



Shoalhaven Starches Expansion Modification 18

State Significant Development Modification Assessment
(06_0228 MOD 18)

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Glossary

Abbreviation	Definition
BCA	Building Code of Australia
CIV	Capital Investment Value
Commission	Independent Planning Commission
Council	Shoalhaven City Council
Department	Department of Planning, Industry and Environment
DISER	Federal Department of Industry, Science, Energy and Resources
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
LEP	Local Environmental Plan
Minister	Minister for Planning and Public Spaces
Planning Secretary	Secretary of the Department of Planning, Industry and Environment
Project Approval	Project Approval issued under Part 3A of the EP&A Act
SEARs	Planning Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development

Executive Summary

Shoalhaven Starches Pty Ltd (the Applicant) operate a factory at Bomaderry on the south coast of NSW. The factory processes wheat to produce flour, gluten, glucose, starch and ethanol for food, beverage, paper and fuel products. The factory has operated since 1979 and has approximately 300 employees.

In 2009, the then Minister for Planning approved an expansion to fuel-grade ethanol production at the factory and required the Applicant to implement a range of odour controls, including a wastewater treatment plant. These controls have substantially reduced odour from the factory and its irrigation areas. Since 2009, the Applicant has installed additional infrastructure at the factory, through modifications to the project approval. These modifications have allowed the Applicant to optimise production of flour and beverage-grade ethanol, to offset a reduced demand for fuel-grade ethanol in NSW.

The original project approval (06_0228) has been modified 15 times under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). In September 2018, the project was transitioned to State significant development (SSD) and on 16 June 2019, modification 16 was approved by the Independent Planning Commission (the Commission) under Section 4.55(2) of the EP&A Act. Modification 17 is still under consideration by the Department.

On 19 May 2020, the Applicant lodged a modification application (MOD 18) under Section 4.55(1A) of the EP&A Act for the relocation of an approved gas fired boiler to facilitate the production of hand sanitiser in response to the COVID-19 pandemic, including the extension of an existing gantry and two ethanol storage tanks. The modification application was further amended to include the manufacturing of hand sanitiser utilising the ethanol made onsite and the repurposing of the existing de-fatting plant for the production of hand sanitiser.

In order to help satisfy the demand in the Australian market due to the COVID-19 pandemic, the modification would enable the Applicant to:

- produce a grade of ethanol suitable to be used for making hand sanitiser within the project's current production limits of 300 mega litre (ML) of ethanol per annum; and
- manufacture of up to 1.5 ML of hand sanitiser.

The Applicant has lodged MOD 18 following correspondence with the Australian Government's Department of Industry, Science, Energy and Resources (DISER) noting the need for a sustained supply of ethanol in Australia for the manufacturing of hand sanitiser to support the Australian Government's response to COVID-19.

The modification application must be determined by the Commission, as the Applicant has made reportable political donations. The Commission has determined all previous modifications of the approval.

The Department has assessed the modification application in accordance with the EP&A Act. The Department did not exhibit the modification in accordance with Clause 117(3B) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation). However, it was made publicly available on the Department's website on 20 May 2020 and was referred to Shoalhaven City Council

(Council) and the NSW Environment Protection Authority (EPA) for comment. No objections were raised by Council or the EPA.

The Department's assessment identified two key issues, air quality and hazards and risk. The Department consulted with the EPA and identified the relocated gas fired boiler and new ethanol production would have a reduced impact on air quality. The Department's internal hazards specialists reviewed the Preliminary Hazard Analysis, concluding the cumulative risk from the modified factory would comply with the NSW land use safety risk criteria. Other aspects including, noise, flooding, riverbank stability and visual amenity would be appropriately managed through existing and modified conditions.

The Department's assessment has concluded the modification is approvable subject to conditions.

Contents

1	Introduction	1
	1.2 Background	1
	1.3 Approval History	2
2	Proposed Modification	6
	2.1 Proposed Modification	6
	2.2 Applicant’s Justification	6
3	Strategic Context	11
4	Statutory context	13
	4.1 Scope of modifications	13
	4.2 Consent authority	13
	4.3 Part 3A transition to State significant development	13
5	Engagement	14
	5.1 Department’s engagement	14
	5.2 Summary of submissions	14
	5.3 Key issues raised in submissions	14
	5.4 Response to submissions	14
6	Assessment	16
	6.2 Air Quality	16
	6.3 Hazards and Risks	17
	6.4 Other issues	18
7	Evaluation	22
8	Recommendation	23
9	Determination	24
	Appendices	25
	Appendix A – List of Documents	25
	Appendix B – Modification Report	Error! Bookmark not defined.
	Appendix C – Additional Information	Error! Bookmark not defined.
	Appendix D – Submissions	Error! Bookmark not defined.
	Appendix E – Submissions Report	Error! Bookmark not defined.
	Appendix F – Statutory Considerations	Error! Bookmark not defined.
	Appendix G – Notice of Modification	26

1 Introduction

- 1.1.1 This report provides an assessment of an application to modify the State significant development (SSD) consent for the Shoalhaven Starches Expansion (06_0228) in Bomaderry.
- 1.1.2 The modification application seeks approval for the production of hand sanitiser grade ethanol and the subsequent production of hand sanitiser in response to the COVID-19 pandemic. The modification also includes the relocation of approved gas fired boiler, repurposing of the existing de-fatting plant for hand sanitiser production, extension of an existing gantry and two ethanol storage tanks. The application was lodged by Shoalhaven Starched Pty Ltd (the Applicant) pursuant to section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 Background

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

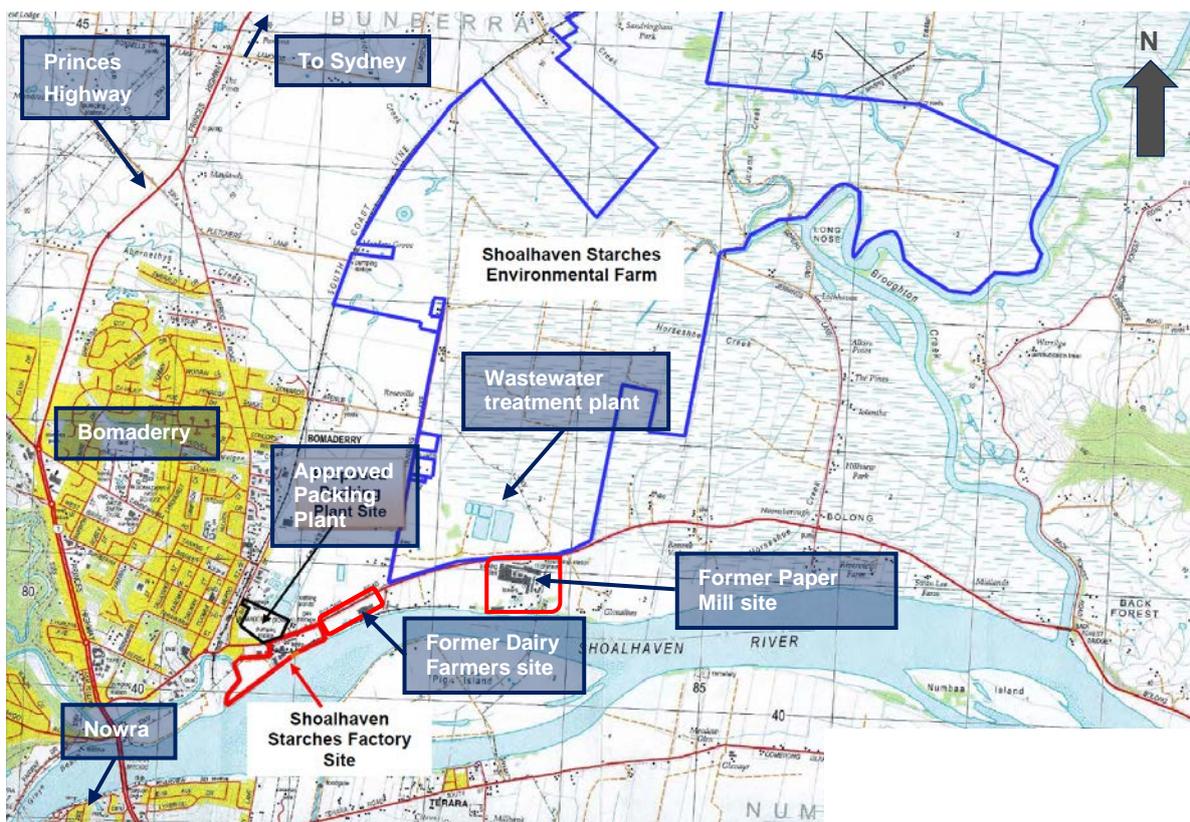


Figure 1 | Regional Context Map

- 1.2.2 The factory is located on the eastern fringe of Bomaderry and 2 kilometres (km) to the north-east of Nowra (see **Figure 2**). The factory is surrounded by other industrial premises, including a metal fabrication factory, meat packaging works and industrial and agricultural suppliers. The nearest residences are in Bomaderry, 300 metres (m) to the west of the approved packing plant and 500 m north-west of the factory.

- 1.2.3 Shoalhaven City Council's sewage treatment works is located 180 m to the north of the factory and Bomaderry railway station is located 500 m north-west. 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.
- 1.2.4 The Shoalhaven Starches factory encompasses the former Dairy Farmers complex and the former Shoalhaven Paper Mill, located east of the main factory on Bolong Road.

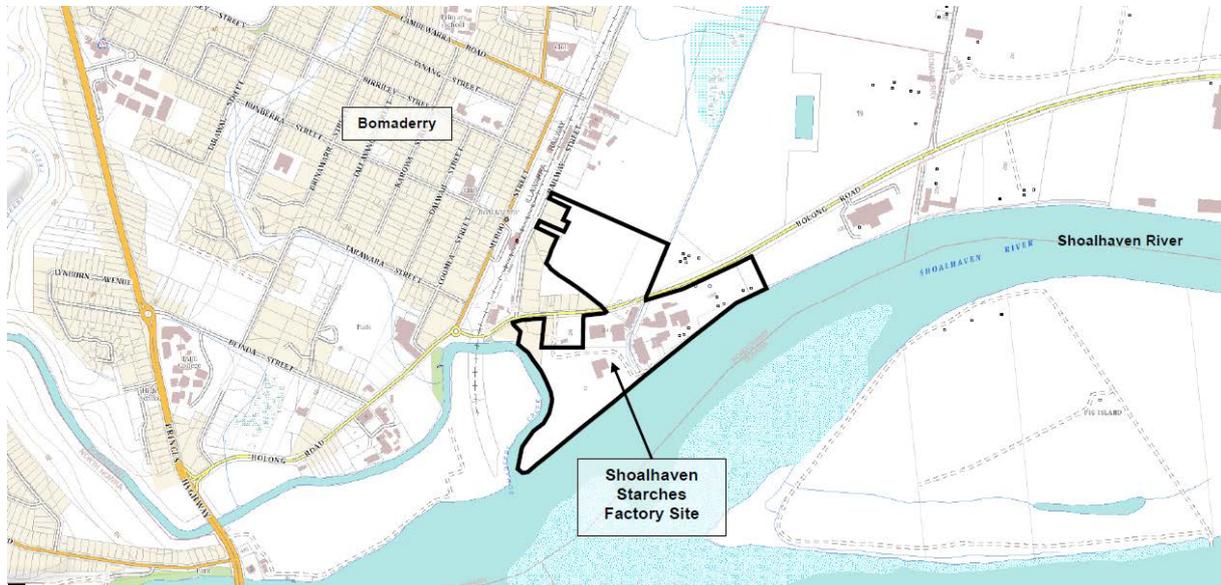


Figure 2 | Local Context Map

- 1.2.5 On 9 May 2020, the Commonwealth Government's Department of Industry, Science, Energy and Resources (DISER) approached the Applicant regarding its capacity to produce hand sanitiser grade alcohol for the manufacturing of hand sanitiser to address current supply chain issues resulting from the COVID-19 pandemic. This modification seeks the alterations and additions to factory infrastructure to facilitate this production.

1.3 Approval History

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

Shoalhaven Starches Ethanol Expansion Project (06_0228)

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

- 1.3.3 The SSEPP involved:

- staged increases of ethanol production from 126 megalitres a year (ML/yr) to 200 ML/yr following successful implementation of mandatory odour controls
- implementation of mandatory odour controls including a wastewater treatment plant and biofilter
- installation of additional infrastructure at the dried distillers grain (DDG) plant, ethanol and starch plants, a new packing plant, rail siding and product and wastewater pipelines.

- 1.3.4 By June 2012, the Applicant had installed the mandatory odour controls and the Department approved the increase in ethanol production (as prescribed in the conditions) to the maximum volume permitted being 300 ML/yr, subject to conditions, including quarterly odour monitoring and annual odour audits. However, demand for ethanol in fuels has not increased as predicted and ethanol production levels at the factory in 2017 were around 237 ML/yr.
- 1.3.5 Given the reduced market demand for ethanol, the Applicant has progressively installed infrastructure over the last few years, to allow optimisation of flour products and increased production of beverage grade ethanol for alcohol products. This has required several modifications to the SSEEP approval, including a new starch dryer, flour mill and a beverage grade ethanol distillery at the factory.

Modifications to 06_0228

- 1.3.6 The Minister for Planning and Public Spaces has approved 16 modifications to the SSEEP since 2009. All modifications were approved by the former Planning Assessment Commission or Independent Planning Commission (the Commission) under the Minister’s delegation. **Table 1** summarises the modifications.

Table 1 | Summary of Modifications

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
MOD 1	<ul style="list-style-type: none"> removed the requirement for dried distillers grain (DDG) pelletising plant from the list of mandatory odour controls implement alternate odour controls including a new loading chute with dust extractor and extension of the load-out shed to fully enclose truck loading. 	Minister	s75W	30 Sept 2011
MOD 2	<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. 	Minister	s75W	14 Sept 2012
MOD 3	<ul style="list-style-type: none"> relocate approved 60 space staff car park to the former Dairy Farmers site and include the site in the project approval, following acquisition by the Applicant. 	Minister	s75W	9 Oct 2012
MOD 4	<ul style="list-style-type: none"> relocate the approved DDG pelletising plant within the factory site, increases its footprint and approved height, from 21 m to 28 m. 	Minister	s75W	24 Mar 2014
MOD 5	<ul style="list-style-type: none"> modify the design, footprint and odour controls on the DDG pelletising plant including a 49 m air discharge stack and eight storage silos. 	Minister	s75W	16 Sept 2015

MOD 6	<ul style="list-style-type: none"> demolish a disused industrial building “Moorehouse” purchased by the Applicant construct a temporary car park on the northern side of Bolong Road. 	Minister	s75W	25 Nov 2015
MOD 7	<ul style="list-style-type: none"> relocate the approved Starch Dryer No. 5 to the former “Moorehouse” site, increase the footprint and construct a substation, pipework and pipe gantry. 	Minister	s75W	18 Jan 2016
MOD 8	<ul style="list-style-type: none"> extend the existing flour mill to increase flour production from 265,000 to 400,000 tonnes per annum (tpa) and offset imports of flour to the factory from mills in western NSW. 	Minister	s75W	1 Mar 2016
MOD 9	<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 install product pipes under Bolong Road, a small bag packer at the DDG pellet plant and a new stormwater detention tank. 	Minister	s75W	8 Mar 2017
MOD 10	<ul style="list-style-type: none"> construct a new flour mill B and increase flour production on site from 400,000 tpa to 842,400 tpa. Relocate storage silos and construct a mill feed structure. 	Minister	s75W	18 April 2017
MOD 11	<ul style="list-style-type: none"> reduce the number of approved dryers and relocate approved footprint, relocate cooling towers, construct a forklift maintenance building, install two biofilters, construct hardstand for container storage, store coal and woodchips on the factory site and environmental farm. 	Minister	s75W	1 Sept 2017
MOD 12	<ul style="list-style-type: none"> increase production of beverage grade ethanol and reduce production of fuel grade ethanol install ethanol distillery infrastructure including rectification columns, cooling towers, a substation, storage tanks and pipes extend two rail siding and provide additional car parking. 	Minister	s75W	1 Sept 2017

MOD 13	<ul style="list-style-type: none"> increase steam production from three existing boilers by converting to coal fired boilers and installing baghouses. 	Minister	s75W	18 Jan 2018
MOD 14	<ul style="list-style-type: none"> incorporate the former Shoalhaven Paper mill into the project approval and use the site for buffer storage for products, plant, construction materials and shipping containers. 	Minister	s75W	27 April 2018
MOD 15	<ul style="list-style-type: none"> construct a carbon dioxide plant at the former Dairy Farmers complex to capture and treat waste gas to a food grade standard for sale to food and hospitality markets. 	Minister	s75W	7 Aug 2018
MOD 16	<ul style="list-style-type: none"> construction of new flour mill and gluten dryer, specialty products building, boiler and coal-fired cogeneration plant conversion of two gluten dryers to starch dryers. 	Minister	s4.55(2)	18 June 2019
MOD 17	<ul style="list-style-type: none"> relocation of baghouse, installation of service lifts for starch dryer and elevation of service conduit to packing plant. use of woodchips as boiler fuel source. 	Minister	s4.55(1A)	Under Assessment

Council Issued Consents

- 1.3.7 Separate to the SSEEP approval, the Applicant sought and obtained 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)
 - construction of two additional grain silos for buffer storage (DA 14/2161).
- 1.3.8 Council also granted consent to the Applicant for road and site access upgrades, consistent with the SSEEP approval. These included:
- upgrades to site access points on Bolong Road, including the Dairy Farmers site access (DA 10/1843)
 - widening the access point to the interim packing plant (DA 11/1855).
- 1.3.9 Two other Council issued consents apply to land adjacent to the factory and owned by the Applicant. These include the Algae Demonstration Facility and the Meat Processing Plant, both located at the former Dairy Farmers site.

2 Proposed Modification

2.1 Proposed Modification

- 2.1.1 The Applicant lodged a modification application under section 4.55(1A) of the EP&A Act to modify 06_0228. The modification is described in full in the Statement of Environmental Effects (SEE) included in **Appendix A** and is summarised in **Table 2**. **Figure 3** shows the location of all aspects of the modification and **Figure 4** and **Figure 5** show further details of the key components.
- 2.1.2 The Applicant's modification originally proposed the production of 120 ML/yr of hand sanitiser grade ethanol which would have been distributed offsite for making hand sanitiser material. However, the modification was then amended to include the onsite manufacture of 1.5 ML/yr of hand sanitiser material utilising the proposed 120 ML/yr of hand sanitiser grade ethanol to be produced. The remainder of the 120 ML/yr not used on site would be distributed offsite for further processing.

Table 2 | Component of Modification

Modification Aspect	Description
Ethanol production	<ul style="list-style-type: none">produce 120 ML/yr of hand sanitiser grade ethanol within the approved 300 ML/yr production limit
Hand Sanitiser Production	<ul style="list-style-type: none">repurposing of existing de-fatting building for the manufacturing of 1.5 ML/yr hand sanitiser
Boiler relocation	<ul style="list-style-type: none">relocation of approved, but not yet built gas fired boiler to be adjacent to ISO container storage area to the south east of the site to better service the existing distillerynew 24.5 m high boiler emissions stack
Gantry extension	<ul style="list-style-type: none">extension of existing gantry and associated steam pipework between gas fired boiler and distillery for steam supplyadditional pipework to increase height of gantry from 9.75 m to 10.8 m
Storage tanks	<ul style="list-style-type: none">erection of two 236,000 litre storage tanks for hand sanitiser storage
Storage area	<ul style="list-style-type: none">repurposing of de-fatting plant for hand sanitiser production storage
Employment	<ul style="list-style-type: none">20 construction jobs, 4 operational jobs
Capital investment	<ul style="list-style-type: none">\$7.8 million

2.2 Applicant's Justification

- 2.2.1 The Applicant was approached by DISER on 9 May 2020 to produce hand sanitiser to meet the supply chain demand for the manufacturing of hand sanitiser in Australia due to the COVID-19 pandemic. The

modification is proposed to facilitate the site's production of hand sanitiser grade ethanol to satisfy the request.

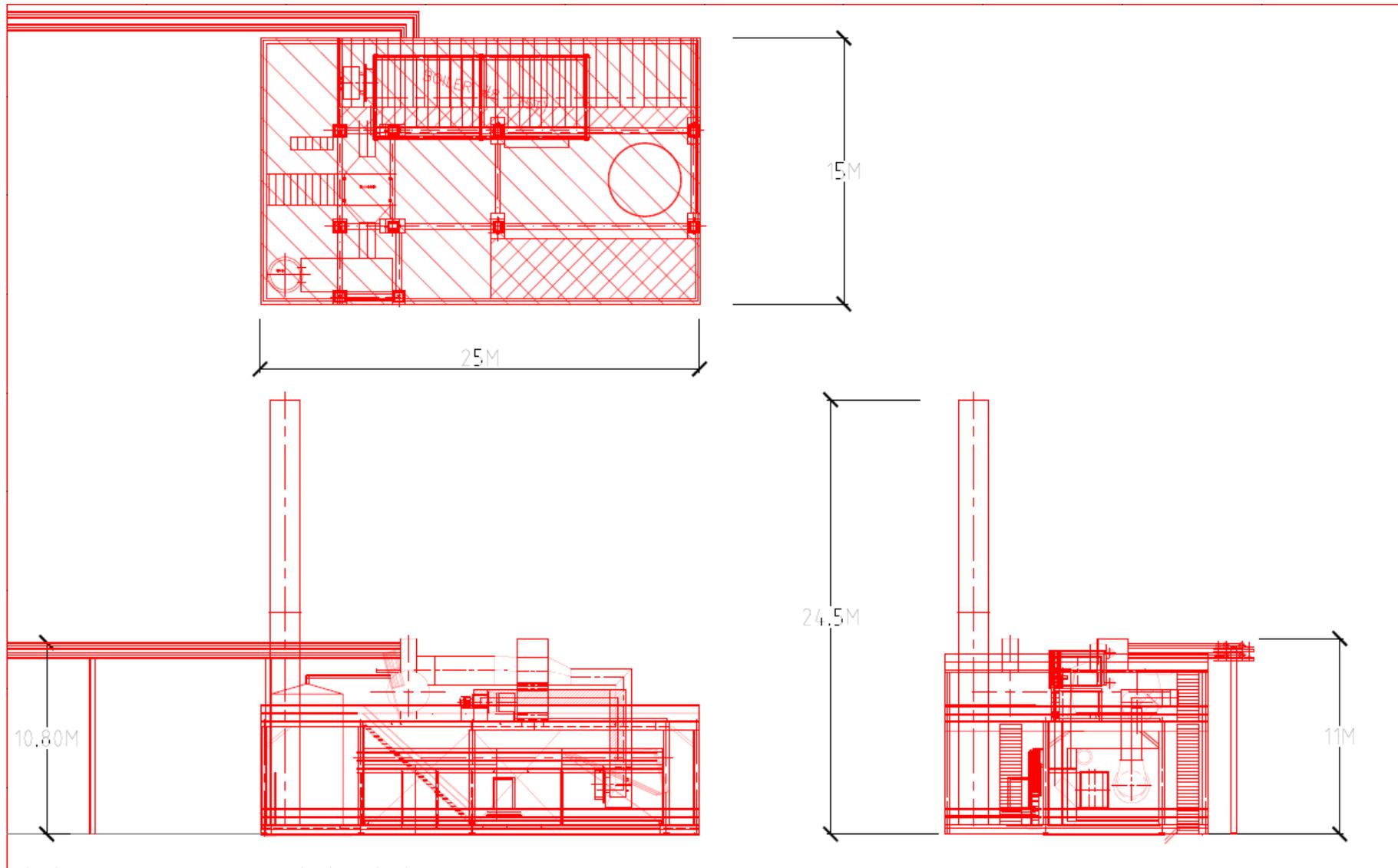


Figure 4 | Proposed gas fired boiler relocation

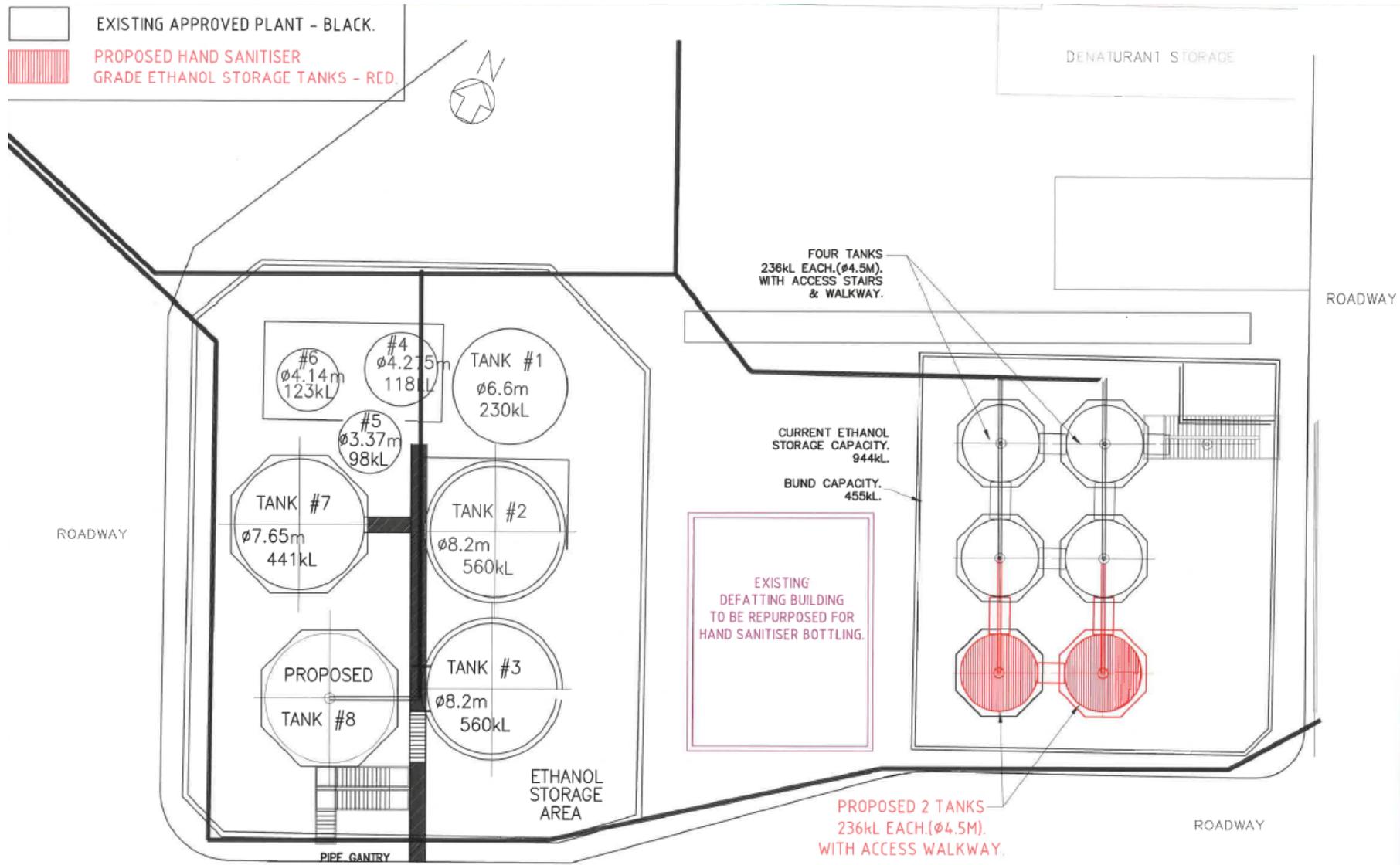


Figure 5 | Proposed hand sanitiser storage area and silos

2.3 Process Description

2.3.1 The modification includes the production of hand sanitiser utilised from the ethanol produced at the facility. Hand sanitiser is produced from a blend of ethanol, water, glycerine and hydrogen peroxide as identified in **Figure 6**. Chemical tanks are first nitrogen purged to reduce oxygen levels in the tanks below 4% to reduce the risk of fires and explosions. Water, glycerine and hydrogen peroxide are mixed within a 6 m³ Chemical Tank (Tk-101) and then transferred to a 3.5 m³ Chemical Tank (Tk-201) for the incorporation of ethanol and further mixing. When the chemicals are sufficiently blended, the hand sanitiser is transferred into a Final Product Tank (Tk-301) for dispensing into Intermediate Bulk Containers (IBC).

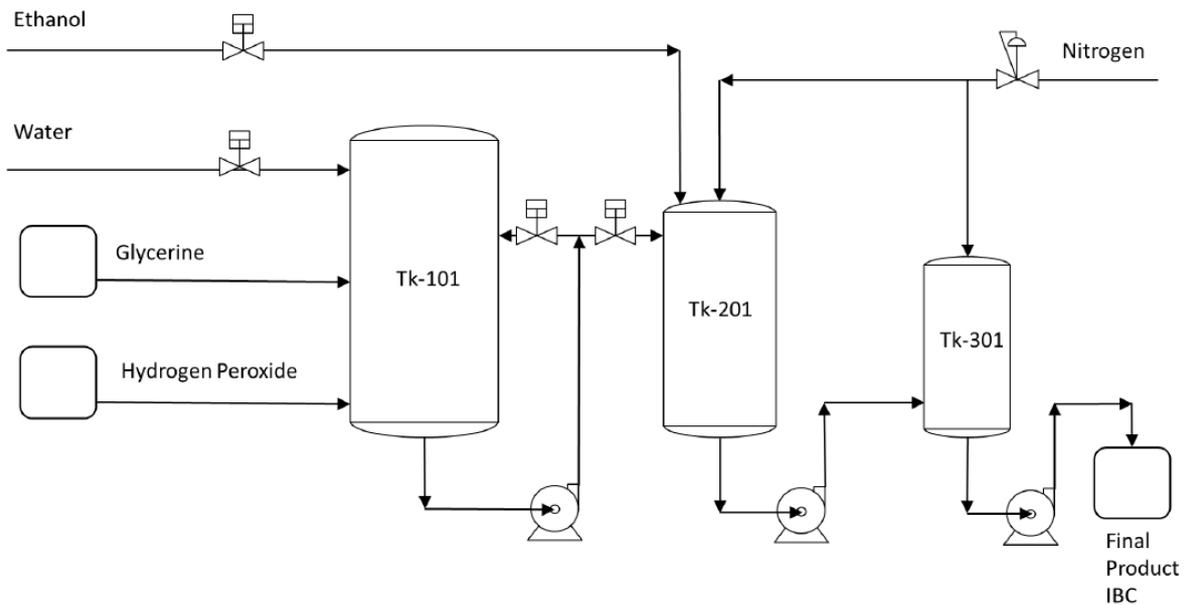


Figure 6 | Hand Sanitiser Process Schematic

3 Strategic Context

- 3.1.1 The Department has considered the strategic context of the site and is satisfied the proposed modification is consistent with relevant strategic planning documents including the *Illawarra Shoalhaven Regional Plan* (ISRP) 2015.
- 3.1.2 The ISRP sets a vision and goals for the region covering housing, jobs, environment and transport. The proposed modification would contribute to the goal of driving regional employment and business growth, by providing 5 operational jobs and up to 80 construction jobs. The modification would also contribute to the on-going employment of over 300 staff at the Shoalhaven Starches factory. The modification would enable Shoalhaven Starches to maintain an efficient and competitive manufacturing business that contributes to the local and regional economy.

4 Statutory context

4.1 Scope of modifications

4.1.1 The Department has reviewed the scope of the modification application and considers the application can be characterised as a modification involving minimal environmental impacts as the proposal:

- would not significantly increase the environmental impacts of the development as approved
- the modification would not involve any works outside already approved development areas
- is substantially the same development as originally approved, and
- would not involve any further disturbance outside the already approved disturbance areas for the development.

4.1.2 Therefore, the Department is satisfied the proposed modification is within the scope of section 4.55(1A) of the EP&A Act and does not constitute a new development application. Accordingly, the Department considers that the application should be assessed and determined under section 4.55(1A) of the EP&A Act rather than requiring a new development application to be lodged.

4.2 Consent authority

4.2.1 The Minister for Planning and Public Spaces is the consent authority for the application under section 4.5(a) of the Act. However, as the Applicant made reportable political donations, the application will be determined by the Independent Planning Commission (the Commission) in accordance with the Minister's Instrument of Delegation, dated 9 March 2020.

4.3 Part 3A transition to State significant development

4.3.1 The SSEEP was originally approved under Part 3A of the EP&A Act. The project was a transitional Part 3A project under Schedule 2 to the EP&A (Savings, Transitional and Other Provisions) Regulation 2017. On 7 September 2018, an order made by the Minister's delegate was published in the Gazette declaring the development that was a Part 3A project to be State significant development under clause 6 to Schedule 2 of the EP&A (Savings, Transitional and Other Provisions) Regulation 2017. As a result, the project approval is taken to be a State significant development consent under Part 4 of the EP&A Act and may be modified under section 4.55 of the EP&A Act.

4.4 Biodiversity Development Assessment Report

4.4.1 Clause 30A(2)(c) of the Biodiversity Conservation (Savings and Transitional) Regulation 2017 specifies that if the determining authority is satisfied a modification will not increase the impact on biodiversity values, a biodiversity development assessment report (BDAR) is not required.

4.4.2 The modification does not propose any development outside of the existing Shoalhaven Starches facility footprint and is considered to be no present biodiversity values for the modification to impact on. The Department's assessment concludes a BDAR is not necessary for the proposed modification.

5 Engagement

5.1 Department's engagement

5.1.1 Clause 117(3B) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) specifies the notification requirements of the EP&A Regulation do not apply to section 4.55(1A) modifications with minimal environmental impact applications. Accordingly, the application was not notified or advertised. However, it was made publicly available on the Department's website on 20 May 2020, and was referred to Shoalhaven City Council (Council) and the NSW Environment Protection Authority (EPA) for comment.

5.2 Summary of submissions

5.2.1 The Department received two submissions from Government agencies. There were no submissions from the public or special interest groups. There were no objections to the modification.

5.2.2 **Council** provided no objection to the modification subject to recommended conditions relating to flooding engineering.

5.2.3 **EPA** did not object to the modification but provided comments which are described in Section 5.3 below.

5.2.4 In addition, the Department sought additional information from the Applicant regarding further details on the manufacturing process of ethanol and hand sanitiser production, and to demonstrate the worst-case fire scenario for hand sanitizer product on off-site land uses.

5.3 Key issues raised in submissions

5.3.1 The EPA noted the modification will have a reduction in steam produced from the gas fired boiler however, no information was provided regarding the estimated air emissions concentrations for the relocated boiler.

5.3.2 The EPA specified the relocated boiler would be required to meet the Group 6 air emission concentration standards outlined in Schedule 4 of the *Protection of the Environment Operations (Clean Air) Regulation 2010* (Clean Air Regulation). The EPA noted post commissioning of the relocated boiler should be undertaken.

5.3.3 The EPA additionally requested calculations of the maximum volume of dangerous goods to be stored in the originally proposed covered storage area and required a fire risk analysis to be undertaken.

5.4 Response to submissions

5.4.1 The Applicant provided a Response to Submissions (RtS) to address comments made by EPA and the additional information request by the Department on 6 July 2020. The Applicant amended the modification proposal to include repurposing of the existing de-fatting plant for the production of 1.5 ML of hand sanitiser per annum and to remove the originally proposed covered storage area from the modification application.

5.4.2 The EPA advised its previous comments on the proposed covered storage area no longer apply and that it had no comments on the proposed repurposing of the de-fatting building for hand sanitiser production.

6 Assessment

6.1.1 The Department has assessed the merits of the proposed modification. During this assessment, the Department has considered the:

- SEE and RtS (see **Appendix A**)
- application, accompanying documentation and assessment reports for the original project and subsequent modifications
- submissions from State government agencies and Council (**Appendix A**)
- relevant environmental planning instruments, policies and guidelines
- requirements of the EP&A Act, including the objects of the EP&A Act.

6.1.2 The Department considers the key issues for the modification are air quality and hazards and risks. **Table 3** provides the Department's assessment of other issues.

6.2 Air Quality

6.2.1 A key objective for the Shoalhaven Starches factory is to ensure air quality and odour impacts do not increase with subsequent modifications to the factory. The SSEE approval required the Applicant to implement significant odour controls, including the wastewater treatment plant, biofilters and cleaning of ductwork throughout the factory. These measures were implemented throughout 2011-12 and have been successful in substantially reducing odour impacts on nearby residential areas.

6.2.2 Historically, the Applicant used coal in the on-site boilers to produce energy and steam for production processes. Some boilers were converted to run on natural gas and were operated using gas for several years. The relocated gas fired boiler is proposed to reduce the steam production rate from 100 t/h to 45 t/h compared to the original approval of the gas fired boiler.

6.2.3 The SEE relies upon the Air Quality Impact Assessment (AQIA) undertaken by GHD in 2008 for the original approval. The AQIA identified that gas fired boilers were not identified as an odour source.

6.2.4 The AQIA identified gas fired boilers emit very low levels of particulate matter 10 (PM10) from the combustion of natural gas. The primary pollutants generated from gas fired boilers are identified in the AQIA as oxides of nitrogen (NO_x), sulfur dioxide (SO₂), polycyclic aromatic hydrocarbons (PAH) and carbon monoxide (CO).

6.2.5 The AQIA assessed all identified emissions generated from the operation of gas boilers and concluded all pollutants were below their respective assessment criteria at the nearest sensitive receivers. The Applicant concluded as the relocated gas fired boiler will have a reduced production rate, the modification will result in a reduction of air emissions compared to the original approval being under the relevant criteria at all sensitive receivers.

6.2.6 The EPA reviewed the SEE and noted the modification would result in a reduction of air emissions due to the reduction in steam production of the relocated gas fired boiler. However, the EPA advised the relocated boiler is required to satisfy the Group 6 air emission concentration standards of Schedule 4 of the Protection of the Environment Operations (Clean Air) Regulation 2010 (POEO Reg). In addition,

post commissioning testing will be required to ensure the relocated gas fired boiler is compliant with the POEO Reg.

- 6.2.7 The Department has reviewed the SEE, the AQIA and the comments provided by the EPA. The Department considers the reduced steam production of the relocated gas fired boiler will subsequently reduce air pollutants emitted from the operation of the relocated gas fired boiler.
- 6.2.8 The Department agrees with the recommendations of the EPA requiring the relocated gas fired boiler to satisfy the Group 6 emission concentration standards of the POEO Reg and the undertaking of post-commissioning testing and analysis. The Department recommends implementing conditions of consent requiring post-commissioning testing of the relocated gas fired boiler.
- 6.2.9 The Department's assessment concludes the modification will result in a reduction of pollutant emissions generated from the production of ethanol and can be appropriately managed through existing conditions of consent and the recommended conditions requiring post-commissioning testing.

6.3 Hazards and Risks

- 6.3.1 Modifications to factory processes and equipment have the potential to increase hazards and risks at the factory. Pinnacle Risk Management Pty Ltd (Pinnacle) prepared a Preliminary Hazard Analysis (PHA) to assess the potential hazardous events and corresponding risks associated with the modification, particularly the relocated gas fired boiler and proposed ethanol storage silos. The PHA was prepared in accordance with the Department's Hazardous Industry Planning and Advisory Paper (HIPAP) No.6 – Hazard Analysis. The PHA evaluated the level of risk to off-site land uses and compared this with the Department's land use safety risk criteria (detailed in HIPAP No. 4).
- 6.3.2 The PHA identified potential off-site risks from the production, handling and storage of hazardous materials including:
- Ethanol
 - Sodium hydroxide
 - Cooling tower dosing chemicals
 - Packaged starch products
 - Natural gas and biogas.
- 6.3.3 The potential hazardous events involving these materials are fires, explosions and release of corrosive substances to the environment. Scenarios that can cause fire propagation risk are:
- loss of containment of ethanol/ flammable liquid with ignition in bunded area
 - ethanol pump fire
 - catastrophic vessel failure
 - loss of containment from first rectification column
 - internal explosion within vacuum columns
 - tanker truck fire

- pipeline failure external to bunded area
- leak during filling of tanker truck or ISO container
- leak at ethanol pumps in storage area
- boiler natural gas explosion
- loss of containment of natural gas
- boiler rupture
- failure of boiler steam drum or high-pressure piping

6.3.4 The PHA identified the existing safeguards implemented at the site for the prevention, detection and mitigation of hazardous event relating to the modification.

6.3.5 The PHA concluded the risks from the modification would comply with the Department's risk criteria for fatality risk, injury risk, toxic exposure and propagation due to fire and explosion. The PHA concluded societal risk, area cumulative risk and environmental risk would be acceptable. The primary reason for the low risk levels is that any significant level of impact would be contained on site. The PHA concluded the proposed modification will have negligible impact on the cumulative risk results for the local area, as the significant radiant heat levels and/ or explosion overpressures are local to the equipment and the likelihood of catastrophic equipment failures leading to off-site impacts is unlikely.

6.3.6 The Department's Hazards Specialist reviewed the PHA and queried if hand sanitiser was proposed to be manufactured on site from the ethanol produced by the facility and would require risk analysis for the manufacturing of hand sanitiser to demonstrate worst case fire scenarios resulting from hand sanitiser.

6.3.7 The Applicant subsequently amended the modification to include the manufacturing of hand sanitiser by re-purposing the existing de-fatting plant for production. The amendments were captured in a revised PHA which was submitted to the Department.

6.3.8 The Department's Hazards Specialist reviewed the revised PHA and noted it demonstrates the risk from the site complies with the criteria adopted in NSW for new developments. The study also provides sufficient information on the safeguards to be implemented to ensure the low levels of risk are maintained. Based on the information provided, and assuming all safeguards are in place and maintained, the Department is satisfied the development does not impose an unacceptable risk to surrounding land uses.

6.3.9 The Department recommends the Applicant update the existing hazard studies and plans for the factory to include the modification and the implementation of the recommendations and safeguards of the revised PHA. This includes the Site-Wide Fire Safety Study, Emergency Plan and Safety Management System. The Department's assessment concludes the hazards and risks of the modification would be appropriately managed through the updating the existing conditions of consent and the implementation of recommendations provided in the revised PHA.

6.4 Other issues

6.4.1 The Department's assessment is provided in **Table 3**.

Table 3 | Assessment of other issues

Findings	Recommendations
Visual Impacts	
<ul style="list-style-type: none">• The modification includes the relocation of an approved gas fired boiler and ancillary infrastructure including new stack, gantry extension and storage tanks.• The proposed new stack will have a maximum height of 24.5 m and the two proposed storage silos will have a maximum height of 18 m which exceeds the development standard by 13.5 m.• The Applicant’s justification for the height variation addressed the provisions of Clause 4.6 of the Shoalhaven Local Environmental Plan 2014 (SLEP) as well as the principles of caselaw on this issue, arguing the unreasonable and unnecessary nature of the standard in the circumstances of this development given the existing built form of the facility with existing structures at building heights of 30 m.• Council indicated it was satisfied with the Applicant’s justification for the variation to the maximum building height development standard.• The Department considers the height of the proposed boiler stack and silos would have a minimal impact on visual amenity given the site’s existing built form and maximum height of structures at 30 m.• The Department concludes the proposed structures are consistent with the existing industrial built form and character of the facility and would have a minimal visual impact.	<ul style="list-style-type: none">• N/A
Noise	
<ul style="list-style-type: none">• The proposed relocation of the gas fired boiler and the production of hand sanitiser grade alcohol will result in a reduction in processing capacity.• The SEE identifies the reduction in processing capacity of the gas fired boiler will subsequently reduce the noise generated by the gas fired boiler in comparison to the original approval.• The SEE notes the original approval included an Acoustic Assessment (AA) prepared by The Acoustic Group dated June 2008.	<ul style="list-style-type: none">• N/A

- The AA noted the sound pressure level from the gas fired boilers were not to exceed 72 dB(A) measure from 1 metre of the discharge duct.
- The SEE affirms the relocated gas fired boiler will continue to achieve the specified noise restriction of 72 dB(A) as noise generation will be reduced.
- EPA and Council raised no concerns in the submissions regarding noise impacts of the modification.
- The Department considers the modification to have a negligible noise impact on the existing amenity as the reduced production rate of the gas fired boiler will subsequently reduce the noise generation of ethanol production in comparison to that previously approved in Mod 12.
- The Department's assessment concludes the modification is unlikely to increase the noise impacts generated by the operation of the gas fired boiler and can be appropriately managed through the existing conditions of consent.

Flooding

- | | |
|---|--|
| <ul style="list-style-type: none"> • The gas fired boiler is proposed to be relocated within the ISO Container Storage area. • The Applicant noted a flood impact assessment (FIA) was undertaken for the ISO Container Storage area under Mod 12. The FIA concluded that modification would not increase the 1% AEP flood level offsite. • The SEE concludes as the gas fired boiler is proposed to be relocated within the ISO Container Storage area assessed under Mod 12, the FIA is applicable to the modification and the relocated boiler is considered to have a minimal flooding impact. • The modification was notified to Council and internally to Shoalhaven Water. Council provided recommended conditions to be incorporated into the consent requiring flood engineering certification. • The Department acknowledges the modification will be located within an approved hardstand area and the impacts were previously assessed in Mod 12. • The Department considers existing conditions of consent requiring structural engineering reporting to demonstrate flood compatibility to be undertaken for each modification and the preparation of an updated Flood Mitigation and Management Plan (FMMP) for each modification are satisfactory in managing flooding impacts of the modification. | <p>Require the Applicant to:</p> <ul style="list-style-type: none"> • update the FMMP and prepare structural engineering report in accordance with the existing conditions of consent |
|---|--|

- The Department recommends updating the existing FMMP and the preparation of structural engineering reporting in accordance with the existing conditions of consent.
- The Department's assessment concludes the modification will have a negligible impact on flooding and can be appropriately managed through the existing conditions of consent.

Riverbank Stability

- The gas fired boiler is proposed to be relocated within the ISO Container Storage area, approximately 23 m from the bank of the Shoalhaven River.
 - The Applicant noted in the SEE that a geotechnical assessment was undertaken for the ISO Container Storage area approved under Mod 12 by Coffey Geosciences.
 - The assessment found the ISO Container Storage area would not impact on the current riverbank stability subject to the implementation of recommendations including deep foundation systems for heavy loaded structures and the prevention of temporary heavy load equipment such as cranes from being within 10 m of the riverbank during construction activities.
 - The SEE concluded the recommendations of the original geotechnical assessment are applicable to the relocated gas fired boiler as it is to be relocated within the approved ISO Container Storage area.
 - No concerns regarding riverbank stability was raised in Council's submission.
 - The Department acknowledges the modification will be located within an approved hardstand area, the impacts previously assessed in Mod 12 with and is appropriately managed through existing conditions of consent.
 - The Department considers the modification's impact on riverbank stability to be negligible subject to the implementation of the recommendations made in the original geotechnical assessment.
 - The Department's assessment concludes the relocated gas fired boiler will have a minor impact on riverbank stability and can be appropriately managed through the existing conditions.
- N/A
-

7 Evaluation

7.1.1 The Department has assessed the proposed modification in accordance with the relevant requirements of the EP&A Act. On balance, the Department considers the proposed modification is appropriate on the basis that the:

- modification provides the production of hand sanitiser to support the demand of supply to address the COVID-19 pandemic in line with the Commonwealth Government's request.
- modification is consistent with relevant strategic plans for the Illawarra-Shoalhaven region
- modification would result in minimal environmental impact beyond the approved development
- air quality would be improved through the reduction in steam generation of new ethanol production and implementation of mitigation measures and best management practice for the relocated boiler, to ensure compliance with more air emission limits
- cumulative risk from the relocated infrastructure and ethanol production would be acceptable and the overall factory would continue to comply with the NSW land use safety risk criteria

7.1.2 The Department concludes the proposal is in the public interest and the modification application is approvable, subject to conditions (outlined in **Appendix B**). This report is hereby presented to the Commission for determination.

8 Recommendation

8.1.1 It is recommended that the Independent Planning Commission:

- **considers** the findings and recommendations of this report
- **determines** that the application 06_0228 MOD 18 falls within the scope of section 4.55(1A) of the EP&A Act
- **accepts and adopts** all findings and recommendations in this report as the reasons for making the decision to grant consent to the application
- **modify** the consent 06_0228
- **signs** the attached approval of the modification (**Appendix B**).

Report prepared by:
Shaun Williams
A/Senior Planner

Recommended by:

Recommended by:



23 July 2020

Chris Ritchie
Director
Industry Assessments



28 July 2020

Anthea Sargeant
Executive Director
Regions, Industry and Key Sites

9 Determination

This recommendation is: **Adopted by:**

Member of the Commission

Appendices

Appendix A – List of Documents

The Department has considered the following documents in its assessment of the modification:

- Statement of Environmental Effects and Planning Report prepared by Cowman Stoddart Pty Ltd, dated 18 May 2020
- Response to submissions prepared by Cowman Stoddart Pty Ltd, dated 6 July 2020
- Flood Assessment prepared by Webb McKeown & Associates, dated 8 November 2016
- Air Quality Impact Assessment prepared by GHD Pty Ltd, dated 10 November 2016
- Noise Impact Assessment prepared by Harwood Acoustics Pty Ltd, dated 16 November 2018
- Phase 1 Contamination Assessment, Acid Sulfate Soils Investigation and Riverbank Stability Assessment prepared by Coffey Services Australia Pty Ltd dated 7 November 2016
- Clause 4.6 Written Request prepared by Cowman Stoddart Pty Ltd, dated 15 May 2020
- Submissions made on the modification application. Available on the Department's website at: <https://www.planningportal.nsw.gov.au/major-projects/project/34321>
- Relevant environmental planning instruments, policies and guidelines objects and relevant provisions of the EP&A Act.

Appendix B – Recommended Modification Instrument

The recommended modification instrument for 06_0228 MOD 18 can be found on the Department's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/34321>