ABN 29 057 616 896

PRELIMINARY ASSESSMENT REPORT

A BACKGROUND REVIEW OF THE PROPOSAL

PROPOSED FLOUR MILL

SHOALHAVEN STARCHES (MANILDRA GROUP) BOLONG ROAD, BOMADERRY

Prepared for:

SHOALHAVEN STARCHES PTY LTD

DECEMBER 2006

The Holt Centre, 29 Kinghorne Street, Nowra NSW
Telephone (02) 4423 6198 Facsimile (02) 4423 1569
Email – info@cowmanstoddart.com.au
www.cowmanstoddart.com.au

PRELIMINARY ASSESSMENT REPORT

A BACKGROUND REVIEW OF THE PROPOSAL

PROPOSED FLOUR MILL

SHOALHAVEN STARCHES (MANILDRA GROUP)
BOLONG ROAD, BOMADERRY

Cowman Stoddart Pty Ltd

ABN 29 057 616 896

PETER COWMAN, B.Sc.Agr., M.A.I.A.S.T.
STEPHEN RICHARDSON, M. Appl. Sc., B.T.P., Grad. Dip. Env. Mgt, CPP, MPIA
STUART DIXON, B. Urb & Reg Plan, CPP, MPIA
COLIN STODDART, Cert. T.C.P. (NSW), Ass. Dip T.C.P.

Phone: (02) 4423 6198
(02) 4423 6199

Facsimile: (02) 4423 1569
Email: info@cowmanstoddart.com.au
Website: www.cowmanstoddart.com.au

The Holt Centre
31 Kinghorne Street
Nowra NSW 2541

Postal Address:
PO Box 738
Nowra NSW 2541

TABLE OF CONTENTS

FIGURES

ANNEXURES

1.0 INTRODUCTION

1.1 BACKGROUND TO PROJECT

The Manildra Group is a wholly Australian owned manufacturer of a variety of flour, starch, gluten, glucose and ethanol based products.

The Manildra Group has been in flour milling since 1952 when the first flour mill was purchased in the NSW country town of Manildra.

The Manildra Group owns and operates flour mills at three locations

- Manildra, New South Wales
- Gunnedah, New South Wales
- Narrandera, New South Wales

The Manildra mills use state of the art equipment and technology to produce a full range of wheat flours and mixes for domestic and international markets. The Manildra Group has extensive milling capabilities with the Manildra mill ranking amongst the 10 largest mills in the world. The three mills actually compromise a total of six separate milling systems that allow the Company to produce an extensive range of flours, semolinas and specialty products.

The Company is vertically integrated with the majority of the flour produced at the Manildra mill being further processed at Manildra Group's main manufacturing facility at Nowra, NSW.

The Shoalhaven Starches Factory (which forms part of the Manildra Group of Companies) located on Bolong Road, Bomaderry produces a range of products for the food, beverage, confectionary and paper producing industries including: starch, glucose and ethanol.

At present flour used in the production process at the Bomaderry plant is supplied by the Company's flour mills at Manildra, Gunnedah and Narranderra. The train loads are brought to the plant via the switching yard at Bomaderry.

During these processes, reclaimed water is produced and disposed by spray irrigation onto pastures of the Company's Environmental Farm, which comprises over 1000 ha of land situated to the north of the factory site.

In 2002 the Department of Planning approved a development application (DA223) for the Company's Pollution Reduction Program No. 7 and which included the extension of the company's irrigation of effluent onto additional lands. This approval also enables ethanol

production at the plant to increase from 90 million litres per year to 126 million litres per year.

1.2 THE PROPOSAL

At present industrial grade flour is milled at the Company's Manildra Flour Mill and transported to the site by train for use as a raw material in the production of gluten and starch.

In addition mill feed (essentially the husk material from processed grain) is also transported to the site for use in the DDG dryers (constructed as part of PRP No. 7) which form part of the ethanol production processes at the plant.

Shoalhaven Starches plans to establish a Flour Mill within the existing factory site. It is proposed that wheat will be transported directly to the site by train and processed in the proposed Flour Mill into industrial grade flour for use in the production of starch and gluten at the Bomaderry Plant.

The husk (mill feed) material from the processing of this wheat will then be able to be used in the DDG dryers.

As a result the equivalent amount of flour and mill feed will no longer need to be transported to the site. The amount of material transported to the site by train will not change.

The benefit for the Company of relocating part of the industrial grade flour production to the Bomaderry Plant will be that subsequent spare capacity at the Manildra Plant can be devoted to the production of higher grade flour therefore increasing export opportunities for the Company.

Overall it is anticipated that the proposed Flour Mill at the Bomaderry site will process approximately 890 tonnes per day of wheat, producing 715 tonnes of industrial grade flour per day. Overall it is anticipated that the Flour Mill will produce approximately 265,000 tonnes of industrial grade flour per annum for use in the Bomaderry Plant.

The total flour processed on site will however not exceeds the previously approved amount of 10,000 tpw from both sources. Consequently, the wastewater volumes will remain unchanged.

The proposed Flour Mill will be housed within a new building to be sited within the existing factory site. The new building will comprise a plan area of around 240 m^2 and have a height above natural ground level of 25 metres. Two additional silos with a total capacity of 4000 tonnes will be sited adjacent to this new building.

Annexure B is a site plan depicting the proposed additions to the factory site.

Annexure C is a larger scale plan of the proposed Flour Mill.

Annexure D is a flow chart depicting the proposal in terms of the processes at the site, and in particular details the inputs and outputs as a result of the proposed Flour Mill at the site in relation to site processes.

Annexure E is a flow chart for the flour mill proposal only.

1.3 PART 3A OF THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

The proposed development is a project within the terms of Part 3A of the Environmental Planning & Assessment Act 1979. It comes within Item 1 to Schedule 2 of the State Environmental Planning Policy (Major Projects) 2005. In this regard, it is a designated development (agricultural produce industry) that will grind in excess of 30,000 tonnes of grain per annum and the site is situated partly within a sensitive coastal location as mapped by State Environmental Planning Policy No.71 - Coastal Protection.

The estimated cost of the expansion of the plant is in excess of $10 million.

The project will create an estimated construction workforce of 20 jobs during the 9 month construction phase; will sustainably maintain the existing workforce at the plant currently comprising 225 employees; and may increase employment on the site by up to an additional 8 employees.

2.0 BACKGROUND

2.1 THE SITE AND ITS SURROUNDING LOCALITY

The Shoalhaven Starches Factory site is situated on various allotments of land on Bolong Road, Bomaderry within the City of Shoalhaven. The factory site is located on the south side of Bolong Road on the northern bank of the Shoalhaven River. The factory site has an area of approximately 12.5 hectares.

The factory site is situated over the following parcels of land:

Lot	***Deposited Plan (DP) No.***
A	FP 334511
B	FP 334511
B	FP 376494
1	385145
1	838753
62	1078788
201	1062668
A	371386

The town of Bomaderry is located 0.5 km (approx.) to the west of the factory site, and the Nowra urban area is situated 2.0 km to the south west of the site. Although the "Riverview Road" area of the Nowra Township is situated approximate 600 metres immediately opposite the factory site across the Shoalhaven River.

The village of Terara is situated approximately 1.5 kilometres to the south east of the site, across the Shoalhaven River. Pig Island is situated between the factory site and the village of Terara and is currently used for dairy cattle grazing.

There are a number of industrial land uses which have developed on the strip of land between Bolong Road and the Shoalhaven River. Industrial activities include a metal fabrication factory, the Shoalhaven Starches site, Shoalhaven Dairy Co-op (Australian Co-operative Foods Ltd) (now closing down) and the Shoalhaven Paper Mill (Australian Papers). The industrial area is serviced by a privately owned spur railway line that runs from just north of the Nowra-Bomaderry station via the starch plant and Dairy Co-op to the Paper Mill.

The state railway terminates at Bomaderry with a separate, privately owned spur line to the factory site. Shoalhaven City Council sewerage treatment works is situated between the railway line and the factory.

The Company also carries out irrigation activities on the Company's Environmental Farm located over 1000 hectares on the northern side of Bolong Road. This area is cleared grazing land and also contains spray irrigation lines and wet weather storage ponds (total capacity 925 Megalitres). There are at present 6 wet weather storage ponds on the farm that form part of the irrigation management system for the factory.

The Environmental Farm stretches over a broad area of the northern floodplain of the Shoalhaven River stretching from Bolong Road in the south towards Jaspers Brush in the north. Apart from the environmental farm this broad area is mainly used for grazing (dairy cattle). The area mainly comprises large rural properties with isolated dwellings, although there are clustering of rural residential development along Jennings Lane ((approximately 1 kilometre away) and Back Forest Road (approximately between 500 metres to 1.2 kilometres away) to the west of the environmental farm; and Jaspers Brush Road, approximately 1.2 kilometres to the north of the Environmental Farm.

The subject proposal is to be situated entirely within the factory site located on the southern side of Bolong Road.

The proposal will enable industrial grade flour to be produced on the site for use in the production processes carried out at the factory. The husk from the milled wheat will also be used in the DDG dryers on the site. As a result the equivalent amount of flour and mill feed will no longer be transported to the site. The amount of material transported to the site will not change. Consequently, waste water volumes will remain unchanged.

Annexure A is a site locality plan depicting the location of the factory site and environmental farm as well as the surrounding locality.

2.2 PRODUCTION PROCESSES

The production process at the Shoalhaven Starches plant has developed over a number of years. Originally it was primarily concerned with the production of starch and gluten from flour. However the Company has pursued a number of technological innovations particularly with respect to reducing the environmental impacts of the Company's operations. As a result Shoalhaven Starches has been moving towards a "closed" system of production. Essentially this entails the efficient use of end products to ensure wastage is reduced to a minimum.

The first step in the production process is the delivery of flour and grain, by rail, from the

Company's flourmills at Manildra, Gunnedah and Narrandera. The trainloads are brought into the plant via the switching yard at Bomaderry. Flour is transferred via storage to the "wet end" of the plant where fresh water is added. The subsequent mixing and separation process produces starch and gluten.

This proposal will essentially involve a reduction by half in the amount of flour transported to the factory. Rather the proposal will enable approximately 50% of the Company's flour requirements to be produced on the site directly.

Gluten is dried to enable it to be packaged and distributed as a high protein food additive for human consumption. This product is then taken from the site after packaging for both local and export markets. The lower grade product from the starch process is used for fermentation and distillation to produce ethanol.

Starch that is separated from the flour is either dried or remains in liquid form. The dried and liquid starch is sold to the paper and food industries. The starch is used for food, cardboard, paper and industrial purposes. The lower grade product from the liquid starch process is used in the ethanol production process.

Starch is also used in the production of syrups on the site. The syrups plant products include glucose and brewer's syrup. These are used for foods, chocolates, confectionery, beer, soft drinks and fruit juice. The syrups plant also has some lower grade product that is used in the ethanol process.

The lower grade product from the starch, gluten and syrup production processes are combined to feed the fermentation and distillation stage of ethanol production. The outputs are fuel and industrial grade ethanol as well as products for pharmaceuticals, printer's ink and methylated spirits.

The ethanol production has some lower grade product which is processed in the stillage recovery plant to produce animal feed (DDGS). The effluent resulting from the stillage recovery plant is pumped to holding tanks and pH corrected, before being irrigated onto Shoalhaven Starches Environmental Farm to the north of Bolong Road. This land is used for fodder crops, pasture and cattle grazing.

The efficiency of using reclaimed water for irrigation is usually determined by the hydraulic load. The hydraulic load is the volume of water applied per hectare per specific time period. During wet weather periods when irrigation is not possible, the hydraulic loading rate is effectively zero. Under these circumstances, the reclaimed water must be stored and used at other times. At present the Shoalhaven Starches

Environmental Farm has 6 wet weather storage ponds used for the storage of waste waters during wet weather periods. These ponds have a combined capacity of 925 ML.

As this proposal essentially involves a change in how flour is supplied with the production of 50% of the Company's flour requirements on-site rather than transporting the flour to the site; the proposal will not result in any impacts on the production of starch, gluten or syrups.

Likewise, the proposal will not result in any changes to wastewater volumes generated from the site. As a result the proposal will not have any implications in terms of the wastewater management process at the site or the adjoining Environmental Farm.

2.3 HISTORY OF DEVELOPMENT ON THE SITE

Shoalhaven Starches Pty Ltd is a member of the Manildra Group of Companies, which is the largest user of wheat for industrial purposes in Australia. The Manildra Group originated from the NSW Country town of Manildra where a single flour mill was purchased in 1952.

The Shoalhaven Starches wheat starch and gluten plant at Nowra was originally constructed in 1970. The Manildra Flourmills, at Manildra, Gunnedah and Narrandera, supply the Shoalhaven Starches Plant. This factory now produces wheat starch, gluten, syrups and ethanol (industrial and fuel grades). The Shoalhaven Starches facility creates direct on-site employment for 225 employees. Through the use of local contractors and local industry it also indirectly creates employment for many more.

In order to address the issue of wastewater disposal, in 1984 Shoalhaven Starches installed a spray irrigation system, using farmland it owned on the northern side of Bolong Road at Bomaderry.

In June 1991, two storage ponds were built (Ponds No. 1 and 2) resulting in the cessation of effluent discharge to the Shoalhaven River. To further reduce wastage, Shoalhaven Starches sought to use excess starch for the production of ethanol. Ethanol production began at the Shoalhaven site in June 1992.

In 1994, the State Government approved the installation of a larger ethanol distillery within the existing site. The new distillery and its associated facilities enabled production of ethanol to increase from 20 million litres per annum to a production capacity of 100 million litres per year. To date the works associated with this approval have not been fully completed.

When completed the facilities associated with those approvals will include:

- an ethanol distillery;
- four fermentation tanks;
- a new office and laboratory;
- an intake and discharge wharf on the Shoalhaven River;
- a salt water cooling pumping station;
- expanded agricultural activities;
- waste disposal and management.

Subsequent to this approval Shoalhaven City Council issued development consent for;

- Protein Isolate plant and DDG Dryer;
- Sorghum grinding plant.

Shoalhaven City Council issued development approval for the construction of a wet weather storage pond (Pond No. 6) on the 27th April 2001. At present, with the recent completion of Pond No. 6, Shoalhaven Starches has a combined effluent storage capacity within the existing ponds of 925 ML.

On the 1st June, 2001 the Minister for Urban Affairs & Planning, Dr Andrew Refshauge MP, declared both the Shoalhaven Starches factory and Environmental Farm as being State Significant Development for the purposes of Section 76A(7) of the Environmental Planning & Assessment Act. Under the provisions of this declaration, all development except "*alterations and additions to existing development which, in the opinion of the Minister in consultation with Council, are of minor nature and do not to any significant extent change the scale, size, design or environmental impact of the existing development*" requires the Minister's consent.

In 2003 the Minister for Planning issued development consent (D223) for Shoalhaven Starches Pollution Reduction Program (PRP) No. 7. This approval essentially enabled the implementation of the Company's Wastewater Management Strategy, and essentially sought to remove solids (suspended and soluble) from the Company's effluent, prior to its irrigation on the Environmental Farm.

This process, known as Stillage Recovery, essentially involves the introduction of additional decanters, the installation of an evaporation plant and additional dryers, to remove solids from the effluent. It is the solids in the effluent that when sprayed onto the Environmental Farm, or stored in the wet weather storage ponds, which result in the generation of odours.

The recovery of the suspended and soluble solids from the effluent can not be undertaken by the dryers in this process, without firstly providing additional coarse solids. Additional coarse solids (ie. mill feed) were required to be imported to the site.

As a consequence of the additional grain, the starch contained in the grain resulted in a need to increase ethanol production. This increase in ethanol production required the installation of additional fermenters, associated cooling towers and molecular sieves.

The increase in ethanol production also resulted in an increase in effluent which was required to be disposed on the environmental farm. In this regard this proposal also included an increase in effluent disposal area.

Much of the plant associated with this approval has now been installed and commissioned.

All of the wastewater treatment equipment is installed and commissioned.

3.0 THE PROPOSED EXPANSION

3.1 OBJECTIVES OF PROJECT

At present industrial grade flour is milled at the Company's Manildra, Gunnedah and Narrandera Flour Mills and transported to the site by train for use as a raw material in the production of gluten and starch.

In addition mill feed (essentially the husk material from processed grain) is also transported to the site for use in the DDG dryers which form part of the ethanol production process at the plant.

Shoalhaven Starches plans to establish a Flour Mill within the existing factory site. It is proposed that wheat will be transported directly to the site by train and processed in the proposed Flour Mill into industrial grade flour for use in the production of starch and gluten at the Bomaderry Plant.

The husk (mill feed) material from the processing of this wheat will then be able to be used in the DDG dryers.

As a result the equivalent amount of flour and mill feed will no longer need to be transported to the site. The amount of material transported to the site by train will not change.

The benefit for the Company of relocating part of the industrial grade flour production to the Bomaderry Plant will be that subsequent spare capacity at the Manildra Plant can be devoted to the production of higher grade flour therefore increasing export opportunities for the Company.

It is anticipated that the proposed Flour Mill at the Bomaderry site will process approximately 890 tonnes per day of wheat, producing 715 tonnes of industrial grade flour per day. Overall it is anticipated that the Flour Mill will produce approximately 265,000 tonnes of industrial grade flour per annum for use in the Bomaderry Plant.

The total flour processed on site will not exceed the previously approved amount of 10,000 tpw from both sources. Consequently, the wastewater volumes will remain unchanged.

The proposed Flour Mill will be housed within a new building to be sited within the existing factory site. The new building will comprise a plan area of around 240 m^2 and have a height above natural ground level of 25 metres. Two additional silos with a total capacity of 4000 tonnes will be sited adjacent to this new building.

Annexure B is a site plan depicting the proposed additions to the factory site.

Annexure C is a larger scale plan of the proposal.

Annexure D is a flow chart depicting the proposal in terms of the processes at the site, and in particular details the inputs and outputs as a result of the proposed Flour Mill at the site.

Annexure E is a flow chart for the flour mill proposal only.

3.2 THE PROPOSED FLOUR MILL

The proposed flour mill will involve the construction of a building with a plan area of about 240 m^2. Whilst the location of the mill on the site has been identified its final design site layout is still being resolved. This building will be constructed using tilt up concrete panel construction and will have a height above ground level of 25 metres. This will approximately match the height of the existing adjacent structures.

Within this structure it is proposed to locate the following machinery:

- Several roller mills
- Sifters
- Bucket elevators
- Pneumatic product conveying systems

In addition, the Company proposes to erect three storage silos to store wheat to be used in the four production process. One of these silos has already been approved as part of the PRP No. 7 approval issued by the Minister in 2003. The other two silos will be situated within proximity of the mill and will comprise an overall storage capacity of 4000 tonnes.

3.3 THE EXISTING GRAIN PLANT

Waste product from the starch, gluten and syrup production processes at the factory are combined to feed the fermentation and distillation stage in the ethanol production process. The outputs of the process are fuel and industrial grade ethanol. The residue from the ethanol process is directed to stillage recovery plant, the reclaimed water from the stillage recovery plant is then irrigated.

The distillery at Shoalhaven Starches is supplied feed material from 2 sources on the site:

- starch from the starch plant; and

- crushed grain from the grain processing plant.

These feed streams are fermented and distilled in the distillery. The product from the distillery is ethanol. The by-products from this process are the remaining grain husks and "unfermentables" from the feed stream; carried by water.

Grain is also used as a coarse fibre in the feed to the DDG dryers as part of the stillage recovery process to dry soluble solids recovered from wastewater by evaporation. If insufficient fibre is fed into the dryers, the moist syrup fed into the dryers cannot be adequately absorbed and the product becomes "sticky". After a period the syrup sticks to the heating surface of the dryer resulting in a loss of drying capability.

There is therefore a need to mix grain fibre into the syrup to ensure that the mixture is sufficiently friable to enable the DDG Dryers to operate efficiently.

The processing of wheat in the proposed flour mill will also create husk material from the milled wheat. This husk material or "mill feed" will be able to be used with the grain fibre in the DDG dryers. As a result the amount of mill feed transported to the site will also be able to be reduced.

This proposal will have no other implications for the grain plant on the site.

3.3 THE STARCH PLANT

The proposal will enable a reduction in the amount of flour transported to the site, as up to 50% of the flour used to produce the starch and gluten will be able to be processed on the site.

Overall production rates will remain as approved. The total flour processed on site will not exceed the previously approved amount of 10,000 tonnes per week from both the proposed flour mill on the site, and that transported to the site by rail.

As the proposal merely relates to a change in the manner by which flour is supplied to the production process, no modifications are proposed for the starch plant.

3.4 ETHANOL PLANT

The ethanol plant utilises waste from the starch, gluten and syrups components of the plant to feed fermentation and distillation of ethanol production. In effect the ethanol production comprises an integral component of the Company's waste treatment process. As this proposal does not seek to increase overall production rates at the site the proposal will have no impact on the existing ethanol plant and its associated processes.

3.5 WASTEWATER TREATMENT AND DISPOSAL

3.5.1 Stillage Recovery

The 2003 approval by the Minister of the Company's Pollution Reduction Program No. 7 introduced a Stillage Recovery process into the production process at the plant. The objective of stillage recovery seeks to improve the system for the removal of suspended and soluble solids within the Company's wastewater system.

This process includes the use of decanters, evaporators and DDG dryers.

Decanters are essentially mechanical separation devices which operate by centrifugal separation process that separates out the unfermented suspended solids in stillage, ie. the waste liquid left over from the distillation of ethanol.

Evaporators are designed to reduce the water content of "overflow" stillage (after it passes through the decanters). The evaporators operate by mechanical vapour recompression. The overflow from the decanters is fed into tubes within the evaporator and heated by steam. The liquid within the overflow is heated to a point where it evaporates and is separated from the remaining solids, which remain as syrup. The liquid (ie. condensate) is captured and directed to the environmental farm for irrigation ie the reclaimed water.

The syrup product is directed to DDG dryers for further drying. The DDG dryer is essentially a barrel in which a bundle of steam tubes are rotated at low speed. Evaporator concentrate (syrup) and decanter concentrate (wet insoluble solids) are fed into one end of the barrel and traversed through to the other end by baffles. Heat from the tubes removes moisture.

Dried DDG is removed from the barrel and conveyed to the storage room for further loading into trucks.

The wheat processed at the flour mill will produce flour and residue husk material or "mill feed". The mill feed produced on site will be able to be fed into the DDG dryers in place of mill feed transported by rail.

The proposal however will have no other implications for ethanol production on the site.

3.5.2 Effluent Irrigation

As outlined the total amount of flour processed at the site will not exceed the previously approved amount of 10,000 tpw. Consequently wastewater volumes required to be irrigated onto the Company's Environmental Farm will remain unchanged following the establishment of a flour mill on the site.

3.6 ENERGY AND UTILITIES

The existing plant has the capacity to produce 145 t/h of process steam by four boilers. The boilers are primarily fuelled by coal. The current operations however produce about 120 t/h.

The site currently has an electricity supply of 20 MVA.

The Company also currently utilises 180 Terajoules of Natural Gas.

The total requirements for the plant resulting from the proposed flour mill are estimated at additional 1 MVA of power; with other sources will remain unchanged.

4.0 STATUTORY APPROVAL CONTEXT

4.1 SHOALHAVEN LOCAL ENVIRONMENTAL PLAN 1985

The Main Factory Site

The majority of the existing Shoalhaven Starches Factory Site within which the ethanol, glucose, starch and grain plants are sited is zoned 4(e) Industrial (Restricted Development) under the provisions of Shoalhaven Local Environmental Plan 1985. All works associated with this proposal are sited within that portion of the site that is zoned 4(e).

The objective of this zone is to:

> *"...identify locations in existing industrial areas with development problems where special consideration will be required before development can be approved."*

Industrial development is permissible under the provisions of this zoning.

Refer **Annexure B** for details of the zoning provisions as they apply to the factory site.

4.2 PART 3A ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

The introduction of Part 3A to the Environmental Planning & Assessment Act 1979; and the introduction of State Environmental Planning Policy (Major Projects); brought about a change in the regime concerning the assessment of state significant development. Pursuant to Section 75B of the Act, development subject to the provisions of Part 3A of the Act includes development referred to within a State Environmental Planning Policy. The Minister for Planning is the consent authority for such development.

State Environmental Planning Policy (Major Projects) supports the introduction of Part 3A to the Act. Schedules 1 and 2 of this SEPP outline those developments that are essentially subject to the provisions of Part 3A of the Act.

Schedule 1 SEPP (Major Projects)

Schedule 1 of SEPP (Major Projects) outlines classes of development that, if in the opinion of the Minister, are declared to be projects to which Part 3A of the Act apply. Group 1 within this schedule outlines criteria for agricultural, timber and related industries and includes:

> ***3 Agricultural produce industries and food and beverage processing***
>
> *Development that employs 100 or more people or has a capital investment value of more than $30 million for any of the following purposes:*

(a) abattoirs or meat packing, boning or products plants; milk or butter factories; fish packing, processing, canning or marketing facilities; animal or pet feed; gelatine plants; tanneries; wool scouring or topping; rendering plants, or

*(b) cotton gins; cotton seed mills; sugar mills; sugar refineries; grain mills or silo complexes; edible or essential oils processing; breweries; distilleries; **ethanol plants**; soft drink manufacture; fruit juice works; canning or bottling works; bakeries; small goods manufacture, cereal processing or margarine manufacturing, or*

(c) organic fertiliser plants or composting facilities or works.

This proposal includes alterations and additions to a factory that currently employs around 225 people. The proposed flour mill is estimated to involve a capital investment of $ 10 million.

Schedule 2 SEPP (Major Projects)

Schedule 2 of SEPP (Major Projects) also outlines those classes situated within the coastal zone that are also deemed to be state significant development. This Schedule includes:

1 Coastal areas

(1) Development within the coastal zone for any of the following purposes:

(a) extractive industries,

(b) landfill facilities,

(c) mining that is designated development and that is wholly or partly in a sensitive coastal location,

(d) marinas that are designated development and that are wholly or partly in a sensitive coastal location,

(e) the following types of industries (other than mining or extractive industries) but only if they are:

(i) designated development, and

(ii) in the case of the metropolitan coastal zone—wholly or partly in a sensitive coastal location:

agricultural produce industries, bitumen pre-mix industries, breweries or distilleries, cement works, ceramic or glass industries, chemical industries or works, chemical storage facilities, composting facilities or works, contaminated soil treatment works, crushing, grinding or separating works, drum or container reconditioning works, electricity generating

stations, livestock intensive industries, livestock processing industries, mineral processing or metallurgical works, paper, pulp or pulp products industries, petroleum works, wood or timber milling or processing works, or wood preservation works,

The subject site is situated within the Coastal zone.

The proposed flour mill would be defined as an agricultural produce industry. For the purposes of Schedule 3 of the Environmental Planning & Assessment Regulations, agricultural produce industries that are designated developments which:

"...process agricultural produce, including dairy products, seeds, fruit, vegetables or other plant material):

(a) that crush, juice, grind, mill, gin, mix or separate more than 30,000 tonnes of agricultural produce per year, or

(b) that release effluent, sludge or other waste:

(i) in or within 100 metres of a natural waterbody or wetland, or

(ii) in an area of high watertable, highly permeable soils or acid sulphate, sodic or saline soils

It is understood that the proposed Flour Mill will process approximately 182,500 tonnes of grain per annum.

4.3 RELEVANT LEGISLATION AND OTHER APPROVALS

In accordance with Part 3A of the EP&A Act, approvals under the eight Acts listed under Section 75U Clause 1 of the EP&A Act are not required. These Acts include:

a) the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of the Act,

(b) a permit under section 201, 205 or 219 of the Fisheries Management Act 1994 ,

(c) an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977 ,

(d) a permit under section 87 or a consent under section 90 of the National Parks and Wildlife Act 1974 ,

(e) an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation,

(f) a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948,

(g) a bush fire safety authority under section 100B of the Rural Fires Act 1997 ,

(h) a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000 .

The proposal may however be subject to the following legislation and approval requirements.

Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act)

Under the EPBC Act 1999, approval of the Commonwealth Minister for the Environment is required for actions that may have a significant impact on matters of National Environmental Significance, except in circumstances which are set out in the EPBC Act. Approval from the Commonwealth is in addition to any approvals under NSW legislation.

A Flora and Fauna Assessment undertaken by Kevin Mills & Associates as part of the previous PRP No. 7 proposal approved by the Minister in 2003, and which included the same land as that associated current project, also included an assessment under the requirements of this legislation. This assessment concluded:

> *"The proposed upgrade and expansion of the Environmental Farm are not likely to have a significant effect on any species or communities listed under the Environmental Protection and Biodiversity Conservation Act. It is therefore not necessary to refer the matter to the Commonwealth Environment Minister for approval."*

The flour mill is proposed to be sited within the confines of the existing factory site within a heavily developed part of the site. No native vegetation will be disturbed. Under these circumstances it is considered the proposal will not instigate the provisions of this legislation.

Protection of the Environment Operations Act

The existing development has an Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act) (EPL No. 883). The licence imposes requirements in terms of:

- discharges to air, water and land;
- irrigation controls;
- management of irrigation;
- maintenance of irrigation reticulation;

- odour control.

Following discussions with staff from the Department of Environment & Conservation it is understood that this proposal will not require any modifications to the existing EPL for this site. The proposal will need to demonstrate that the proposal will be able to continue to satisfy the requirements of the Company's EPL for the site.

Threatened Species Conservation Act

This legislation was introduced with the objectives of conserving threatened species, populations and ecological communities of animals and plants. The Act amends the Environmental Planning & Assessment Act and the National Parks & Wildlife Act. With respect to this proposal the legislation introduces the need for a proposal to address certain matters in respect of threatened species and their habitats.

A Flora and Fauna Assessment undertaken by Kevin Mills & Associates accompanied the EIS submitted in connection with previous PRP No. 7 proposal approved by the Minister in 2003, included an assessment under the requirements of this legislation. This assessment concluded:

> *"The proposed upgrade and expansion of the Environmental Farm are not likely to have a significant effect on any threatened species, populations or ecological communities. The preparation of a Species Impact Statement is therefore not required."*

The flour mill is proposed to be sited within the confines of the existing factory site within a developed part of the site. No native vegetation will be disturbed. Under these circumstances it is considered the proposal will not instigate the provisions of this legislation.

4.4 STATE ENVIRONMENTAL PLANNING POLICIES

The following State Environmental Planning Policies (SEPPs) are relevant to the proposed development:

- ***SEPP No. 11 - Traffic Generating Developments***

  The objective of this policy is to ensure the Roads and Traffic Authority is made aware of and given an opportunity to make representations in respect of developments that are likely to have an impact on traffic volumes and road networks in the locality. The proposed additional floor space associated with this proposal will not trigger the referral requirements under this policy.

- ***SEPP No. 14 - Coastal Wetlands***

  The aim of this policy is to *"ensure that coastal wetlands are preserved and protected in the environmental and economic interest of the state"*.

  In respect of land to which this policy applies, development consent is required to:

  (a) clear that land;

  (b) construct a levee on that land;

  (c) drain that land; or

  (d) fill that land.

  One SEPP No. 14 wetland (No. 369) is located within the Company's Environmental Farm land located across Bolong Road to the north of the factory site. The works associated with this proposal however are not sited within the vicinity of this wetland. The provisions of this SEPP will therefore not apply to this proposal.

- ***SEPP No. 33 - Hazardous and Offensive Development***

  The Shoalhaven factory site comprises a "*potentially hazardous industry*" and "*potentially offensive industry*" under the provisions of this policy. Under the provisions of clause 12 of this SEPP any proposal involving a potentially hazardous industry must prepare a Preliminary Hazard Analysis.

- ***SEPP No. 71 - Coastal Protection***

  On the 1st November 2002 the State Government gazetted SEPP No. 71. This policy

  - *"identifies State significant development in the coastal zone, and*
  - *requires development applications to carry out development in sensitive coastal locations to be referred to the Director-General for comment, and*
  - *identifies master plan requirements for certain development in the coastal zone."*

  The Policy originally made the NSW Minister for Planning the consent authority for the following development within the coastal zone:

  - *mining, extractive industry, industry, landfill, recreational establishments, marinas, tourist facilities (except bed and breakfast establishments and farm stays as defined in the SEPP);*
  - *structures greater than 13 m in height;*

- *subdivision of land within a residential zone into more than 25 lots;*
- *subdivision of land within a rural residential zone into more than 5 lots;*
- *subdivision of land within any zone into any number of lots if effluent will be disposed of by a non-reticulated system.*

These provisions have however been repealed by SEPP (Major Projects) 2005.

The coastal zone has the same meaning as in the Coastal Protection Act 1979. This Act essentially maps the area of land and waters that lie to the west of coastal waters. From a perusal of this mapping it is evident that the coastal zone covers the subject land, and the factory site is also identified as a sensitive coastal location under this SEPP. Under these circumstances, the subject site is affected by the provisions of this Policy.

- ***SEPP - Major Projects 2005***

The aims of this Policy are as follows:

(a) to identify development to which the development assessment and approval process under Part 3A of the Act applies;

(b) to identify any such development that is a critical infrastructure project for the purposes of Part 3A of the Act;

(c) to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State so as to facilitate the orderly use, development or conservation of those State significant sites for the benefit of the State;

(d) to facilitate service delivery outcomes for a range of public services and to provide for the development of major sites for a public purpose or redevelopment of major sites no longer appropriate or suitable for public purposes;

(e) to rationalise and clarify the provisions making the Minister the approval authority for development and sites of State significance, and to keep those provisions under review so that the approval process is devolved to Councils when State planning objectives have been achieved.

This SEPP is addressed in Section 4.2 of this report. Essentially the Minister has declared that this project is a major project pursuant to the provisions of Part 3A of the EP&A Act and SEPP (Major Projects) 2005. The provisions of this policy therefore apply to this project.

4.5 REGIONAL ENVIRONMENTAL PLANS

The subject site is also affected by the provisions of the Illawarra Regional Environmental Plan (IREP) No. 1.

Pursuant to the provisions of Clause 139 of the IREP development consisting of a height of more than 11 metres requires the concurrence of the Director of Planning. The proposal will consist of a height of approximately 25 metres.

4.6 OTHER RELEVANT POLICIES

The following policies are also likely to have relevance to the subject proposal of site:

- NSW Government Coastal Policy;
- NSW Government Floodplain Management Manual;
- Shoalhaven City Council Development Control Plan No. 93 Controls for Waste Minimisation & Management;
- Shoalhaven City Council Interim Flood Policy;
- Shoalhaven Estuary Management Plan;

4.7 APPROVAL REGIME FOR PROJECT

As outlined above in Section 4.2, the proposed development meets the criteria for a Major Project under Part 3A of the EP&A Act and SEPP (Major Project) 2005. If deemed a Major Project the consent authority for the project will be the Minister for Planning.

In accordance with Part 3A of the EP&A Act, approvals listed under eight Acts listed under Section 75U Clause 1 of the EP&A Act are not required.

The existing development has an Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act) (EPL No. 883).

5.0 POTENTIAL ENVIRONMENTAL ISSUES ASSOCIATED WITH PROJECT

5.1 NOISE

As the ambient noise varies throughout the day the permissible noise emission from a site may vary. The EPA Licence for the Shoalhaven Starches Plant is based upon the minimum ambient background levels that generally tend to occur at night, whereas construction activities occur in the daytime only.

The current EPA Licence conditions relate to criteria derived from night time ambient measurements and the EPA Environmental Noise Control Manual (the "ENCM") that utilise the concept of an average maximum (L_{10}) noise level versus the average minimum (L_{90} background) level.

Condition L6.3 of the EPA Licence for the site states:

The $LA_{10\ (15\ minute)}$ sound pressure level contribution generated from the premises must not exceed the following levels when measured at or near the boundary of any residential premises:

- 38 dB(A) at locations in Terara on the south side of the Shoalhaven River;
- 38 dB(A) at locations in Nowra on the south side of the Shoalhaven River;
- 42 dB(A) at locations in Meroo Street, Bomaderry; and
- 40 dB(A) at other residential locations in Bomaderry.

Compliance testing conducted on a regular basis (every 6 months) on behalf of Shoalhaven Starches to date has found noise emissions from the premises generally satisfies the EPA criteria as a result of implementation of various noise controls associated with previous expansion works on the Shoalhaven Starches site.

The flour mill proposal will operate 24 hours per day, 7 days per week, as does the existing factory development (except during possible maintenance shut down periods). The flour mill proposal has the potential to increase noise emissions from the plant processes, although acoustical treatment of these components will assist in minimising the noise impact from the site. Acoustic impacts associated with the proposal are therefore expected to be a significant key issue that will be required to be addressed in detail in any Environmental Assessment.

It is expected that an operational acoustic assessment will be required to be prepared generally having regard to the *DEC's Industrial Noise Policy (INP)* to address the proposed additional plant.

As the proposal does not seek to increase the amount of product transported to the site either by road or rail it is not expected that an acoustical assessment will need to address noise from transport associated with the proposal.

5.2 AIR EMISSIONS

The existing plant has several air emission sources. As a result the existing operation has the following emission control equipment to minimise emissions to the atmosphere:

- Approximately 60 bag houses to capture particulate matter.
- 3 wet scrubbers and condensers form part of the equipment to control the gas stream prior to the DDG dryer bleed air passing through to the boiler for destruction.
- A carbon dioxide (CO_2) compression plant. This plant takes the CO_2 generated from fermenters and compresses the gas. This reduces the greenhouse gas emissions to the atmosphere. The plant is operated by BOC Gases.

The establishment of a flour mill at the site may potentially increase air emissions from the plant, particularly in terms of additional particulates from the milling of grain. These risks will be eliminated by the use of suitable particulate control equipment.

Process design and pollution control equipment will need to ensure that emissions will be compliant with the ambient air quality objectives of the Company's current EPL and the Protection of the Environment Operations Act. The issue of air emissions is likely to be a significant key issue that will need to be addressed in any application for approval from the Minister. A comprehensive Air Quality Impact Assessment for the proposal will be required for the proposed expansion of the plant and environmental farm.

5.3 ODOUR MANAGEMENT

In the past, odours have been mainly generated from the disposal of starch effluent on the Environmental Farm, with effluent application to moist ground resulting in effluent ponding and odour generation.

The Environmental Farm forms the heart of the wastewater management system for the factory. Wastewater is irrigated onto the farm to provide water and nutrients for crops grown on the farm. Under conditions where wastewater cannot be directly irrigated (eg.

wet weather conditions) the waste water is stored in ponds located on the farm. Conditions leading to odour development on the irrigation land include:

- poor surface drainage
- decreased infiltration due to high organic load;
- age and type of pasture;
- inappropriate irrigation; and
- sludge stored in the ponds

The establishment of the ethanol distillery plant in 1994 removed the starch content. Since this time Shoalhaven Starches have sought to reduce odour potential by increasing the efficiency of the removal of solids from effluent. This culminated in the PRP No. 7 project approved by the Minister in 2003.

The Company's Pollution Reduction Program, formulated by the EPA requires:

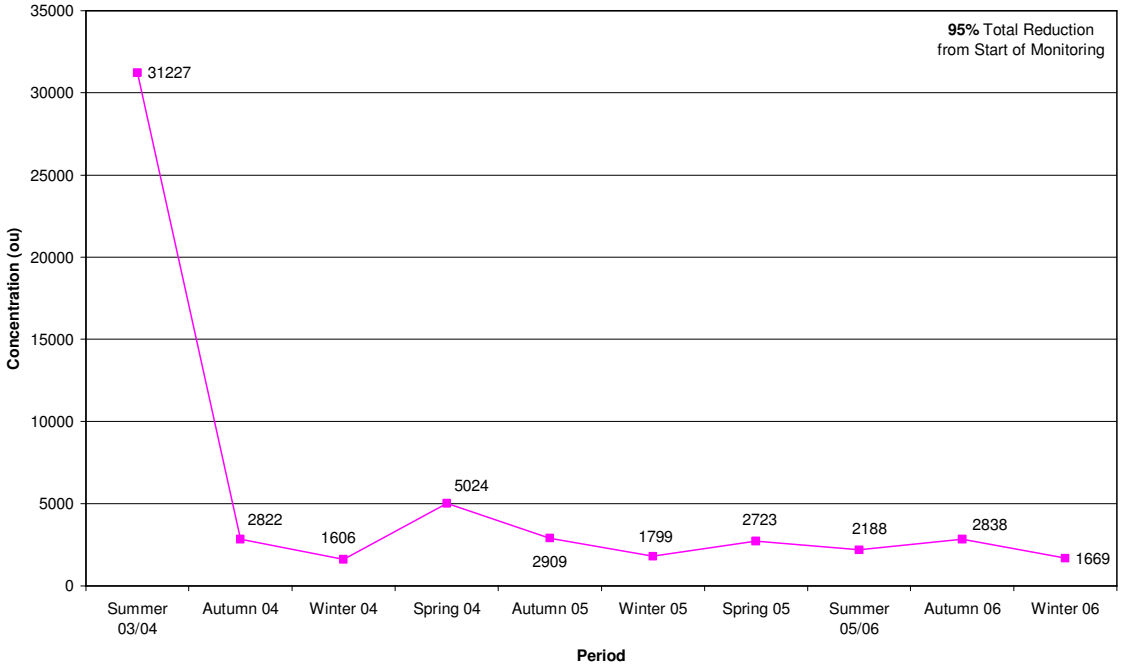
> *"The licensee must not cause or permit the emission of offensive odour from the upgraded wastewater management system. The system should comply with this requirement having regard to the EPA's interim odour performance criteria contained in the EPA's draft policy "Assessment and Management of Odour from Stationary Sources in NSW (January 2001)".*

The aim of the PRP No. 7 project, approved by the Minister in 2003 sought to further reduce soluble and suspended solids in the effluent; thereby further improving the quality of the effluent irrigated onto the environmental farm. It was envisaged that improving the quality of effluent sprayed onto the environmental farm would reduce the level of odours emitted from the farm to the surrounding locality.

Figure 1 is a graph illustrating odour emission levels from a typical pond (Pond 3), showing odour readings from summer 2003/2004 to winter 2006. It is evident from a review of this graph that there has been a dramatic reduction in odour emissions since the commissioning of PRP No. 7 in autumn 2004.

Figure 1 - Pond 3 Odour Concentrations

(Source - Stephenson Environmental Management Australia)



Shoalhaven Starches also adopts measures to mitigate odour impacts from the ponds on the farm including:

- The effluent entering the ponds is mixed and adjusted using sulphuric acid to a pH of approximately 2.5. This maintains the water in the pond at an acidic pH and prevents the microbial activity that would result in odour generation.
- Trees planted around the site increase wind turbulence which assists with odour dispersion.
- Sludge solids generated from the ponds are also injected into the farm soil to further minimise odour generation.
- Under the Company's Pollution Reduction Program No. 17 and in accordance with agreements with the DEC, Pond No. 4 has been covered as part of the company's Odour Management Plan.

As this proposal does not intend to increase wastewaters from the factory site it is not expected that the proposal will have a significant impact on the generation of odours from the site.

Given the history of the site, however odour emissions are a potential environmental risk. Odour management is therefore likely to be an issue that will need to be addressed.

It is expected that the Air Quality Impact Assessment outlined in Section 5.2 above will also address issues associated with odour generation and management from the proposed flour mill.

Currently, a comprehensive odour audit is being conducted for the overall Shoalhaven Starches operations to identify odour sources and recommend remedial actions where required. The proposed Flour Mill will also be included in this audit.

5.4 TRAFFIC AND TRANSPORT

Traffic Access

Traffic access to the Shoalhaven Starches site is provided via Bolong Road from the Princes Highway. From the Highway, trips distribute to the north and south, as well as to the west (via a northern route through Albion Park to the Hume Highway or via Moss Vale). Light vehicle trips are able to disperse from the site along any route, including Bolong Road eastbound for trips to the north (via Gerringong). Heavy vehicles are not permitted to use Bolong Road (eastbound) for regional trips.

Heavy vehicle trips use the following regional routes: -

North

- Via Bolong Road, Railway Street, Cambewarra Road and Meroo Road to the Princes Highway
- Via Bolong Road and the Princes Highway (B-double restrictions apply in Railway Street, Cambewarra Road and Meroo Road)

South

- Via Bolong Road and the Princes Highway south
- Via Bolong Road, Railway Street and Cambewarra Road (through Moss Vale)
- Via Bolong Road and the Princes Highway north through Mount Ousley and Wilton for B-doubles
- Via Bolong Road and the Princes Highway south to Nowra businesses or driver residences (no B-double route south of Nowra)

West

- Via Bolong Road and the Princes Highway north (B-doubles through Mount Ousley and Wilton)
- Via Bolong Road, Railway Street and Cambewarra Road (through Moss Vale)

Site Access

Access to the site for heavy and light vehicles is provided via three separate access points to Bolong Road. Vehicle movements to these access points remain constant throughout the week; some small access changes occur when the train is stopped on-site, requiring vehicles to [occasionally] depart via a different access point during that period.

Access Point 1 is located at the eastern end of the Site. The intersection of this access point and Bolong Road is designed as a Type "C" intersection (as described by AustRoads in the *Guide to Traffic Engineering Practice Part 5*). Access Point 1 provides access for: -

- Staff vehicles to the primary staff car park (arrival and departure);
- Ethanol trucks (arrival and departure);
- Brewers trucks (arrival and departure);
- Glucose trucks (arrival and departure);
- Starch trucks (arrival and departure).

Access Point 2 is located just to the east of the railway line, and directly adjacent to a drainage culvert (Abernathy's Creek). The intersection is designed as a Type "A" intersection (as per AustRoads) and is in good condition.

Access Point 2 provides access for: -

- Staff vehicles (minimal);
- Brewers trucks (departure only);
- Bulk starch (arrival and departure);
- Glucose trucks (departure only).

Access Point 3 is located at the end of a spur road that leads from the primary *Shoalhaven Starches* site around behind smaller industrial units to a point adjacent (west) to the Cleary Bros Concrete site. The spur continues to an intersection with Bolong Road. The intersection is designed as a Type "A" intersection (as per AustRoads) and is in generally good condition (including sight distances), though the road reserve is not fully sealed.

All flour and mill feed currently transported to the site is undertaken by rail. Under the proposal all wheat that is to be imported to the site for processing will also be brought

into the site by rail. Under these circumstances it is envisaged that the flour mill proposal will not have any effect on the level of heavy or light vehicular traffic to the site.

Rail

Along the southern edge of the site is a private rail line with two sidings. The line originates from Bomaderry, and is joined at Bomaderry to the main South Coast line from Sydney. Under current operations, trains arrive and depart at the Manildra site as follows:

(i) Arrive at 3:00 am and depart at about 10:00 am. Presently these trains usually run on Tuesday and Thursday.

(ii) Arrive at about 3:00 pm and depart at about 10:00 pm. Presently these trains run every day except Saturday.

Following the establishment of the flour mill, it is likely that:

(iii) Arrival at 3:00 am and depart approximately 10:00 am will occur on most days.

(iv) Arrivals at 3:00 pm and depart 10:00 pm will occur on all days of the week.

The proposal will not however alter the overall number of trains that are likely to be required to either supply raw materials or transport finished product form the site.

Traffic and transport issues, whilst important are not considered crucial key issues as the issues relation to acoustic and air emissions impacts. It is not anticipated that these matters will require detailed consideration as part of the Environmental Assessment.

5.5 WATER AND WASTEWATER MANAGEMENT

5.5.1 Water Consumption

Water is used in the starch production process. Production of starch and protein (gluten) from wheat flour is a water based mechanical separation process, which results in the production of an aqueous waste stream which contains residual fibre, soluble sugars, protein and starch.

In terms of water use it is common industry practice that 10 tonnes of water is required for each tonne of flour processed. Using technology developed at Shoalhaven Starches, water consumption is approximately 3 tonnes per tonne of flour processed.

A daily average of 7,500 kilolitres of water is used by Shoalhaven Starches for their total operations, comprising:

- 6,000 KL from the town water supply; and

- 1,500 KL from a raw water supply provided by Shoalhaven City Council via a pipeline from the Australian Paper Mill.

It is envisaged that the proposal will not require any additional water to be supplied to the site. The proposal merely involves the milling of wheat on the site to create flour. The proposal will not increase the amount of water used on the site.

5.5.2 Water Quality Impacts

Water Discharges

The Shoalhaven Starches Factory and Environmental Farm are licensed premises under the Protection of the Environment Operations Act. Wastewater discharges from the site are licensed by the DEC (EPL 883).

The plant has a licensed outfall into the Shoalhaven River. The outfall point is a 50 cm diameter metal pipe discharging at the end of an existing jetty. It also has a cooling water discharge comprising a 50 cm diameter pipe which discharges onto a gabion spillway.

Under the terms of the Company's EPL water waste streams associated with the plant include:

- river water passed through the boiler condensers and the primary side of the heat exchangers;
- boiler water treatment plant regeneration waters; and
- pH adjusted glucose plant ion exchange unit regeneration waters.

All these must be discharged from the cooling water discharges.

The limiting conditions in relation to these discharges include:

- The volume of water discharged form the cooling water discharges must not exceed 100,000 kilolitres per day.
- The waste waters discharged at both points shall not exceed a temperature of 32^{o}C.
- The water discharged from both discharges shall not contain more than 500 micrograms per litre of chlorine; and comprise a pH within the limits of 6.5 to 8.5.

The flour mill proposal will not involve any changes to these discharges waters.

Surface Water Management

The existing factory site is divided into three separate surface water management areas:

- Stormwater flows within the western portion of the site are directed to collection pits. Following small storm events, stormwater is pumped from these pits to the farm irrigation system. During heavy rainfall, stormwater flows directly to Abernethy's Creek.
- The central portion contains the ethanol distillery, starch plant and fermentation area. The Distillery is contained within a bunded area. Surface water within this area is directed to a separate collection pit, prior to discharge to the environmental farm.
- The eastern portion of the site contains ethanol storage, fermenters, loading facilities and car park. Again the ethanol storage and recovery areas are contained within bunded areas. Stormwater flows within this area are directed to a first flush pit in the south eastern corner of the site.

Overall the possible environmental risk associated with surface water involves either impacts associated with soil erosion and disturbance during the construction process and potential spillage of chemicals associated with the production processes. The risk is considered manageable through appropriate soil and water management measures during construction and spill management procedures and stormwater management. Surface water management will be required to be addressed in the Environmental Assessment for the project.

5.5.3 Wastewater (Condensate) Management

The current approved operation generates 4.6 ML of effluent per day. This flow is directed to the environmental farm for irrigation. The environmental farm covers 1000 ha of cleared grazing land. The effluent is limed ready for spray irrigation to produce forage, silage and pasture on licensed irrigation areas.

During prolonged wet weather, this effluent is directed to the wet weather storage ponds (capacity 925 ML) also situated within the environmental farm. The wet weather pond system comprises 6 ponds with a combined storage capacity of 925 ML and covering an area of around 15 ha.

For over 10 years, ground water and surface water monitoring has been undertaken across the farm providing a means to investigate irrigation practices.

As a result of this proposal the total flour processed on the site will not exceed the previously approved amount of 10,000 tpw. Consequently wastewater volumes will remain unchanged.

The treatment and management of wastewater from the site is therefore not envisaged to be a key issue that will need consideration as part of the Environmental Assessment.

5.6 FLOODING

The factory and environmental farm are located on the Shoalhaven River floodplain which has a history of significant flooding. The largest recent flood in March 1978 had a flood level estimated at 4.2 metres AHD adjacent to the subject site. Flooding is therefore a significant key issue that will need to be addressed in any EA.

The Lower Shoalhaven Flood Study undertaken on behalf of the PWD in 1990 provided estimates for design flood levels adjacent to the subject site. Results from that study were used in a flood study undertaken by BHP Enginering in 1989 to address the location of alternative floodways. In that report the 20 year average recurrence level (ARI) flood level in the Shoalhaven River was estimated to be approximately 4.2 m AHD at the site with a 100 year ARI estimated to be 5.3 m AHD.

Webb McKeown & Associates were engaged by Shoalhaven Starches to review the previous PRP No. 7 proposal in terms of flooding impacts. Their report examined the cumulative impacts of flooding as a result of development on the floodplain since 1990 as well as the works associated with this previous proposal and not just the incremental effects of this previous proposal.

It is understood that, since the approval of the PRP No. 7 development, a Lower Shoalhaven Floodplain Management Study has been finalised, however the results of this study have as of yet not been released for public review.

The flooding impacts of any proposal on the site will require to be assessed, including the cumulative impacts of flooding as a result of development on the floodplain since 1990, and not just the incremental effects of the proposed works. The assessment is likely to be required to address flooding impacts in terms of economic, social and environmental impacts as well as impacts on future development. The assessment should also examine measures that could be incorporated into the project to mitigate any impacts associated with the development.

5.7 HAZARD ANALYSIS

In general, risk assessment of industrial developments follows 5 basic steps:

- identification of potential hazards;
- an evaluation of safeguards to minimise the chance of occurrence of the identified hazards and their impact;
- an assessment of the magnitude of the consequences of the identified hazards;
- an assessment of the likelihood of occurrence; and
- an assessment of the risk by a combination of the consequences and likelihoods and comparison with tolerability criteria.

The Department of Planning has prepared a set of guidelines to help determine the level required according to the nature of the development:

- Multi-level Risk Assessment (MRA) describes the level and extent of the analysis reflecting the nature, scale, location of the proposed development;
- Hazardous Industry Planning Advisory Paper (HIPAP) No. 6 provides guidelines on requirements of the analysis;
- Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 provides the adopted risk criteria for land use planning decisions;
- SEPP No. 33 provides a screening tool to determine whether a proposed development is hazardous and offensive, whether it requires a PHA, whether the PHA needs to be qualitative or quantitative and whether a detailed transportation study is required.

As the proposal involves the processing of flour, and given the nature of the existing processes on the existing factory site, the proposal will be subject to the provisions of SEPP No. 33 - Offensive & Hazardous Industry. The need for a Preliminary Hazard Analysis in accordance with the provisions of SEPP No. 33 will need to accompany the Environmental Assessment.

5.8 SOCIO-ECONOMIC IMPACTS

The proposed flour mill will require a capital investment of approximately $10 million.

Almost half the population of the Shoalhaven (49.4%) is not in the labour force (ie. they do not have jobs and are not looking for full-time or part-time work) compared with 42.7% for the Illawarra and 37.9% for the State.

The City has a high unemployment rate of 14.4% which is higher than both the Illawarra Region (11.7%) and the State (8.8%). Unemployment is a very significant problem in the Shoalhaven due to the relatively limited employment opportunities and the desirability of the area as a place to live. Unemployment within the Shoalhaven has been increased by recent closures of the Dairy Factory, Gates Rubber Factory and the scaling down of the Paper Mill, resulting in the loss of approximately 250 jobs within the Nowra locality.

At this stage it is envisaged that the proposal will involve a workforce of around 20 people during a period of 9 months during the construction of the development.

The existing factory site currently employs around 225 people. Following construction it is envisaged that the proposed flour mill will sustainably maintain employment on the site, and may create employment for an additional 6 - 8 people.

5.9 ECOLOGICAL ISSUES

A Flora and Fauna Assessment was originally undertaken by Kevin Mills & Associates for the previous PRP No. 7 project.

The assessment by Kevin Mills & Associates supported the previous PRP No. 7 proposal and did not identify any specific constraints in terms of threatened flora and fauna habitat on the overall factory site.

The flour mill proposal involves a part of the factory site that is already developed and which does not provide any potential habitat for threatened flora or fauna.

Given the subject proposal essentially involves the installation of additional plant within existing developed areas of the factory site; it is not anticipated that the proposal will raise significant issues in terms of threatened species or their habitats. Under these circumstances the ecological impacts of the proposal are not considered to be a significant key issue. It is not expected that the EA that will require detailed assessment or consideration in relation to this issue.

5.10 HERITAGE AND ARCHAEOLOGICAL ISSUES

5.10.1 Aboriginal Archaeology

South East Archaeology were engaged by the Company to undertake an Aboriginal Archaeological Survey and Assessment of the development sites associated with the previous PRP No. 7 project.

The archaeological survey was undertaken in consultation with the Nowra Local Aboriginal Land Council and the Shoalhaven Aboriginal Elders. The findings and recommendations in part of this assessment included:

> *"The proposed extensions to the Shoalhaven Starches Environmental Farm facilities at Nowra will result in impacts to a maximum area of approximately 0.5 hectares in relation to the car park, 1.8 hectares for the evaporation plant and associated facilities, and a small proportion of a 34 hectare irrigation area in which irrigators and pipelines will be installed and drainage works will occur (Figures 1 & 2).*
>
> *No Aboriginal heritage evidence has been identified within these areas during the present investigation or has been previously reported there. Considering the topographical context of the study area, results of this and other surveys in the region, and high levels of existing ground disturbance, it is highly unlikely that any evidence other than a very low-density distribution of artefacts may occur. Such evidence, if it exists, is unlikely to surpass the threshold for scientific significance.*

Given the subject proposal essentially involves the installation of additional plant within an existing developed area of the factory site arm; it is not anticipated that the proposal will raise significant issues in terms Aboriginal archaeology. Under these circumstances the Aboriginal archaeological impacts of the proposal are not considered to be a significant key issue that will require further assessment or consideration in relation to the proposal. It is not expected that the EA will require further detailed assessment or consideration in relation to this issue

5.10.2 European Heritage

A review of heritage schedules of SLEP 1985, the IREP No. 1, Councils' Heritage Study as well as a review of the National Trust register has revealed no known items of European heritage value on the factory site.

Council's recently completed Heritage Study does identify an item of environmental heritage on the Company's Environmental Farm, on Lot 23 DP 811233. This item is a weatherboard and iron farm house which is dated to about 1910. The Heritage Study describes this building as

> *"Weatherboard and galvanised iron cottage reflecting the influence of the Federation style on the local Victorian Georgian idiom. The traditional hipped roof form with encircling verandahs has been modified by the introduction of two projecting gables which effectively truncate the verandah, restricting it to two sides. In contrast to other nearby weatherboard cottages the structure is clad with broad edge moulded pine boards. Windows are simple 2x2 sash but those in the gabled projections reflect Federation style in the use of narrow flanking fixed lights. The building appears to be supported on brick piers. At the rear a single brick chimney defines the kitchen and*

adjacent skillion extension. The cottage is similar to urban forms such as Cambewarra Post Office."

The Heritage Study assessed the significance of this structure as follows:

"A simple weatherboard cottage reflecting the transition of the late Victorian vernacular style towards the Federation style. Characteristic of small farmhouses erected on land made available by the subdivision of the Berry Estate c.1900. Contributes to the Berry-Bolong pastoral landscapes. Local significance (Shoalhaven District)."

The factory site is located 2.0 kilometres to the south west and no works are envisaged within the environmental farm within the vicinity of this building. Under the circumstances it is considered that the project will have no significant impact on its heritage significance, and no further assessment is considered necessary in this regard.

5.11 ENERGY CONSUMPTION

The existing plant has the capacity to produce 145 t/h of process steam by six boilers. The boilers are primarily fuelled by coal. The current operations however produce about 120 t/h

The site currently has an electricity supply of 17 MVA.

The Company also currently utilises 180 Terajoules of Natural Gas.

The total requirements for the plant resulting from the proposed flour mill are estimated to require an additional 1 MVA of electrical power.

Existing power reticulation equipment external to the Nowra Plant is satisfactory for the increased duty.

6.0 SUMMARY OF KEY ISSUES

Following consideration of the potential environmental issues arising in relation to this proposal, as discussed in Section 5.0 of this report, it is possible to establish that the significant key issues in relation to this project would include the following:

- noise impacts;
- air emissions, air quality control and including odour generation and management ;
- construction management particularly in relation to soil and water management;
- flooding;
- hazard analysis.

The above key issues will be required to be addressed in detail in any Environmental Assessment (EA) prepared for the project.

Traffic and transport issues are not considered to be of significance with respect to the project No impacts are anticipated in terms of traffic implications associated with the development.

Ecological and Heritage (both Indigenous and non-indigenous heritage) in light of previous assessment undertaken for the site are considered to have a low level of significance in relation to the project. It is not expected that detailed assessments will need to accompany any EA in relation to these issues.

7.0 DIRECTOR-GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

Cowman Stoddart Pty Ltd on behalf of Shoalhaven Starches Pty Ltd requests that the Director-General of Planning provides the requirements for the Environmental Assessment for the proposed flour mill on the subject site, to be used to produce flour for the overall production processes on the site.

ANNEXURES

ANNEXURE A

Site Locality Plan

ANNEXURE B

Site Plan

ANNEXURE C

Plan of Flour Mill Area

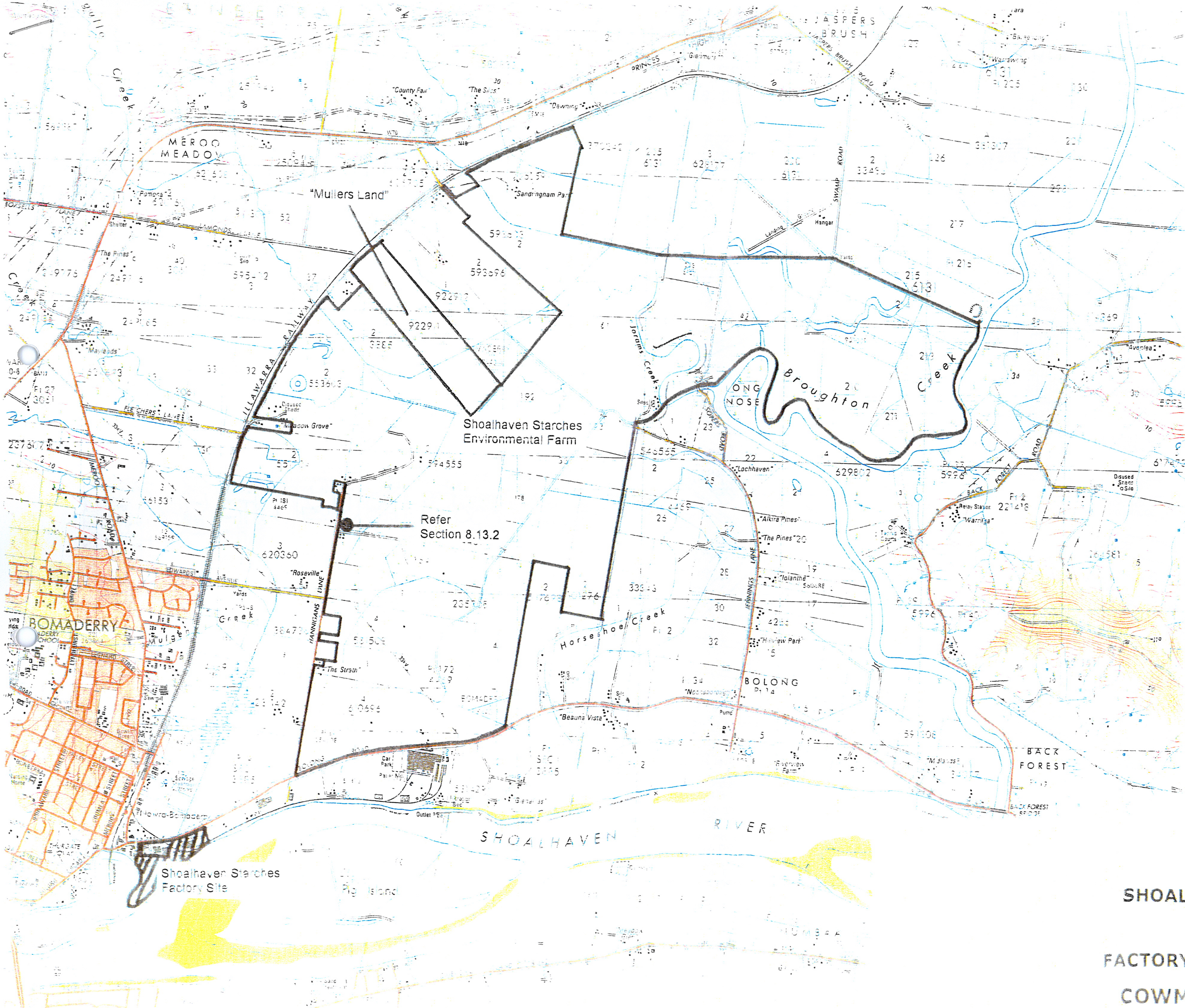
ANNEXURE D

Flow Chart Depicting the Proposal

in Relationship to Other Site Processes

ANNEXURE E

Flow Chart for Flour Mill Proposal Only



Cowman Stoddart Pty Ltd

ABN 29 057 616 896

Map Based Upon Berry 1:25,00
Topographic Map 9028-3-
Central Mapping Authority Of NSW

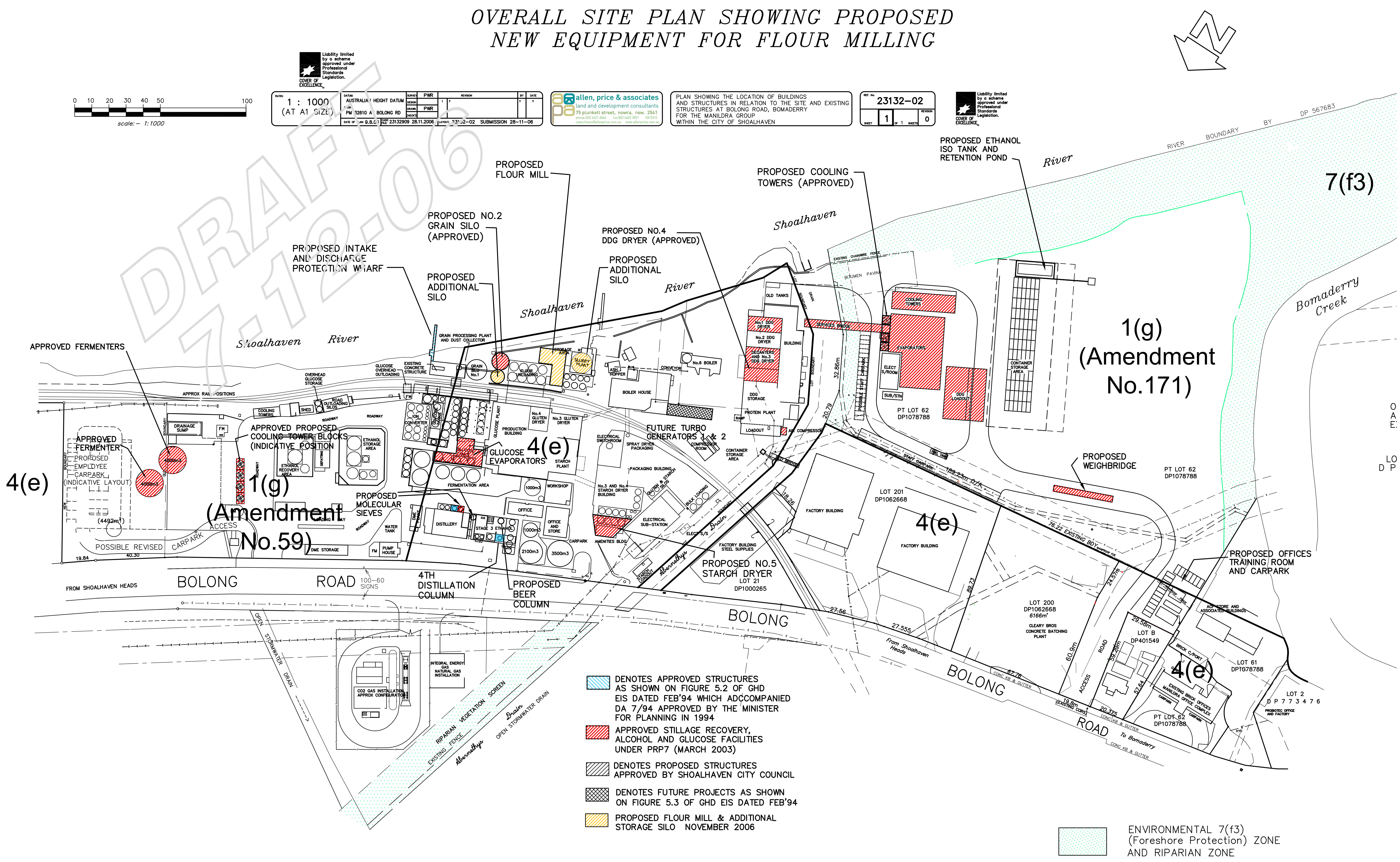
ANNEXURE A

SHEET 1:25,0
NOVEMBER 20

SHOALHAVEN STARCHES PTY LT
SITE LOCATION PLA

FACTORY & ENVIRONMENTAL FAR

COWMAN STODDART PTY LT
Town Planning, Agricultural & Environmental Consultan



OVERALL SITE PLAN SHOWING PROPOSED
NEW EQUIPMENT FOR FLOUR MILLING
scale: – 1:1000
0 10 20 30 40 50 100
RATIO: 1 : 1000 (AT A1 SIZE)
DATUM: AUSTRALIAN HEIGHT DATUM
PM 32610 A BOLONG RD
SURVEY PWR
DRAWN PWR
CADD FILE: 23132909 28.11.2006
LAYOUT: 23132–02 SUBMISSION 28–11–06
allen, price & associates
land and development consultants
75 plunkett street, nowra, nsw. 2541
PLAN SHOWING THE LOCATION OF BUILDINGS AND STRUCTURES IN RELATION TO THE SITE AND EXISTING STRUCTURES AT BOLONG ROAD, BOMADERRY FOR THE MANILDRA GROUP WITHIN THE CITY OF SHOALHAVEN
REF. No. 23132–02
SHEET 1 OF 1 SHEETS
REVISION 0
Liability limited by a scheme approved under Professional Standards Legislation.
DRAFT 7-12-06
APPROVED FERMENTERS
APPROVED FERMENTER
PROPOSED EMPLOYEE CARPARK (INDICATIVE LAYOUT)
POSSIBLE REVISED CARPARK ACCESS
APPROVED PROPOSED COOLING TOWER BLOCKS (INDICATIVE POSITION
PROPOSED INTAKE AND DISCHARGE PROTECTION WHARF
PROPOSED ADDITIONAL SILO
PROPOSED NO.2 GRAIN SILO (APPROVED)
PROPOSED FLOUR MILL
PROPOSED NO.4 DDG DRYER (APPROVED)
PROPOSED ADDITIONAL SILO
PROPOSED COOLING TOWERS (APPROVED)
PROPOSED ETHANOL ISO TANK AND RETENTION POND
PROPOSED MOLECULAR SIEVES
GLUCOSE EVAPORATORS
FUTURE TURBO GENERATORS 1 & 2
4TH DISTILLATION COLUMN
PROPOSED BEER COLUMN
PROPOSED NO.5 STARCH DRYER
LOT 21 DP1000265
LOT 201 DP1062668
LOT 200 DP1062668
PT LOT 62 DP1078788
LOT B DP401549
LOT 61 DP1078788
LOT 2 DP773476
PROPOSED WEIGHBRIDGE
PROPOSED OFFICES TRAINING ROOM AND CARPARK
Shoalhaven River
Bomaderry Creek
RIVER BOUNDARY BY DP 567683
BOLONG ROAD
4(e)
1(g) (Amendment No.59)
1(g) (Amendment No.171)
7(f3)
DENOTES APPROVED STRUCTURES AS SHOWN ON FIGURE 5.2 OF GHD EIS DATED FEB'94 WHICH ADCCOMPANIED DA 7/94 APPROVED BY THE MINISTER FOR PLANNING IN 1994
APPROVED STILLAGE RECOVERY, ALCOHOL AND GLUCOSE FACILITIES UNDER PRP7 (MARCH 2003)
DENOTES PROPOSED STRUCTURES APPROVED BY SHOALHAVEN CITY COUNCIL
DENOTES FUTURE PROJECTS AS SHOWN ON FIGURE 5.3 OF GHD EIS DATED FEB'94
PROPOSED FLOUR MILL & ADDITIONAL STORAGE SILO NOVEMBER 2006
ENVIRONMENTAL 7(f3) (Foreshore Protection) ZONE AND RIPARIAN ZONE

DIMENSIONS IN MILLIMETRES DO NOT SCALE

ANNEXURE C

Shoalhaven River

Bdry.

EXISTING COOLING WATER PUMPS SWITCH ROOM (COULD REMAIN)

APPROVED ø10M SILO

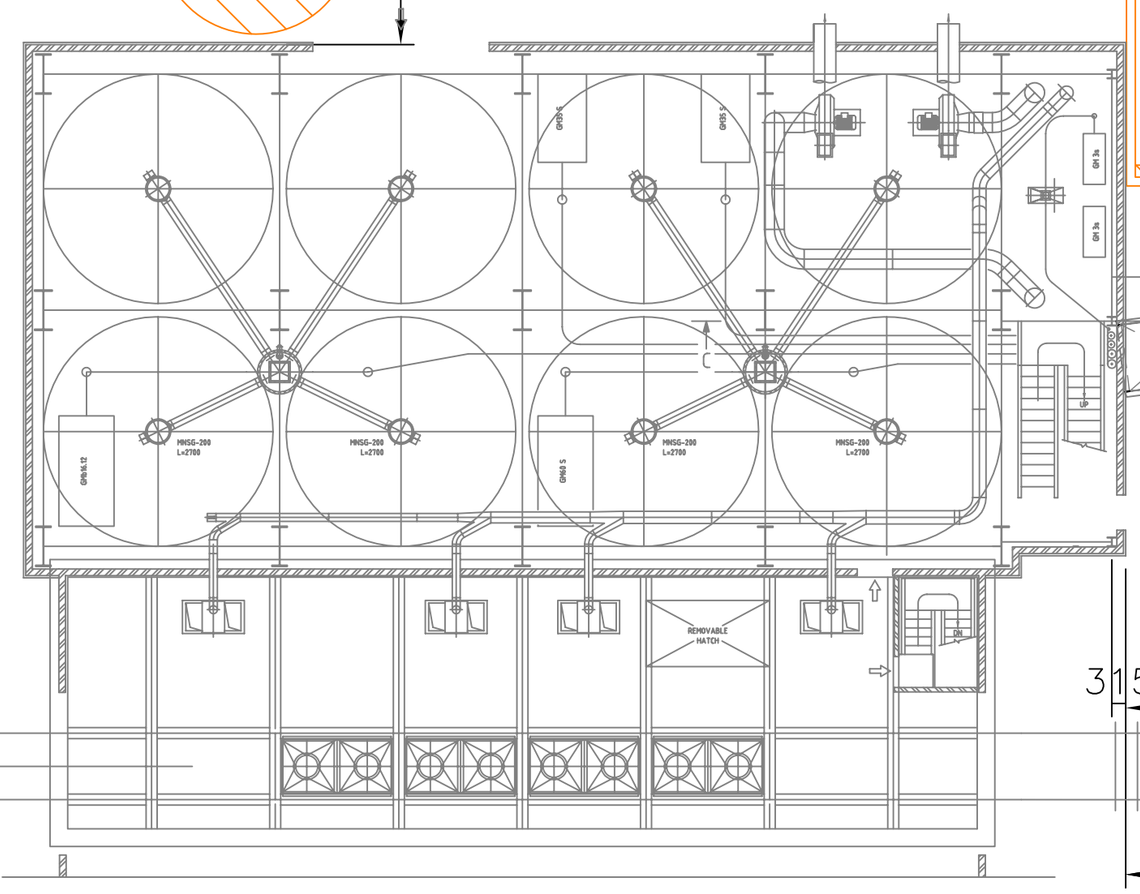
7000

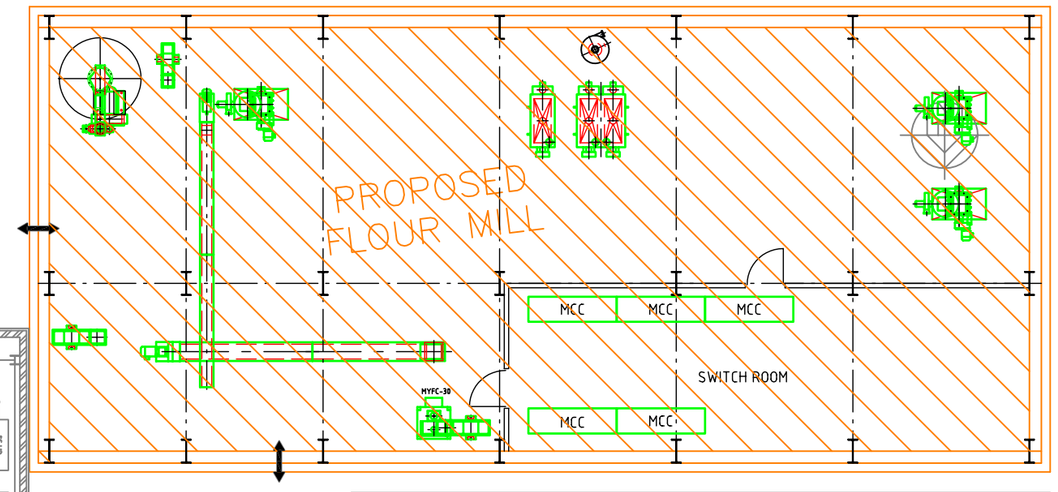
EXISTING ø12000 GRAIN SILO

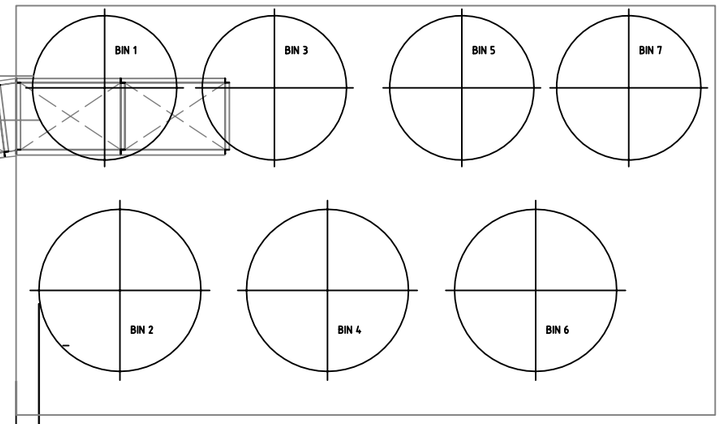
PROPOSED ø9M SILO

8500

PROPOSED ø4.4 SILO FROM NARRANDERA MILL POSITION T.B.F.







EXISTING BRIDGE

315

7300

7819

PLAN VIEW - FLOUR UNLOADER

ISS	DATE	ZONE	CHANGE AMENDMENTS	BY	CKD
A	07-12-06	A L L	Preferred option.	Paul R.	Dan.
1	21-11-06	A L L	Draft.	Paul R.	Greg M.

MANILDRA GROUP

100% AUSTRALIAN

DRAWN	P.J.C.
TRACED	
CHECKED	
APPROVED	
DRG PRACTICE	AS1100
TOLERANCES	
LINEAR	±.2
ANGULAR	±.5°
FINISH	PAINT
MATERIAL	NA

MANILDRA GROUP.NOWRA.

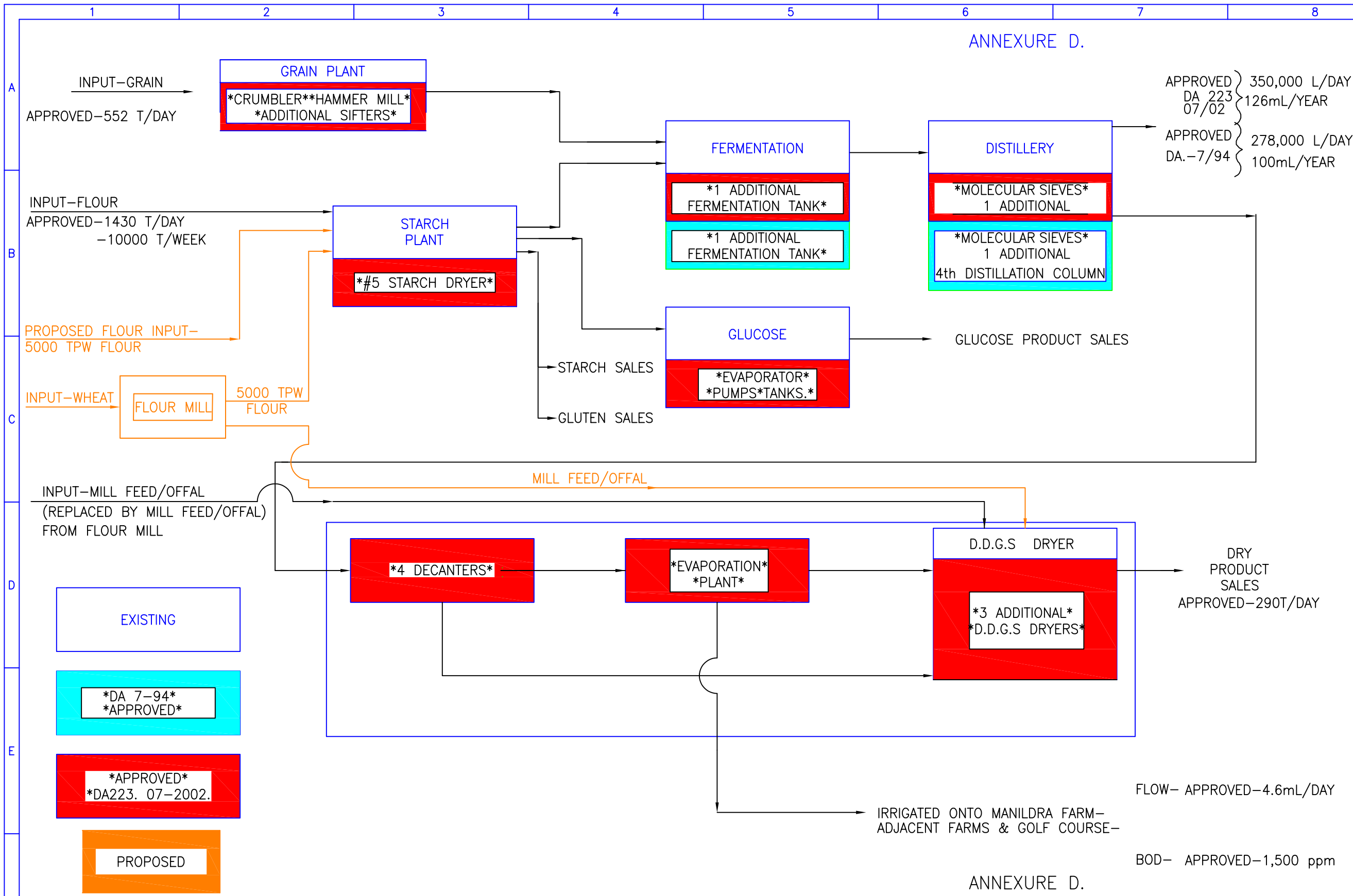
TITLE PROPOSED FLOUR MILL PLAN.PREFERED OPTION.

SIZE	SCALES	SHT
A3	1:200	

ISSUE 1 2 3 4 5 6

DRG № MAN68-001A

ANNEXURE D.



ANNEXURE D.

ISS	DATE	ZONE	CHANGE AMMENDMENTS	BY	CKD
8	12–12–06	A L L	Input mill feed added.	P.C.	Greg M.
7	29–11–06	A L L	Flour mill added.	P.C.	Greg M.
6	09–08–06	A L L	DA223 now approved.New Mill Feed proposed	P.C.	B.H.
5	11–4–03	C1	Mill feed added.	P.C.	G.M.

MANILDRA GROUP
GEM OF THE WEST

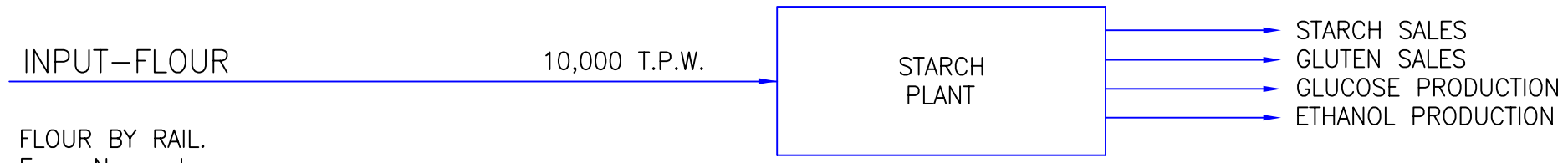
DRAWN P.J.C.
TRACED ---
CHECKED
APPROVED
DRG PRACTICE AS1100
TOLERANCES LINEAR ±.2 ANGULAR ±.5°
FINISH N.A.

MANILDRA GROUP.NOWRA
CAPITAL WORKS UPGRADE PROJECT
TITLE PROPOSED PRODUCTION FLOW DIAGRAM

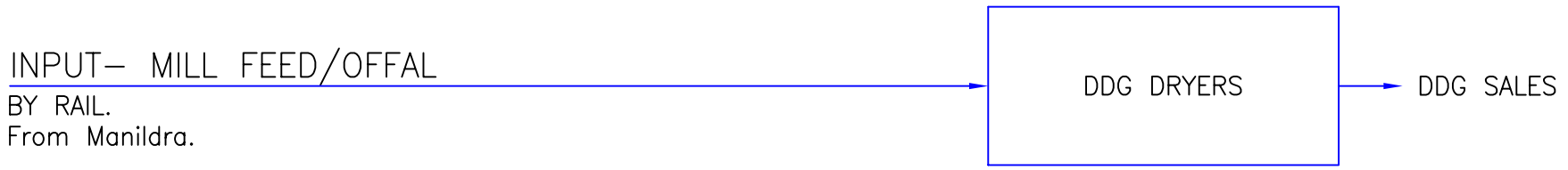
SIZE A3 | SCALES nts | SHT
ISSUE 1 2 3 4 5 6
DRG. № MAN3–020–7–1

ANNEXURE E

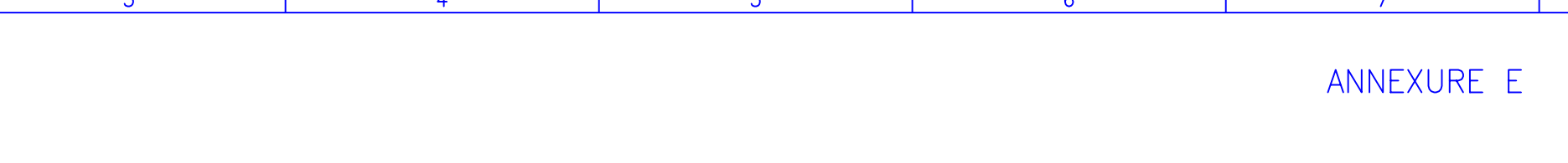
PRESENT INPUT–NOV.–2006.



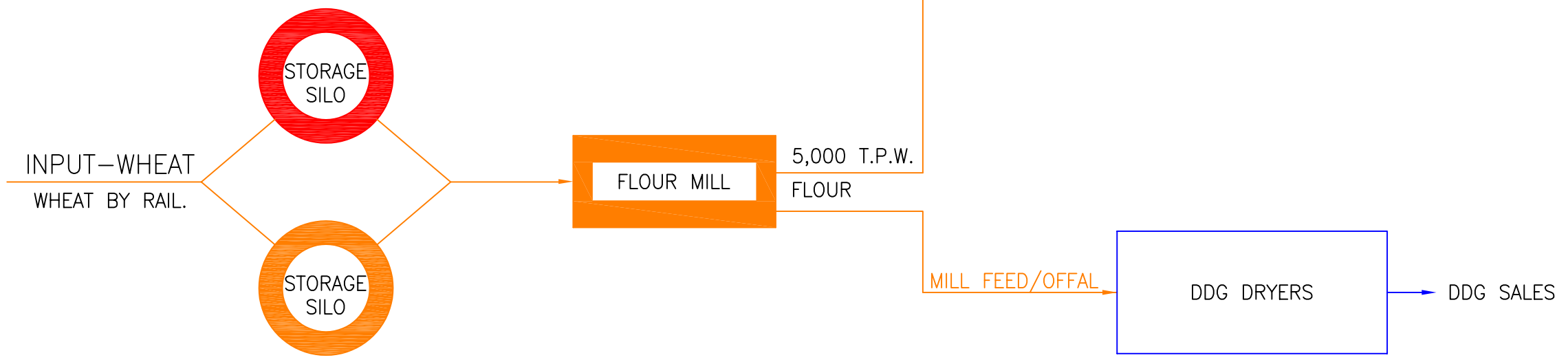
FLOUR BY RAIL.
From Narrandera,
Gunnedah & Manildra.
APPROVED TO 10,000 T.P.W.
DA – 07–1994.



PROPOSED INPUTS



FLOUR BY RAIL.
From Narrandera,
Gunnedah & Manildra.



ISS	DATE	ZONE	CHANGE AMENDMENTS	BY	CKD
B	12–12–06	A L L	Mill feed offal added.	P.C.	G.M.
A	27–11–06	A L L	Proposal.	P.C.	G.M.

MANILDRA GROUP
GEM OF THE WEST

DRAWN	P.J.C.	TOLERANCES	
TRACED		LINEAR	±.2
CHECKED		ANGULAR	±.5°
APPROVED		FINISH	N.A.
DRG PRACTICE	AS1100		

TITLE: FLOUR INPUT
PRESENT & PROPOSED INPUT. FLOW DIAGRAM

SIZE	SCALES	SHT
A3	nts	

ISSUE 1 2 3 4 5 6

DRG. № MAN–FL–001