

SHOALHAVEN STARCHES ENVIRONMENTAL MANAGEMENT PLAN

TITLE:	Construction Noise Management Plan
PURPOSE:	To implement noise mitigation measures during construction of infrastructure associated with Shoalhaven Starches Development Consent 06_0228 to minimise construction noise impacts at potentially affected receivers.
SCOPE:	<p>Infrastructure approved under Shoalhaven Starches Development Consent MP 06_0228 and modifications (MOD) up to and including MOD 24 (excluding the Packing Plant & Co-Generation Plant) which includes but is limited to:</p> <ul style="list-style-type: none">• Specialty Products Building• Gluten Dryer No. 8• Flour Mill C• Ventilation system to Flour Mills A & B• Conversion of existing Gluten Dryers 1 & 2 to Starch Dryers• Boiler 8• Sifter inside Interim Packing Plant• Indoor Electrical Substation on Northern side of Bolong Rd• Extension to existing Switchroom at the Factory• Grain Intake Pit• Baghouse on Starch Dryer No. 5• Fermenters 18 and 19, Farm Buffer Tank, Nitrogen Generator and Tanks, Indirect Cooking Facility (MOD 21) <p>To meet the requirements of Schedule 3, Condition 13A.</p>
ACTION ON NON-CONFORMANCE:	<p>Notify Project Site Supervisor</p> <p>Notify Project Manager</p>
REFERENCES:	<p>Shoalhaven Starches Expansion Development Consent 06_0228</p> <p>Environmental Noise Impact Assessment Shoalhaven Starches Proposed Modification Application to MP06-0228, Shoalhaven Starches Expansion Project, Proposed New Specialty Processing Facility, New Gluten Dryer and other associated works, dated 31/05/2018, by Harwood Acoustics Consulting.</p> <p>EPA's Interim Construction Noise Guideline July 2009</p> <p>Environmental Noise Impact Assessment – Shoalhaven Starches Proposed Modification to Ethanol Distillery for Beverage Grade Ethanol Production and Other Works, 1/9/2020, by Harwood Acoustics Consulting</p> <p>Construction Noise Management Plan - Packing Plant MOD 9, 29-3-2018</p>

Environmental Noise Impact Assessment, Shoalhaven Starches,
Proposed Modification to Shoalhaven Starches Expansion Project
06-0228, Packing Plant Alterations and Other Works, MOD 21, 15-2-2022,
by Harwood Acoustics Consulting.

REVISION HISTORY

Rev	Date	Description	Prepared By	Authorised By
Original	9-6-17	Construction Noise Management Plan Flour Mill B (MOD 10)	J. Studdert	G. Langusch
1.0.A	14-1-20	Updated to include MOD 16 development including updated construction noise emissions in section 4.	J. Studdert	G. Langusch
1.0.B	7-4-21	Updated to include project modifications MOD 17, MOD 18 and MOD 19	J. Studdert	A. Ticehurst
1.0.C	1-6-22	Updated to include project modification MOD 21 and MOD 24	J. Studdert	A. Ticehurst

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1. Introduction

This plan has been developed to satisfy the requirements of Schedule 3, Condition 13A of Shoalhaven Starches Expansion Development Consent 06_0228, approved by the NSW Department of Planning & Environment.

Condition 13A of the development consent states:

The Applicant shall implement a Construction Noise Management Plan (CNMP) to manage the noise impacts of construction of the Development and each modification (MOD). The CNMP shall:

- a. be prepared in accordance with the EPA's Interim Construction Noise Guideline;*
- b. be approved by the Secretary prior to the commencement of piling works;*
- c. include procedures for notifying affected residences of the timing and duration of piling works, including scheduled respite periods; and*
- d. include procedures for proactively responding to noise complaints and implementing all reasonable and feasible work practices to limit construction noise impacts.*

This CNMP has been prepared prior to the commencement of any site works to ensure best practices are employed in accordance with NSW EPA's *Interim Construction Noise Guideline*.

References to where each relevant condition of consent has been addressed in this plan is shown in Table 1 below.

Table 1 Conditions of Consent

Condition 13A	Section in Plan
a) be prepared in accordance with the EPA's <i>Interim Construction Noise Guideline</i> ;	Section 3 & 4
b) be approved by the Secretary prior to the commencement of piling works;	N/A
c) include procedures for notifying affected residences of the timing and duration of piling works, including scheduled respite periods	Section 6
d) include procedures for proactively responding to noise complaints and implementing all reasonable and feasible work practices to limit construction noise impacts.	Section 6 & Appendix B

2. Project Description

The MOD 16 development consent provides for additional infrastructure to increase flour, starch and gluten production and increase on-site energy generation. The modification involves several items of additional plant including a third flour mill, a new gluten dryer, conversion of two gluten dryers to starch dryers, a specialty products building, a new boiler and a coal-fired cogeneration plant.

The MOD 17 approval included an increase in the footprint of the Specialty Product Building and Product Dryer Building approved under MOD 16. A further modification (MOD 24) to the Product Dryer Building (Gluten Dryer 8) involved a slight relocation of the building and slight increase in building footprint.

The MOD 21 approval involved alterations to the approved Packing Plant Building (a site-specific CNMP has been prepared) and other plant & equipment at the factory site.

The MOD 23 approval involved replacing the previously approved coal and gas-fired co-generation plants with a 60MW Gas-fired Co-Generation Plant, which will be subject to its' own site-specific CNMP.

A site plan showing the location of the various infrastructure associated with the MOD approvals is depicted in the attached Appendices.

The Shoalhaven Starches site and receptor locations are shown in Figure 1 along with some of the main components of MOD 16.

The nearest residential receptor locations to the proposed components are as follows:

- Location 1 – Nobblers Lane, Terara approximately 1400 metres to the south east
- Location 2 – Riverview Road, Nowra approximately 940 metres to the south west;
- Location 3 – Meroo Street, Bomaderry approximately 620 metres to the north west;
- Location 4 – Coomea Street, Bomaderry approximately 675 metres to the north west;

Locations are listed in keeping with the order shown in Shoalhaven Starches Environment Protection Licence 883. Distances are based on the location of the proposed Co-generation plant as a reference only.

The construction works will consist of piling, pouring of concrete slabs for the buildings, boiler and silos, construction of the industrial buildings and the installation of all plant and equipment.

This plan will be implemented throughout the construction phase of each project and will be reviewed and updated as required on at least an annual basis as part of Shoalhaven Starches document control system.

Figure 1. Location Plan Shoalhaven Starches



3. Construction Noise Criteria

The following information is summarised from the Environmental Noise Impact Assessment Shoalhaven Starches Proposed Modification Application to MP06-0228 (MOD 16), Shoalhaven Starches Expansion Project, Proposed New Specialty Processing Facility, New Gluten Dryer and other associated works, dated 31/05/2018, by Harwood Acoustics Consulting.

The NSW EPA published the *Interim Construction Noise Guideline* in July 2009. While some noise from construction sites is inevitable, the aim of the Guideline is to protect the majority of residences and other sensitive land uses from noise pollution most of the time.

The Guideline presents two ways of assessing construction noise impacts; the quantitative method and the qualitative method.

The quantitative method is generally suited to longer term construction projects and involves predicting noise levels from the construction phase and comparing them with noise management levels given in the guideline.

The qualitative method for assessing construction noise is a simplified way to identify the cause of potential noise impacts and may be used for short-term works, such as repair and maintenance projects of short duration.

In this instance the entire construction phase may take several months although significant noise producing aspects, such as piling, will last a total of approximately two weeks. Consideration is given to the potential for noise impact from construction activities on residential receptors in Section 6 of this plan.

Table 2 in Section 4 of the Guideline sets out noise management levels at affected residences and how they are to be applied during normal construction hours. The noise management level is derived from the rating background level (RBL) plus 10 dB in accordance with the Guideline. This level is considered to be the 'noise affected level' which represents the point above which there may be some community reaction to noise.

Previous noise surveys in Nowra, Bomaderry and Terara and has found daytime background noise levels range between 33 and 40 dBA depending on the location.

For the purpose of determining the potential for community reaction to noise emission from construction activities, previously measured background noise levels in the vicinity of each receptor location have been used to determine the noise management levels as shown in Table 2 below.

Table 2 Leq Noise Management Levels from Construction Activities

Receptor Location	Noise Management Level	How to Apply
Location 1 (Terara)	43 dBA (33 + 10)	<p>The noise affected level represents the point above which there may be some community reaction to noise.</p> <ul style="list-style-type: none"> Where the predicted or measured L_{Aeq} (15 min) noise level is greater than the noise affected level, the proponent should apply all feasible and reasonable* work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
Location 2 (Nowra)	50 dBA (40 + 10)	
Locations 3 & 4 (Bomaderry)	48 dBA (38 + 10)	
	Highly noise affected 75 dB(A)	<p>The highly noise affected level represents the point above which there may be strong community reaction to noise.</p> <ul style="list-style-type: none"> Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: <ol style="list-style-type: none"> times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences) if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

* Section 6, "work practices" of The *Interim Construction Noise Guideline*, states:- "there are no prescribed noise controls for construction works. Instead, all feasible and reasonable work practices should be

implemented to minimise noise impacts. This approach gives construction site managers and construction workers the greatest flexibility to manage noise”.

Definitions of the terms feasible and reasonable are given in Section 1.4 of the Guideline. The ‘highly noise affected’ level of 75 dBA represents the point above which there may be strong community reaction to noise. This level is provided in the Guideline and is not based on the RBL.

3.1 Project Specific Noise Goals

The most relevant noise criteria for the Shoalhaven Starches site are as follows:

Operational Phase (Environment Protection Licence noise limits less 10 dB):

- 28 dBA (Leq, 15 minute) at locations in Terara on the south side of the Shoalhaven River;
- 28 dBA (Leq, 15 minute) at locations in Nowra on the south side of the Shoalhaven River;
- 32 dBA (Leq, 15 minute) at locations in Meroo Street, Bomaderry;
- 30 dBA (Leq, 15 minute) at other locations in Bomaderry.

Construction Phase Noise Management Levels:

- 43 dBA (Leq, 15 minute) at locations in Terara;
- 48 dBA (Leq, 15 minute) at locations in Bomaderry; and
- 50 dBA (Leq, 15 minute) at locations in Nowra.

The criteria are to be assessed at the most-affected point on or within the residential property boundary or, if that is more than 30 metres from the residence, at the most-affected point within 30 metres of the residence. For upper floors, the noise is assessed outside the nearest window.

4. Construction Noise Emission

The construction process will involve preliminary earthworks, pouring of concrete slabs, erection and fit-out of buildings and silos. Piling will be required to establish the footing of the new structures.

Table 3 below shows a schedule of sound power levels for typical construction equipment.

Table 3 Construction Equipment – Leq Sound Power Levels

Description	Leq Sound Power Level (dBA)
Auger Piling (CFA Rig)	113
Mobile Crane (Diesel)	110
30 Tonne Excavator	110
Concrete Truck / Pump	105
Dump Truck	110
Grinder	105
Power Saw	101

Table 4, Table 5 and Table 6 show the predicted level of potential noise emission from construction activities at each of the receptor locations.

Table 4 Predicted Noise Levels at Receptor Locations – Construction Phase MOD 16 & 17

Description	Predicted Noise Level $L_{eq, 15 \text{ minute}}$ (dBA) at Receptor Locations			
	Location 1	Location 2	Location 3	Location 4
Construction Activity*	37 – 41	41 – 45	48 – 52	46 – 50
Acceptable Noise Limit ($L_{eq, 15 \text{ minute}}$)	43	50	48	48
Complies	Yes	Yes	No + 4 dB (during piling)	No + 2 dB (during piling)

* Range provided with and without piling activity.

Table 5 Predicted Noise Levels at Receptor Locations – Construction Phase MOD 19

Description	Predicted Noise Level $L_{eq, 15 \text{ minute}}$ (dBA) at Receptor Locations			
	Location 1	Location 2	Location 3	Location 4
Noise Design Goal ($L_{eq, 15 \text{ minute}}$)	43	50	48	48
Construction Activity*	36 – 40	37 – 41	46 – 50	44 – 48
Complies	Yes	Yes	No + 2 dB (during piling)	Yes

* Range provided with and without piling activity.

Table 6 Predicted Noise Levels at Receptor Locations – Construction Phase MOD 21

Description	Predicted Noise Level $L_{eq, 15 \text{ minute}}$ (dBA) at Receptor Locations			
	Location 1	Location 2	Location 3	Location 4
Noise Design Goal ($L_{eq, 15 \text{ minute}}$)	43	50	48	48
With hammer piling	42	43	47	46
With auger piling	37	38	42	41
Construction activity (no piling)	29 – 30	30 – 34	36 – 46	35 – 45
Complies	Yes	Yes	Yes	Yes

Predictions include an increase in truck movements during the construction phase. Noise generated by the increase in construction worker personal vehicle movements will not be perceptible at the residential receptor locations.

It can be seen from Tables 4, 5 and 6 that the construction noise management levels are likely to be met at each receptor location during general construction activity, with the exception of piling activity on some occasions.

During piling there is potential for the noise management levels to be exceeded at receptors 3 and 4, by 2 to 4 dB, on some occasions. This is not considered a significant exceedance during day time hours for short and sporadic duration.

Use of impact, or driven, piles during construction may result in unacceptable levels of noise. Alternative piling methods that result in significantly less noise emissions than impact piling are:

- Auger Piling (CFA) method utilising a slow speed screw auger to drill holes which are backfilled with concrete. The CFA method utilising concrete piles will result in significantly less noise emissions than an impact piling rig.
- Screw piling method utilising long steel tubes, with a screw head on one end, that are wound into the ground much like a screw into wood. Screw piling can be installed quickly and with minimal noise or vibration

5. Construction Hours

Shoalhaven Starches conduct's its construction activities in accordance with the site's Development Consent 06_0228 requirements. Schedule 3, Condition 13 of the consent states:

"During construction, the Applicant shall implement all reasonable and feasible measures to minimise the construction noise impacts of the development."

The construction hours for the project will be strictly adhered to as prescribed in Condition 11 of the consent which specify allowable operation hours for construction activities, as shown in Table 7 below.

Table 7 Construction and Operation Hours for the Project

Activity	Day	Time
Construction	Monday – Friday	7:00am to 6:00pm
	Saturday	8:00am to 1:00pm
	Sunday and Public Holidays	Nil
Piling activities	Monday – Friday	9:00am to 5:00pm
Operation	All days	Any time
Use of Paper Mill site	Monday – Saturday	7:00 am to 6:00 pm
	Sunday and Public Holidays	8:00 am to 6:00 pm

Note: Construction activities may be conducted outside the hours in Table 7 provided that the activities are not audible at any residence beyond the boundary of the site.

6. Construction Noise Controls and Mitigation Measures

The following noise mitigation measures will be implemented during the construction period:

i. Construction Hours

Construction hours for the project will be restricted to:

- Monday - Friday: 7:00am to 6:00pm (Piling activities 9:00am to 5:00p.m)
- Saturday: 8:00am to 1:00pm
- Sunday & Public Holidays: Nil

ii. Training

- Site induction contractor training prior to commencement of works including awareness of appropriate site noise control requirements.
- Tool-box talks with contractors to include the use of plant and equipment in ways to minimise noise.
- Adherence to Shoalhaven Starches Project Construction Health, Safety and Environmental Management Plan issued to principal contractors prior to commencement of works.

iii. Plant, Equipment and Systems of Work

- Where feasible the use of the quieter CFA screw auger piling or Screw Pile method to be implemented.
- Selection and use of quieter equipment, installed with appropriate noise mufflers and enclosures, where feasible.
- All deliveries of plant & equipment to be made during standard construction hours.
- Safe Work Method Statements to be submitted for all noisy works.

iv. Monitoring and Measurement

- Regular site inspections by the Project Supervisor to ensure all plant and equipment is operating as designed, and reporting any unusual or excessive noise to Manildra Management for further investigation.
- Conducting on and off-site noise checks and monitoring during construction as required.
- Regular inspection and maintenance of equipment to ensure it is in good working order, including the condition of mufflers.

v. Consultation and Notification

- Use of site information board at the front of the site with the name of the organisation responsible for the site and their contact details, hours of operation including after-hours emergency contact details.
- 24 hour Environmental Complaints Line 1300 300 104 published on the Manildra Group web site.

- It is not envisaged piling works associated with MODs 16, 17, 18,19, 21 or 24 will require notification of potentially affected residences due the location of the works being located within the existing factory areas (nearest receptor ~ 600 meters away) and the predicted noise levels are not considered significant during day time hours for short and sporadic duration.

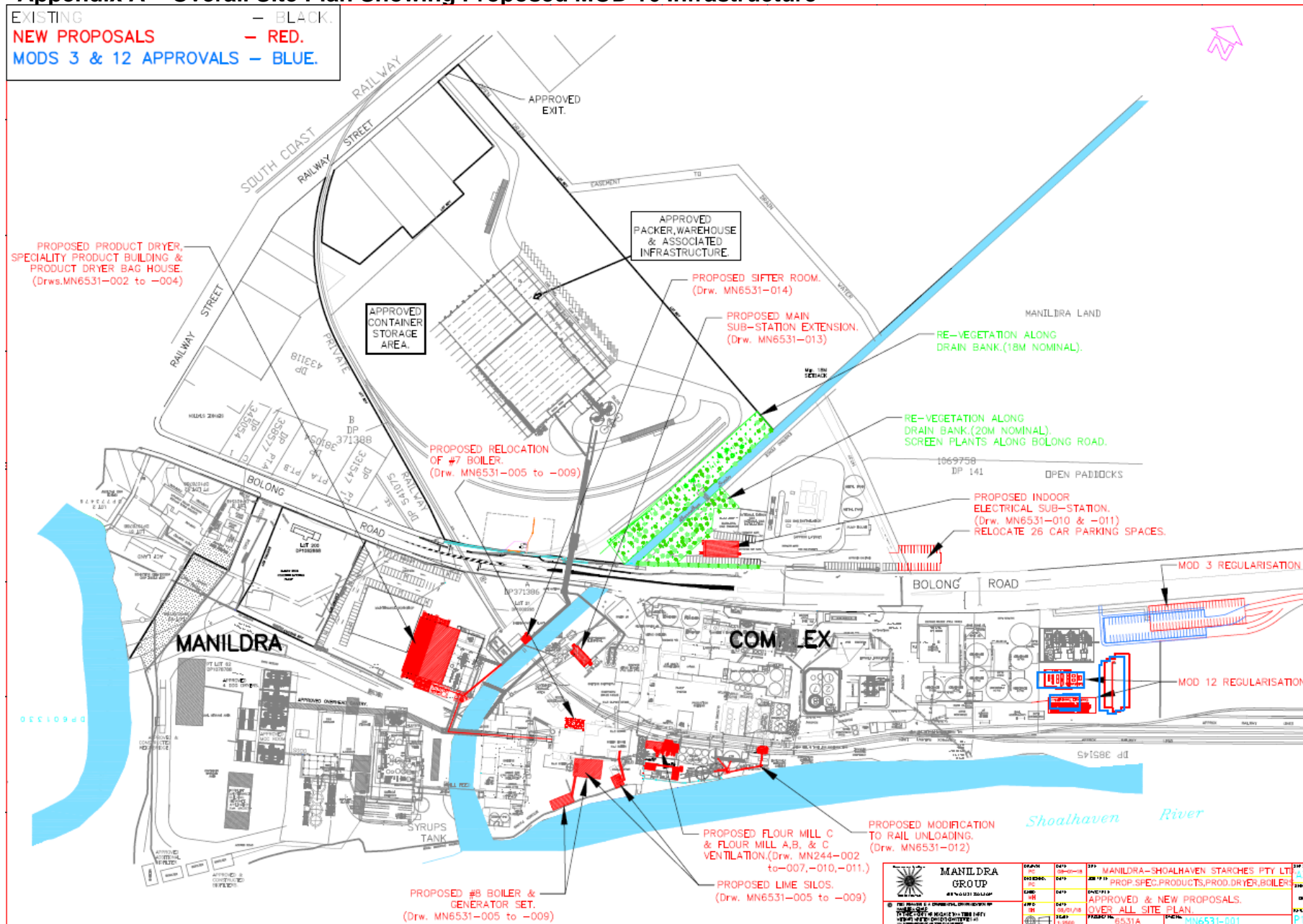
N.B. This excludes the proposed Packing Plant (MOD 9 and MOD 21) project which has specific notification protocols as detailed in the Packing Plant MOD CNMP.

- According to Table 2, Table 4, Table 5 and Table 6 the highly noise affected level of 75 dB(A) will not be triggered during construction hence no respite periods are required.

vi. Complaints Handling

- All noise complaints will be handled according to Shoalhaven Starches Environmental Complaints Handling procedure [EN-P-0010](#) (see attached Appendix B)
- An investigation of the noise complaint will be conducted by the Environmental Coordinator immediately, including noise checks at residential receiver locations to verify the complaint details where applicable.
- Follow-up noise measurements to be conducted on and off-site as required.
- All corrective and preventive actions implemented will be documented as per Shoalhaven starches Corrective and Preventative Action procedure [QMS-P-0130](#).

EXISTING - BLACK.
NEW PROPOSALS - RED.
MODS 3 & 12 APPROVALS - BLUE.



Appendix B - Environmental Complaints Handling Procedure

TITLE:	Environmental Complaints Handling Procedure
PURPOSE:	Effective investigation of environmental complaints.
SCOPE:	All environmental complaints.
SPECIFICATION:	Nil.
ACTION ON NON-CONFORMANCE	QA & Environmental Coordinator Corrective and Preventative Action Procedure (QMS-P-0130)
FREQUENCY:	As required.
REFERENCES:	Flow diagram Environmental Complaints Fast Track System Environment Protection Licence No. 883

PROCEDURE:

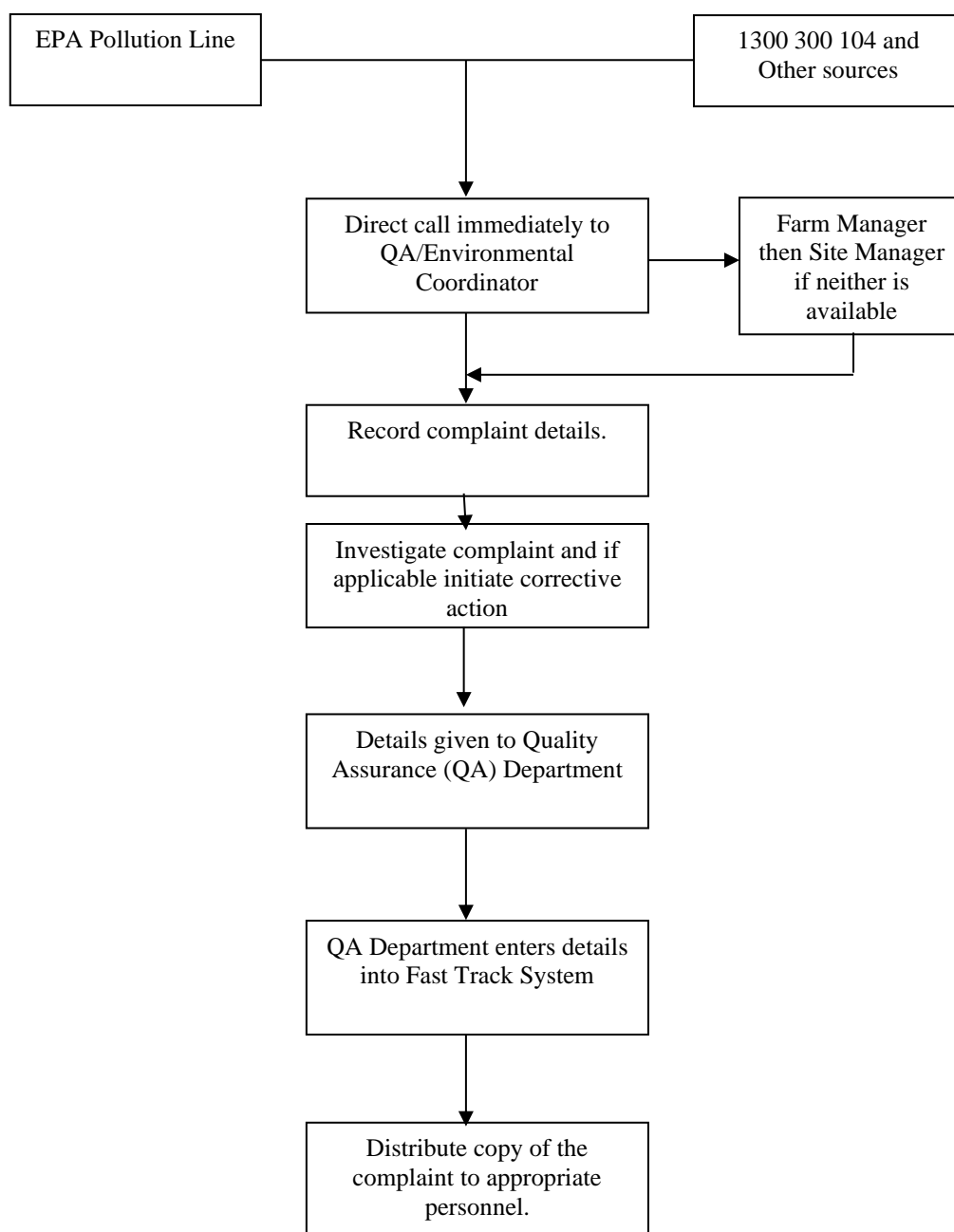
1. The Environmental Complaints Handling procedure must reflect the requirements of Environmental Licence No. 883, as set out in Sections M5 of the licence.
2. The QA & Environmental Coordinator and the Site Manager have ownership of the system and have authority and responsibility to ensure that necessary corrective actions are taken.
3. Environmental complaints can be received through any of the following avenues:
 - a. Environment Protection Authority (EPA)
 - b. 24 hour a day complaints hotline (call centre)
 - c. Ringing main office
4. The following procedure is followed when a complaint is received:
 - a. All environmental complaints must be directed immediately to the QA & Environmental Coordinator.
 - b. If the Coordinator is not available, then direct to the Farm Manager and then if not available to the Site Manager.
 - c. The following details are recorded (where given by the complainant):
 - i. Name of complainant and contact details (if they want to be identified). Details are required to enable Shoalhaven Starches to report back to the person once the complaint is investigated.
 - ii. Nature of complaint – noise, dust/smoke, odour, spill, incident etc
 - iii. Duration of the problem (dates and times)

- d. The QA & Environmental Coordinator then investigates the complaint and if applicable initiates corrective action. Refer to [QMS-P-0130](#) Corrective and Preventative Action procedure.
- e. Once the investigation is complete, the details are given to the Quality Assurance Department and the details entered into the Environmental Complaints section of the Fast Track System.
- f. A copy of the complaint is forwarded to the Site Manager and relevant Plant Manager as required.

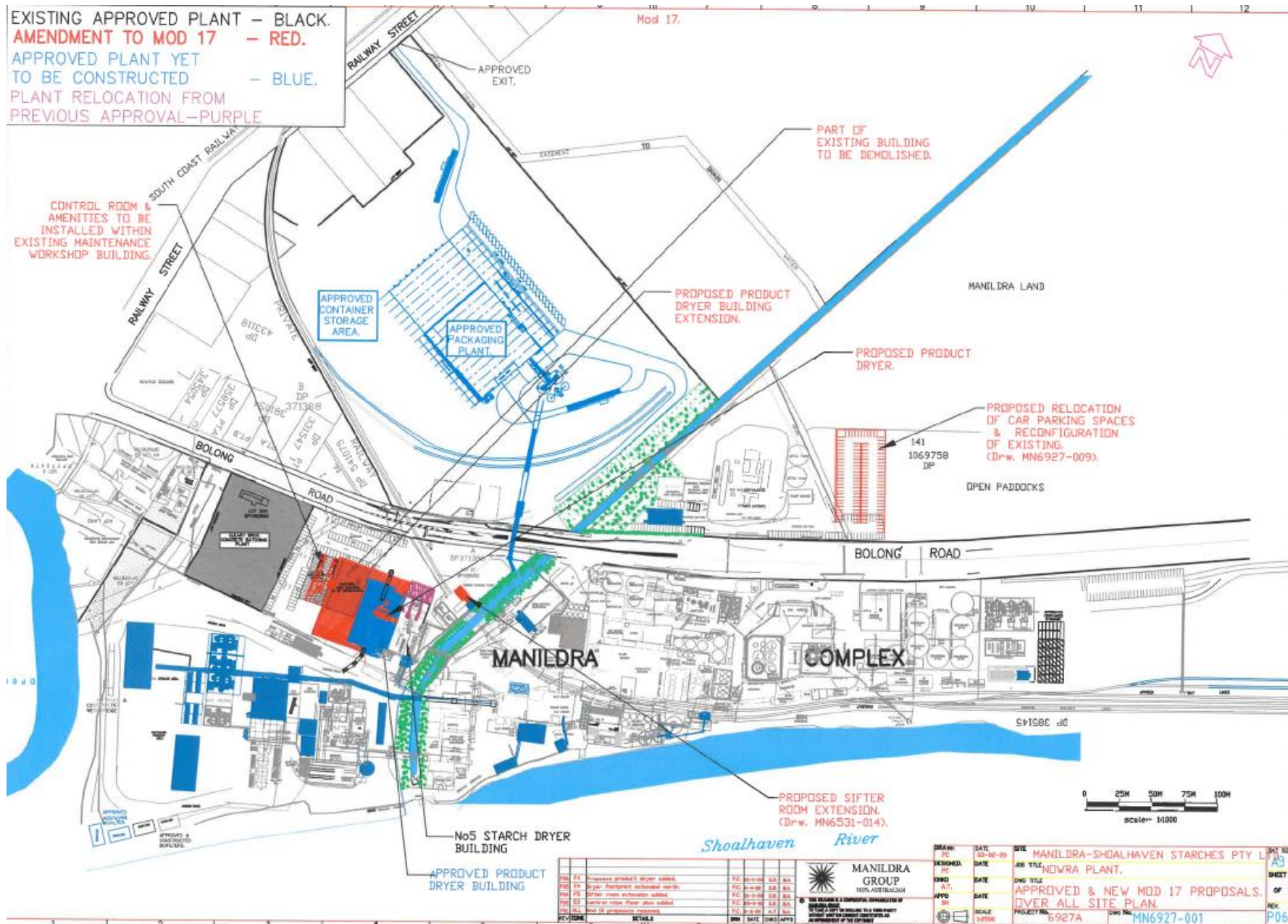
Refer to the attached diagram for schematic of the process.

- 5. Details of complaints received by the EPA are sent to the QA & Environmental Coordinator for investigation and dealt with as per the above procedure.
- 6. If the complaint is the same as the one received directly by the company, then the EPA reference Number is added to the existing complaint (hence so doubling up does not occur).
- 7. Environmental Complaints are also reviewed on an annual basis as part of the company's Annual Environmental Report. This annual review includes comparison with previous years.

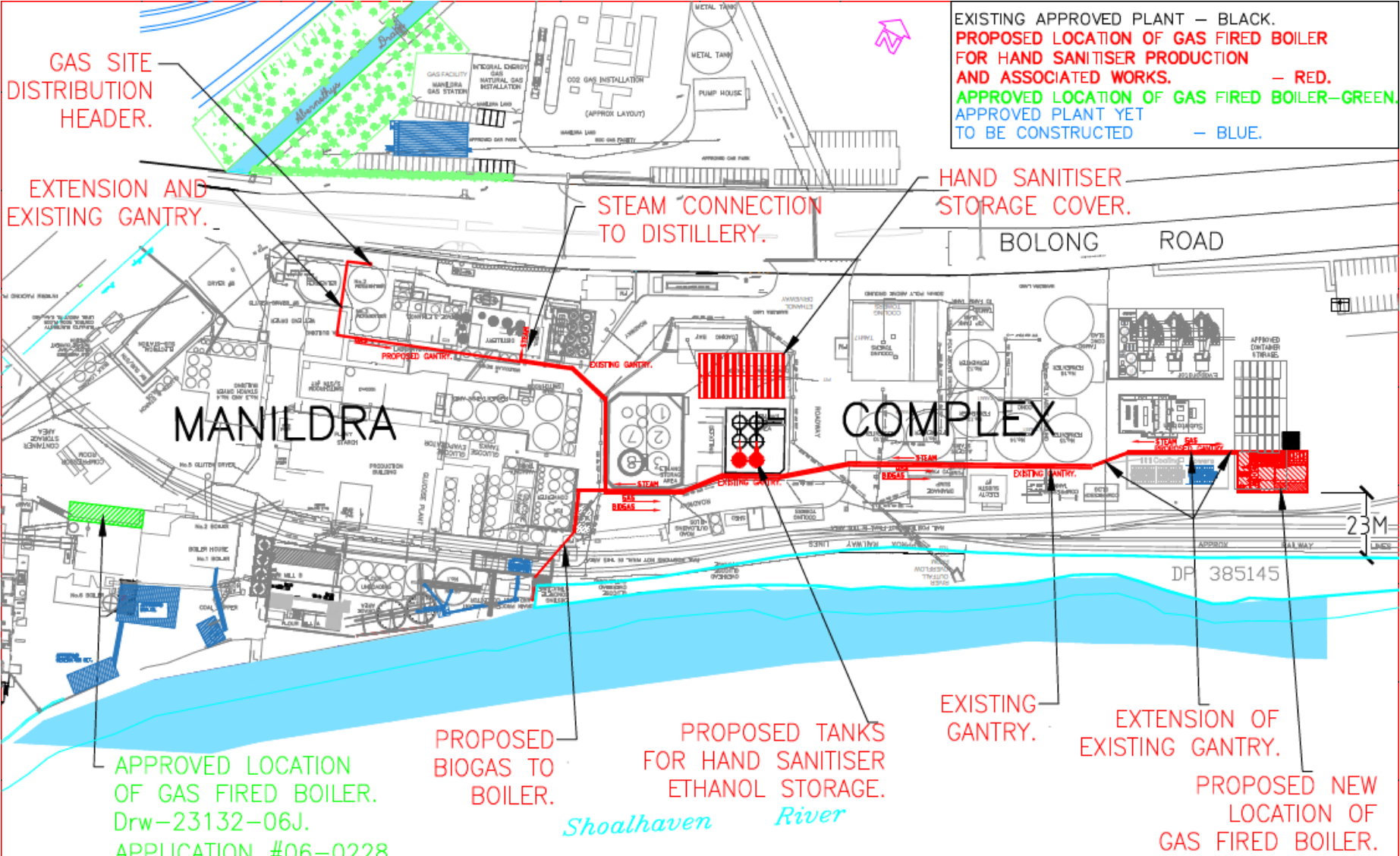
Complaints Procedure Flowchart



Appendix C - Overall Site Plan Showing Proposed MOD 17 Infrastructure

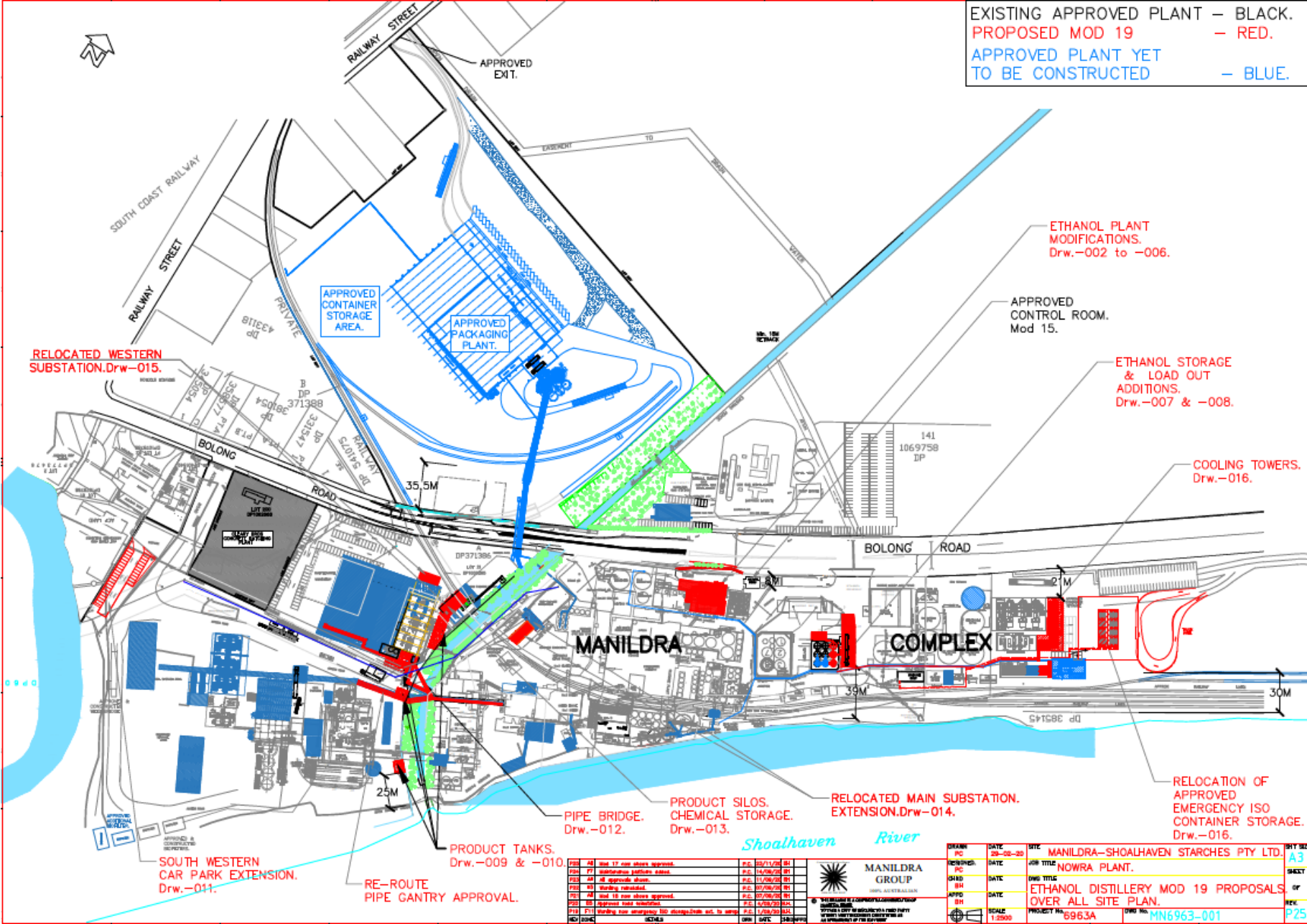


Appendix D - Overall Site Plan Showing Proposed MOD 18 Infrastructure



APPLICATION #00 0220.							 <div>MANILDRA GROUP 100% AUSTRALIAN</div> 		DRAWN P.C.	DATE 23/04/20	JOB TITLE SHOALHAVEN STARCHES.BOMADERRY. NSW		SHT SIZE
									CHD B.H.	DATE	DWG TITLE PROPOSED GAS FIRED BOILER RELOCATION FOR HAND SANITISER.	A3	
									APPD	DATE	SITE PLAN.	REV.	
										SCALE 1:1250	PROJECT No. 6991	DWG No. MN6991-001	P04
REV	ZONE	DETAILS					DRN	DATE	CHD	APPD			
P04	ALL	Foot print increased to match supplied layout.					P.C.	16-05-20	A.T.	B.H.			
P03	ALL	Diagram feed added.					P.C.	04-05-20	A.T.	B.H.			
P02	ALL	For application.					P.C.	31-04-20	A.T.	B.H.			
P01	ALL	Proposal.					P.C.	23-04-20	A.T.	B.H.			

Appendix E - Overall Site Plan Showing Proposed MOD 19 Infrastructure



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