



**Planning &
Environment**

ASSESSMENT REPORT

**Shoalhaven Starches Ethanol Expansion Project
Section 75W Modification - MP 06_0228**

MOD 10 - Flour Mill B



March 2017

Cover photo: Aerial Photograph of Shoalhaven Starches Factory, Bomaderry
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1. BACKGROUND

This report assesses a modification request from Shoalhaven Starches Pty Ltd (the Proponent) to modify its factory in Bomaderry on the NSW South Coast. The modification involves construction of a second floor mill at the factory to increase the volume of flour produced on site and reduce the volume imported to the site from other mills in western NSW.

The Proponent has operated a factory at Bomaderry in the Shoalhaven local government area since 1979 (see **Figure 1**). The factory receives wheat grain from mills in western NSW which is processed to produce food, beverage and fuel products. These include flour, gluten, glucose, starch and ethanol (for industrial products and motor vehicle use). The factory is a 24/7 operation and has 300 employees.

Wastewater generated from processing activities is stored in ponds on a nearby 'environmental farm' owned by the Proponent. The environmental farm covers over 1,000 hectares (ha) of rural land on the northern bank of the Shoalhaven River and contains a wastewater treatment plant and extensive irrigation system for discharging treated wastewater from the factory (see **Figure 1**).

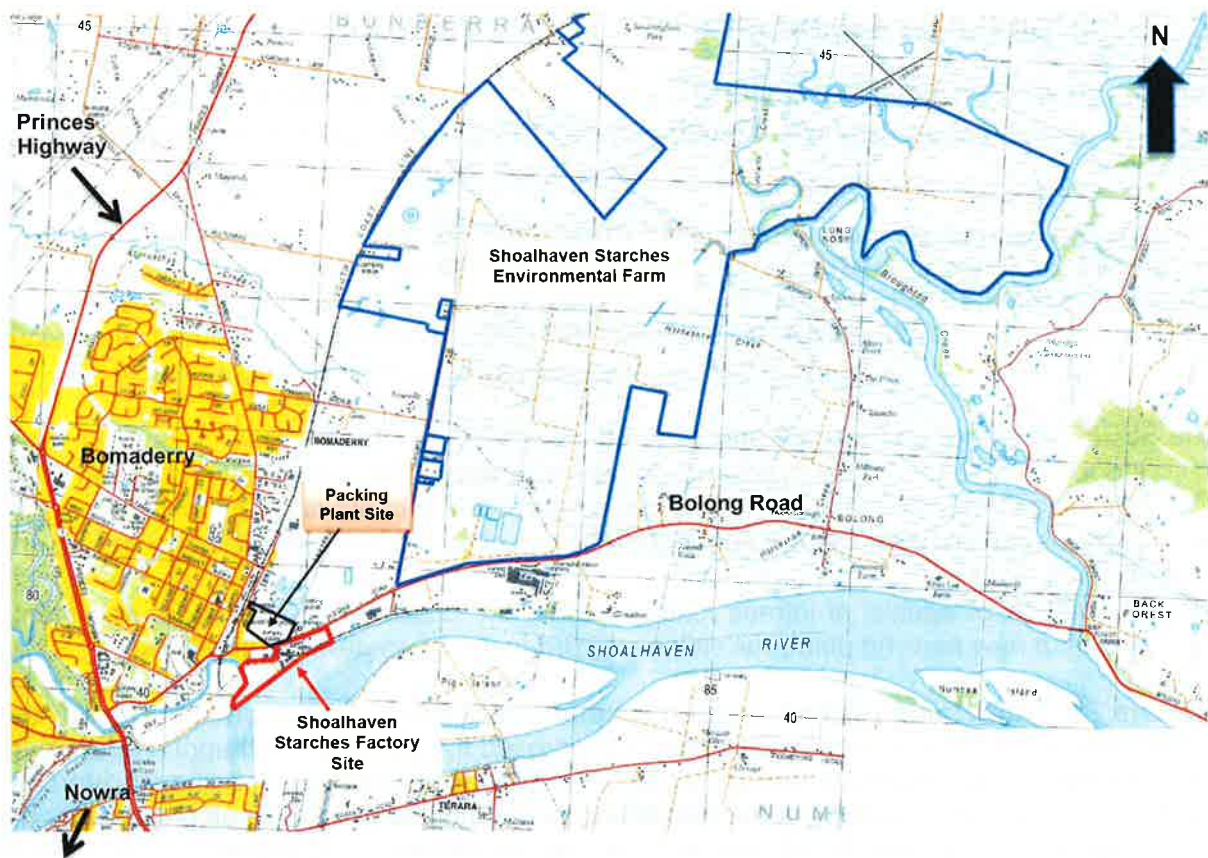


Figure 1 - Shoalhaven Starches Factory, Packing Plant Site and Environmental Farm, Bomaderry

In 2009, the then Minister for Planning approved a major expansion to fuel-grade ethanol production at the factory. The approval required the Proponent to implement significant odour controls, including a wastewater treatment plant. The odour controls were implemented in 2011-12 and have been successful in substantially reducing odour complaints from the nearby residential area.

Since 2009, the demand for fuel-grade ethanol has not increased as anticipated, so the Proponent has sought to modify components of the approved project to adapt production. The

Proponent is seeking to optimise production of flour, gluten, starch and beverage-grade ethanol products, as opposed to fuel-grade ethanol, in order to remain competitive.

1.1 Site Description

The factory and environmental farm are located on the eastern fringe of the township of Bomaderry and 2 kilometres (km) to the north-east of the township of Nowra. The factory is surrounded by other industrial uses, including a metal fabrication factory, meat packaging works and industrial and agricultural suppliers. The nearest residences are located on Meroo Street in Bomaderry, 300 metres (m) west of the approved (but not yet constructed) packing plant and 500 m north-west of the factory, see **Figure 1**. There are a few rural residential properties near the environmental farm on Bolong Road and Jennings Lane.

Shoalhaven City Council's sewage treatment plant is located 180 m to the north of the factory and Bomaderry railway station is located 500 m to the north-west of the factory. Shoalhaven Starches has a private rail spur line, which extends from the railway station across Railway Street and Bolong Road into the factory site, extending for approximately 750 m along the northern bank of the Shoalhaven River.

2. HISTORY OF PLANNING APPROVALS & MODIFICATIONS

Prior to 2009, the Proponent operated its factory and environmental farm under multiple, separate planning approvals issued by Shoalhaven City Council (Council) and the Minister for Planning.

Shoalhaven Starches Ethanol Expansion Project (06_0228)

In January 2009, the then Minister for Planning approved the Shoalhaven Starches Ethanol Expansion Project (SSEEP) under the now repealed Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The SSEEP project approval consolidated all previous planning approvals for the site with the aim of simplifying regulation and compliance.

The SSEEP is shown on **Figure 2** and involved:

- staged increases of ethanol production from 126 megalitres a year (ML/yr) to 300 ML/yr following successful implementation of a range of odour controls;
- implementation of mandatory odour controls including a wastewater treatment plant and biofilter; and
- installation of additional infrastructure at the dried distillers grain, ethanol and starch plants, a new packing plant, rail siding and product and wastewater pipelines.

By June 2012, the Proponent had installed the mandatory odour controls and the Department of Planning and Environment (the Department) approved the increase in ethanol production to the maximum volume permitted being 300 ML/yr, subject to conditions. Shoalhaven Starches continues to carry out quarterly odour monitoring and annual odour audits as required by the project approval. Demand for ethanol in fuels has not increased as predicted, with ethanol production levels at the factory in the order of 219 ML/yr in 2015.

Given the reduced demand for ethanol, the Proponent now proposes to divert more liquid starch into dried starch, and is progressively installing infrastructure that will allow optimisation of flour, starch and gluten products. The Proponent has lodged a modification request to construct a second flour mill at the factory to increase the quantity of flour produced on site.

Modifications to 06_0228

Since 2009, there have been nine modifications approved by the Planning Assessment Commission, as delegate of the Minister for Planning. The most recent modifications reflect the changed focus to increased flour, starch and gluten production. **Table 1** summarises the modifications.

Table 1: Modifications to the Shoalhaven Starches Ethanol Expansion Project (06_0228)

| MOD No. | Date Approved | Description |
|----------------|----------------------|---|
| 1 | 30 Sept 2011 | <ul style="list-style-type: none"> remove the requirement for the dried distillers grain (DDG) pelletising plant from the list of mandatory odour controls; and implement alternate odour controls including a new loading chute with dust extractor and extension of the load-out shed to fully enclose truck loading. |
| 2 | 14 Sept 2012 | <ul style="list-style-type: none"> install additional infrastructure to improve operational and energy efficiency, including two additional fermenter tanks, an evaporator, beer column, heat exchangers, substation and compressors. |
| 3 | 9 Oct 2012 | <ul style="list-style-type: none"> relocate an approved staff car park of 60 spaces to the former Dairy Farmers site; and include the former Dairy Farmers site at 220 Bolong Road in the project approval, following acquisition by the Proponent. |
| 4 | 24 Mar 2014 | <ul style="list-style-type: none"> relocate the approved DDG pelletising plant within the factory site, increase the footprint and approved height, from 21 m to 28 m. |
| 5 | 16 Sept 2015 | <ul style="list-style-type: none"> modify the design, footprint and odour controls on the DDG pelletising plant including a 49 m high air discharge stack; and construct eight storage silos up to 26 m high. |
| 6 | 25 Nov 2015 | <ul style="list-style-type: none"> demolish a disused industrial building "Moorehouse" purchased by the Proponent; and construct a temporary car park on the northern side of Bolong Road adjacent to the Shoalhaven Water pumping station. |
| 7 | 18 Jan 2016 | <ul style="list-style-type: none"> relocate the approved Starch Dryer No. 5 within the factory site to the former "Moorehouse" site and increase the overall footprint; and construct a substation, pipes and pipe gantry to supply the starch dryer. |
| 8 | 1 Mar 2016 | <ul style="list-style-type: none"> extend the existing flour mill to increase flour production from 265,000 to 400,000 tonnes per annum and offset imports of flour to the factory from mills in western NSW. |
| 9 | 8 Mar 2017 | <ul style="list-style-type: none"> increase the size of the approved packing plant to increase the type and volume of packaged dried products; construct a container storage and truck loading area with noise barriers; extend and duplicate the approved rail spur line; and install product pipes under Bolong Road, a small bag packer at the DDG pellet plant and a new stormwater detention tank. |

Council Issued Consents

Despite the simplified planning approval established under the SSEEP, the Proponent has sought and obtained separate development consents from Council for works associated with the factory. This has included:

- construction and operation of an interim packing plant at the factory (RA 11/1002);
- demolition of the dimethyl ether plant (DA 13/1713); and
- construction of two additional grain silos for buffer storage (DA 14/2161), not approved by Council.

Council also granted approval to the Proponent for road and site access upgrades, consistent with the SSEEP approval, which required the works to be undertaken to Council's satisfaction. These included:

- upgrades to site access points on Bolong Road, including the Dairy Farmers site access (DA 10/1843); and
- widening the access point to the interim packing plant to enable semi-trailer access (DA 11/1855).

Council has raised concerns about outstanding road upgrade works related to these development consents. The Department's Compliance Unit is working with Council and the Proponent to resolve these outstanding matters.

Two other Council issued consents apply to land adjacent to the factory and owned by the Proponent. These include the Algae Demonstration Plant and the Meat Processing Plant, both located at the former Dairy Farmers site.

3. PROPOSED MODIFICATION

On 21 October 2016, the Proponent lodged a modification request under Section 75W of the EP&A Act to construct a new flour mill at the factory and increase the quantity of flour produced on the site.

The modification request is summarised in **Table 2**, shown on **Figures 3 to 7** and described in full in the Environmental Assessment (EA) accompanying the modification (**Appendix B**).

Table 2: Proposed Modification

| Modification | Description |
|---------------------------------------|--|
| New flour mill | <ul style="list-style-type: none"> construct a new flour mill (referred to as Flour Mill B) adjacent to the existing flour mill, covering an area of 400 square metres (m²) and 39.5 m high (see Figures 4 and 5); and construct four new grain silos 28 m high contained within a new building adjacent to the new flour mill at 39.5 m high. |
| Production | <ul style="list-style-type: none"> increase flour produced on site from 400,000 tonnes per annum (tpa) to 842,400 tpa; reduce flour imports to the site from 12,300 tpa to 3,800 tpa; and maintain total flour input to the starch plant at the approved volume of 20,000 tonnes per week. |
| Storage silos and mill feed structure | <ul style="list-style-type: none"> relocate seven storage silos to create space for the new flour mill; store six of the relocated silos at the former Shoalhaven Paper Mill site (now owned by the Proponent) and located 1 km to the east of the factory site; relocate one silo adjacent to the dried distillers grain (DDG) building and use it to store mill feed (residue husk material from flour production for use in the DDG dryers); and construct a new mill feed structure, 28 m high, adjacent to the DDG building including a bucket elevator, dust collector, weigh scales and hopper (see Figure 6 and 7). |
| Ancillary works and pipelines | <ul style="list-style-type: none"> decommission and remove the pipe bridge between the existing flour mill and the starch plant to make room for the new flour mill; install a new transfer pipeline for mill feed from the existing flour mill to the new mill feed silo adjacent to the DDG building using the existing pipe gantry; install a new flour transfer blow line to the starch plant on the existing pipe bridge; and install new conveyors between the existing grain silos and intake system for the new flour mill building. |

The modification would increase approved flour production at the factory from 400,000 tpa to 842,400 tpa. This would offset the flour transported to the site from the Proponent's mills in western NSW and would not increase approved starch, gluten or glucose production rates. The increased production of flour on the site would free up capacity at the Proponent's other mills in western NSW, enabling production of higher grade flour at these mills and increased export opportunities.

There would be no change to the volume of ethanol produced or wastewater generated and treated on the environmental farm.

The estimated timing to construct the flour mill is 3 months, using up to 20 construction staff. The value of the work is estimated at \$25 million. **Plate 1** shows the location of the proposed flour mill, with the existing flour mill in the background.



Plate 1 – Location of Proposed Flour Mill B, with existing Flour Mill in background

4. STATUTORY CONTEXT

Approval Authority

The Minister for Planning was the approval authority for the original project application, and is consequently the approval authority for the modification request.

However, as the Proponent made reportable political donations, the request will be determined by the Planning Assessment Commission (the Commission) in accordance with the Minister's Instrument of Delegation, dated 14 September 2011.

Section 75W

In accordance with Clause 12 of Schedule 6A of the EP&A Act, Section 75W of that Act as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A, continues to apply to transitional Part 3A projects.

Under Section 75W of the EP&A Act, the Minister is obliged to be satisfied that what is proposed is a modification of the original proposal, rather than being a new project in its own right.

The Department notes:

- the primary function and purpose of the approved project would not change as a result of the modification;
- the modification involves construction of additional infrastructure similar to approved infrastructure;
- the modification is of a scale that warrants the use of Section 75W of the EP&A Act; and
- any potential environmental impacts would be minimal and appropriately managed through the existing or modified conditions of approval.

Consequently, the Department considered the request should be assessed and determined under Section 75W of the EP&A Act rather than requiring a new development application.

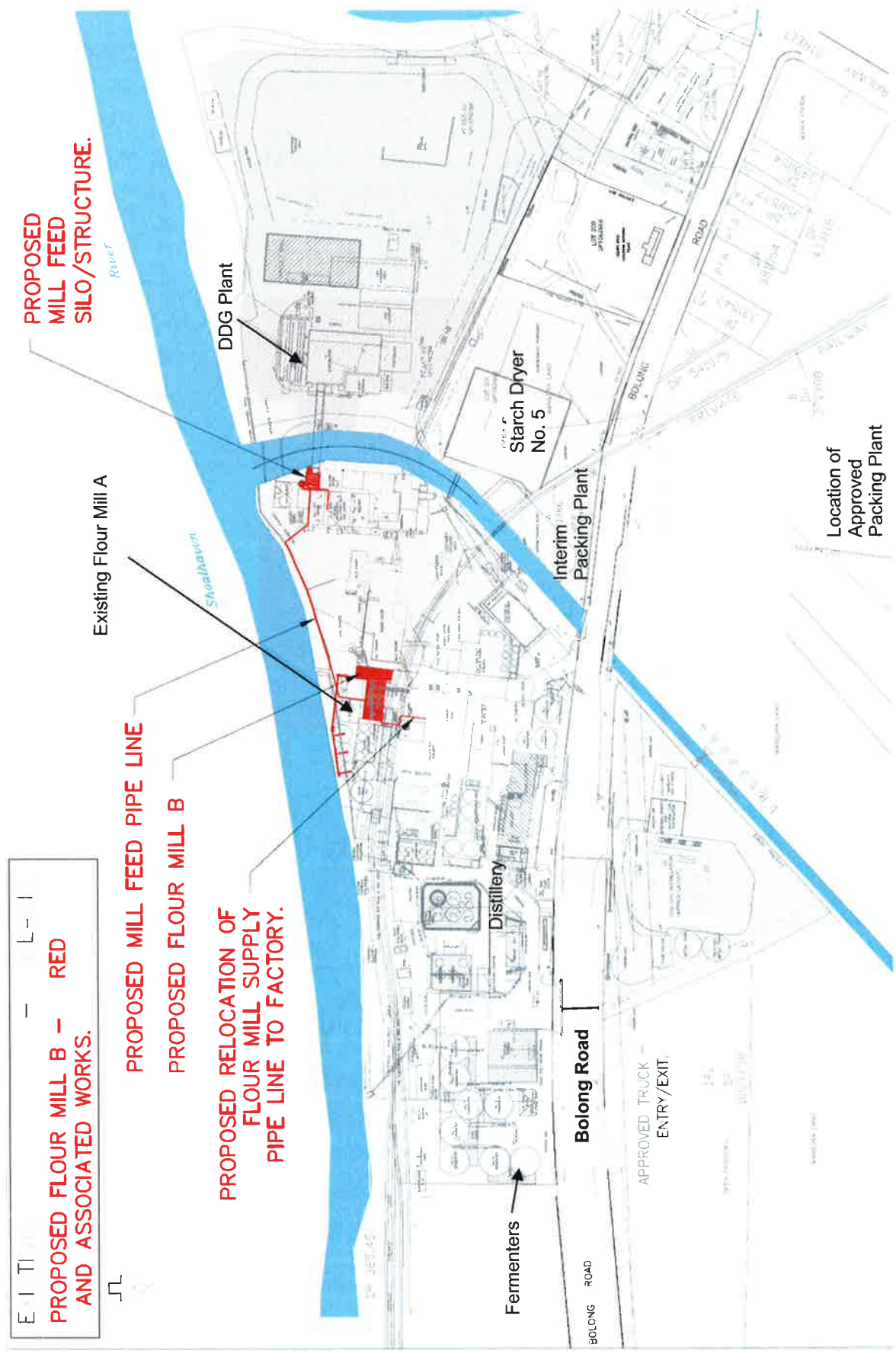


Figure 3 – Location of Proposed Flour Mill B, Pipeline and Mill Feed Structure

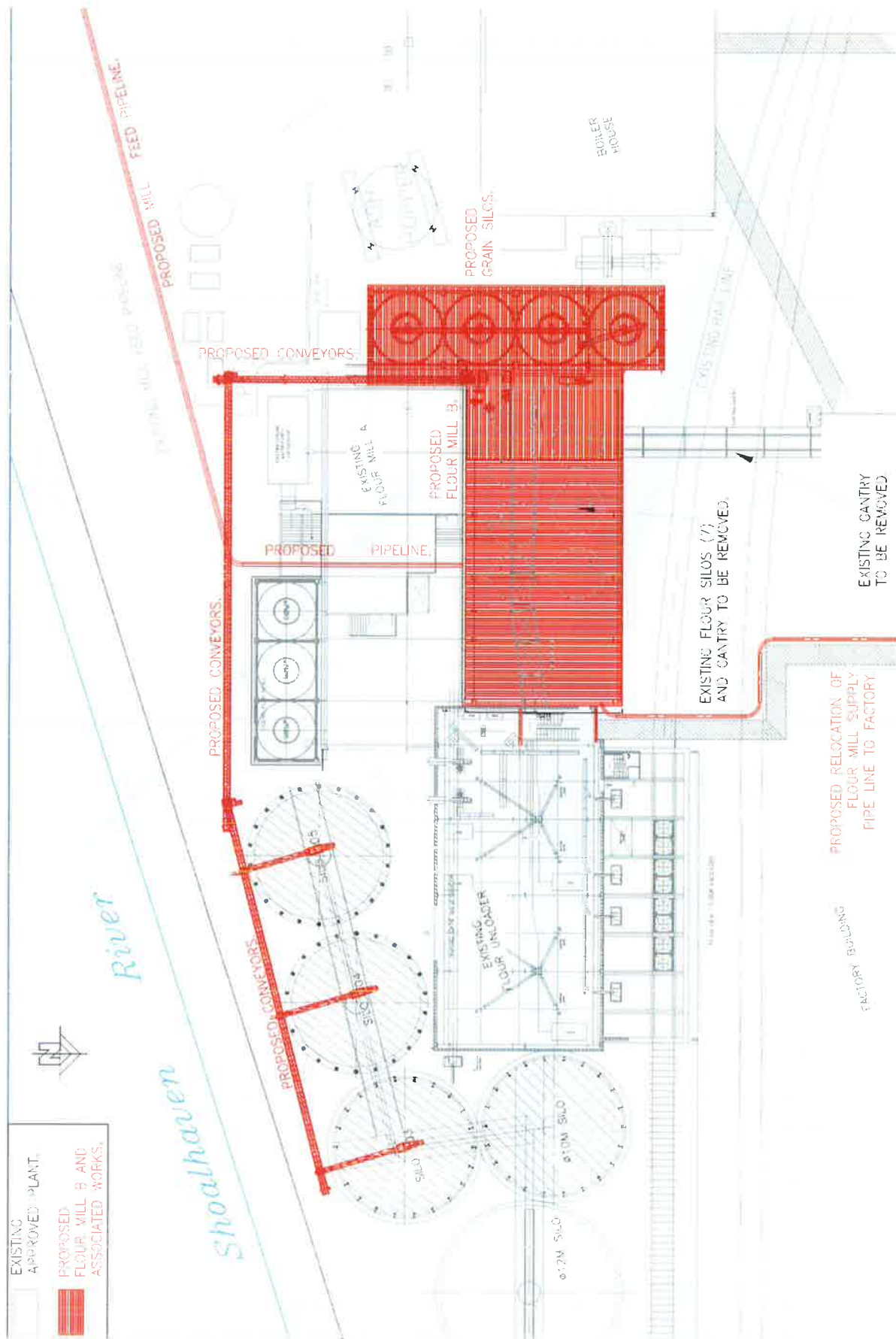


Figure 4 – Proposed Flour Mill B, Grain Silos and Conveyors

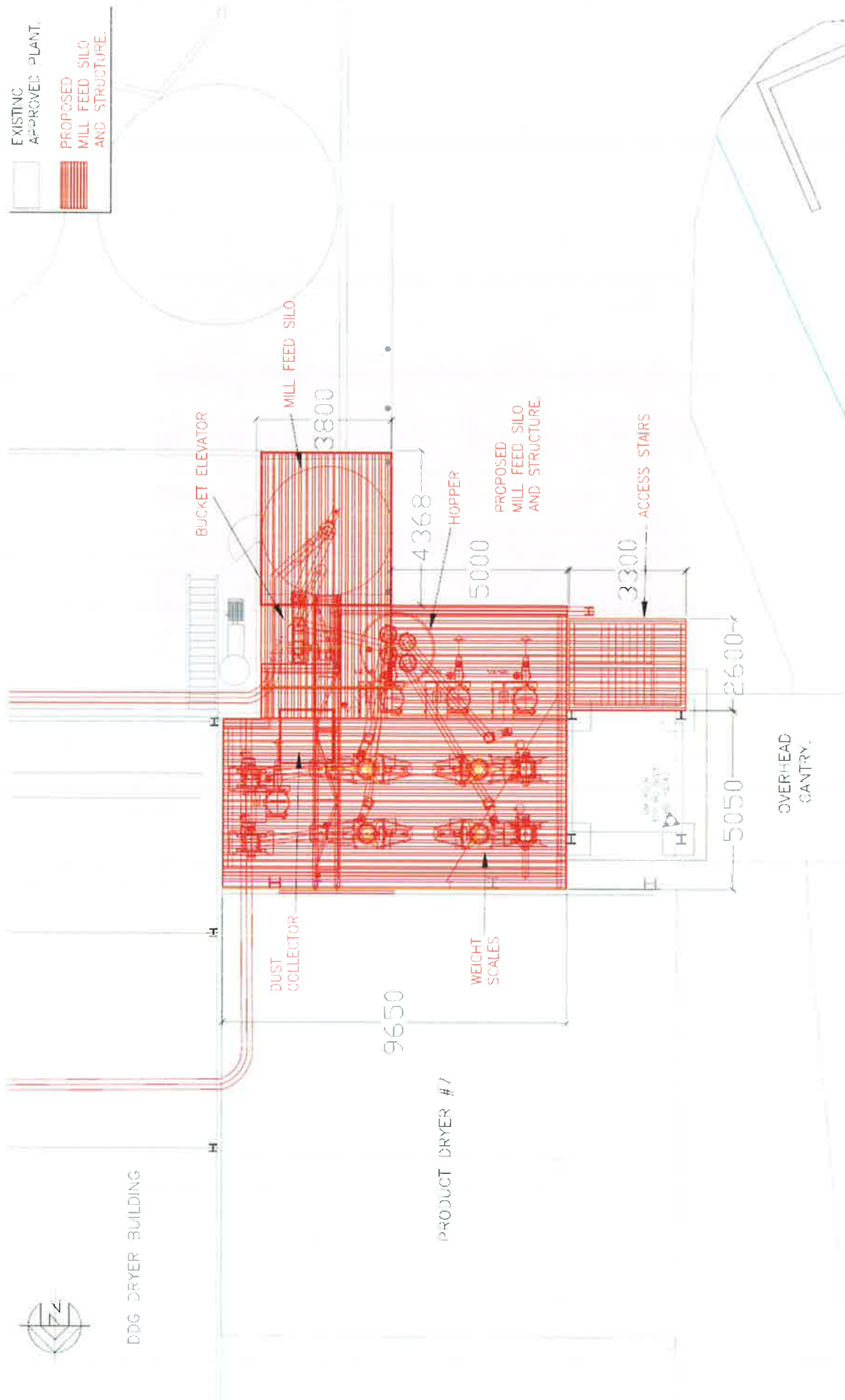
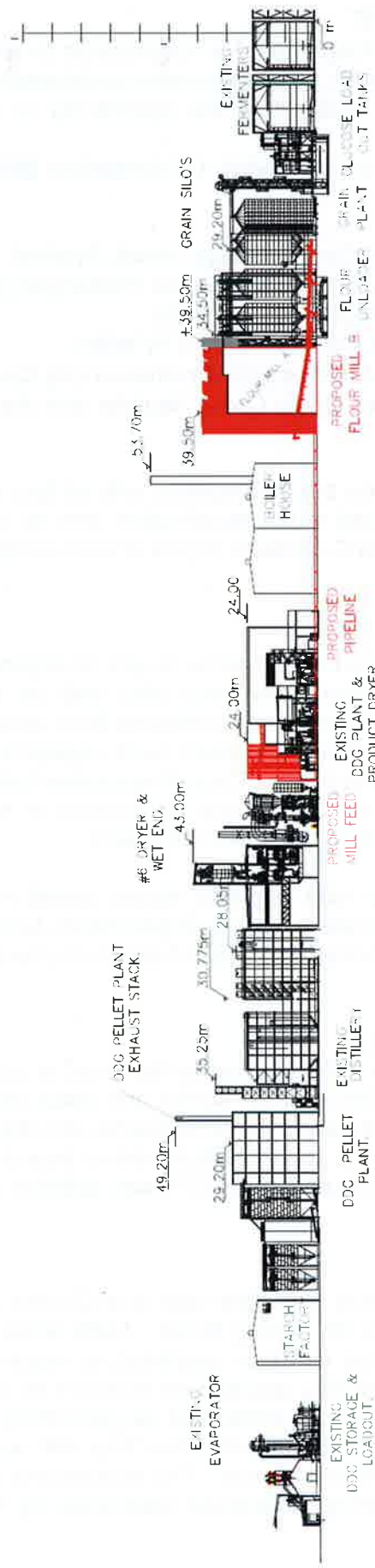


Figure 6 – Proposed Mill Feed Silo and Structure



TYPICAL ELEVATIONS OF STRUCTURES ON SHOALHAVEN STARCHES SITE

Figure 7 – Elevation of Proposed Flour Mill B and Mill Feed Structure Relative to Other Factory Structures

5. CONSULTATION & SUBMISSIONS

Under Section 75W of the EP&A Act, the Department is not required to notify or exhibit the request. However, following a review of the EA, the Department considered the request should be publicly exhibited, to enable nearby landholders the opportunity to comment on the proposal. The Department:

- made the request publicly available from **Monday 14 November 2016 to Wednesday 14 December 2016**:
 - on the Department's website;
 - at the Department's Information Centre (Bridge Street, Sydney);
 - at the Department's Regional Office (Crown Street, Wollongong); and
 - at Shoalhaven City Council (Bridge Street, Nowra).
- notified nearby landowners about the exhibition period by letter;
- notified relevant State government authorities and Shoalhaven City Council by letter; and
- advertised the exhibition in the Nowra South Coast Register and the Shoalhaven and Nowra News.

A total of four submissions were received on the modification, with all four submissions from public authorities. No submissions objected to the modification and no submissions were received from the general public. **Appendix C** contains copies of each submission and below is a summary of the issues raised.

Shoalhaven City Council (Council)

Council did not object to the modification and raised some issues in relation to flooding and traffic. Council requested an updated flood emergency plan and an engineer's report demonstrating the flour mill and mill feed structure can withstand flood waters. In relation to traffic, Council agreed the operation of the flour mill would have negligible impact on traffic flows and would not impact on the key access points. Council requested further consideration of construction vehicle parking to ensure sufficient space is provided on site. The matters raised by Council have been addressed through modified conditions.

Council noted the outstanding traffic and road upgrade issues raised previously can be resolved separately to the modification assessment. The Department's Compliance Unit met with Council and the Proponent on 17 February 2017 and put actions in place to resolve these matters.

Environment Protection Authority (EPA)

The EPA did not object to the modification. The EPA noted the need to put noise mitigation measures in place including silencers on the exhaust stacks and noise insulating materials used in the building construction. The EPA raised some concerns with the odour modelling methodology but noted the existing flour mill is not a significant odour source and as such, the new flour mill is unlikely to be a significant source. The EPA was satisfied with the proposal and did not recommend any conditions.

Roads and Maritime Services (RMS)

RMS advised that Bolong Road is a regional classified road and Council is best placed to comment on any safety or capacity issues on Bolong Road. RMS noted the existing site access at the former Dairy Farmers site has not been upgraded as required by a previous modification (MOD 3). RMS recommended this upgrade be included as a condition of the modification, citing the proposed increase in flour production as generating additional traffic. The Department's assessment in **Section 6.2** concluded the flour mill would not increase traffic, nor does it rely on the Dairy Farmers site access. The outstanding upgrade works to the Dairy Farmers access are currently being addressed separately by the Department's Compliance Unit.

Department of Primary Industries (DPI) and Department of Industry - Lands

The DPI reviewed the proposal and advised it had no comments on the modification. No comments were received from the Department of Industry – Lands.

The Proponent consulted with the **Department of Defence (DoD)** and included their response in the EA. The DoD advised it had no concerns with the modification in relation to the operational airspace of HMAS Albatross. DoD requested the Proponent provide as-constructed details to AirServices Australia for tall structures included in the modification, for inclusion in its database. DoD also provided specific details for lighting, should it be used on the structure. These conditions are included in the existing project approval.

The Department did not receive a response from Transport for NSW, Office of Environment and Heritage or the Office of the National Rail Safety Regulator.

Proponent's Response to Submissions (RTS)

Given the minor issues raised in the submissions, the Department did not request a formal RTS from the Proponent. The Proponent did provide clarifications to the Department via email, including further description of the grain silos, mill feed structure, production volumes and implementation of remedial measures to address riverbank stability.

6. CONSIDERATION

The Department has assessed the merits of the proposed modification and has reviewed the following as part of its assessment:

- EA and Director-General's assessment report for the SSEEPP;
- existing conditions of approval (as modified);
- the EA for the modification (**Appendix B**);
- submissions from government authorities (**Appendix C**);
- relevant environmental planning instruments, policies and guidelines; and
- requirements of the EP&A Act, including the objects of the Act.

The Department considers the key issues for the modification are noise, hazards, traffic and parking, odour, flooding and riverbank stability. The Department's assessment of other issues, including visual amenity, contamination and acid sulphate soils is provided in **Table 3**.

6.1 Noise

The proposed flour mill and mill feed structure have the potential to increase noise from the factory through mechanical plant within the structures, rooftop exhaust fans and external mechanical plant. Noise from rail movements are not expected to change as the increased grain transported to the site would be offset by the reduced flour brought to the site.

The EA included a noise impact assessment (NIA) prepared by Harwood Acoustics in accordance with relevant assessment guidelines. The NIA reviewed the modification against the existing noise limits in the Environment Protection Licence (EPL) for the premises, the project approval and Shoalhaven Starches' approved Noise Management Plan. The EPL and project approval noise limits range from 38 to 42 dB(A) at the nearest receivers. In order to achieve these noise limits, new plant and equipment at the factory must achieve design noise goals of 10 dB(A) below the criteria, to ensure the new plant and equipment does not increase the overall noise from the factory and exceed the noise limits. Therefore, the design noise goals for flour mill B and the mill feed structure are between 28 to 32 dB(A), which is 10 dB(A) below the noise limits.

The NIA identified the key noise sources as:

- roller mills and motor floors within the flour mill building;
- roof top exhaust fans; and

- mechanical plant located externally to the buildings, including small motors and bucket elevators.

The NIA modelled noise using data from measurements taken of similar plant and equipment at the existing flour mill and the manufacturer's data for the exhaust fans.

The nearest receivers to flour mill B include the residences on Meroo and Coomea Streets Bomaderry, located 600 m and 700 m to the north-west respectively. Other receivers include the residences in Terara on the southern side of the Shoalhaven River, 1.2 km from the site and in North Nowra, 1 km to the south. These locations are shown on **Figure 8** and are consistent with the receivers listed in the project approval and the EPL.



Figure 8 – Residential Receiver Locations

Operational Noise

The NIA predicted noise from the operation of flour mill B and the mill feed structure would meet the noise criteria at all four receiver locations, provided specific noise controls are implemented. The highest predicted noise level is 30 dB(A), which is equal to the design noise goal of 30 dB(A) at Coomea Street Bomaderry and would therefore achieve the noise limit of 40 dB(A) at this location. The noise controls required to achieve compliance with the limits include:

- a minimum sound reduction index for materials used in the walls and ceiling of the flour mill building;
- doors of the building to remain closed whilst operational;
- no penetrations in the building walls or ceiling without acoustic treatment;
- specific design criteria for any acoustic louvres used for building ventilation;

- fitting silencers to each exhaust fan to achieve a sound pressure level of 65 dB(A) for each fan;
- a sound barrier screen to the south of external mechanical plant at the mill feed structure; and
- final noise verification prior to the issue of a construction certificate to verify the size and design of ventilation openings, the silencers selected for installation on the exhaust fans and the design of acoustic barriers around external mechanical plant at the mill feed structure.

The Proponent has committed to implementing these controls as well as undertaking a noise verification to confirm the ventilation openings, silencers and acoustic barriers will achieve the design noise goals. The EPA was satisfied with the noise assessment and recommended the controls be included in the modified conditions. The Department has included these requirements in the recommended conditions.

Construction Noise

The NIA also assessed construction noise, noting that construction activities would take place over three months and would involve relocation of existing silos, concrete pouring, erection and fit-out of the building and storage silos and installation of plant within the building. The noisiest construction activities would involve piling for foundations, which is expected to take around two weeks.

The NIA concluded all construction activities would meet the noise management levels in the EPA's *Interim Construction Noise Guideline* at all receiver locations. The NIA recommended these works be managed via a Construction Noise Management Plan (CNMP). The EPA did not comment on construction noise and the Department notes the existing conditions include restrictions including standard construction working hours.

The Department's assessment considers the operational noise impacts of the modification would comply with the existing noise limits in the EPL and project approval provided the recommended noise control measures are implemented effectively. The Department has adopted the recommendations of the NIA for a noise verification study to be undertaken prior to operation of flour mill B and the mill feed structure to ensure the installed noise controls achieve the noise limits at the nearest receivers. The existing conditions of approval also require the Proponent to implement additional noise mitigation measures to achieve compliance, if noise limits are exceeded. Other conditions, such as the requirement for annual reports and three-yearly independent environmental audits, provide additional means for identifying and requiring further noise controls if non-compliances are occurring.

With these conditions in place, the Department's assessment concludes noise from the overall operation with the modification, would comply with existing noise limits.

6.2 Hazards and Risk

The Shoalhaven Starches facility is a large manufacturer of agricultural produce and ethanol, with processes such as the distillery, flour milling, starch processing, grain and ethanol storage presenting a number of hazards. Hazards and risks at the factory are managed through a range of processes and procedures including a safety management system, emergency plan and fire management systems.

The Department required the Proponent to prepare a Preliminary Hazard Analysis (PHA) for the modification in accordance with the Department's *Hazardous Industry Planning and Advisory Papers* (HIPAP). The PHA identifies new hazards presented by flour mill B and the mill feed structure, analyses the risks for comparison with the Department's land-use safety criteria and proposes control measures to manage residual risks. The PHA is based on the preliminary design of the facility, with a final hazard analysis prepared during detailed design.

The PHA identified the potential hazardous events associated with flour mill B being dust explosions and smouldering fires. The PHA concluded there would be no adverse off-site impacts from these scenarios given the distance to off-site receptors (25 m to the river and 110 m to the nearest public land). The risks of propagation to neighbouring equipment was considered low, given potential dust explosions would be vented to atmosphere or of limited impact and potential fires are of a smouldering nature. The PHA concluded all risk criteria in HIPAP 4 would be satisfied and societal, environmental and transport risks would be broadly acceptable.

The Department's hazards specialist reviewed the PHA and concluded the hazard identification was comprehensive and included adequate detail of the existing and additional safeguards. The Department notes that explosion vents have been incorporated into the design of the flour mill and the risk of propagation to neighbouring equipment is low, provided the explosion vent is directed to a safe location. The risk of propagation due to explosion overpressures from the dust explosion vent remains within the site.

The Department agrees with the conclusions of the PHA that the modification meets the land-use safety criteria and the most effective controls include housekeeping, hazardous zoning and permits to work. These controls have been adopted in the existing facility and need to be implemented for the new flour mill. Cumulative risk was also discussed in the PHA and the Department agrees with the finding that negligible risk is introduced due to this modification.

The PHA includes adequate safeguarding and mitigation measures which should be fully implemented to ensure the risks remain on-site. The Department has recommended conditions to ensure hazards and risks from the new flour mill are appropriately managed, including a requirement to update the Site-Wide Fire Safety Study, Emergency Plan and Safety Management System to include the modification. The Department also requires the Proponent to submit for the Secretary's approval, a Hazard and Operability Study and Final Hazard Analysis prior to construction of flour mill B. The modification must also be included in subsequent hazard audits of the facility. With these measures in place, the Department's assessment concludes the hazards and risks of the modification would be appropriately managed.

6.3 Traffic, Access and Parking

The factory is located on Bolong Road, approximately 1 km to the east of the intersection with the Princes Highway in Bomaderry. Bolong Road is a regional classified road managed by Council. It has one lane in each direction with the site located within a 60 kilometre per hour zone. The factory has multiple points of access from Bolong Road and an approved, but not constructed, access on Railway Street. These are shown on **Figure 9**.

The modification has the potential to increase traffic movements during construction and operation and increase parking demand. The EA included a traffic impact assessment (TIA) prepared by ARC Traffic and Transport. The TIA used baseline traffic data from a 2014 study, to predict current flows on Bolong Road and analysed intersection performance (using SIDRA) for the access point that would be used for construction and operation of flour mill B and the mill feed structure (western access, see access point 2 in **Figure 9**). The TIA noted the western access currently operates at a good level of service (LOS) with significant spare capacity, LOS A in the morning peak period and LOS B in the afternoon peak.

The TIA noted construction of the flour mill and mill feed structure would generate a total of 20 vehicle trips per day (light and heavy) over a three month period. Operation of the flour mill and mill feed structure would not increase traffic above existing levels, as there are no additional staff vehicle or heavy vehicle trips. Rail movements would not change as increased grain imports would be offset by reduced flour imports to the factory.



Figure 9 – Site Accesses

- Key**
1. Administration building access
 2. Western access (adjacent Cleary Bros site)
 3. Starch dryer no. 5 access
 4. Interim packing plant access
 5. Central access
 6. Distillery access
 7. Dairy Farmers access
 8. Packing Plant access (and temporary car park)
 9. Railway Street access to packing plant

The TIA concluded the western access would continue to operate at the same LOS in the morning and afternoon peak periods with the construction phase having little impact on the road network and the operational phase having no impact. The TIA noted construction staff generally travel via mini-bus from Wollongong, generating minimal parking demand. Construction staff parking would be provided in the temporary car park on the northern side of Bolong Road. Council noted this car park is already full and requested further consideration of available on-site parking for construction staff.

Council agreed the operation of the flour mill and mill feed structure would have negligible impact on traffic flows and the performance of the intersection of Bolong Road and the western access point. Council also accepted its concerns regarding outstanding upgrade works to the site accesses and Bolong Road can be dealt with separately to this modification.

RMS stated it entrusts Council to determine the impacts of the modification on Bolong Road, as the relevant roads authority. RMS also stated its desire for the outstanding upgrade works to the Dairy Farmers access to be completed expediently. The Department's Compliance Unit met with Council and the Proponent on 17 February 2017 to resolve the outstanding roadworks issues and establish a timeframe for completion. It is the Department's intention to resolve these matters through enforcement of the existing conditions and by modifying the existing conditions through MOD 12, submitted to the Department in November 2016 and currently under assessment. MOD 12 is likely to require additional upgrades to site accesses, therefore it is appropriate to require completion of all outstanding upgrade works through conditions attached to MOD 12.

The Department has reviewed the TIA and the submissions from Council and RMS and concludes the modification would have negligible impact on the local road network and the western access point. The Department notes Council's concerns regarding available capacity within the temporary car park on the northern side of Bolong Road for construction vehicles. The Department notes the temporary car park was built to provide parking for construction of starch dryer no. 5, which is now mostly complete. The Department considers the small parking demand for construction of the flour mill could be accommodated through appropriate construction scheduling. The Department recommends the Proponent prepare a Construction Traffic Management Plan detailing measures to ensure adequate parking is available on site. No other changes to the traffic and parking conditions are necessary for this modification.

6.4 Odour and Air Quality

The Shoalhaven Starches factory and environmental farm had a history of generating offensive odour, primarily originating from the irrigation of its wastewater on the environmental farm. However since 2011, following implementation of the mandatory odour controls approved as part of the SSEEP, which included installation of a wastewater treatment plant, odour emissions from the site have significantly reduced. This has been demonstrated through quarterly odour monitoring, independent annual odour audits and a substantial reduction in the number of complaints received. However due to this history of odour impacts, any modification to factory processes requires careful analysis of the potential for increases in odour emissions.

Stephenson Environmental Management Australia (SEMA) prepared an air quality impact assessment (AQIA) to predict the potential odour and total suspended particulate (TSP) emissions from the proposed flour mill B and the mill feed silo.

Flour mill B includes grain storage silos, bucket elevators, sieves and separators and conditioning silos, where wheat is moistened before processing. The flour mill includes a series of roller mills to process the wheat into fine fractions producing flour. These processes are contained within the enclosed flour mill building with a number of exhaust fans on the roof of the building. The coarser particles from the grain are collected and transferred by pipeline to the DDG plant for packaging and sale as animal feed.

The nearest residential receivers (see **Figure 8**) include properties located within the townships of Bomaderry, Terara, Nowra and North Nowra.

SEMA used odour emissions monitoring data from the existing flour mill exhaust stacks as model inputs. The worst case predicted ground level concentrations from the modification, at the nearest receiver are:

- odour 0.7 odour units (ou) in Bomaderry; and
- TSP 0.01 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

These are well below the EPA criteria of 2.0 ou and $90 \mu\text{g}/\text{m}^3$ respectively.

SEMA also estimated odour emissions from flour mill B represent 0.9% of total odour emissions from the factory and environmental farm, concluding the new flour mill is not a significant odour source. Similarly, TSP emissions from flour mill B were estimated to represent 0.03% of total TSP emissions from the factory.

The EPA noted some inconsistencies in the odour assessment, related to comparing the 2008 odour audit conducted by GHD with the odour modelling for the modification to establish a cumulative odour value. The EPA noted the assessments used different odour models, therefore a direct comparison is not accurate. Despite the inconsistencies identified, the EPA noted the modification is unlikely to be a significant source of odour, given the existing flour mill is not a significant source. The EPA did not recommend any additional odour or dust management conditions.

A detailed assessment of dust impacts for the construction phase was not included as the construction period would be short (3 months) and there would be limited earthworks given the small footprint of the flour mill and mill feed structure. The works are located over 300 m from residential areas, minimising the likelihood of amenity impacts.

The Department agrees with the conclusions of the AQIA, and concludes the flour mill B and mill feed structure would not significantly increase odour or particulate emissions from the overall factory. The Department considers the existing conditions of approval, requiring annual odour audits, are adequate for ensuring the air quality impacts of the modified project are measured and managed effectively.

6.5 Flooding and Riverbank Stability

Flooding

The factory is located on the northern bank of the Shoalhaven River with the area for the proposed flour mill B and mill feed structure described as high hazard and floodway. Intensification of development on the floodplain has the potential to cause flooding impacts on and off-site.

WMA Water (WMA) assessed the implications of the modification on flood levels, flows and velocities, referring to its previous studies including the *Shoalhaven Floodplain Risk Management Study and Plan 2008* and the *Shoalhaven River Flood Study 2013* (prepared specifically for Shoalhaven Starches). The flood assessment considered the location of flour mill B, the mill feed structure and the six silos to be relocated to the former Paper Mill site.

WMA noted the factory site is already densely developed and would significantly impede the movement of floodwaters through the site. The flour mill B and mill feed silo would contribute further to impeding flows, however WMA concluded this would have an insignificant impact on flood levels, given the small building footprint. WMA used hydraulic modelling to evaluate the impact of the storage of six silos at the former Paper Mill site, concluding there would be no change in design flood levels. WMA's assessment concluded the works would not increase

risks to life or safety of persons during a flood event or adversely affect the integrity of the floodway.

WMA noted the need for a structural engineer's report to demonstrate the structures can withstand flood waters and the stored silos do not become floating debris. Council reiterated the need for the structural report to confirm these aspects of the modification. Council also requested the flour mill be constructed above the flood planning level, or be sealed up to this level. The Proponent advised flour mill B would be constructed with a floor level at 5.965 m Australian Height Datum (AHD), consistent with the existing flour mill A. The Proponent provided a structural engineers report stating the flour mill B and mill feed structure would be constructed with flood compatible materials and be built to withstand flood events.

The Department reviewed the flood assessment and Council's submission and concluded the modification would have an insignificant impact on flooding. The Department agrees with the recommendations provided by Council and has included conditions requiring a structural report prior to and following construction to confirm the structures have been built to withstand floodwaters and would not become floating debris. The existing conditions also require the Proponent to update its flood mitigation and management plan for each modification, in consultation with Council.

Riverbank Stability

The proposed flour mill is located 20 m from the bank of the Shoalhaven River and the mill feed structure is located within 10 m of the bank of Abernathy's Creek. The riverbank has been subject to instability and in 2008, the Proponent installed a rock revetment wall to stabilise the bank and minimise soil movement and changes to the riverbed profile.

Coffey Geotechnics (Coffey) assessed the potential for the modification to impact on the stability of the creek banks and noted there has been some minor localised movement of the riverbank and displacement of rocks at the toe of the wall since 2008. Coffey noted the following in relation to the potential impacts of the modification:

- flour mill B and the mill feed silo would be supported by deep piled foundations to rock and would not add additional load to the riverbanks; and
- the proposed pipeline to the mill feed silo would sit on an existing gantry on the riverbank, which is lightly loaded, with no additional supports required.

Coffey concluded the modification would have no effect on the stability of the riverbanks provided the Proponent complies with specific recommendations, including:

- the flour mill B and mill feed structure should be supported on deep foundation systems to rock to ensure no additional loads are applied to the riverbanks;
- cranes or other heavy loads such as building materials should not be placed within 10 m of the Shoalhaven River bank or within 5 m of Abernathy's Creek bank; and
- significant ground vibration should be avoided.

Remedial measures to repair the existing bank deterioration were also recommended. The Proponent provided details of the location of the bank deterioration and confirmed these areas are located away from the proposed flour mill B and mill feed structure. The Proponent confirmed it will be undertaking the remedial works in accordance with the recommendations provided by Coffey.

The Department supports the recommended measures proposed by Coffey given the proximity of the works to the riverbank and the known issues of riverbank instability. These measures are included as recommended conditions. The existing conditions also require the Proponent to survey the rock revetment wall to detect settlement and lateral movement and to implement maintenance or repairs if required. The Department recommends modifying these conditions to extend the timeframe for monitoring and to ensure maintenance and repairs are

implemented in a timely manner. The Department considers the recommended conditions would ensure riverbank stability continues to be adequately monitored and managed.

6.6 Other Issues

The Department's assessment of other issues is provided in **Table 3**.

Table 3: Assessment of Other Issues

| Issue | Assessment | Recommendation |
|---------------------------------------|---|--|
| Visual amenity and building height | <p><u>Visual Amenity</u></p> <ul style="list-style-type: none"> The modification involves constructing flour mill B at 39.5 m high and the mill feed structure at 28 m high. The EA included a visual impact assessment which considered the visibility of the modification from key vantage points including Bolong Road, Bomaderry, North Nowra, Terara and Nowra. The flour mill and mill feed structure would be most visually prominent from locations to the south across the Shoalhaven River, including Terara and North Nowra. Views for passing motorists on Bolong Road would be screened by other intervening infrastructure on the site, such as the starch dryer, fermenters and DDG dryer building. The assessment concluded the visual aesthetic would not vary significantly from the approved development as the heights are consistent with and lower than other infrastructure on the site, including the grain silos at 34 m, dryer at 43 m and the interim packing plant at 34 m. Council did not raise any concerns regarding visual amenity. The Proponent has committed to use non-reflective building materials similar to other structures on site. The Department's assessment concludes the visual impacts of the modification would be minimal given the structures would be of a similar appearance, height and bulk to existing structures at the factory. The modification does not require any specific conditions beyond the control of lighting, use of non-reflective materials and landscaping as required by the existing approval. <p><u>Building Height</u></p> <ul style="list-style-type: none"> HMAS Albatross (airbase) is located 10 km south-west of the factory. The Proponent provided information to the Department of Defence regarding the height of the flour mill and mill feed structure. The Department of Defence considered the potential impacts to the safety of aircraft operations from HMAS Albatross, advised it had no concerns and requested the Proponent provide as-constructed details to Airservices Australia following completion of construction for inclusion in its database. The Department has incorporated this recommendation into the modified conditions. | <p>Manage via existing conditions requiring the Proponent to:</p> <ul style="list-style-type: none"> control lighting and use non-reflective building materials; and provide as-constructed details to Airservices Australia following completion of construction of flour mill B and the mill feed structure. |
| Contamination and acid sulphate soils | <ul style="list-style-type: none"> Coffey undertook a phase 1 contamination assessment including a site inspection, review of historical studies, contaminated land records and acid sulphate soil maps to identify areas of environmental concern and contaminants of potential concern. Coffey reviewed preliminary contamination assessments of the site undertaken in 2007, 2014 and 2015, covering the area immediately adjacent the proposed flour mill. The assessments concluded contaminated soils are unlikely to be present that would pose unacceptable risks to current or future site users with respect to the industrial land use. Coffey also noted acid sulphate soils (ASS) are present at depths greater than 3 m and unlikely in shallower soils. The EPA and Council did not comment on contamination. The Department notes the modification does not require substantial excavation as the structures would be piled to bedrock, hence disturbance of soils would be minimal. The Department concludes the modification would be unlikely to impact on ASS and unlikely to encounter contaminated soils. | <p>Require the Proponent to implement a protocol for managing unexpected finds.</p> |

| Issue | Assessment | Recommendation |
|-------|---|----------------|
| | <ul style="list-style-type: none"> The Department has updated the existing conditions requiring the Proponent to implement a protocol for managing any unexpected finds. | |

7. CONCLUSION

The Department has assessed the proposed modification in accordance with the requirements of the *Environmental Planning and Assessment Regulations 2000* and concludes the modification would:

- result in minimal environmental impacts beyond the approved facility;
- enable Shoalhaven Starches to alter production to reflect changing markets with a reduced emphasis on ethanol production and an increased focus on flour, starch and gluten production;
- enable Shoalhaven Starches to remain competitive and increase capacity of flour production at other mills owned by the Manildra Group;
- ensure the key amenity impacts of odour and noise are maintained below existing limits;
- maintain the hazards and risks of the facility below relevant land-use safety criteria;
- ensure traffic, access and parking does not adversely impact the local and regional road network; and
- not adversely impact on riverbank stability.


Consequently, the Department considers on this basis the modification is approvable, subject to the recommended conditions.

8. RECOMMENDATION

It is recommended that the Planning Assessment Commission, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report, noting that the Department considers that the modification is approvable, subject to conditions;
- **determines** that the Proponent's request is a modification under section 75W of the EP&A Act; and
- if the Commission determines to modify the approval, **signs** the attached notice of modification.

Deana Burn
Specialist Planner, Industry Assessments


Chris Ritchie 31/3/17.
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