Introductory Environmental Report
Moira Cattle Feedlot

3 June 2004

Major Development Assessment Branch,
Dept of Infrastructure, Planning and Natural Resources
GPO Box 3927
SYDNEY NSW 2001

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1 INTRODUCTION

1.1 Objectives of the Report

Agricultural Equity Investments Pty Ltd (AEI) is proposing to develop an 80,000 head cattle feedlot in southern NSW at Moira Station, approximately 8km south of Mathoura. The feedlot is to be developed in an area designated Zone 1(a) General Rural in the Murray Shire Local Environmental Plan. This zoning states that feedlot development is permissible with consent.

Due to the size of the proposed development and the employment opportunities expected to be created, it is likely that the project will be designated a State Significant Development under State Environmental Planning Policy (SEPP) 34 - (Major Employment Generating Industrial Development). The consent authority for the project would be the Minister for Planning.

This Introductory Environmental Report presents current preliminary information on the project and outlines the existing knowledge in relation to environmental matters. The report includes the following:

- The planning process
- The site
  - Location
  - Groundwater
  - Climate
  - Flora and fauna
  - Heritage
- The Project
- Environmental Issues
  - Environmental controls
  - Odour
  - Waste disposal

2 THE PLANNING PROCESS

2.1 Planning Approval

The principal legislation covering planning in New South Wales is the Environmental Planning and Assessment Act 1979. This Act requires that certain developments require approval from a consent authority. It further requires that if the development is listed in Schedule 3 of the regulations (Environmental Planning and Assessment Regulation 1994), it is Designated Development. For Designated Development, it is required that a development application (DA) be accompanied by an Environmental Impact Statement (EIS), the form of which is laid down in Schedule 2 of the regulations.

The consent authority for the development of a cattle feedlot which employs more than 20 people or has a capital investment of more than $20 million is the NSW Minister for Planning. The assessment is carried out by the Department of Infrastructure, Planning and Natural Resources (DIPNR). The process is outlined in **Figure 1**.

There are two points to be highlighted in the approvals process. Consultation is required early on in the process in the form of a Planning Focus meeting. This meeting draws together the relevant departments and agencies and allows the developer to explain the proposal to the government officers, usually on site and at a formal meeting. The agencies are then requested to provide a written outline of the issues of concern and their general views.

As shown in Figure 1, the EIS process also involves broad stakeholder consultation, with submissions on the EIS sought from the public. At this stage, the government departments, particularly the Environment Protection Authority (EPA) will also provide detailed input to the consent authority.

2.2 Approvals

Only limited stakeholder consultation has been undertaken to date; however, the following agencies are expected to be interested in the proposed development and will be fully consulted during the planning and assessment process:

Agency	Area of Interest/Approval
Department of Environment & Conservation (EPA)	Operational approval, waste management, pollution control (air, odour, noise, water quality)
NSW Agriculture	Animal health issues and approvals
Department of Infrastructure Planning & Natural Resources	Soil and groundwater resources
Department of Environment and Conservation (NP&WS)	Flora & fauna Archaeology, heritage
Greater Murray Health Service (NSW Health)	Human health issues, disease vectors, waste management
Roads and Traffic Authority	Road traffic and transport issues
Freight Australia	Railway issues
AQIS (C'wth)	Quarantine and meat export issues/approvals
Department of Environment & Heritage (C'wth)	NES matters
Murray Darling Basin Commission (C'wth)	River Murray water quality
Murray Shire Council	Local planning issues
Moria Irrigation Scheme	Water usage

Following completion of environmental impact assessment and planning approvals process, the EPA will issue a licence for the operation of the feedlot under the Protection of the Environment Operations Act 1997. This licence will contain monitoring and operational conditions.

2.3 Timing

The EIS will take approximately four months to get to the stage of submission to DIPNR. The Department will advertise and exhibit the EIS and this will take up to two months. The Department will then take up to three months to process and provide the development approval. At this point, another month needs to elapse to allow for appeals prior to work beginning.

Timing for the design of the project is expected to take approximately six months, with construction to occur over a 12 month period.

3 THE SITE

3.1 The Property

The location of the site is on the Cobb Highway, 8km south of Mathoura (**Figure 2**). It is bounded on the west by the Deniliquin-Bendigo railway, the east by the Moira Marshes leading to the Murray River and the Highway runs through the property. The property consists of 1200 Ha on the west side of the highway and 400 Ha on the east side.

The property is owned by Mr Noel Griffen. The property is currently used for irrigation and grazing and has a 1000 ML water licence from the river and bore licence of 5700 ML. It is intended that additional water for the feedlot development will be obtained from the Moira Irrigation Scheme.

An aerial view of the property showing current cultivation and various options for the feedlot layout is attached **(Figures 3-5)**.

3.2 Soil

The NSW Feedlot Manual contains a table regarding soil suitability, shown below.

Soil Suitability for feedlot components

Component	Minimum desirable soil requirements
Effluent irrigation area	Deep well drained soil, suitable for irrigation pasture production and at least an occasional irrigated crop; moderate to high water holding capacity; not prone to waterlogging within the root zone.
Manure application area	Soils well suited to improved pasture or dryland cropping; able to withstand cultivation without incurring significant erosion or major soil structural degradation; not prone to surface waterlogging or frequent inundation.
Cattle pens and manure storage areas	Plant growth not an issue; stable soil surface under wide range of moisture contents; low permeability subsoil; not prone to mass movement (such as landslip).
Sedimentation systems and holding ponds	Plant growth not an issue; must contain a dense clay horizon of low permeability at least 0.5m thick.
Buildings and roadways	Plant growth not an issue; soils well suited to engineering purposes (that is, not prone to mass movement, free of acid sulphate conditions or highly compressible material at depth).

Preliminary testing of soils on the property has been carried out by Frank Rennick and Company. This testing shows that there is a thick clay band of 4 to 8 metres below the site. This preliminary work suggests the soil is suitable for a feedlot.

The property has been an irrigation property for some time. This suggests that it is suitable for irrigation of liquid effluent. Details of data obtained from irrigation modelling are presented in Section 4.3 below.

Further and more detailed testing will be undertaken as part of the design process and the EIS.

3.3 Groundwater

The NSW Feedlot Manual has the following requirements:

- Avoid major faults
- Avoid siting in water supply or groundwater recharge area
- Effluent irrigation should always be separated from watercourses, 25 metres in given as a distance
- Do not site the feedlot where groundwater is within 1-5m of the surface
- Protect groundwaters by avoiding areas where there are existing shallow or rising groundwater tables, perched water tables, groundwater recharge areas or where groundwater is already polluted.

The national guidelines require the following:

> *"A feedlot should not be sited above groundwater recharge areas or useable underground water resources unless those can be demonstrably protected. For example, protected by one or more impervious geological strata and/or by considerable depth."*

The Cadell plan shows the area to have deep groundwater (approximately 20m) and of relatively low salinity. See attached **Figures 7 – 11** from the Cadell Report.

Further studies will be required.

3.4 Climate

Climate data are shown in the attached tables (**Appendix A**). Hay data are shown for comparative purposes.

The NSW Feedlot Manual recommends that feedlots be in areas of less than 750 mm rainfall. Average annual rainfall for Moira is 445 mm.

For calculation purposes, rainfall data at Mathoura State Forest will be used. Evaporation data from Deniliquin (Wilkinson Street) will also be used.

3.5 Flora and Fauna

The property has been heavily cultivated through the central sections. There may be areas of remnant woodland along the northern and north eastern boundary. A detailed flora and fauna study will need to be carried out to determine the presence of any rare, threatened or endangered species. The Moira Marshes are located to the east of the property and the implications of the proposed development on the marshes will be investigated. The *Native Vegetation Act 2003*, which prevents large scale clearing of native vegetation without approval, will apply.

The proximity of the site to the Moira Marshes means that protected matters under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* need to be considered. A search of the EPBC Website has shown that the general Moira vicinity has three identified wetlands of international significance, one threatened ecological community, 14 threatened species and five migratory species. The implications of these potential EPBC Act triggers and obligations under the Act will be investigated during the development of the EIS.

3.6 Heritage

The EPBC Website and Natural heritage Database lists the 'Barmah and Millewa Forests, Cobb Hwy, Mathoura, NSW' as a registered site on the Register of the National Estate.

3.6.1 European Heritage

There are no known European heritage issues on the property however, this will be investigated.

3.6.2 Aboriginal Heritage

As stated above, the area is very close to the Moira Marshes and the Murray River. The feedlot site may be underlain with prior streams, overflows and billabongs.

A detailed archaeological study will be required by the National Parks and Wildlife Service to ensure no significant Aboriginal sites are on the property. This will involve a surface survey to determine the presence of any stone artefacts and the archaeological sensitivity of the landscape.

4 THE PROJECT

4.1 Layout

The feedlot will be similar to the design of the Ravensworth feedlot at Hay. Various feedlot layout options are shown, superimposed on an aerial photograph of the property, in **Figures 2-4**. The general arrangement of the main feedlot components is shown in **Figure 5.**

The total area inside the controlled drainage area has been estimated as approximately 300 Ha. For the purposes of calculation, a figure of 300 Ha is used.

It will be expected that the Moira Feedlot will conform to Queensland Reference Manual Class 1 Feedlot. The specifications for this class of feedlot are attached as **Appendix B**.

4.2 Cattle Numbers

The feedlot will operate as follows:

Weight in	300 Kg (660lbs)
Weight out	540 Kg (1200lbs)
Stocking density	12m^2 per SCU*

* SCU or Standard Cattle Unit is a weight of 600 Kg at turnoff.

At Ravensworth, the stocking density was 15m^2 per animal. So using Ravensworth cattle numbers of 60,000 and reducing to 12m^2 per animal, allows for 75,000 cattle to be used. If the SCU adjustment is made, that is, 600Kg to 540Kg, cattle to be fed increases to 83,000 animals. For the purposes of this report, 80,000 head on feed is used. This allows for 12.5m^2 per SCU.

4.3 Employment

At this stage it is anticipated that construction of the feedlot may involve a construction workforce of up to 80 people, with 50 – 60 people required for the operation of the feedlot and property management.

5 ENVIRONMENTAL ISSUES

5.1 Environmental Controls

Environmental controls will be as shown in the extract from the Queensland Reference Manual (**Appendix B**).

Monitoring requirements will involve yearly analysis of soils from the effluent disposal area and three monthly analysis of groundwater. Analysis of manure and the wastewater will also be required. These monitoring requirements will be set by EPA in the operating licence.

It is likely that an Environmental Management Plan will be required as a condition of consent.

5.2 Odour

It will be a requirement to conduct an odour air dispersion model for the proposal. A project is currently being finalised involving the Australian Lot Feeders Association, Meat and Livestock Australia, the EPA of NSW and the Queensland Government to produce a package containing odour methodology, odour criteria, a standard model and appropriate emission factors which will be accepted by all parties. This is the culmination of 15 years and over $2 million of work and will be the definitive and accepted model. This model will be used.

Site specific wind data may need to be obtained.

The Queensland Reference Manual contains a "screening" model to calculate separation distances. This model is also used in the EPA NSW Odour Guidelines.

The model is based on air dispersion modelling which has been refined to a simple formula as follows:

$D = S \times \sqrt{N}$

Where N = Number of standard cattle units (SCU)
D = Separation distance (m) from the feedlot complex to the receptor
S = Composite Site Factor = $S_1 \times S_2 \times S_3 \times S_4$

Where S1 = Stocking density factor
S2 = Receptor factor
S3 = Night-time drainage factor
S4 = Surface roughness factor

For Moira:

S1 = 59.8
S2 = 0.3 (Rural farm residence)
= 1.2 (Rural town)
S3 = 1.0
S4 = 0.9

S = 16.146 (Rural farm)
= 64.584 (Rural town)

D = $\sqrt{72}$,000 x 16.146
= 4332 metres (Rural farm)
= 17330 metres (town)

These distances may change after more complex modelling.

It is believed that there are no rural residences within 4.3 km of the site. The town of Mathoura is within the 17.3 km separation distance.

5.3 Waste Disposal

Based on the NSW Feedlot Manual estimate of 1.3 tonnes of waste per animal per annum, it is expected that approximately 100,000 tonnes of manure will be produced each year.

The National Guidelines for Beef Cattle Feedlots, (ARMCANZ) lists the following guideline.

> *Effluent and manure Utilisation Areas*
>
> *Adequate land needs to be available to enable the effluent and manure generated to be utilised on site, unless an acceptable off-site utilisation method is available and is approved. The soil types need to be suitable for and able to sustain the agronomic regimes proposed. Further, the area available needs to be able to accommodate the hydrologic, nutrient, salt and organic loads involved. That is, there should be no deleterious build up of these materials in the soil.*
>
> *Manure may be utilised on and/or off site. Again, the soil types need to be suitable for and able to sustain the agronomic regimes proposed. In addition, the area available needs to be able to accommodate the nutrient, salt and organic loads involved and able to protect any underlying useable groundwaters, whether the effluent and manure are utilised on or off site.*

It is expected that less than 30% of waste will be able to be satisfactorily disposed on the property, with the remainder being transported off site for treatment and disposal.

5.3.1 Liquid Waste

The table below shows the relevant data.

It should be noted that the draft NSW effluent irrigation guidelines require that the design allows a spill from the holding pond of 1 in 10 years. Hence, 90% wet year (Decile 9) data are used for the calculation.

Table – Water Balance 90%

Parameter / Month	Evaporation mm	Crop Factor	Evapo-Transpiration mm	Precipitation mm	Irrigation Required 282 Ha			Effluent * Produced ML	Excess ML
					mm	ML/Ha	ML		
January	301	0.95	286	51	235	2.35	662	122	
February	246	0.90	221	38	183	1.83	516	91	
March	202	0.85	172	48	124	1.24	350	115	
April	117	0.80	94	40	54	0.54	152	96	
May	62	0.70	43	56				134	134
June	39	0.55	21	41				98	232
July	40	0.55	22	50				120	352
August	62	0.65	40	52				125	477
September	99	0.75	74	54	20	0.20	56	130	551
October	164	0.85	139	64	75	0.75	24	154	494
November	225	0.95	214	48	166	1.66	468	115	141
December	282	1.00	282	53	229	2.29	646	127	
				595		10.86	3063	1427	

* 300 Ha at 0.8 runoff co-efficient

The data show that for a 90% wet year, an irrigation area of 282 Ha and a storage pond of 551 ML are required.

Note that the size of the holding pond is relatively insensitive to the size of the irrigation area. This is because no irrigation is possible for the four months or winter when 477 ML are collected.

However, it should also be noted that the figures are based on a controlled drainage area of 300 Ha. A reduction of this area would directly (and almost linearly) affect the size of the holding pond.

In relation to nutrients, the NSW Feedlot manual has typical concentrations of liquid waste as follows:

Total Nitrogen (TN)	148 mg/L
Total Phosphorus (TP)	40 mg/L

For the calculation of nutrient balance, an average year is used, that is, a rainfall of 445 mm and a total runoff for the year of:

$$\text{Runoff (ML)} = 445 \text{ mm} \times 300 \text{ Ha} \times 0.8 \times \frac{1}{1000} \times 10{,}000 \times \frac{1}{1000}$$

$$= 1068 \text{ ML}$$

Therefore total nutrients are as follows

$$\text{TN (Kg)} = 1068 \times 148 \times \frac{10^6}{10^6}$$

$$= 158{,}064 \text{ Kg}$$

The Queensland Manual loading rate for TN is 560 Kg N/Ha/Year.

This requires an area of 282 Ha to dispose of the TN by complete uptake in the plants of the irrigation area.

$$\text{TP (Kg)} = 1068 \times 40 \times \frac{10^6}{10^6}$$

$$= 42{,}720 \text{ Kg}$$

This requires an area of 712 Ha to dispose of TP by complete uptake in the plants of the irrigation area.

The NSW guidelines require that all TN must be taken up by the plant, but TP can be stored in the soil.

Therefore, the effluent irrigation area needs to be 282 Ha as a minimum. Note that this will decrease if the controlled drainage area of the feedlot is decreased.

In relation to salt, it is likely that based on previous experience this will not be a major issue. These calculations have not yet been done.

5.3.2 Solid Waste

As indicated above (Section 4.3) some solid waste will be able to be disposed of on the property, but the majority will need to be disposed off site. This is because the land area is not large enough and because of the likelihood of dry years resulting in crops not taking up large amounts of nitrogen and phosphorus.

These calculations have not been done.

5.4 Noise

The main potential noise sources associated with the development result from traffic and machinery movements. Stock in feedpens do not constitute a significant noise source if food and water supply is maintained.

Background noise levels, potential noise sources and measures for attenuating noise impacts will be addressed in the EIS.

5.5 Other Environmental Issues

Other environmental issues to be addressed during environmental assessment of the project will include transport and traffic implications, animal health and disease management, and socioeconomic considerations of the project.

6 REFERENCE MATERIAL

The reference material used in this report has included:

- Cadell Community's Land and Water Management Plan, 2001
- Draft Environmental Guideline. Use of Treated Effluent in Irrigation, NSW EPA 2000
- Draft Policy, Assessment and Management of Odour from Stationery Sources in NSW. NSW EPA 2001
- National Beef Cattle Feedlot Environmental Code of Practice, Australian Lot Feeders Association
- National Guidelines for Beef Cattle Feedlots, ARMCANZ
- The Draft New South Wales Feedlot Manual, NSW Agriculture, 2003
- The Establishment and Operation of Beef Cattle Feedlots in Queensland. Queensland Department of Primary Industry, 2000
- The New South Wales Feedlot Manual NSW Agriculture, 1997
- www.deh.gov.au/cgi-bin/erin/ert/epbc/epbc_report.pl
- www.macbeth.iplan.nsw.gov.au
- www.planning.nsw.gov.au/assessingdev/whatisssd.html

Figures

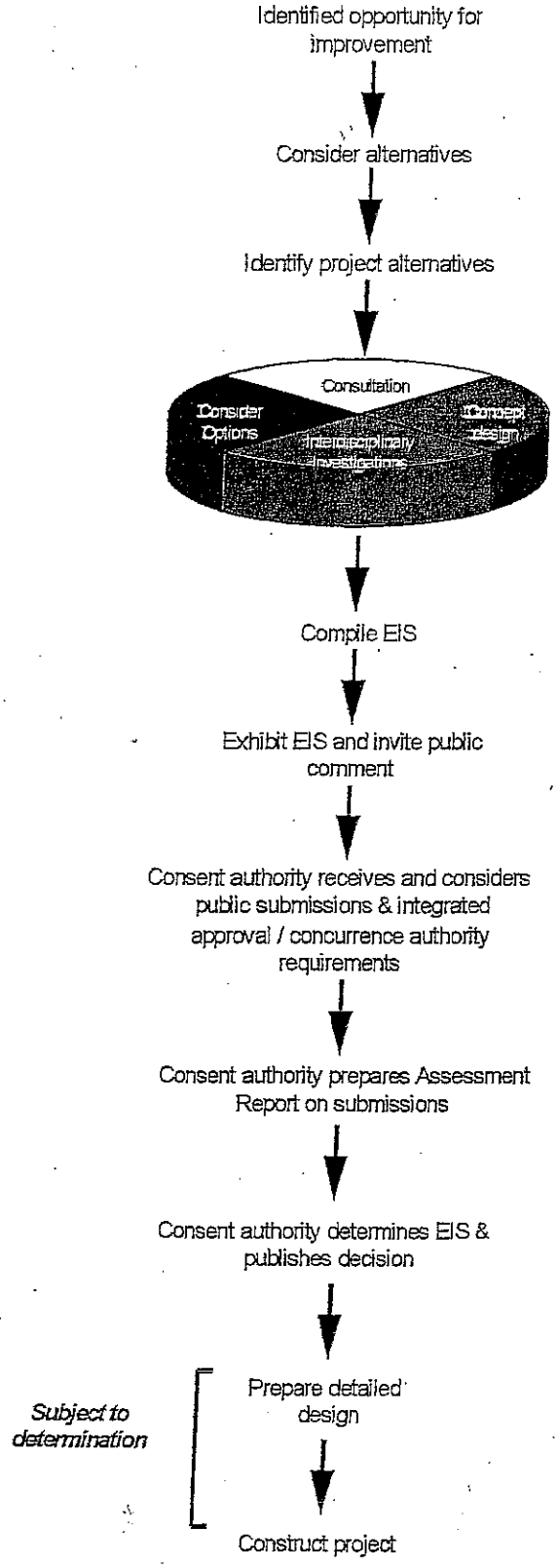

Figure 1 : Simplified Environmental Impact Assessment Process

PROJECT-FILE NAME S60133_001
DATE June 2004
DRAWN LJE
APPROVED

LOCATION MAP
Moira Station Feedlot

HLA

FIGURE 2

DO NOT SCALE DRAWING

IF IN DOUBT ASK

No.	Revision List	Eng.	Approv.	Date

Scale:	1:20000 (A3 PLOT)
Design:	D BIKI
Date:	15/4/04
Drawn:	C TOOHEY
Date:	15/4/04

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Client and Job	MOIRA STATION FEEDLOT PROPOSAL
Title	LAYOUT OPTION 1
Figure	3
Drg. No.	MOIRA-A.DWG
Sheet No.	1
Holding No.	

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Client and Job: MOIRA STATION FEEDLOT PROPOSAL

Title: LAYOUT OPTION 2 Figure 4

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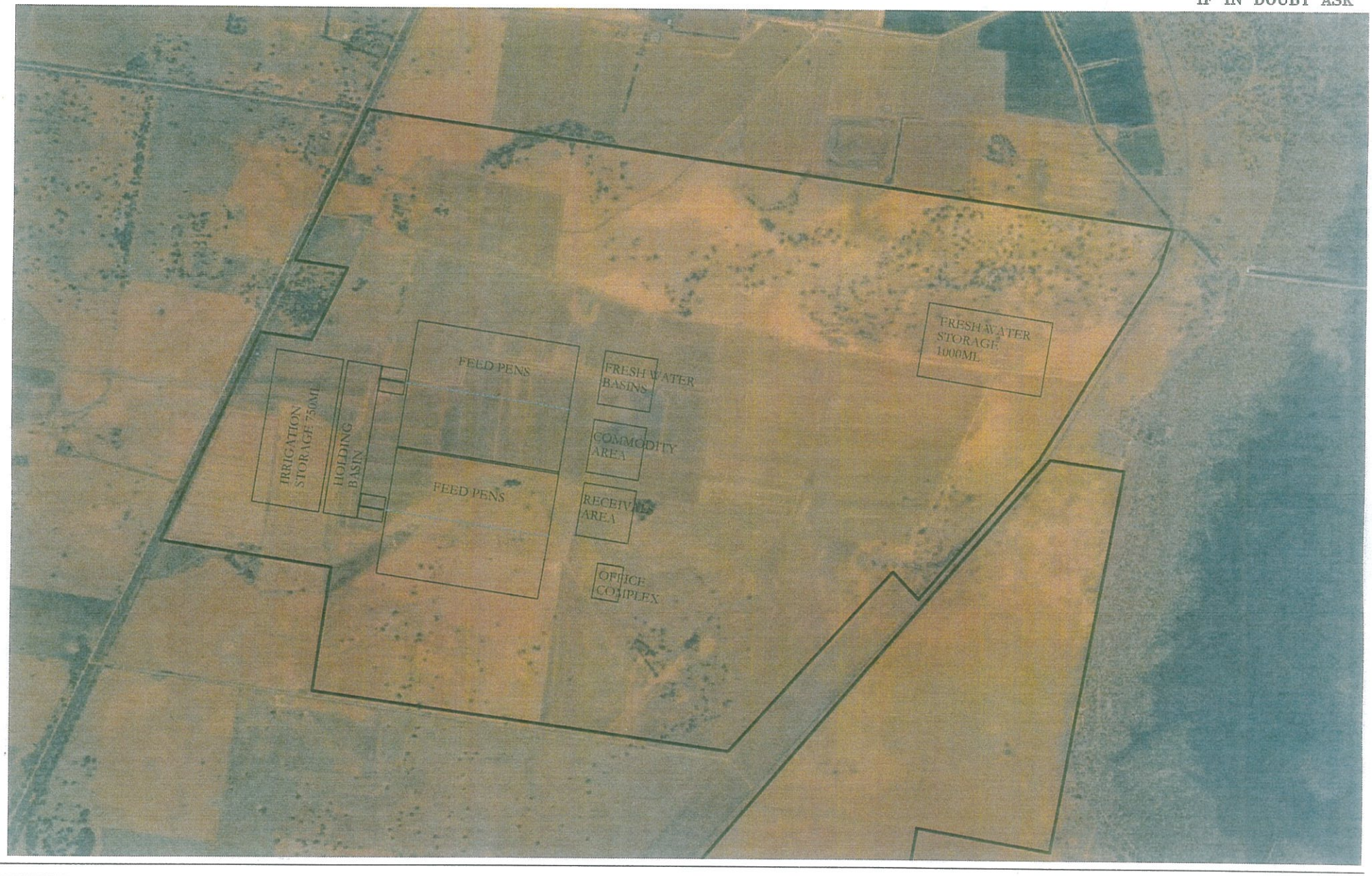

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Scale: 1:20000 (A3 PLOT)

Design: D BIKI

Date: 15/4/04

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Client and Job: MOIRA STATION FEEDLOT PROPOSAL

Title: LAYOUT OPTION 3 Figure 5

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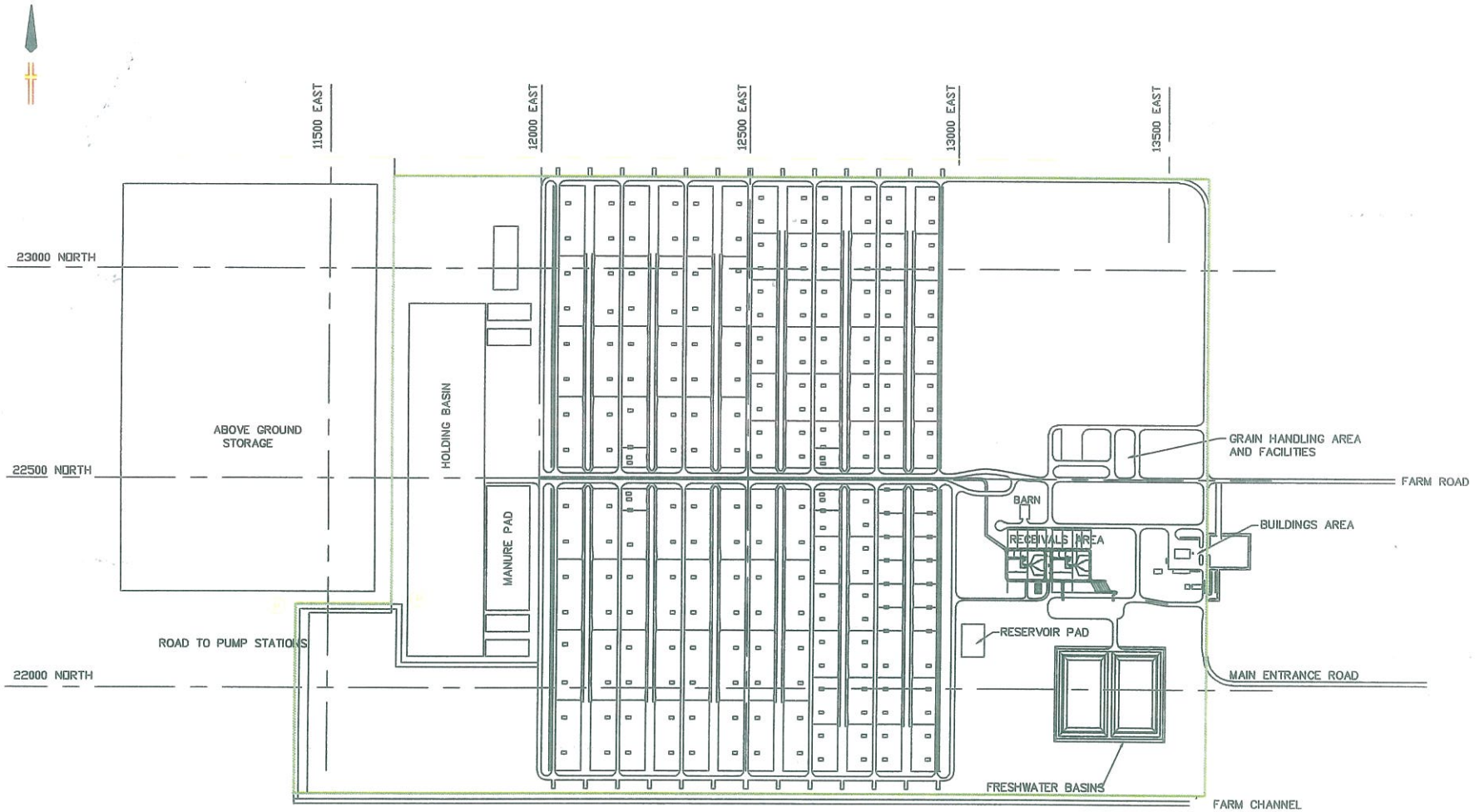

DRAFT ONLY

0 50 100 150 200250m
(1:5000forA1 Size Plot)

No.	Revision Ltr	Eng.	Approv.	Date

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Design	-
Date	-
Drawn	-
Date	27/4/2004

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Client and File	MOIRA STATION FEEDLOT
Title	GENERAL ARRANGEMENT Figure 6
Dwg. No.	MSF-A4.DWG
Sheet No.	1
No. of Sheets	-

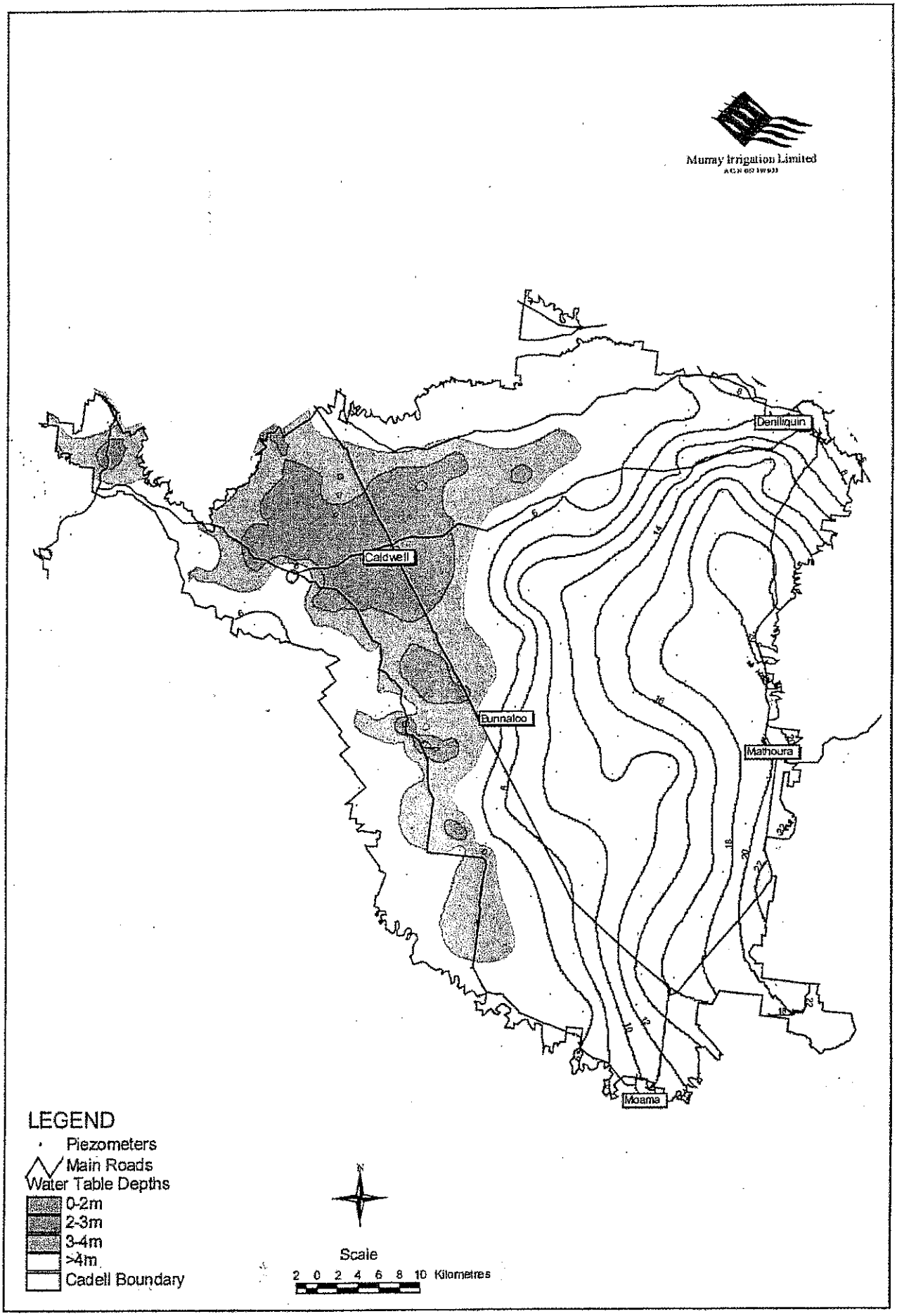

Figure 7 . **Depth to Groundwater - 2000**

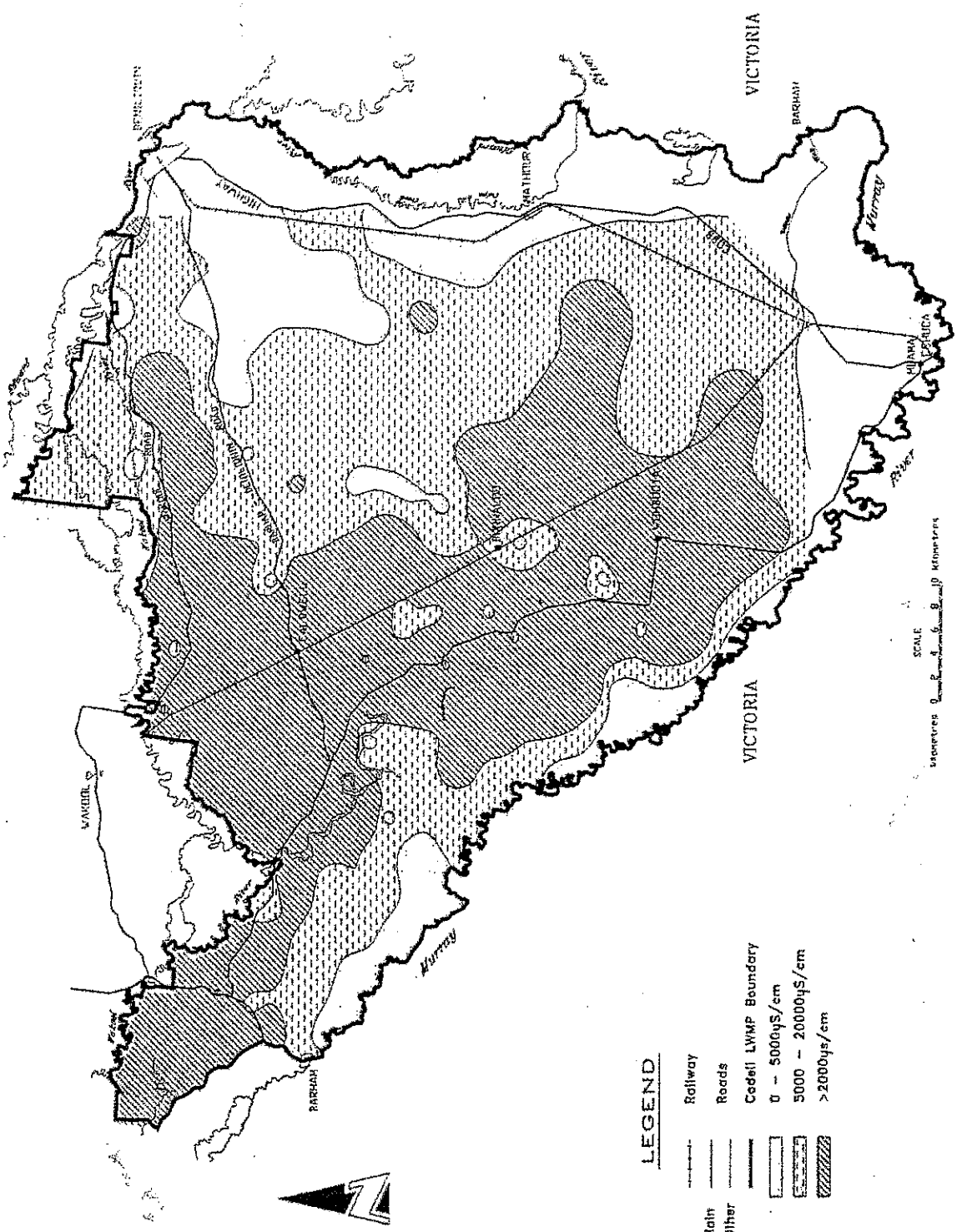

Figure 8 **Salinity of Groundwater Aquifers**

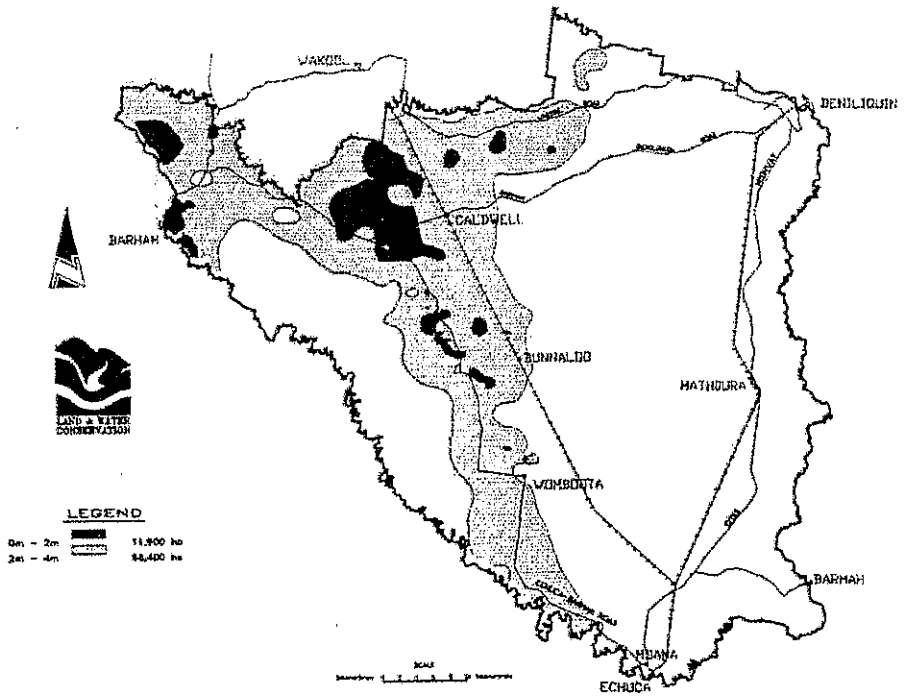

Figure 9 **High Watertable Area 1994**

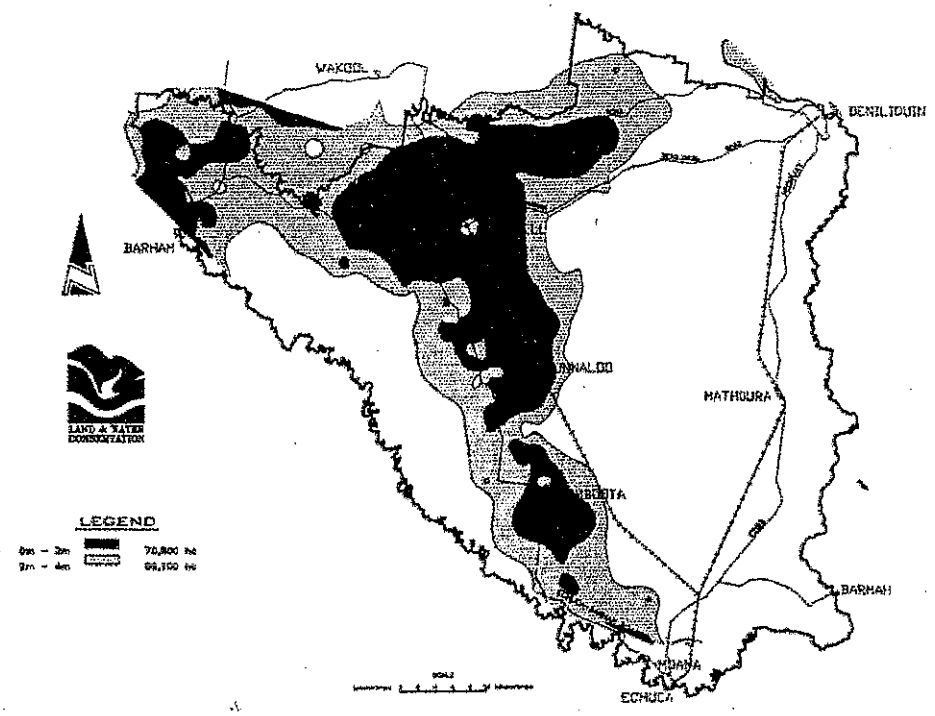

Figure 10 **Projected High Watertable Area 2020**

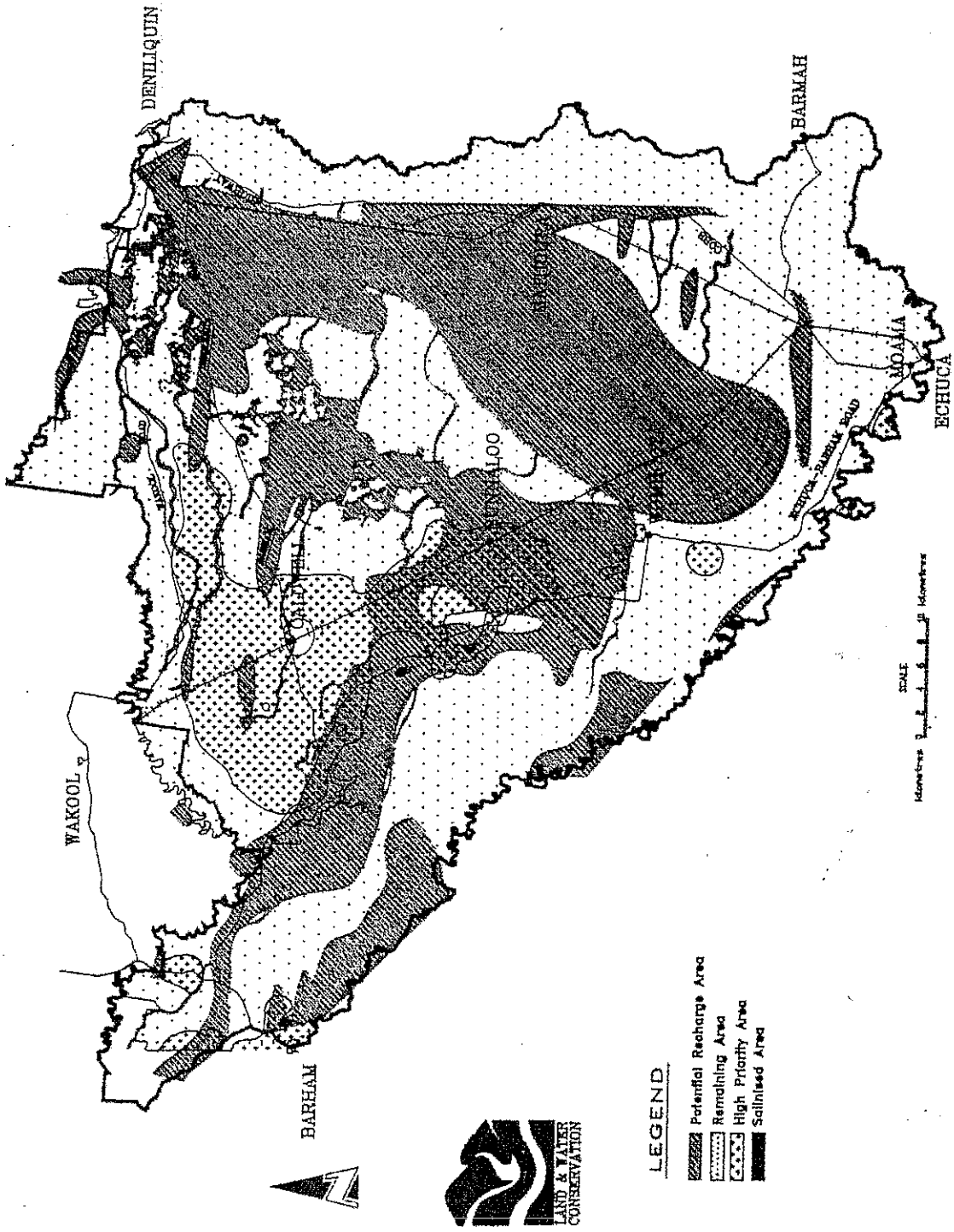

Figure 11 **Land Management Units**

Appendix A

What is the weather usually like?

- Climate Averages for Australian Sites -

Averages for DENILIQUIN (WILKINSON ST)

Make sure you understand what the Climate Averages are all about before you make use of the following information. A comma separated text file of these averages is also available for download which can be graphed in software such as a spreadsheet

074128 DENILIQUIN (WILKINSON ST) Commenced: 1858 Last record: 2003
Latitude:-35.5269 S Longitude: 144.9520 E Elevation: 93.0 m State: NSW

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	No. Yrs	%age comp
Mean Daily Max Temp (deg C)	32.5	32.0	28.7	23.4	18.6	15.1	14.4	16.4	19.6	23.6	27.5	30.5	23.5	141.3	97
Mean no. Days, Max >= 40.0 deg C	3.2	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5	7.4	141.1	97
Mean no. Days, Max >= 35.0 deg C	10.0	8.2	3.7	0.2	0.0	0.0	0.0	0.0	0.0	0.6	3.1	6.9	32.7	141.1	97
Mean no. Days, Max >= 30.0 deg C	19.6	17.8	11.9	2.3	0.0	0.0	0.0	0.0	0.4	3.6	9.2	15.4	80.3	141.1	97
Highest Max Temp (deg C)	49.6	47.2	45.0	41.7	31.1	25.6	25.9	32.2	35.0	40.8	44.2	47.8	49.6	141.6	97
Mean Daily Min Temp (deg C)	15.5	15.5	13.1	9.3	6.3	4.2	3.1	4.1	6.0	8.5	11.3	13.7	9.2	140.6	97
Mean no. Days, Min =< 2.0 deg C	0.1	0.0	0.1	0.6	3.3	7.3	11.0	7.7	3.7	1.3	0.4	0.3	35.7	140.4	97
Mean no. Days, Min =< 0.0 deg C	0.0	0.0	0.0	0.2	1.0	3.1	5.4	3.2	1.3	0.5	0.2	0.2	15.2	140.4	97
Lowest Min Temp (deg C)	-3.9	0.6	-1.1	-2.8	-7.8	-7.2	-10.0	-9.4	-9.4	-6.7	-7.2	-5.6	-10.0	141.2	97
Mean 9am Air Temp (deg C)	22.8	22.0	19.3	14.8	10.4	7.5	6.5	8.6	12.2	16.2	19.5	21.8	15.1	138.8	95
Mean 9am Wet-bulb Temp (deg C)	16.5	16.5	14.9	11.9	8.9	6.6	5.6	7.1	9.7	12.1	14.0	15.5	11.6	137.8	95
Mean 9am Dew Point Temp (deg C)	11.4	12.2	11.1	9.1	7.2	5.4	4.3	5.3	6.9	7.9	8.9	10.0	8.3	137.8	95
Mean 9am Relative Humidity (%)	51	56	61	70	82	88	86	81	71	60	53	50	68	137.8	95
Mean 9am Wind Speed (km/hr)	10.6	9.6	9.2	8.2	6.8	7.0	7.1	8.4	10.5	11.8	11.7	11.0	9.3	130.2	89
Mean 3pm Air Temp (deg C)	30.0	29.9	26.8	21.8	17.3	14.0	13.3	15.1	18.0	21.5	25.2	28.1	21.7	96.1	66
Mean 3pm Wet-bulb Temp (deg C)	18.4	18.9	17.4	14.8	12.5	10.5	9.8	10.6	12.1	13.9	15.6	17.1	14.3	95.4	66
Mean 3pm Dew Point Temp (deg C)	8.9	10.4	9.7	8.3	7.7	6.8	5.8	5.6	5.9	6.2	6.5	7.5	7.4	95.3	66
Mean 3pm Relative Humidity (%)	30	33	37	44	55	63	62	55	48	40	34	30	44	95.3	66
Mean 3pm Wind Speed (km/hr)	10.5	9.7	9.5	9.2	8.5	8.3	9.3	10.6	11.2	11.7	12.3	11.1	10.2	89.5	62
Mean Rainfall (mm)	28.5	27.4	32.0	31.0	39.3	40.3	35.0	36.9	38.2	39.8	29.2	28.5	406.0	144.8	100
Median (Decile 5) Rainfall (mm)	17.0	15.4	18.8	22.7	33.0	35.5	31.1	35.2	32.6	32.4	19.9	19.0	386.6	142	
Decile 9 Rainfall (mm)	71.6	70.8	71.7	67.0	86.0	72.8	67.0	65.5	71.1	88.0	63.9	66.2	576.7	142	
Decile 1 Rainfall (mm)	1.1	0.5	0.4	2.7	7.0	13.1	8.7	9.5	13.2	9.6	3.4	1.6	234.8	142	
Mean no. of Raindays	3.8	3.5	4.1	5.1	7.5	9.2	9.5	9.5	8.5	7.5	5.2	4.5	78.0	143.4	99
Highest Monthly Rainfall (mm)	253.9	187.7	225.5	111.1	123.5	128.2	112.9	124.8	141.6	124.7	133.7	167.8		144.8	100
Lowest Monthly Rainfall (mm)	0.0	0.0	0.0	0.0	0.0	2.3	1.2	1.6	4.3	0.3	0.0	0.0		144.8	100
Highest Recorded Daily Rain (mm)	76.2	99.1	153.4	59.7	53.8	55.6	46.0	52.1	65.3	87.9	57.2	67.3	153.4	143.4	99
Mean no. of Clear Days	13.5	12.9	14.2	11.5	9.1	7.7	7.1	8.3	9.1	9.8	10.4	12.9	126.5	97.8	67
Mean no. of Cloudy Days	4.4	4.3	4.4	5.3	9.1	10.5	10.8	9.0	7.3	7.6	6.8	5.4	84.8	97.8	67
Mean Daily Sunshine (hrs)	11.1	11.2	8.8	6.0	...	5.2	4.8	6.7	9.1	10.6	8.3	10.9	8.4	0.9	92
Mean Daily Evaporation (mm)	9.7	8.8	6.5	3.9	2.0	1.3	1.3	2.0	3.3	5.3	7.5	9.1	5.1	26.3	62

What is the weather usually like?

- Climate Averages for Australian Sites -

Averages for HAY (MILLER STREET)

Make sure you understand what the Climate Averages are all about before you make use of the following information. A comma separated text file of these averages is also available for download which can be graphed in software such as a spreadsheet

075031 HAY (MILLER STREET) Commenced: 1877 Last record: 2003
Latitude:-34.5194 S Longitude: 144.8545 E Elevation: 93.3 m State: NSW

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	No. Yrs	%age comp
Mean Daily Max Temp (deg C)	32.9	32.5	29.2	24.0	19.3	15.8	15.1	17.2	20.7	24.5	28.4	31.2	24.2	122.0	100
Mean no. Days, Max >= 40.0 deg C	2.8	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.2	6.3	46.5	100
Mean no. Days, Max >= 35.0 deg C	10.2	9.2	3.3	0.1	0.0	0.0	0.0	0.0	0.1	0.6	3.4	7.2	34.1	46.5	100
Mean no. Days, Max >= 30.0 deg C	21.5	19.6	13.4	3.0	0.0	0.0	0.0	0.0	0.8	4.2	10.3	16.7	89.5	46.5	100
Highest Max Temp (deg C)	46.0	47.2	42.0	37.3	30.0	25.6	26.0	30.6	36.0	38.9	44.9	44.0	47.2	46.5	100
Mean Daily Min Temp (deg C)	16.5	16.4	13.7	9.9	6.8	4.5	3.5	4.5	6.6	9.4	12.4	14.8	9.9	122.4	100
Mean no. Days, Min =< 2.0 deg C	0.0	0.0	0.0	0.1	1.7	6.7	9.1	6.1	1.9	0.2	0.0	0.0	25.8	46.5	100
Mean no. Days, Min =< 0.0 deg C	0.0	0.0	0.0	0.0	0.2	2.0	2.8	1.4	0.1	0.0	0.0	0.0	6.5	46.5	100
Lowest Min Temp (deg C)	5.5	5.3	4.5	0.7	-1.6	-3.6	-3.0	-2.5	-1.4	0.0	2.8	6.6	-3.6	46.5	99
Mean 9am Air Temp (deg C)	23.6	22.8	20.0	15.6	11.4	8.1	7.2	9.4	13.3	17.2	20.2	22.7	15.9	96.3	100
Mean 9am Wet-bulb Temp (deg C)	16.8	16.8	15.0	12.2	9.5	7.0	6.1	7.6	10.2	12.4	14.2	15.9	11.9	93.3	97
Mean 9am Dew Point Temp (deg C)	11.6	12.2	10.9	9.2	7.8	5.7	4.6	5.5	7.0	8.0	8.7	10.0	8.4	43.4	93
Mean 9am Relative Humidity (%)	48	52	57	66	78	85	84	77	66	55	50	47	64	93.3	97
Mean 9am Wind Speed (km/hr)	11.4	10.6	9.7	7.8	6.5	6.2	6.2	7.9	9.8	11.4	11.8	11.2	9.2	45.6	98
Mean 3pm Air Temp (deg C)	31.3	31.0	27.8	22.7	18.0	14.6	14.0	16.0	19.4	22.9	26.5	29.3	22.8	93.8	99
Mean 3pm Wet-bulb Temp (deg C)	19.3	19.5	18.0	15.3	13.0	10.9	10.2	11.1	12.9	14.6	16.5	18.2	14.9	90.8	96
Mean 3pm Dew Point Temp (deg C)	9.7	10.6	9.7	8.2	7.8	7.0	5.6	5.3	6.0	6.1	6.8	7.9	7.5	43.3	93
Mean 3pm Relative Humidity (%)	29	31	35	42	53	62	60	52	44	38	32	30	43	90.7	96
Mean 3pm Wind Speed (km/hr)	11.1	10.2	10.1	8.7	8.3	8.3	9.3	10.5	11.1	11.4	11.8	11.6	10.2	44.2	95
Mean Rainfall (mm)	27.7	27.9	29.7	28.4	35.8	36.0	30.5	32.2	32.2	36.0	24.2	26.5	367.2	121.8	97
Median (Decile 5) Rainfall (mm)	14.6	16.6	19.1	20.5	30.5	31.4	27.5	29.0	28.8	27.6	17.5	14.6	362.0	121	
Decile 9 Rainfall (mm)	70.9	72.9	77.9	72.8	73.2	68.6	59.7	62.3	64.7	80.8	50.1	69.3	522.4	121	
Decile 1 Rainfall (mm)	0.4	0.4	0.3	1.4	6.3	8.2	6.7	8.4	6.5	8.8	2.8	1.8	215.8	121	
Mean no. of Raindays	3.6	3.3	3.8	4.5	6.3	7.9	8.4	8.4	6.7	6.3	4.4	4.0	67.8	121.7	97
Highest Monthly Rainfall (mm)	191.2	203.7	199.7	151.2	133.5	115.6	100.8	107.5	105.9	150.2	152.2	152.4		121.8	97
Lowest Monthly Rainfall (mm)	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.8	0.0	0.0	0.0		121.8	97
Highest Recorded Daily Rain (mm)	81.3	121.9	116.8	81.3	79.0	53.0	51.1	72.4	71.1	71.4	111.5	54.6	121.9	121.7	97
Mean no. of Clear Days	15.4	14.4	15.7	13.1	10.4	9.4	8.5	8.8	10.3	11.4	11.7	13.7	142.7	46.5	100
Mean no. of Cloudy Days	5.6	5.4	5.2	7.0	10.2	9.8	10.7	9.1	7.9	8.5	7.4	6.2	92.9	46.5	100

Last modified 7 October 2003

What is the weather usually like?

- Climate Averages for Australian Sites -

Averages for MATHOURA STATE FOREST

Make sure you understand what the Climate Averages are all about before you make use of the following information. A comma separated text file of these averages is also available for download which can be graphed in software such as a spreadsheet

074069 MATHOURA STATE FOREST Commenced: 1949 Last record: 2003
Latitude:-35.8115 S Longitude: 144.9017 E Elevation: 105.0 m State: NSW

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	No. Yrs	%age comp
Mean Daily Max Temp (deg C)	31.4	30.3	27.5	22.1	16.9	14.1	13.0	14.9	18.1	21.7	25.4	28.6	22.0	20.3	98
Mean no. Days, Max >= 40.0 deg C	2.1	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	3.9	12.9	99
Mean no. Days, Max >= 35.0 deg C	8.9	6.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.7	4.5	24.4	12.9	99
Mean no. Days, Max >= 30.0 deg C	19.0	14.0	10.7	1.6	0.0	0.0	0.0	0.0	0.3	3.0	8.0	12.1	68.7	12.9	99
Highest Max Temp (deg C)	44.7	44.2	40.8	34.9	27.2	26.6	19.4	23.1	33.3	37.8	41.7	41.9	44.7	12.9	99
Mean Daily Min Temp (deg C)	15.5	15.2	13.2	9.2	6.1	4.3	3.3	4.2	6.0	8.7	10.7	13.1	9.0	20.3	98
Mean no. Days, Min =< 2.0 deg C	0.0	0.0	0.0	0.4	5.7	9.8	12.1	8.5	4.2	1.4	0.2	0.0	42.2	12.8	98
Mean no. Days, Min =< 0.0 deg C	0.0	0.0	0.0	0.0	0.5	4.2	4.9	3.3	0.5	0.2	0.0	0.0	13.7	12.8	98
Lowest Min Temp (deg C)	5.6	5.8	2.8	1.3	-1.1	-3.3	-3.8	-2.6	-1.4	-0.7	0.8	4.4	-3.8	12.9	96
Mean 9am Air Temp (deg C)	23.8	22.4	20.0	15.6	10.7	8.0	7.0	9.0	12.4	16.1	19.3	21.6	15.5	17.2	99
Mean 9am Wet-bulb Temp (deg C)	16.5	16.2	15.0	12.5	9.1	7.0	5.9	7.4	9.7	12.0	13.4	15.1	11.6	16.4	96
Mean 9am Dew Point Temp (deg C)	10.3	10.4	10.4	9.1	7.2	5.9	4.6	5.8	6.6	7.9	7.4	8.9	7.9	12.2	94
Mean 9am Relative Humidity (%)	45	50	56	68	80	85	85	80	68	60	49	47	64	16.5	96
Mean 9am Wind Speed (km/hr)	10.4	10.7	8.7	6.6	6.1	5.0	5.3	6.2	7.8	9.2	10.5	9.2	7.9	12.8	98
Mean 3pm Air Temp (deg C)	30.5	29.4	26.9	20.9	15.4	13.2	12.2	14.9	17.2	21.0	24.6	27.6	24.8	10.3	61
Mean 3pm Wet-bulb Temp (deg C)	18.7	18.4	17.7	...	...	...	8.4	10.7	12.3	14.3	15.6	17.3	16.2	9.7	57
Mean 3pm Dew Point Temp (deg C)	8.3	8.7	9.6	...	...	...	...	6.0	6.4	7.6	6.1	7.0	7.6	7.1	56
Mean 3pm Relative Humidity (%)	29	31	37	...	...	...	...	56	52	45	35	33	38	9.6	57
Mean 3pm Wind Speed (km/hr)	11.8	11.9	9.5	6.3	7.2	12.0	6.6	7.1	8.7	9.7	12.7	11.7	10.6	7.8	61
Mean Rainfall (mm)	32.7	23.4	36.5	29.9	43.6	36.7	42.7	44.4	44.8	45.1	33.4	31.6	444.8	54.4	100
Median (Decile 5) Rainfall (mm)	24.4	14.8	22.1	26.0	35.0	32.6	40.1	40.8	39.3	31.7	22.4	19.8	457.2	53	
Decile 9 Rainfall (mm)	81.2	61.7	76.4	64.4	89.2	66.5	80.6	83.0	86.8	103.3	76.5	85.8	595.3	53	
Decile 1 Rainfall (mm)	0.8	0.4	1.4	3.0	9.8	12.3	12.1	10.0	16.7	9.7	6.6	2.2	255.3	53	
Mean no. of Raindays	3.8	3.6	4.4	5.4	8.6	9.1	10.8	10.9	9.4	8.5	6.2	5.0	85.8	52.8	97
Highest Monthly Rainfall (mm)	222.9	99.4	184.9	99.8	125.7	106.2	105.7	148.3	112.3	145.5	105.2	133.1		54.4	100
Lowest Monthly Rainfall (mm)	0.0	0.0	0.0	0.2	2.4	0.2	1.0	2.8	5.4	0.0	1.8	0.4		54.4	100
Highest Recorded Daily Rain (mm)	62.7	45.7	98.0	58.2	53.3	32.4	42.4	53.6	55.9	68.2	59.0	81.0	98.0	54.1	99
Mean no. of Clear Days	15.7	13.9	17.5	6.8	10.0	13.0	6.0	12.5	11.0	11.1	11.2	15.4	144.1	8.2	64
Mean no. of Cloudy Days	4.5	5.3	3.7	2.4	9.0	6.0	10.0	9.5	7.5	8.3	7.1	7.5	80.7	8.2	64

Last modified 7 October 2003

Appendix B

APPENDIX B – DESIGN, CONSTRUCTION AND OPERATIONAL SPECIFICATIONS

DESIGN AND CONSTRUCTION SPECIFICATIONS	
(1)	**Siting** • Feedlots should be sited so as to minimise the potential for adverse impacts on community amenity; • Feedlots should not be sited in flood prone areas.
(2)	**Maximum cattle capacity** • Class 4 – 250 SCU's
(3)	**Pen foundation preparation** • Classes 1 and 2 – As per specification, Appendix F; • Classes 3 and 4 – Strip topsoil and grade to a durable, uniform surface.
(4)	**Pen slope** • Classes 1 and 2 – 2.5 to 4%; • Classes 3 and 4 – 2 to 6%.
(5)	**Pen cross-slope** • Should be less than the pen down-slope to minimise pen to pen (cross) drainage.
(6)	**Feed troughs** Should be designed for: • Ease of cleaning; • Drainage of rainwater; • Minimisation of feed spillage and wastage.
(7)	**Feed trough and bin aprons** • Should be constructed from a durable material capable of withstanding the loading of cleaning equipment; • Should extend a minimum distance of 2.5 m beyond the edge of the trough and bin; • Should slope away from the trough and bin to facilitate drainage.
(8)	**Water trough aprons** • Should be constructed from reinforced concrete and be capable of withstanding the loading of cleaning equipment; • Should extend a minimum distance of 2.5 m beyond the edge of the trough; • Should slope away from the trough to facilitate drainage.
(9)	**Fencing** • Should be adequate for stock control without interfering with drainage and pen cleaning.
(10)	**Diversion banks and drains** • Should be designed to carry the peak flowrate from the 1 in 20 year design storm, at non-scouring velocity.
(11)	**Catch drains** Should be designed and constructed: • to carry the peak flowrate from the 1 in 20 year design storm at non-scouring velocity; • with a cross-section which facilitates ease of cleaning operations; • to have a minimum coefficient of permeability of 0.1 mm/day.

(12)	**Sedimentation systems** Should be designed and constructed: • to cater for the peak flowrate from the 1 in 20 year design storm; • to have a minimum coefficient of permeability of 0.1 mm/day; • to facilitate cleaning operations.
(13)	**Holding ponds** Should be designed and constructed: • to have an average spill frequency not exceeding 1 in 10 years (a less frequent design spill frequency may be required at environmentally sensitive sites); • with a bywash capable of discharging the peak flowrate from the 1 in 50 year design storm, at non-scouring velocity; • with a minimum freeboard of 0.9m; • to have a minimum coefficient of permeability of 0.1 mm/day; • in accordance with recognised engineering principles to ensure their long-term structural integrity.
(14)	**Evaporation systems** Should be designed and constructed: • to have an average spill frequency not exceeding 1 in 20 years (a less frequent design spill frequency may be required at environmentally sensitive sites); • with a bywash capable of discharging the peak flowrate from the 1 in 50 year design storm, at non-scouring velocity; • with a minimum freeboard of 0.9m; • to have a minimum coefficient of permeability of 0.1 mm/day. • in accordance with recognised engineering principles to ensure their long-term structural integrity.
(15)	**Manure stockpiles and composting areas** Should be designed and constructed: • within a controlled drainage area; • on a prepared site having a minimum coefficient of permeability of 0.1 mm/day.
(16)	**Effluent utilisation areas** • Should be of sufficient size for sustainable utilisation of effluent, having regard for the soil type, crop or pasture species to be grown, and anticipated crop or pasture yields.
(17)	**Manure utilisation areas** • Should be of sufficient size for sustainable utilisation of manure, having regard for the soil type, crop or pasture species to be grown, and anticipated crop or pasture yields.
(18)	**Effluent irrigation facilities** • Should be capable of applying effluent uniformly over the effluent irrigation area.
(19)	**Mass carcass disposal site** • An area suitable for the mass burial of carcasses should be identified, having regard for protection of groundwater and community amenity.

OPERATIONAL SPECIFICATIONS

		Feedlot Class											
		1			2			3			4		
(1)	**Pen cleaning by removal or mounding**												
	• Stocking density (m^2/SCU):	10	15	20	10	15	20	10	15	20	10	15	20
	• Maximum manure removal interval, weather permitting (weeks):	7	10	14	14	20	26	26			26		
	• Maximum manure pack depth:	50			100			200			200		
(2)	**Under-fence cleaning** • should be carried out:	monthly			quarterly			at each pen cleaning			at each pen cleaning		
		Or as soon as practically possible after accumulated manure obstructs pen drainage											
(3)	**Wet patches** • should be eliminated:	weekly			monthly			at each pen cleaning			at each pen cleaning		
(4)	**Potholes** • should be repaired:	weekly			monthly			6 monthly			6 monthly		
(5)	**Feed residues** • should be removed from troughs:	weekly			weekly			at each pen cleaning			at each pen cleaning		
(6)	**Spilt feed** • should be removed from around troughs and bins:	weekly			at each pen cleaning			at each pen cleaning			at each pen cleaning		
(7)	**Feeding out equipment** • should be operated to minimise spillage.												
(8)	**Stock watering facilities** • should be maintained to minimise overflows and spillage; • should be maintained to ensure that wastewater generated by routine water trough cleaning operations is disposed of without causing erosion or significant ponding on the pen surface.												
(9)	**Diversion banks and drains** • should be maintained as soon as practically possible following any damage.												
(10)	**Effluent collection drains** • deposited sediment should be removed from drains as soon as practically possible after the flow of liquid effluent is significantly impeded; • erosion damage should be rectified as soon as practically possible following its observance; • with the exception of grassed waterways, effluent collection drains should be maintained free of vegetative growth which is likely to significantly impede the flow of effluent.												
(11)	**Sedimentation basins and terraces** • should be cleaned and maintained as soon as practically possible following the deposition of a significant amount of sediment.												
(12)	**Sedimentation ponds** • should be cleaned and maintained to ensure efficient operation and to avoid excessive sediment buildup.												

(13)	**Runoff storage ponds (holding ponds)** • should be de-sludged as soon as the storage volume is reduced by more than 25% by sediment buildup.
(14)	**Runoff dispersal areas** • should be closely examined, at least annually for the purpose of assessing the following characteristics: * the degree of vegetative cover; * the existence of any concentrated flow channels; and * the occurrence of any sediment buildup. • should be maintained by: * cross-ripping or cultivation and regrading of any concentrated flow channels, * revegetating of any bare areas; * spreading of any concentrated sediment deposits.
(15)	**Manure mounding** • the manure mound area in each pen should not exceed 25% of the pen area; • mounds should be constructed in a manner which ensures that they remain in a stable condition under normal cattle loadings and climatic conditions; • mounds should be shaped to avoid ponding and aligned in the down-slope direction so that they do not interfere with pen drainage.
(16)	**Manure pack removal** • the manure pad should be left intact during pack removal; • following removal of the pack, the surface of the manure pad should be left in a smooth, durable, uniform state.
(17)	**Pen foundation renovations** • the pen foundation should be restored to its original specifications if damaged during cleaning operations.
(18)	**Surface and underground water** • contaminants that may cause environmental harm must not be released from any source or be so placed that they can directly or indirectly enter any waters at any location; • any unscheduled or unauthorised release of contaminants to water must be recorded and immediately reported to the administering authority; • all runoff from the controlled drainage area must enter the liquid effluent collection or dispersal system; • any storm water runoff from the feedlot complex and liquid effluent and solid waste utilisation areas should not be of an inferior quality than that in the watercourse, which it may enter.
(19)	**Effluent and manure utilisation** • the production capacity of feedlot waste utilisation areas is to be maintained or improved; • the feedlot should be managed so that the nutrient, organic matter and water content of feedlot liquid and solid wastes are utilised in accordance with the principles of ecologically sustainable development; • feedlot liquid effluent and manure application rates should not exceed the rates at which the critical constituents of the effluent, *i.e.* water, nutrients (especially nitrogen and phosphorus) and salts, are either: * taken up by plants and removed from the site by harvesting; * safely stored within the soil profile; or * released into the surrounding environment in an acceptable form.

(20)	**Liquid effluent management** • runoff storage ponds (holding ponds) should be managed to avoid over-topping; • effluent collected in feedlot holding ponds should be applied uniformly to crops or pastures using a managed irrigation system; • effluent may also be applied to yards and roads for dust suppression purposes; • the rate and volume of effluent applied to utilisation areas should be such that surface runoff is kept to a practical minimum and excessive deep percolation is avoided.
(21)	**Stockpiling and composting of manure, sludge and other solid waste products** • manure and sludge removed from feedlot pens, drains, sedimentation system(s) and holding pond(s), and spilt and/or spoilt feedstuffs, should be either: * stored within the designated area(s) of the feedlot complex; * sold and exported from the feedlot property; * utilised immediately on the feedlot property; or * temporarily stored for a period not exceeding 28 days, at a suitably buffered location within a paddock near the utilisation site. • solid waste stockpiles and composting areas should be protected from rainfall runoff by diversion banks or drains and should be located within a controlled drainage area. • stockpiles of manure, sludge and spilt or spoilt feedstuffs should be managed to avoid burning, including by spontaneous combustion. Any fires should be extinguished as soon as practically possible. • the method of storage of manure, and other solid waste materials should ensure that pooling of rainwater is avoided.
(22)	**Carcass disposal** • the carcasses of dead animals should be disposed of so as not to cause environmental harm or nuisance.
(23)	**Community amenity** • the feedlot should be operated so as not to cause unreasonable interference with the comfortable enjoyment of life and property off-site, or with off-site commercial activity. • any release or utilisation of feedlot liquid effluent or solid waste products should be carried out so as to minimise environmental harm.
(24)	**Environmental monitoring** • any site specific monitoring requirements are determined by the administering authority. • all sampling for monitoring purposes should be in accordance with the most recent edition of the Department of Primary Industries Sampling Manual, or any similar publication which may supersede this document. • all measurement and analysis of contaminants released to waters should be made in accordance with methods prescribed in the Department of Environment and Heritage, Water Quality Sampling Manual, 2nd Edition, February 1995, or more recent editions or supplements to that document, as such become available. • the analysis of all samples collected for monitoring purposes must be performed by a laboratory accredited by the National Association of Testing Authorities (NATA) for the tests undertaken, or alternately, another laboratory approved by the administering authority. • all instruments and devices used for the measurement and monitoring of any parameter must be calibrated, operated and maintained in accordance with the relevant Australian Standard (if in existence), otherwise to a relevant international standard as nominated by the administering authority.

(25)	**Operational recording**
	Details (including the date and location) of the following feedlot operations are to be recorded:
	• details of all cattle introduced to and removed from the premises, including:
	  * number, and actual or average liveweight of cattle;
	  * date of introduction and removal; and
	  * cattle mortalities.
	• routine operating procedures undertaken to prevent or minimise environmental harm, including:
	  * pen cleaning and manure removal, storage and utilisation;
	  * effluent irrigation;
	  * fly and insect treatment and control; and
	  * maintenance of the controlled drainage area within the feedlot complex.
	• maintenance works carried out, including:
	  * drainage channel maintenance;
	  * diversion bank maintenance;
	  * sedimentation system maintenance;
	  * runoff dispersal area maintenance; and
	  * holding pond maintenance.
	• results of all monitoring undertaken.
	• details of staff training to enhance environmental management skills and awareness of environmental issues.
	• for each application of liquid effluent and solid waste material, the date, rate of application and the location of the land area receiving the effluent or solid waste material must be recorded.
	• details of the removal of liquid and solid wastes (other than by a release as permitted under an Environmental Authority) from the premises where the feedlot activity is carried out, including the following:
	  * the date, quantity and type of waste removed;
	  * the name and address of the purchaser of the waste.

(26)	**Incident recording**
	• records of all incidents must be maintained, including the following:
	  * the time, date and duration of equipment malfunctions or other operational problems which may have resulted in a direct or indirect impact on the environment;
	  * details of any corrective measures implemented;
	  * details of any uncontrolled release of contaminants reasonably likely to cause environmental harm;
	  * the results of assessments of the environmental impact of any releases of contaminants into the environment;
	  * details of any emergency involving the release of contaminants reasonably likely to cause material or serious environmental harm, including effluent holding pond overflows;
	  * details of any substantial increase in livestock mortalities;
	  * details of any changes in management practices, which may have resulted in enhanced environmental performance.

(27)	**Complaint recording**
	• all complaints regarding the feedlot enterprise received by the feedlot operator (or his/her employees), must be recorded. The complaint records should include the following details:
	  * time and date of detection and details of the complaint;
	  * method of communication (telephone, letter, personal etc);
	  * name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then, 'not identified' is to be recorded);
	  * wind direction and strength and any other relevant climatic conditions;
	  * details of complaint investigation undertaken and findings;
	  * any management practices that may have contributed to the complaint;
	  * name of person responsible for investigating the complaint;
	  * action taken as a result of the complaint investigation and signature of responsible person;
	  * details of notification of the administering authority (if applicable).

(28)	**Reporting** • all licensed feedlots are required to submit an Annual Return to the administering authority every year, prior to the anniversary date of the issue of the licence. This Annual Return should be prepared in a format approved by the administering authority. • as soon as practicable after becoming aware of any emergency or incident resulting in the release of a contaminant, other than those released during normal daily operations, which has caused or is likely to cause environmental harm, the feedlot owner/operator, must notify the administering authority by telephone or facsimile. Written confirmation is required following notification by telephone. This condition applies to such incidents as holding pond spills. • the administering authority must be immediately notified of any sudden increase in cattle mortalities.