Act 2003* (refer to s.132) to intervene in situations where detrimental impacts to a water resource (being a watercourse, lake or well) are detected that would contravene the objectives of the NRM Act, through a notice of restriction published in the Government Gazette. This action can be in the form of a prohibition (or removal of the means to take such water) or other operational restriction or cap.

For the purposes of this assessment, and suitability of the development against the provisions of the local Development plan for the sustainable use of a natural resource, the applicant has demonstrated that groundwater supplies are available to service the development, but only on the basis appropriate operational and monitoring conditions are in place as recommended by DEWNR and the AGT report.

9.7 Native Vegetation

The majority of the property has been cleared, with scattered vegetation along fence lines, roadsides, drainage lines and creeks, resulting in a fragmentation of the residual habitat Due to grazing practices, pasture grasses and weed species have colonised much of the land, and it is not envisaged that the development will impact on these remaining, naturally vegetated areas. However, a feedlot does have the potential to increase the spread of pest plants, and amenity loss / additional disturbance to local fauna (i.e. light overspill, dust, noise etc.).

9.8 Visual Amenity (and Landscaping)

The landscape surrounding the property is characterised by undulating, low, moderate and high areas of relief with moderate to high ranges, Views to the subject land are completely blocked from the east (due to a more elevated ridgeline which hosts a portion of the Hallet Hill Windfarm).

The majority of native vegetation has been cleared, however planted shelter belts have been established by local landowners along fence-lines and property boundaries. The applicant undertook a visual analysis, noting that "the closest residences do not have direct views to the proposed development and would not be visually impacted by the development" (due to the topography, considerable distance and existing vegetation / buffers).

The feedlot (both existing and proposed) is also well setback from the Goyder Highway, approximately 800-900m (with an intervening shelter belt).

Whilst not critical to the approval of the development, it is recommended that a new buffer be established along the southern boundary (of the expanded feedlot), and the existing vegetation strip (western edge) be enhanced, to provide both a visual screen and dust barrier for feedlot operations, and be appropriately fenced to restrict incidental livestock grazing.

Additional plantings – in the form revegetation and soil stabilisation – should be undertaken within CDA1 & 2 (where practicable), given the extent of bulk earthworks and reshaping of the land to construct each controlled drainage area.

The use of local native species will also contribute to increased biodiversity and habitat for local fauna. A condition has been recommended.

9.9 Pest Plants and Animals

Pest plants and animals pose a risk to existing operations – including neighbouring properties, and require careful management and specific control mechanisms. This issue was also raised in the representations.

Feedlots can result in the increased incidence of noxious weeds and plants – such as from machinery, transport, clothing, feed storage and processing, incoming livestock, distribution of solid wastes, movement of soil, clearing of vegetation etc. It is also noted a significant amount of waste product (liquid and solid) is broadcast onto existing paddocks (part of the wider land-holding).

The applicant proposes to adopt a range of measures: undertaking a weed survey (prior to construction), cleaning of machinery, timely control of initial weed populations, and check on the weed status of materials, vehicles and livestock (i.e. to determine if from known weed infestation areas). A condition requiring a management plan is recommended (and would form part of an EMP).

Fly breeding sites will also be similarly addressed – through the ensuring pens are kept dry and regularly cleaned, resting places minimised (i.e. vegetation).

9.10 Bulk Earthworks

The construction of CDA1 and CDA2 will require the extensive earthworks, with CDA1 covering 14.2ha, with 211,161m3 of cut and 193,074m3 of fill (balance = +18,617m3); and CDA2 covering 18.3ha, with 271,782m3 of cut and 298,218m3 of fill (balance = -24,437m3). These are significant volumes and will alter the land form.

The maximum extent of cut will be 9.3m to 11.6m in CDA1&CDA2 respectively; the maximum extent of fill will be 5.7m to 6.7m CDA1&CDA2 respectively. These works are required to provide the design surface levels (on sloping land) and pens, roadways, embankments and drainage areas etc are appropriately engineered.

An Environmental Management Plan (and landscaping plan) will need to provide the necessary construction guidance to limit the potential for environmental impacts, namely raised dust, sedimentation, erosion control and stockpile management (with different construction timing for CDA1 and CDA2 and excess material being available).

10. CONCLUSION

The proposal seeks the expansion of an existing beef cattle feedlot. The applicant has sought to apply best practice feedlot design and operational guidelines to the siting and layout of the development. The stormwater and waste control arrangements have been endorsed by the EPA, with a range of design, management and operational conditions directed. The expanded feedlot will also need to be licensed by the EPA.

Intensive animal keeping operations are envisaged in the Primary Production Zone, and the expanded proposal is generally in accordance with these provisions, including setback requirements to more sensitive receptors, which is the principal mitigation measure.

The main planning issues – which are environmental in nature – have been satisfactorily addressed through feedlot design, setbacks and development controls. The majority of the existing support infrastructure will be used for the expanded operation, with waste storage facilities augmented where required. The applicant has advised that no formal complaints have been received through the operation of the existing beef cattle feedlot – although the expanded operation does significantly increase the on-site number and annual throughput of cattle, and the potential for adverse outcomes if not properly addressed at the assessment stage, and then managed at the operational stage.

A comprehensive Environmental Management Plan will need to be prepared and implemented to ensure that potential environmental issues are identified, and where necessary and appropriate, minimised through a range of control actions.

The main issue for representors and local NRM Board remains the reliance on an existing groundwater resource to service the feedlot, and to ensure this resource is used sustainably (and be available to all users) into the future. Notwithstanding the provision of a supplementary report from AGT, an updated monitoring and reporting regime is recommended – based on the advice of DEWNR and the applicant's consultant.

On the basis of the applicant's supplied plans and documentation, the response of state agencies and technical advice, consent is recommended subject to two reserved matters and a number of conditions.

11. RECOMMENDATION

It is recommended that the State Commission Assessment Panel:

1) RESOLVE that the project is not considered to be seriously at variance with the Goyder Council Development Plan.

2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally meets the key objectives and principles of development control of the Goyder Council Development Plan for the establishment of intensive animal keeping activities in the Primary Production Zone.

3) RESOLVE to grant Development Plan Consent to the proposal by Ilira Pty Ltd and Sihero Pty Ltd for the expansion of a beef cattle feedlot at Mackerode Station, Barrier Highway, Mount Bryan, subject to the following reserved matter and conditions of consent:

Reserved Matter

1. Pursuant to Section 33 (3) of the Development Act 1993, the following matters shall be reserved for further assessment, to the satisfaction of the Development Assessment Commission, prior to the granting of Development Approval:

   a. Final details of the groundwater monitoring and reporting methodology to be adopted for the development to provide baseline and periodic data on water extraction volumes, flow rates, standing and ground water drawdown levels and pumping rates of those bores / wells that service feedlot operations. This methodology shall be developed in consultation with a DEWNR Hydrologist and water management consultant.

   b. Final details of the additional wastewater lagoon storage (i.e. confirmation of whether Option 1 or 2 is to be adopted) to meet the estimated shortfall of 4.67ML to service the expanded feedlot development.

Planning Conditions

1. Except where minor amendments may be required by other relevant Acts, or by conditions imposed by this application, the development shall be established in strict accordance with the details and following plans submitted in Development Application No. 422/E003/16:

   - Ostwald Bros – *Development Application – Beef cattle Feedlot Expansion – Princess Royal Station, Hills Road, Burra, SA* – Project No RU050500 dated 29 July 2016 (including Appendix A to D) and accompanying tables, figures and photographs.
   - Ostwald Bros – *DPTI Information Request – DA 422/E003/16 – Beef Cattle Feedlot Expansion – Princess Royal Station, Hills Road, Burra SA* – Project No RU050500 dated 31 March 2017 (including Appendix A) and accompanying tables, figures and photographs.
   - Australian Groundwater Technologies – *Water Supply Feedlot Development – Prepared for Princess Royal Station* – Report No 1638-17-PAF – dated 14 July 2017
   - Further information response to DPTI dated April 2017.
   - Email from Rebecca Rowe to DPTI dated 17 July 2017.

2. An Environmental Management Plan (EMP) shall be developed and implemented to provide an operational framework to ensure the potential for environmental impacts are clearly identified, and where necessary, mitigation strategies are adopted for both the construction and operational phases of the development.

The EMP must incorporate measures to address (but not be limited to) the following matters:

a. sequencing of development (including construction timelines for works on site, as well as periods and hours of construction);
b. occupational health and safety matters;
c. site security, fencing and safety (including the management of public access and local traffic);
d. traffic management for the duration of site works and construction;
e. construction and works noise management to ensure compliance with the *Environment Protection (Noise) Policy 2007*;
f. management of air quality (including odour and dust);
g. soil erosion and sediment control (including rehabilitation and stabilisation of land as construction progresses);
h. stormwater management, prior to implementation of a permanent solution;
i. groundwater (including prevention of groundwater contamination);
j. site contamination and remediation (where required);
k. waste management for all waste streams and overall site clean-up;
l. use and storage of chemicals, oil, construction-related hazardous substances and other materials that have the potential to contaminate the environment (including proposed emergency responses);
m. bio-security and wash down procedures to minimise the transfer of pests and pathogens during the construction process;
n. soils (including fill importation), stockpile management and prevention of soil contamination (such as from chemical use and storage, pest plants and pathogens);
o. noxious weeds, pest plant and animal management;
p. fire management;
q. Aboriginal Heritage to ensure compliance with the *Aboriginal Heritage Act 1988*;
r. sustainability initiatives (including power and water management); and
s. animal husbandry and welfare;
t. disposal of deceased animals;
u. details of proposed methods for ongoing monitoring and reporting – including complaint management.

The EMP shall be prepared to the reasonable satisfaction of the State Commission Planning Panel, with a copy of the endorsed plan to be provided prior to the commencement of construction.

3. Prior to the commencement of construction, a landscape revegetation and screening plan shall be provided to the reasonable satisfaction of the State Commission Assessment Panel (SCAP). Landscape buffers (to screen stock holdings areas, stabilise areas of exposed cut and fill, and mitigate dust impacts to neighbouring land) shall be established or existing buffers augmented utilising a suitable mix of local native plant species.

4. The development and the site shall be maintained in a serviceable condition and operated in an orderly and environmentally sound manner at all times.

5. Construction activities shall be limited to between 7am and 6pm Monday to Friday, and 7am and 5pm on Saturdays. There will be no construction on Sundays or public holidays.

6. A contingency plan shall be developed to manage the disposal of unexpected mortalities in accordance with relevant environmental and health standards.

7. All outdoor lighting shall be installed and operated in accordance with AS4282 (1997 – Control of the Obtrusive Effects of Outdoor Lighting).

8. The applicant shall ensure that any prescribed pest plants and other nuisance weeds are contained and controlled on the site of the feedlot so as to present translocation.

9. All Council, utility or state-agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths etc.) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to Council, utility or state agency specifications. All costs associated with these works shall be met by the proponent.

10. All bores / wells that service the beef cattle feedlot development shall be fitted with a water meter and logger to enable the recording of water level, flow rates, temperature and extracted water volumes.

11. The pumping rate for production well 6630-1026 shall not exceed 5 L/s, with annual extracted water volumes from this well not to exceed 152 ML for all purposes, with a lessor volume to be applied if existing wells – namely 6630-3420 [PN129293] and 6630-3421 [PN129800] - continue to be used to service the overall development (i.e. the maximum extracted water volume from all wells that service the feedlot development at its approved capacity must not exceed 152ML per annum).

<u>EPA Conditions – Directed:</u>

12. Prior to the commencement of operation, all feedlot pens must be constructed to a Class 1 standard described in Appendix 2 of the *Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia* (2006).

13. Prior to the commencement of operation, all drains, solid waste storage and composting areas must be lined with a minimum thickness of 300mm of compacted clay or similar low permeability barrier which has a design permeability of no greater than $1x10^{-9}$ m/s.

14. Prior to the commencement of operation, all wastewater lagoons must be lined with a minimum thickness of 600mm of compacted clay or similar low permeability barrier which has a design permeability of no greater than $1x10^{-9}$ m/s.

15. Prior to the commencement of operation, all controlled drainage areas must be connected to the wastewater management system.

16. An "As-constructed Report" for the production pen floor, drains, solid wastes storage, composting area, sedimentation pond and storage lagoons must be provided to the satisfaction of the EPA to demonstrate compliance with the designed specifications prior to introducing any cattle into the proposed production pens

<u>Commissioner of Highways Conditions:</u>

17. Access to serve the development will be via the upgraded Goyder Highway / Hills Road junction. In addition to the upgrade works required under DA 422/0064/07, a Rural Basic Right-turn Treatment (BAR), consistent with Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, any relevant Australian Standards and any DPTI requirements, shall be installed at the junction.

18. All costs associated with the design and construction of the road upgrades required to facilitate the development (including, but not limited to, project management and any necessary road drainage upgrades) shall be borne by the applicant. The applicant

shall enter into a Developer Agreement with DPTI regarding these works and shall contact DPTI's Asset Enhancement Engineer, Mr Victor Ling on (08) 8104 5630 or via email victor.ling@sa.gov.au.

19. The upgrades to the Goyder Highway / Hills Road junction shall be completed prior to operation of the development.

DEWNR - Natural Resource Management Board Conditions:

20. A Biosecurity Plan shall be prepared and implemented that sets out procedures and guidelines to minimise biosecurity risk, including wash-down procedures to remove any contaminated soil or weed material from vehicles and machinery before entering the property and ensuring only weed free soil is delivered to or removed from the site.

21. All scarring or physical disturbance of the land surface during any excavation work shall be restricted to that which is shown on the approved plan as required for construction and access purposes. All exposed faces and spoil on and around such scarred areas shall be covered with suitable ground cover so as to reduce the potential for soil erosion.

22. The proposed works and ongoing management of the site shall be undertaken in a manner that prevents silt, sediments, manures or other pollutants leaving the site, including but not limited to, the use of erosion and sediment control measures such as catch/diversion drains, filter fences, sediment fences, sediment traps and basins, re-vegetation and straw bale barriers.

23. A baseline monitoring report for all bores that service the beef cattle feedlot shall be provided to the Department of Environment, Water and Natural Resources prior to the commencement of operation of each stage of the expanded feedlot.

24. An annual report on groundwater use (volume), pump-out rates and standing water levels of all bores / wells utilised by the beef cattle feedlot shall be provided to the Department of Environment, Water and Natural Resources. This report shall adopt an approved methodology (Reserved Matter 1) with an annual anniversary date of 31 March (i.e. conclusion of each summer period), and provided to the Department not later than 1 May each year (or until the feedlot ceases operation).

25. All works or activities shall be undertaken in a manner that reduces the risk of any sediment, pollutants etc from entering a watercourse by implementing appropriate sediment control measures and by undertaking such works during the dryer months of the year

26. Effective measures must be implemented during the construction of the development and ongoing use of the land in accordance with this consent to:

    - Prevent soil, silt and / or sediment run off from the land to adjoining properties, roads and drains.
    - Prevent soil, silt and / or sediment run off from entering any nearby watercourses.
    - Control and suppress dust arising from the site during construction and whilst in operation as a feed lot, so as not to be a nuisance to residents or occupiers on adjoining or nearby properties, and so as not to deposit dust in nearby watercourses and lands.
    - Ensure that soil or mud is not transferred onto the adjacent roadways by vehicles leaving the site.

Advisory Notes:

a. This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.

b. The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 2 years of the final Development Approval issued by Council and substantially completed within 5 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.

c. The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, (telephone number 8204 0289).

d. The applicant is reminded of its general environmental duty, as required by Section 25 of the *Environment Protection Act*, to take all reasonable and practicable measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm.

e. An environmental authorisation in the form of a licence is required for the operation of this development. The applicant is required to contact the Environment Protection Authority before acting on this approval to ascertain licensing requirements. In particular the applicant is advised that the EPA licence must be updated to refer to the approved number of cattle (or SCUs) and the allotment on which the wastewater storage lagoon and composting area are located.

f. A licence may be refused where the applicant has failed to comply with any conditions of development approval imposed at the direction of the Environment Protection Authority.

g. If the applicant / operator wishes to expand the existing lagoon instead of constructing the proposed new lagoon, the applicant should contact the planning authority to ensure the necessary approvals are obtained.

h. EPA information sheets, guidelines documents, codes of practice, technical bulletins etc can be accessed on the following web site: http://www.epa.sa.gov.au

i. All contractors have a basic responsibility or duty of care to present the spread of Declared Weeds in line with the *Natural Resources Management Act 2004* and unwanted pests, such as insects and diseases.

j. An Environmental Management Plan (EMP) should generally address:

- Objectives for environmental management.
- Qualitative risk assessment methodology.
- Performance criteria to be met.
- Relevant legislative requirements and standards, codes and guidelines (especially those prepared by the EPA).
- Management actions, including responsibilities and timing.
- Monitoring regimes and corrective actions.

- Requirements for reporting and auditing.
- Incident and emergency response processes.

And be developed and operated under a quality assurance approach, such as through the ISO 9000 group of standards. In addition, ISO 14000 standards could be adopted for managing environmental responsibilities, including audits, communications, labelling, life cycle analysis and dealing with issues such as climate change.

k. In relation to Condition 2, the Environmental Management Plan (EMP) should be prepared taking into consideration, and with explicit reference to, relevant environmental guidelines and policy documents, including, but not limited to:

- Guideline for Construction Environmental Management Plans (2016);
- the Environment Protection (Air Quality) Policy 2016;
- the Environment Protection (Noise) Policy 2007;
- the Environment Protection (Water Quality) Policy 2015;
- the Environment Protection (National Pollutant Inventory) Policy 2008;
- the Environment Protection (Waste to Resources) Policy 2010;
- the Standard for the Production and Use of Waste Derived Fill (if applicable) (2013);
- the Bunding and Spill Management Guidelines (2012);
- the Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry (1999);
- Handbooks for Pollution Avoidance;
- EPA / PIRSA- Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia 2nd Edition February 2006.
- MLA - National Guidelines for Beef Cattle Feedlots in Australia – June 2012.
- MLA - National Beef Cattle Feedlot Environmental Code of Practice - June 2012;
- and any other legislative requirements, Guidelines and Australian Standards requiring compliance.

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PLANNING AND DEVELOPMENT (DPTI)

APPENDIX 1: Goyder Development Plan Consolidated 18 October 2012

Primary Production Zone

OBJECTIVES

1 Economically productive, efficient and environmentally sustainable primary production.

2 Allotments of a size and configuration that promote the efficient use of land for primary production.

3 Protection of primary production from encroachment by incompatible land uses and protection of scenic qualities of rural landscapes.

4 Accommodation of wind farms and ancillary development.

5 Development that contributes to the desired character of the zone.

DESIRED CHARACTER

Function
The region will support a more sustainable approach to primary production with rural production forming the core focus of the region. Sustainable land management practices will see long-term improvement in the quality of the environment and the economic activity of this region. Incompatible development will be restricted to support the ongoing function of primary production, with the division of land restricted to maintain large allotments and the construction of new dwellings and other structures limited to only being developed where they are associated with, and essential to, primary production activities. The townships of Eudunda (Bunker Site), Robertstown and Hallett contain necessary infrastructure for the storage, handling and transportation of agricultural and other commodities, which are an integral part of the rural economy, and should be protected from encroachment by incompatible activities. Alternative rural uses and value-adding enterprises that attract employment and economic development to the district will be developed in conjunction with the bulk handling activities in the Zone, but located sensitively to protect good quality land and to take advantage of existing infrastructure networks. Land of conservation and biodiversity significance will be protected from incompatible primary production activities and will be enhanced with tourism facilities to add to the diversity of the region's employment and economy.

Wind farms and ancillary development such as substations, maintenance sheds, access roads and connecting power-lines (including to the National Electricity Grid) are envisaged within the zone and constitute a component of the zone's desired character. These facilities will need to be located in areas where they can take advantage of the natural resource upon which they rely and, as a consequence, components (particularly turbines) may need to be:

- *located in visually prominent locations such as ridgelines;*
- *visible from scenic routes and valuable scenic and environmental areas; and*
- *located closer to roads than envisaged by generic setback policy.*

This, coupled with the large scale of these facilities (in terms of both height and spread of components), renders it difficult to mitigate the visual impacts of wind farms to the degree expected of other types of development. Subject to implementation of management techniques set out by general / council wide policy regarding renewable energy facilities, these visual impacts are to be accepted in pursuit of benefits derived from increased generation of renewable energy.

Pattern of Development
Large allotments will be maintained to prevent the reduced viability of primary production and the amalgamation of allotments will increase to maintain commercially viable farm sizes. New development in the primary production areas will be in the form of a range of different types of primary production, as well as appropriate value-adding uses.

Alternative primary production uses and value-adding uses that are not directly reliant on good quality land will be located to avoid the sterilization of quality land, to minimise adverse impacts on sensitive uses and areas, as well as to take advantage of existing infrastructure including freight networks. On land of conservation and biodiversity significance, eco-tourism and nature based tourism accommodation may be appropriate where it is located in close proximity to scenic routes, trails and conservation parks. Development ancillary to primary production, such as farm dwellings and outbuildings including large sheds, will be developed in appropriate locations to minimise the visual impact as well as the operational impact on the primary production use. The development and location of new dwellings will be restricted to prevent further impacts on the operation of primary production uses. Existing minor settlements will be accommodated but further development within them will be limited to prevent issues with the provision of services and the potential impacts on the surrounding productive land. New dwellings and other structures will be set well back from all boundaries, apart from within existing minor settlements where the existing pattern of development should be followed.

Public Realm
The public road network throughout the primary production areas will serve multiple functions, acting as a freight network, tourist drives, droving of stock, people movement routes, transportation of farm machinery and as biodiversity corridors. The scenic qualities of the public routes and views across the primary production area will remain attractive and generally unobstructed by inappropriate development, including excessive advertising signage. The nature and appearance of road reserves will vary across the primary production area depending on the role the road plays. Freight routes will maintain wide, open reserves with limited driveway access points. Road reserves will generally be kept clear of obstructions for the movement of farm machinery. Special tourist drives, particularly to conservation parks, will include vegetation corridors of biodiversity significance. Areas of conservation and biodiversity significance will be protected from inappropriate new development.

Built Form
New buildings will generally be associated with existing clusters of buildings and will be of complementary scale and massing to those buildings, while also being of appropriate dimensions to serve their intended function. New dwellings will generally be single storey and will include pitched roofs, verandas and porches to address climatic issues. Isolated new buildings, including large sheds, will be located and designed to blend with the existing landscape, with appropriate earthworks and building design to suit the natural landform. Other structures will be of a form that blends with, and does not detract from, the scenic qualities and function of the primary production area.

Building Materials / Character
The open rural landscape is the dominant character element and new development will maintain that character, with new buildings appropriately sited, designed and screened by vegetation. New buildings will be constructed using materials and colours that blend with the rural landscape and are traditionally used within the rural environment including corrugated steel, stone and timber.

Key Design Elements
When determining whether or not a development proposal is in accordance with the Desired Character, greater weight should be given to the following design elements:

- *impact on the sustainability and viability of primary production uses;*
- *visual impact on the landscape character;*
- *impact on the freight network.*

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

PDC1 The following forms of development are envisaged in the zone:

- tourist accommodation, including through the diversification of existing farming activities and conversion of farm buildings
- farming
- intensive animal keeping (especially within Enterprise Policy Area 2)
- wind farm and ancillary development
- wind monitoring mast and ancillary development.

PDC2 Development listed as non-complying is generally inappropriate and not acceptable unless it can be demonstrated that it does not undermine the objectives and principles of the Development Plan.

PDC3 Horticulture, forestry, dairies and viticulture should only occur where there is adequate water supply, soil conditions and relevant industry standards can be met.

PDC5 Industry and warehousing should only be developed if it supports primary production, processing, storage and distribution of local primary produce or products produced on the same site and should be developed where:

(a) it has a direct relationship with primary production
(b) it is unlikely to limit or inhibit the use of adjoining land for primary production
(c) the particular use requires a site in proximity to a particular natural resource or other product or materials sourced from the locality
(d) it will not result in the alienation of land or water resources identified as significant for primary production or ecological reasons
(e) the use would be inappropriate within a township.

PDC8 Buildings should primarily be limited to farm buildings, a detached dwelling associated with primary production on the allotment and residential outbuildings that are:

(a) grouped together on the allotment and set back from allotment boundaries to minimise the visual impact of buildings on the landscape as viewed from public roads
(b) screened from public roads and adjacent land by existing vegetation or landscaped buffers.

Form and Character

PDC10 Development should not be undertaken unless it is consistent with the desired character for the zone.

PDC11 Structures and buildings should generally be set back a minimum of 30 metres from all road boundaries.

PDC12 Development should not occur within 500 metres of a national park, conservation park, wilderness protection area or significant stands of native vegetation if it will increase the potential for, or result in, the spread of pest plants.

GENERAL POLICIES – COUNCIL WIDE

Animal Keeping

OBJECTIVES

1 Animals not kept at a density beyond the carrying capacity of the land or water.

2 Animal keeping development sited and designed to avoid adverse effects on surrounding development.

3 Intensive animal keeping protected from encroachment by incompatible development.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Animal keeping and associated activities should not create adverse impacts on the environment or the amenity of the locality.

PDC2 Storage facilities for manure, used litter and other wastes should be designed and sited:

(a) to be vermin proof
(b) with an impervious base
(c) to ensure that all clean rainfall runoff is excluded from the storage area
(d) outside the 1 in 100 year average return interval flood event area.

General

PDC9 Intensive animal keeping operations and their various components, including holding yards, temporary feeding areas, movement lanes and similar, should not be located on land within any of the following areas:

(a) 800 metres of a public water supply reservoir
(b) the 1 in 100 year average return interval flood event area of any watercourse
(c) 200 metres of a major watercourse (third order or higher stream)
(d) 100 metres of any other watercourse
(e) 2000 metres of a defined and zoned township, settlement or urban area
(f) 500 metres of a dwelling (except for a dwelling directly associated with the intensive animal keeping facility.

PDC10 Intensive animal keeping operations should include on site storage and treatment facilities for manure, used litter and other wastes and appropriate disposal of wastes.

PDC11 Intensive animal keeping operations should include a drainage system to direct surface runoff from uncovered areas to appropriately designed wastewater lagoons.

PDC12 Intensive animal keeping facilities and associated wastewater lagoons and liquid/solid waste disposal areas should be designed, managed and sited to avoid adverse impacts on other land uses.

Design and Appearance

OBJECTIVES

1 Development of a high architectural standard that responds to and reinforces positive aspects of the local environment and built form.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC15 Development should be designed and sited so that outdoor storage and service areas are screened from public view by an appropriate combination of built form, solid fencing or landscaping.

PDC16 Outdoor lighting should not result in light spillage on adjacent land.

Hazards

OBJECTIVES

1 Maintenance of the natural environment and systems by limiting development in areas susceptible to natural hazard risk.

2 Development located away from areas that are vulnerable to, and cannot be adequately and effectively protected from the risk of natural hazards.

3 Development located to minimise the threat and impact of bushfires on life and property.

9 Minimisation of harm to life, property and the environment through appropriate location of development and appropriate storage, containment and handling of hazardous materials.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should:

(a) be excluded from areas that are vulnerable to, and cannot be adequately and effectively protected from, the risk of natural hazards
(b) be sited, designed and undertaken with appropriate precautions being taken against fire, flood, coastal flooding, storm surge, landslip, earthquake, toxic emissions or other hazards such as vermin
(c) not occur on land where the risk of flooding is likely to be harmful to safety or damage property.
(d) be designed and sited to minimise environmental nuisance or harm resulting from biological, chemical or fire hazard, energy emission or explosion.

PDC2 There should not be any significant interference with natural processes in order to reduce the exposure of development to the risk of natural hazards.

Flooding

PDC4 Development should not be undertaken in areas liable to inundation by tidal, drainage or flood waters unless the development can achieve all of the following:

(a) it is developed with a public stormwater system capable of catering for a 1 in 100 year average return interval flood event
(b) buildings are designed and constructed to prevent the entry of floodwaters in a 1 in 100 year average return interval flood event.

PDC5 Development, including earthworks associated with development, should not do any of the following:

(a) impede the flow of floodwaters through the land or other surrounding land

(b) occur on land where the risk of flooding is unacceptable having regard to personal and public safety and to property damage
(c) increase the potential hazard risk to public safety of persons during a flood event
(d) aggravate the potential for erosion or siltation or lead to the destruction of vegetation during a flood
(e) cause any adverse effect on the floodway function
(f) increase the risk of flooding of other land
(g) obstruct a watercourse.

Bushfire

PDC6 Buildings and structures should be located away from areas that pose an unacceptable bushfire risk as a result of one or more of the following:

(a) vegetation cover comprising trees and/or shrubs
(b) poor access
(c) rugged terrain
(d) inability to provide an adequate building protection zone
(e) inability to provide an adequate supply of water for fire-fighting purposes

Containment of Chemical and Hazardous Materials

PDC19 Hazardous materials should be stored and contained in a manner that minimises the risk to public health and safety and the potential for water, land or air contamination.

PDC20 Development that involves the storage and handling of hazardous materials should ensure that these are contained in designated areas that are secure, readily accessible to emergency vehicles, impervious, protected from rain and stormwater intrusion and other measures necessary to prevent:

(a) discharge of polluted water from the site
(b) contamination of land
(c) airborne migration of pollutants
(d) potential interface impacts with sensitive land uses

Infrastructure

OBJECTIVES

1 Infrastructure provided in an economical and environmentally sensitive manner.

5 The efficient and cost-effective use of existing infrastructure.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should not occur without the provision of adequate utilities and services, including:

(a) electricity supply
(b) water supply
(c) drainage and stormwater systems
(d) waste disposal
(e) effluent disposal systems
(f) formed all-weather public roads
(g) telecommunications services

(h) social infrastructure, community services and facilities
(i) gas services.

PDC2 Development should only occur only where it provides, or has access to, relevant easements for the supply of infrastructure.

PDC4 Development should not take place until adequate and coordinated drainage of the land is assured.

PDC10 Utilities and services, including access roads and tracks, should be sited on areas already cleared of native vegetation. If this is not possible, their siting should cause minimal interference or disturbance to existing native vegetation and biodiversity.

Interface Between Land Uses

OBJECTIVES

1 Development located and designed to prevent adverse impact and conflict between land uses.

2 Protect community health and amenity and support the operation of all desired land uses.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

(a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
(b) noise
(c) vibration
(d) electrical interference
(e) light spill
(f) glare
(g) hours of operation
(h) traffic impacts.

PDC2 Development should be designed and sited to minimise negative impact on existing and potential future land uses considered appropriate in the locality.

Noise

PDC6 Development should be designed, constructed and sited to minimise negative impacts of noise and to avoid unreasonable interference.

PDC7 Development should be consistent with the relevant provisions each of the following documents:

(a) AS 2107 Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors
(b) AS 3671 Acoustics - Road Traffic Noise Intrusion, Building Siting and Construction
(c) the current Environment Protection (Noise) Policy

Rural Interface

PDC8 The potential for adverse impacts resulting from rural development should be minimised by:

(a) not locating horticulture or intensive animal keeping on land adjacent to townships
(b) maintaining an adequate separation between horticulture or intensive animal keeping and townships, other sensitive uses and, where desirable, other forms of primary production.

PDC9 Traffic movement, spray drift, dust, noise, odour, and the use of frost fans and gas guns associated with primary production activities should not lead to unreasonable impact on adjacent land users.

PDC10 Existing primary production uses and mineral extraction should not be prejudiced by the inappropriate encroachment of sensitive uses such as urban development.

PDC11 Development within 300 metres of facilities for the handling, transportation and storage of bulk commodities should:

(a) not prejudice the continued operation of those facilities
(b) be located, designed, and developed having regard to the potential environmental impact arising from the operation of such facilities and the potential extended operation of activities.

Landscaping, Fences and Walls

OBJECTIVES

1 The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.
2 Functional fences and walls that enhance the attractiveness of development.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should incorporate open space and landscaping in order to:

(a) complement built form and reduce the visual impact of larger buildings (eg taller and broader
plantings against taller and bulkier building components)
(b) enhance the appearance of road frontages
(c) screen service yards, loading areas and outdoor storage areas
(d) minimise maintenance and watering requirements
(e) enhance and define outdoor spaces, including car parking areas
(f) provide shade and shelter
(g) assist in climate control within buildings
(h) maintain privacy
(i) maximise stormwater re-use
(j) complement existing native vegetation
(k) contribute to the viability of ecosystems and species
(l) promote water and biodiversity conservation.

PDC2 Landscaping should:

(a) include the planting of locally indigenous species where appropriate
(b) be oriented towards the street frontage
(c) result in the appropriate clearance from powerlines and other infrastructure being maintained.

PDC3 Landscaping should not:

(a) unreasonably restrict solar access to adjoining development
(b) cause damage to buildings, paths and other landscaping from root invasion, soil disturbance or plant overcrowding
(c) introduce pest plants
(d) increase the risk of bushfire
(e) remove opportunities for passive surveillance
(f) increase autumnal leave fall in waterways
(g) increase the risk of weed invasion.

Natural Resources

OBJECTIVES

1 Retention, protection and restoration of the natural resources and environment.

2 Protection of the quality and quantity of South Australia's surface waters, including inland, marine and estuarine, and underground waters.

3 The ecologically sustainable use of natural resources including water resources, including marine waters, ground water, surface water and watercourses.

4 Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.

5 Development sited and designed to:

(a) maximise the use of stormwater
(b) protect stormwater from pollution sources
(c) protect or enhance the environmental values of receiving waters
(d) prevent the risk of downstream flooding
(e) minimise the loss and disturbance of native vegetation.

6 Storage and use of stormwater which avoids adverse impact on public health and safety.

7 Native flora, fauna and ecosystems protected, retained, conserved and restored.

8 Restoration, expansion and linking of existing native vegetation to facilitate habitat corridors for ease of
movement of fauna.

9 Minimal disturbance and modification of the natural landform.

10 Protection of the physical, chemical and biological quality of soil resources.

11 Protection of areas prone to erosion or other land degradation processes from inappropriate development.

12 Protection of the scenic qualities of natural and rural landscapes.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.

PDC2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.

PDC3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks, estuaries and wetlands.

PDC4 Development should not have an adverse impact on the natural, physical, chemical or biological quantity and characteristics of soil resources.

PDC5 Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

Water Catchment Areas and Water Quality

PDC6 Development should not take place if it may result in over exploitation of surface or underground water resources.

PDC7 Development should be designed to minimise consumption, maximise conservation and encourage reuse of water resources.

PDC8 Development should ensure watercourses and their beds, banks, wetlands and floodplains are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.

PDC9 No development should occur where its proximity to a swamp or wetland will damage or interfere with the hydrology or water regime of the swamp or wetland.

PDC11 Development should be sited and designed to:

(a) minimise surface water runoff
(b) not obstruct a watercourse
(c) prevent soil erosion and water pollution
(d) protect stormwater from pollution sources
(e) protect and enhance natural water flows required to meet the needs of the natural environment
(f) protect water quality by providing adequate separation distances from watercourses and other water bodies
(g) not contribute to an increase in salinity levels
(h) avoid the water logging of soil or the release of toxic elements
    (i) maintain natural hydrological systems and not adversely affect:
    (i) the quantity and quality of groundwater
    (ii) the depth and directional flow of groundwater
    (iii) the quality and function of natural springs.

PDC12 The quality of water leaving the site of a development should be of a physical, chemical and biological condition equivalent to or better than pre-development conditions, and the rate of water discharged from the site should not exceed the rate of discharge from the site in pre-development conditions.

PDC13 Along watercourses, areas of remnant native vegetation, or areas prone to erosion, that are capable of natural regeneration should be fenced off to limit stock access.

PDC14 Development such as cropping, intensive animal keeping, residential, tourism, industry and horticulture, that increases the amount of surface run-off should include a strip of land at least 20 metres wide measured from the top of existing banks on each side of a watercourse that is:

(a) fenced to exclude livestock.
(b) kept free of development, including structures, formal roadways or access ways for machinery or any other activity causing soil compaction or significant modification of the natural surface of the land
(c) revegetated with indigenous vegetation comprising trees, shrubs and other groundcover plants to filter run-off so as to reduce the impacts on native aquatic ecosystems and to minimise soil loss eroding into the watercourse.

PDC15 Development resulting in the depositing of an object or solid material in a watercourse or floodplain or the removal of bank and bed material should not:

(a) adversely affect the migration of aquatic biota
(b) adversely affect the natural flow regime
(c) cause or contribute to water pollution
(d) result in watercourse or bank erosion
(e) adversely affect native vegetation upstream or downstream that is growing in or adjacent to a watercourse.

PDC16 The location and construction of dams, water tanks and diversion drains should:

(a) occur off watercourse
(b) not take place in ecologically sensitive areas or on erosion-prone sites
(c) provide for low flow by-pass mechanisms to allow for migration of aquatic biota
(d) protect the needs of downstream users
(e) minimise in-stream or riparian vegetation loss
(f) incorporate features to improve water quality (eg wetlands and floodplain ecological communities
(g) protect ecosystems dependent on water resources.

Stormwater

PDC18 Development should include stormwater management systems to protect it from damage during a minimum of a 1 in 100 year average return interval flood.

PDC19 Development should, where practical, capture and re-use stormwater.

PDC20 Development should have adequate provision to control any stormwater over-flow run-off from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.

PDC21 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure downstream systems are not overloaded.

PDC22 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.

PDC23 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.

PDC24 Stormwater management systems should maximise the potential for stormwater harvesting and reuse, including aquifer recharge, either on-site or as close as practicable to the source.

PDC25 Where not detained or disposed on site, stormwater should be drained to a public stormwater disposal system.

PDC26 Detention and retention basins should be sited and designed to:

(a) ensure public health and safety is protected, particularly in regard to high velocity drainage points and access to water bodies
(b) minimise potential health risks from exposure to mosquitoes.

Biodiversity and Native Vegetation

PDC27 Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.

PDC28 Development should be designed and sited to minimise the loss and disturbance of native flora and
fauna, including marine animals and plants, and their breeding grounds and habitats.

PDC29 The provision of services, including power, water, effluent and waste disposal, access roads and tracks should be sited on areas already cleared of native vegetation.

PDC30 Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:

(a) provides an important habitat for wildlife or shade and shelter for livestock
(b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities
(c) provides an important seed bank for indigenous vegetation
(d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views
(e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture
(f) is growing in, or is characteristically associated with a wetland environment.

PDC31 Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:

(a) erosion or sediment within water catchments
(b) decreased soil stability
(c) soil or land slip
(d) deterioration in the quality of water in a watercourse or surface water runoff
(e) a local or regional salinity problem
(f) the occurrence or intensity of local or regional flooding.

PDC32 Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:

(a) provision for linkages and wildlife corridors between significant areas of native vegetation
(b) erosion along watercourses and the filtering of suspended solids and nutrients from run-off
(c) the amenity of the locality
(d) bushfire potential

(e) the net loss of native vegetation and other biodiversity.

PDC33 Where native vegetation is to be removed, it should be replaced in a suitable location on the site with vegetation indigenous to the local area to ensure that there is not a net loss of native vegetation and biodiversity.

PDC34 Development should be located and occur in a manner which:

(a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any nonindigenous plants into areas of native vegetation or a conservation zone
(b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels
(c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.

PDC35 Development should promote the long-term conservation of vegetation by:

(a) avoiding substantial structures, excavations, and filling of land in close proximity to the trunk of trees and beneath their canopies
(b) minimising impervious surfaces beneath the canopies of trees
(c) taking other effective and reasonable precautions to protect both vegetation and the integrity of structures and essential services.

Soil Conservation

PDC38 Development should not have an adverse impact on the natural, physical, chemical or biological quality and characteristics of soil resources.

PDC39 Development should be designed and sited to prevent erosion.

PDC40 Development should take place in a manner that will minimise alteration to the existing landform.

PDC41 Development should minimise the loss of soil from a site through soil erosion or siltation during the construction phase of any development and following the commencement of an activity.

Orderly and Sustainable Development

OBJECTIVES

1 Orderly and economical development that creates a safe, convenient and pleasant environment in which to live.

2 Development occurring in an orderly sequence and in a compact form to enable the efficient provision of public services and facilities.

3 Development that does not jeopardise the continuance of adjoining authorised land uses.

4 Development that does not prejudice the achievement of the provisions of the Development Plan.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should not prejudice the development of a zone for its intended purpose.

PDC2 Land outside of townships and settlements should primarily be used for primary production and conservation purposes.

PDC3 The economic base of the region should be expanded in a sustainable manner.

PDC7 Where development is expected to impact upon the existing infrastructure network (including the transport network), development should demonstrate how the undue effect will be addressed.

Siting and Visibility

OBJECTIVES

1 Protection of scenically attractive areas, particularly natural, rural and coastal landscapes.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should be sited and designed to minimise its visual impact on:

(a) the natural, rural or heritage character of the area
(b) areas of high visual or scenic value, particularly rural areas
(c) views from public reserves, tourist routes and walking trails.

PDC7 Driveways and access tracks should be designed and constructed to blend sympathetically with the landscape and to minimise interference with natural vegetation and landforms, and be surfaced with dark materials.

PDC8 Development should be screened through the establishment of landscaping using locally indigenous plant species:

(a) around buildings and earthworks to provide a visual screen as well as shade in summer, and protection from prevailing winds
(b) along allotment boundaries to provide permanent screening of buildings and structures when viewed from adjoining properties and public roads
(c) along the verges of new roads and access tracks to provide screening and minimise erosion.

Transportation and Access

OBJECTIVES

2 Development that:

(a) provides safe and efficient movement for all motorised and non-motorised transport modes
(b) ensures access for vehicles including emergency services, public infrastructure maintenance and commercial vehicles
(c) provides off street parking
(d) is appropriately located so that it supports and makes best use of existing transport facilities and networks.

5 Safe and convenient freight movement throughout the State.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

PDC1 Land uses arranged to support the efficient provision of sustainable transport networks and encourage their use.

Movement Systems

PDC2 Development should be integrated with existing transport networks, particularly major rail and road corridors as shown on Overlay Maps Go/1, Go/2, Go/3, Go/4, Go/6, Go/7, Go/8, Go/9, Go/10 and Go/11 - Transport, and designed to minimise its potential impact on the functional performance of the transport networks.

PDC8 Development should provide safe and convenient access for all anticipated modes of transport including cycling, walking, public and community transport, and motor vehicles.

PDC9 Development at intersections, pedestrian and cycle crossings, and crossovers to allotments should maintain or enhance sightlines for motorists, cyclists and pedestrians to ensure safety for all road users and pedestrians.

PDC13 Development should make sufficient provision on site for the loading, unloading and turning of all traffic likely to be generated.

Access

PDC21 Development should have direct access from an all weather public road.

PDC22 Development should be provided with safe and convenient access which:

(a) avoids unreasonable interference with the flow of traffic on adjoining roads
(b) accommodates the type and volume of traffic likely to be generated by the development or land use and minimises induced traffic through over-provision
(c) is sited and designed to minimise any adverse impacts on the occupants of and visitors to neighbouring properties.

PDC23 Development should not restrict access to publicly owned land.

PDC24 The number of vehicle access points onto arterial roads shown on Overlay Maps Go/1, Go/2, Go/3, Go/4, Go/6, Go/7, Go/8, Go/9, Go/10 and Go/11 - Transport should be minimised, and where possible access points should be:

(a) limited to local roads
(b) shared between developments.

PDC27 Driveways, access tracks and parking areas should be designed and constructed to:

(a) follow the natural contours of the land
(b) minimise excavation and/or fill
(c) minimise the potential for erosion from run-off
(d) avoid the removal of existing vegetation
(e) be consistent with Australian Standard AS 2890 Parking facilities.

Vehicle Parking

PDC29 Development should provide off-street vehicle parking and specifically marked disabled car parking places to meet anticipated demand.

PDC30 Development should be consistent with Australian Standard AS 2890 Parking facilities.

PDC31 Vehicle parking areas should be sited and designed in a manner that will:

(c) not inhibit safe and convenient traffic circulation
(d) result in minimal conflict between customer and service vehicles
(f) minimise the number of vehicle access points to public roads
(g) avoid the necessity for backing onto public roads
(j) provide landscaping that will shade and enhance the appearance of the vehicle parking areas.

Waste

OBJECTIVES

1 Development that, in order of priority, avoids the production of waste, minimises the production of waste, reuses waste, recycles waste for reuse, treats waste and disposes of waste in an environmentally-sound manner.

2 Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.

PRINCIPLES OF DEVELOPMENT CONTROL

PDC1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:

(a) avoiding the production of waste
(b) minimising waste production
(c) reusing waste
(d) recycling waste
(e) recovering part of the waste for re-use
(f) treating waste to reduce the potentially degrading impacts
(g) disposing of waste in an environmentally sound manner.

PDC2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.

PDC3 Development should avoid or minimise as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).

PDC4 Untreated waste should not be discharged to the environment, and in particular to any water body.

PDC5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.
PDC6 Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:

(a) screened and separated from adjoining areas
(b) sited to avoid impacting on adjoining sensitive environments or land uses
(c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system
(d) sited on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water
(e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours
(f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

Wastewater

PDC7 The disposal of wastewater to land should only occur where methods of wastewater reduction and reuse are unable to remove the need for its disposal, and where its application to the land is environmentally sustainable.

PDC8 Wastewater storage lagoons should not be sited in any of the following areas:

(a) within land subject to a 1 in 100 year average return interval flood event
(b) within 50 metres of the top of the bank of a watercourse
(c) where the base of the lagoon would be below any seasonal water table

PDC9 Wastewater storage lagoons should be avoided within a water protection area within the meaning of Part 8 of the Environment Protection Act 1993.

PDC10 Wastewater storage lagoons should be sufficiently separated from adjacent land uses that may be sensitive to adverse odours.

PDC11 Wastewater storage lagoons should be designed and constructed in accordance with the current *Environment Protection (Water Quality) Policy*.

Waste Treatment Systems

PDC12 Development that produces any effluent should be connected to an approved waste treatment system which may include sewage, community wastewater management systems, or on-site wastewater treatment and disposal methods.

PDC13 The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:

(a) the quality of surface and groundwater resources
(b) public health
(c) the amenity of a locality
(d) sensitive land uses.

PDC14 Waste treatment should only occur where the capacity of the treatment facility is sufficient to accommodate likely maximum daily demands including a contingency for unexpected high flows and breakdowns.

PDC16 A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.

PDC17 The spreading or discharging of treated liquid or solid waste onto the ground should only occur where the disposal area consists of soil and vegetation that has the capacity to store and use the waste without contaminating soil or surface or ground water resources or damaging crops.

PDC18 Stock slaughter works, poultry processors, saleyards, piggeries, cattle feedlots, milking sheds, milk processing works, fish processing works, wineries, distilleries, tanneries and fellmongeries, composting works and concrete batching works should have a wastewater management system that is designed so as not to discharge wastes generated by the premises:

(a) into any waters
(b) onto land in a place where it is reasonably likely to enter any waters by processes such as:
    (i) seepage
    (ii) infiltration
    (iii) carriage by wind, rain, sea spray, or stormwater
    (iv) the rising of the watertable.