

Riverina Oils and BioEnergy

Integrated Oilseed Processing Plant

Appendix E
Noise Report





HEGGIES

REPORT 30-2424-R2

Revision 1

**Riverina Oils and BioEnergy
Proposed Integrated Oilseed Processing Plant
Noise Impact Assessment**

PREPARED FOR

**D.M. McMahon Pty Ltd
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30 MARCH 2010

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Riverina Oils and BioEnergy

Proposed Integrated Oilseed Processing Plant

Noise Impact Assessment

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Heggies Pty Ltd
Report Number 30-2424-R2
Revision 1

Riverina Oils and BioEnergy
Proposed Integrated Oilseed Processing Plant Noise Impact Assessment

D.M. McMahon Pty Ltd
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EXECUTIVE SUMMARY

Heggies Pty Ltd (Heggies) has been engaged by D.M. McMahon Pty Ltd (McMahon) on behalf of Riverina Oils and BioEnergy Pty Ltd (ROBE) to conduct a noise impact assessment for the proposed Integrated Oilseed Processing Plant (IOPP) on land north of the Bomen Industrial Estate, Wagga Wagga, NSW.

Existing Environment

Ambient noise levels have not been measured in the area surrounding the site, therefore, for the purposes of this report, a minimum rating background level (RBL) of 30 dBA has been assumed for the nearest affected receivers in accordance with the INP.

These assumed minimum noise levels were then used to develop noise goals for operation of the development in accordance with Department of Environment Climate Change and Water (DECCW) *NSW Industrial Noise Policy (INP)*, *NSW Interim Construction Noise Guideline July 2009* and *NSW Environmental Noise Control Manual (ENCM)*. Traffic generated by the operation was assessed with reference to the *Environmental Criteria for Road Traffic Noise (ECRTN)*.

Weather data from Wagga Wagga was used to determine prevailing weather conditions for the site. Weather data was analysed in accordance with procedures outlined in the INP. Seasonal wind records indicate that wind from 0.5 m/s to 3 m/s exceeds the 30% threshold from the eastern sector in the day and night and western sector in the evening and is therefore considered a feature of the area for that periods.

Meteorological data was used to determine of the percentage occurrences of temperature inversions during winter nights. The occurrence of temperature inversion during the night-time period was above the 30% threshold and therefore has also been considered as part of this noise assessment.

Potential Impacts

The noise assessment has considered the following potential environmental impacts:

- Operational noise impact of the proposed IOPP.
- Construction noise impact of the proposed IOPP.
- Traffic noise impact of the proposed transportation to and from the Project Site.

Noise Assessment

A computer model was used to predict noise emissions from operation of the proposed IOPP. The Environmental Noise Model (ENM) computer modelling program used has been produced in conjunction with the DECCW. A three-dimensional digital terrain map giving all relevant topographic information was used in the modelling process. The model used this map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

Conclusion

Operational noise emission levels from the proposed IOPP are predicted to meet the relevant project specific noise goals at all existing residential dwellings surrounding the site for calm and prevailing weather conditions.

Noise from construction of the plant is predicted to comply with the DECCW construction guidelines.

Traffic generated by the operation is predicted to meet the requirements of the ECRTN.



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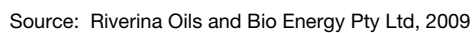


1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been engaged by D.M. McMahon Pty Ltd (McMahon) on behalf of Riverina Oils and BioEnergy Pty Ltd (ROBE) to conduct a noise impact assessment for the proposed Integrated Oilseed Processing Plant (IOPP) to be located on land north of the Bomen Industrial Estate, in Wagga Wagga, NSW (hereafter 'the Project Site'). It is understood that this noise impact assessment will be incorporated within the Plant Verification report for the IOPP.

The noise assessment has been prepared with reference to Australian Standard AS 1055:1997 *Description and Measurement of Environmental Noise* Parts 1, 2 and 3 and in accordance with the Department of Environment, Climate Change and Water (DECCW) *NSW Industrial Noise Policy* (INP) and *NSW Interim Construction Noise Guideline July 2009*. Where issues relating to noise are not addressed in the INP, such as sleep disturbance, reference has been made to the *NSW Environmental Noise Control Manual* (ENCM). Traffic generated by the operation was assessed with reference to the *Environmental Criteria for Road Traffic Noise* (ECRTN).

A development plan for the Project Site, provided by ROBE, illustrating the proposed IOPP footprint is presented in **Figure 1**.





2 PROJECT SETTING AND OVERVIEW

The Project Site is situated on Trahairs Road off The Olympic Highway approximately 2.5 km north of the Bomen Industrial Estate in Wagga Wagga, NSW. **Figure 2** illustrates the regional setting of the Project Site.

Figure 2 Regional Setting of Project Site

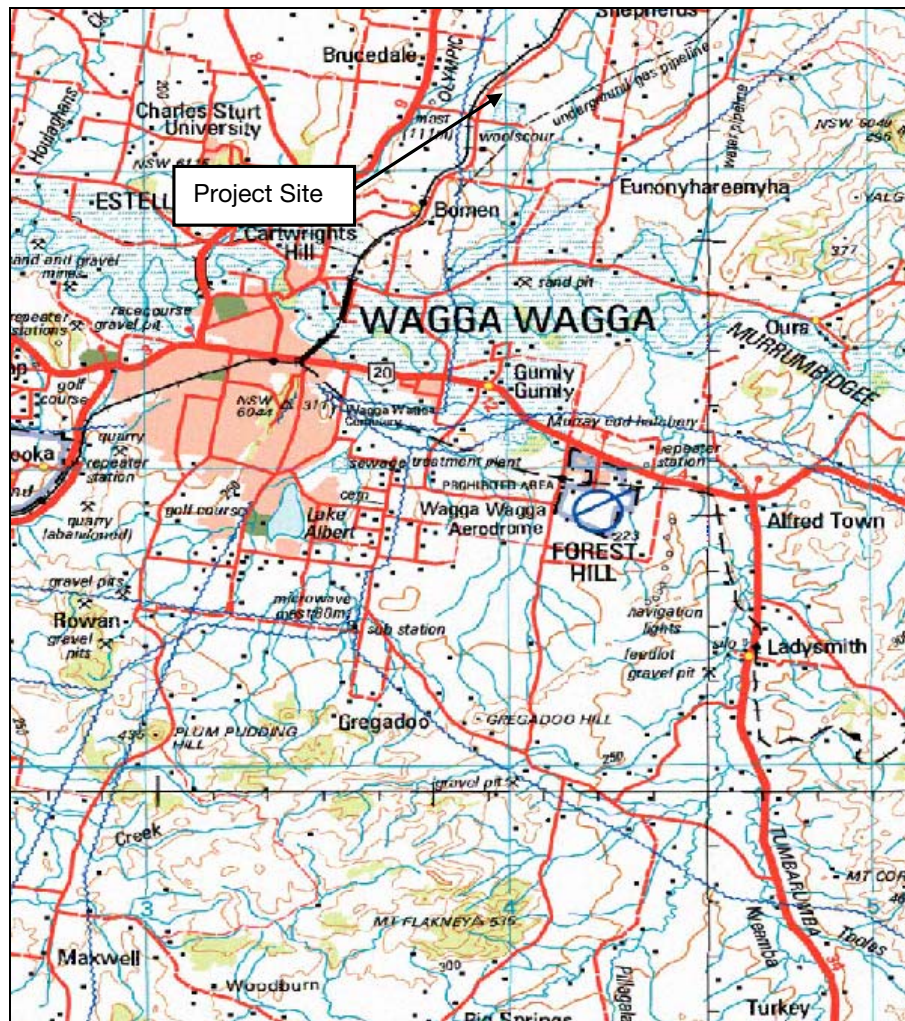


Map Source: Google Maps, 2009

The Project Site currently comprises rural land use. Surrounding land use is primarily rural and comprises rural residential holdings and agricultural activities, to the northwest, southeast and west. The nearest township is Wagga Wagga, situated approximately 8.5 km to the southwest of the Project Site. The local setting of the Project Site is illustrated in **Figure 3**.



Figure 3 Local Setting of Project Site



Map Source: Geoscience Australia, 2009

2.1 Project Description

The project involves the construction and operation of an Integrated Oilseed Processing Plant (IOPP) which includes the processing of oilseeds. The IOPP would process oilseed, primarily canola and safflower seed, as raw material to produce vegetable oil. It is envisaged that the plant will process approximately 165,000 t of oilseed, with refined vegetable oil and protein meal as final products.

The Project Site will comprise of a number of components which collectively comprise the proposed IOPP, including:

- Oilseed crushing plant;
- Solvent extraction plant;
- Vegetable oil refinery and;
- Tank farm.

The Project Site would also incorporate storage and handling facilities for raw materials, products and chemicals, as well as two fully automated weighbridges.



2.1.1 Overview of Process Description

There are a number of stages to the production of edible vegetable oil, each yielding one or more products which would either be sold or undergo further processing. An outline of the process is described below:

- Oilseed is received and stored in silos prior to crushing.
- Oilseed is fed from the storage silos to the oilseed crushing plant via a conveyor, prior to pre-conditioning and crushing. Conditioned oilseed is mechanically crushed to expel the oil from the seed. This process results in the production of expelled oil and oilcake.
- Expelled oil is processed in the vegetable oil refinery and oilcake is transferred via conveyor to the solvent extraction plant.

Some by-products are produced, stored or further processed and sold onto the local market. These are described below:

- The refining of vegetable oil produces refined oil which is stored in the refined oil storage tanks prior to being sold onto the local market.
- The oilcake produced from the crushing plant is conveyed to the solvent extraction plant.
- The de-oiled meal from the solvent extraction plant is blended with by-products from the crushing plant and refinery. It should be noted that extracted oil from this process would be pumped from the solvent extraction plant to the vegetable oil refinery or to intermediate storage tanks located in the tank farm.
- The meal is then transported to the meal shed for storage, loaded onto trucks and distributed.

2.2 Sensitive Receptors

A number of rural residential dwellings are situated in the area surrounding the Project Site. The nearest dwellings were identified as sensitive receptor locations to be taken into account during the assessment of potential noise impacts due to the proposed operations.

A list of existing sensitive receptor points (R1 to R9) identified in the immediate vicinity of the Project Site, and respective distances of such receptor points to the Project Site boundary are listed in **Table 1**. **Figure 4** illustrates the location of the surrounding receptors in relation to the Project Site.



Table 1 Surrounding Sensitive Receptor Locations

Receptor ID	Location (m, MGA)		Distance (km) / Direction From Project Site (Boundary)
	Easting	Northing	
R1	537585	6121770	1.58 / SW
R2	537987	6122859	1.64/ NW
R3	538143	6123261	1.85/NNW
R4	540370	6119797	2.02 / SE
R5	540689	6119582	2.36 / SE
R6	537255	6121720	1.92/SW
R7	538084	6121875	1.07 / W
R8	537766	6123112	1.88 / NW
R9	538247	6123804	1.97 / NNW

Figure 4 Sensitive Receptor Locations



Map Source: Google Earth, 2009



2.3 Local Topography

The Project Site and surrounding residences are located in generally flat, low-lying terrain. A relatively sharp increase in terrain occurs to the east of the Project Site, while a more gradual increase exists to the southeast.

The Project Site is located at an approximate elevation of between 230 and 240 m AHD, on land that increases gradually to the east. The majority of sensitive receptor locations (see **Table 1**), with the exception of R8 and R9, are located at an elevation at or above that of the Project Site.



3 IMPACT ASSESSMENT PROCEDURES

3.1 General Objectives

Responsibility for the control of noise emission in New South Wales is vested in Local Government and the DECCW. The INP was released in January 2000 and provides a framework and process for deriving noise criteria for consents and licences that will enable the DECCW to regulate premises that are scheduled under the Protection of the Environment Operations Act, 1997.

The specific policy objectives are:

- To establish noise criteria that would protect the community from excessive intrusive noise and preserve amenity for specific land uses.
- To use the criteria as the basis for deriving project specific noise levels.
- To promote uniform methods to estimate and measure noise impacts, including a procedure for evaluating meteorological effects.
- To outline a range of mitigation measures that could be used to minimise noise impacts.
- To provide a formal process to guide the determination of feasible and reasonable noise limits for consents or licences that reconcile noise impacts with the economic, social and environmental considerations of industrial development.
- To carry out functions relating to the prevention, minimisation and control of noise from premises scheduled under the Act.

The INP provides two forms of noise criteria with the aim of achieving environmental noise objectives; one to account for intrusive noise which involves setting a noise goal relative to the existing acoustic environment and the other to protect the amenity of particular land uses.

3.2 Assessing Intrusiveness

For assessing intrusiveness, the background noise level must be measured. The intrusiveness criterion essentially means that the equivalent continuous noise level (L_{Aeq}) of the source should not be more than five decibels above the measured background level (L_{A90}).

3.3 Assessing Amenity

The amenity assessment is based on noise criteria specific to land use and associated activities. The criteria relate only to industrial-type noise and do not include road, rail or community noise. The existing noise level from industry is measured. If it approaches the criterion value, then noise levels from new industries need to be designed so that the cumulative effect does not produce noise levels that would significantly exceed the criterion.

An extract from the INP that relates to the amenity criteria is given in **Table 2** and **Table 3**.



Table 2 Amenity Criteria - Recommended LAeq Noise Levels from Industrial Noise Sources

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended LAeq(Period) Noise Level (dBA)	
			Acceptable	Recommended Maximum
Residence	Rural	Day	50	55
		Evening	45	50
		Night	40	45
	Suburban	Day	55	60
		Evening	45	50
		Night	40	45
	Urban	Day	60	65
		Evening	50	55
		Night	45	50
School classrooms - internal	All	Noisiest 1 hour period when in use	35	40
Hospital wards - internal - external	All	Noisiest 1 hour period	35	40
			50	55
Place of worship - internal	All	When in use	40	45
Area specifically reserved for passive recreation (eg National Park)	All	When in use	50	55
Active recreation area (eg school playground, golf course)	All	When in use	55	60
Commercial premises	All	When in use	65	70
Industrial premises	All	When in use	70	75

Note: Daytime 7.00 am to 6.00 pm; Evening 6.00 pm to 10.00 pm; Night-time 10.00 pm to 7.00 am, On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am.
The LAeq index corresponds to the level of noise equivalent to the energy average of noise levels occurring over a measurement period.



Table 3 Modification to Acceptable Noise Level (ANL)* to Account for Existing Levels of Industrial Noise

Total Existing LAeq noise level from Industrial Noise Sources	Maximum LAeq Noise Level for Noise from New Sources Alone, dBA
≥ Acceptable noise level plus 2 dBA	If existing noise level is <i>likely to decrease</i> in future acceptable noise level minus 10 dBA If existing noise level is <i>unlikely to decrease</i> in future existing noise level minus 10 dBA
Acceptable noise level plus 1 dBA	Acceptable noise level minus 8 dBA
Acceptable noise level	Acceptable noise level minus 8 dBA
Acceptable noise level minus 1 dBA	Acceptable noise level minus 6 dBA
Acceptable noise level minus 2 dBA	Acceptable noise level minus 4 dBA
Acceptable noise level minus 3 dBA	Acceptable noise level minus 3 dBA
Acceptable noise level minus 4 dBA	Acceptable noise level minus 2 dBA
Acceptable noise level minus 5 dBA	Acceptable noise level minus 2 dBA
Acceptable noise level minus 6 dBA	Acceptable noise level minus 1 dBA
< Acceptable noise level minus 6 dBA	Acceptable noise level

* ANL = recommended acceptable LAeq noise level for the specific receiver, area and time of day from **Table 2**

3.4 Assessing Sleep Disturbance

The DECCW has acknowledged that the relationship between maximum noise levels and sleep disturbance is not currently well defined. Criteria for assessing sleep disturbance has not been identified under the INP and hence, sleep arousal has been assessed using the guidelines set out in the ENCM Chapter 19-3.

To avoid the likelihood of sleep disturbance the ENCM recommends that the LA1(1minute) noise level of the source under consideration should not exceed the background noise level (LA90) by more than 15 dBA when measured outside the bedroom window of the receiver during the night-time hours (10.00 pm to 7.00 am).

3.5 Construction Noise

The Department of Environment Climate Change and Water (DECCW) released the Interim Construction Noise Guideline in July 2009.

The guideline sets out noise management levels, in relation to construction type activities, for residential receivers and how they are to be applied. The guideline suggests restriction to the hours of construction that apply to activities that generate noise at residences above the 'highly affected' noise management level. A summary of the noise management levels from the Guideline is contained in **Table 4**.

**Table 4 Interim Construction Noise Guideline Noise at residences**

Time of day	Management level LAeq(15minute)	How to apply
Recommended standard hours Monday to Friday 7am to 6pm Saturday 8am to 1pm No work Sundays or public holidays	Noise Affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. - Where the predicted or measured LAeq (15 min) 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.
	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. - 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: - 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.
Outside recommended standard hours	Noise Affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. - The proponent should apply all feasible and reasonable work practices to meet the noise affected level. - Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.

3.6 Road Traffic Noise

The Environment Protection Authority released the “*Environmental Criteria for Road Traffic Noise*” in May 1999. The policy sets out noise criteria applicable to different road classifications for the purpose of defining traffic noise impacts.



4 EXISTING ACOUSTICAL AND METEOROLOGICAL ENVIRONMENT

4.1 Ambient Background Noise

Background noise levels have not been measured in the area surrounding the site, therefore, for the purposes of this report, a minimum rating background level (RBL) of 30 dBA has been assumed for the nearest affected receivers in accordance with the INP.

4.2 Effects of Meteorology on Noise Levels

Wind

Wind has the potential to increase noise at a receiver when it is light and stable and blows from the direction of the source of the noise. As the strength of the wind increases the noise produced by the wind will obscure noise from most industrial and transport sources.

Wind effects need to be considered when wind is a feature of the area under consideration. Where wind blows from the source to the receiver at speeds up to 3 m/s for more than 30% of the time in any season, then wind is considered to be a feature of the area and noise level predictions must be made under these conditions.

Weather data was obtained, for a period of 12 months, from a weather station located at Wagga Wagga. The weather data was analysed to determine the frequency of occurrence of winds up to speeds of 3 m/s for daytime, evening and night in each season. A summary of the most frequently occurring winds is contained within **Table 5**, **Table 6** and **Table 7**. The percentage occurrence figures provided in bold are those that exceed the 30% threshold.

Table 5 Seasonal Frequency of Occurrence of Wind Speed Intervals - Daytime

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	18.9%	NE±45°	12.5%	7.2%	19.7%
Autumn	23.0%	W±45°	19.4%	9.5%	28.9%
Winter	20.1%	E±45°	17.4%	14.4%	31.8%
Spring	8.6%	W±45°	7.4%	5.9%	13.3%

Table 6 Seasonal Frequency of Occurrence of Wind Speed Intervals - Evening

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	14.4%	SW±45°	14.0%	10.6%	24.6%
Autumn	26.6%	WSW±45°	21.7%	15.2%	37.0%
Winter	27.4%	ESE±45°	14.5%	10.1%	24.6%
Spring	9.9%	SW±45°	8.1%	11.3%	19.4%

Table 7 Seasonal Frequency of Occurrence of Wind Speed Intervals - Night

Period	Calm	Wind Direction	0.5 - 2 m/s	2 - 3 m/s	0.5 - 3 m/s
Summer	20.6%	ENE±45	22.0%	15.1%	37.0%
Autumn	30.8%	E±45	16.2%	18.2%	34.4%
Winter	32.5%	E±45	20.3%	17.8%	38.0%
Spring	15.9%	ESE±45	8.5%	16.6%	25.2%



Seasonal wind records indicate that certain winds, typically from the eastern sector in the day and night and western sector in the evening, are a feature of the area. Hence, the effects of prevailing winds have been considered in this assessment.

Temperature Inversion

Temperature inversions, when they occur, have the ability to increase noise levels by focusing sound waves. Temperature inversions occur predominantly at night during the winter months. For a temperature inversion to be a significant characteristic of the area it needs to occur for approximately 30% of the total night-time during winter, or about two nights per week.

Meteorological data, obtained from the Wagga Wagga weather station was analysed to determine the percentage occurrences of temperature inversions during winter nights. The analysis indicates that stabilities of F class and above occur for in excess of 30% of the time during winter. Hence, the occurrence of temperature inversion during the night-time period has been considered as part of this noise assessment.



5 PROJECT SPECIFIC NOISE GOALS

5.1 Operational Noise Criteria

Based on the preceding assumptions made for background noise levels in the vicinity of the Project Site, the intrusiveness and amenity criteria are given in **Table 8**.

Table 8 Project Specific Noise Criteria

Location	Period	Intrusiveness Criteria LAeq(15minute)	Amenity Criteria LAeq(Period)
R1 to R9	Day	35 dBA	50 dBA
	Evening	35 dBA	45 dBA
	Night	35 dBA	40 dBA

5.2 Sleep Disturbance Noise Goals

The relevant sleep disturbance noise goals, assumed for each residential area, are provided in **Table 9**.

Table 9 Sleep Disturbance Goals

Location	Period	Sleep Disturbance Criteria LA1(1minute)
R1 to R9	Night	45 dBA

5.3 Construction Noise Goals

The construction noise goals assumed for the project are presented in **Table 10** for the nearest affected residential locations.

Table 10 Construction Noise Goals

Residential Location	Period	Noise Goal LAeq(15minute)	
		Noise Affected	Highly Noise Affected
R1 to R9	Day	40 dBA (RBL+10)	75 dBA
	Evening	35 dBA (RBL+5)	NA
	Night	35 dBA (RBL+5)	NA



5.4 Traffic Noise Goals

The Olympic Highway has been considered an arterial road, Bomen Road has been considered a sub-arterial road and Byrnes Road a collector road. For this reason the noise criteria outlined in **Table 11** have been adopted.

Table 11 Environmental Criteria for Road Traffic Noise (ECRTN)

Type of Development	Descriptor	Traffic Noise Goal
Land use developments with the potential to create additional traffic on a sub-arterial road	LAeq(15hour) daytime	60 dBA*
	LAeq(9hour) night-time	55 dBA*
Land use developments with the potential to create additional traffic on a collector	LAeq(1hour) daytime	60 dBA*
	LAeq(1hour) night-time	55 dBA*
* In all cases (where criteria are already exceeded, or where existing noise levels are within 2 dBA of the criterion), traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dBA.		



6 POTENTIAL NOISE IMPACT

6.1 Operational Noise

A computer model was used to predict noise emissions from the Project site. The Environmental Noise Model (ENM) computer modelling program used has been produced in conjunction with the DECCW. A three-dimensional digital terrain map giving all relevant topographic information was used in the modelling process. The model used this map, together with noise source data, ground cover, shielding by barriers and/or adjacent buildings and atmospheric information to predict noise levels at the nearest potentially affected receivers.

Atmospheric parameters under which noise predictions were made are given in **Table 12**.

Table 12 Meteorological Parameters for Noise Predictions

	Temperature	Humidity	Wind Speed	Wind Direction (degrees from north)	Temperature Gradient
Calm (All periods)	20°C	65%	0 to 0.5 m/s	N/A	N/A
Day period	20°C	65%	3m/s	90°	
Evening period	15°C	65%	3 m/s	248°	N/A
Night period	10 °C	90%	2 m/s	90°	3 °C/100m
Night period	10 °C	90%	3 m/s	90°	3 °C/100m

6.2 Operational Scenario - Noise Model Summary

The operational scenario modelled during each period is summarised in **Table 13**. A tick (✓) indicates that the equipment is in operation during the relevant period. A cross (x) indicates that the equipment is not in operation during the relevant period. Where there is a number in brackets following a tick, this represents the number of items of equipment that have been considered in the noise model during the relevant period. The client has informed Heggies that under normal circumstances product receipt and despatch will not occur before 7:00 am. All plant and equipment sound power levels were derived from information supplied by the client. A full list of the noise levels used in this report is contained in **Appendix A**.

Table 13 Operational Scenario Considered in Noise Model

Type of Equipment	Period of Operation			Sound Power Level (dBA)
	Day 7am to 6 pm	Evening 6 pm to 10pm	Night 10 pm to 7am	
Bucket Elevator (Grain Silos to Crushing Unit)	✓	✓	✓	93 dBA
Crushing Unit (SPP)	✓	✓	✓	110 dBA
Extraction Plant (SEP)	✓	✓	✓	110 dBA
Refinery	✓	✓	✓	104 dBA
Front End Loader (Meal Storage Shed)	✓	✓	x	102 dBA
Product Truck loading	✓(2)	✓(2)	x	99 dBA (each)
Product Truck manoeuvre	✓(2)	✓(2)	x	99 dBA (each)
Induced Draft Fans Boiler House & Cooling Tower (SEPP + SPP)	✓(3)	✓(3)	✓(3)	96 dBA (each)



Predicted noise levels for the Project Site are summarised in **Table 14** for calm and prevailing weather conditions. Noise contours for calm and prevailing weather conditions are provided in **Appendix B** and **Appendix C**.

Table 14 Predicted Operational Noise Levels

Location	Period	Predicted Noise Level LAeq(15minute)			Project Specific Noise Criteria LAeq(15minute)
		Calm	Wind 3m/s	Inversion 3°C/100 m with drainage flow 2m/s	
R1	Day	<30 dBA	30 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	30 dBA	31 dBA	
R2	Day	<30 dBA	31 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	30 dBA	32 dBA	
R3	Day	Day	<30 dBA	<30 dBA	35 dBA
	Evening	Evening	<30 dBA	<30 dBA	
	Night	Night	<30 dBA	<30 dBA	
R4	Day	<30 dBA	<30 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	<30 dBA	<30 dBA	
R5	Day	<30 dBA	<30 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	<30 dBA	<30 dBA	
R6	Day	<30 dBA	<30 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	<30 dBA	<30 dBA	
R7	Day	<30 dBA	34 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	34 dBA	35 dBA	
R8	Day	<30 dBA	30 dBA	n/a	35 dBA
	Evening	<30 dBA	<30 dBA	n/a	
	Night	<30 dBA	<30 dBA	30 dBA	
R9	Day	Day	<30 dBA	<30 dBA	35 dBA
	Evening	Evening	<30 dBA	<30 dBA	
	Night	Night	<30 dBA	<30 dBA	

Noise predictions, summarised in **Table 14**, indicate that noise emissions from the Project site would comply with project specific noise criteria for operation during day, evening, and night periods for calm and prevailing weather conditions.

6.3 Sleep Disturbance

Given the relative constant nature of the subject noise source (it is noted that the front end loader or delivery trucks do not operate in the night period) it is not likely that sleep disturbance will occur as a result of operation at the Project Site.



6.4 Construction Noise

A list of plant and equipment that has been assumed for construction activity at the Project Site is summarised in **Table 15**. Sound power levels of construction equipment were obtained from a Heggies database.

Table 15 Construction Plant and Equipment

Plant and Equipment	Sound Power Level (LAeq)
D10 Dozer	109 dBA
Air Compressor	91 dBA
Agitator Truck	111 dBA
Delivery Truck	106 dBA
Rock Breaker	109 dBA
Crane	103 dBA
Concrete Boom Pump	100 dBA
Excavator	105 dBA
Hammering	98 dBA
Angle Grinder	102 dBA

The results of construction noise predictions for the Project Site are contained within **Table 16** for the nearest residential areas for the daytime period only.

Table 16 Construction Noise Predictions

Residential Location	Period	Predicted Noise Level LAeq(15minute)	Noise Goal LAeq(15minute)	
			Noise Affected	Highly Noise Affected
R1	Day	<30	40 dBA	75 dBA
R2	Day	<30	40 dBA	75 dBA
R3	Day	<30	40 dBA	75 dBA
R4	Day	<30	40 dBA	75 dBA
R5	Day	<30	40 dBA	75 dBA
R6	Day	<30	40 dBA	75 dBA
R7	Day	<30	40 dBA	75 dBA
R8	Day	<30	40 dBA	75 dBA
R9	Day	<30	40 dBA	75 dBA

Predictions, summarised in **Table 16**, indicate that construction noise emissions from the Project Site would comply with construction noise goals.



7 TRAFFIC ASSESSMENT

The transport route to and from the site is via the Olympic Highway, Bomen Road and Byrnes Road. A summary of the proposed additional traffic to be generated by operation is contained within **Table 17**:

Table 17 Proposed Operational Traffic Movements

Description	Average Daily Movements (Despatch and Return)
Heavy Vehicles	35

Peak hourly traffic movements are likely to occur between 6.00 am to 7.00 am as staff arrive for the day shift and trucks arrive at the site for loading after 7.00 am.

Transport to and from the site will have an insignificant impact along Byrnes Road and Bomen Road as there are no residential receivers on the route from the site to the Olympic Highway.

AADT (1997) traffic data from the RTA for the Olympic Highway indicate a traffic flow of approximately 7904 vehicle movements per day. The additional traffic movements proposed from the Project Site would result in an insignificant change in traffic flow on the Olympic Highway given the existing traffic volume.

It is predicted that the additional daily traffic of up to 35 heavy vehicles for the proposed plant will result in a negligible change to the existing road traffic noise level generated from the Olympic Highway and therefore likely to meet the requirements of the ECRTN.



8 CONCLUSION

Heggies has conducted an assessment of the potential noise impact of the construction and operational phases of the proposed IOPP. The assessment assumed a conservative (minimum) background noise level at residential areas surrounding the development in order to establish noise criteria for the facility. Noise predictions were carried out based on noise levels of proposed plant and equipment supplied by the proponent.

Results of noise predictions, for operation of the Project Site, indicate that compliance with the noise criteria set in accordance with the INP is likely for calm and adverse weather conditions.

Noise from construction of the plant is predicted to comply with the DECCW construction guidelines.

Traffic generated by the operation is predicted to meet the requirements of the ECRTN.

Client Supplied Noise Data

TENTATIVE NOISE LEVELS FOR PREPARATORY PLANT - ROBEA

	ProcE	ProjM
Initials	MPS	RM / SPV
Revision	1	
Date	5-Nov-09	

Colour codes

	Bought out equipments
	Atmospheric tanks / Vessels
	Pressure vessels/ Piping
	Electric components

Section 700 : 500 TPD CANOLA/SAFFLOWER /350 SOYA SEED PREPARATION.

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
TPO1	Bucket Elevator	Body and the Belt	85	
		Gear Box		
		Motor	75	
		Zero speed Detector		
		Limit Switch		
730A	Buffer Feed Hopper	Body		
		Slide gate		
		Level Switch		
785A	Hopper Before Scale	Body		
786	Weighing Scale	Body		
		Electronic Sensors		
785B	Hopper After Scale	Body		
		Slide Gate		
717	Destoner	Body		
		Motor	75	
		Magnet		
717/85	Destoner Discharge hopper	Shell		
717/85/09	Screw Conveyor	Body and the Screws	60	
		Motor	75	
		Overflow flap Detector		
		Zero Speed Detector		
740	Seed Cleaner	Seed cleaning Equipment	90	
		Motor		
740/85	Hopper after cleaner	Shell		
740/85/09	Screw Conveyor		60	
		Motor	75	
		Zero speed Detector		
		Overflow flap Detector		
TP 03	Bucket Elevator	Body	85	
		Motor	75	
		Zero speed Detector		
		Limit Switch		
703	Cracker	Body	100	
		Motor	75	
Diverter Plate	Diverter plate	Body		
TP 04	Screw Conveyor	Body	60	
		Motor	75	
		Zero speed Detector		
		Overflow flap Detector		
703/16D	Bag Filter	Bag Filter body		
		Filter bags		
		solenoid Valve sequencer		
708D/03	Rotary Valve	Body		
		Gear Box		
		Zero speed Detector		
		Motor	75	
736D/03	Centrifugal Fan	Body	80	
		Motor	75	
717/16D	Bag Filter	Bag Filter body		
		Filter bags		
		solenoid Valve sequencer		
708C	Rotary Valve	Body		
		Gear Box		
		Zero speed Detector		
		Motor	75	
736C/A	Centrifugal Fan	Body	80	
		Motor	75	

716D	Bag Filter	Bag Filter body Filter bags solenoid Valve sequencer		
708/16D	Rotary Valve	Body Gear Box Zero speed Detector Motor	70 75	
736D	Centrifugal Fan	Body Motor	80	
TH 01	Chain Conveyor	Body Gear Box Motor	70 75	
785A/69	Hopper for Hammer mill	Body		
730/69	Hammer mill	Body Motor	85 75	
7091/36A	Blower Unit	Body Motor	80 75	
757V	Connecting Ducts for Hammer mill	Pipes		
705	Preconditioner	body double bottom Gear box Motor Pneumatic control gates High level detectors Temperature Transmitter Slide gate	85	
736/05	Centrifugal Fan	Casing Motor	77 75	
TP 05	Inclined Chain Conveyor	Body Gear Box Motor	70 75	
TP 06	Dobule Chain conveyor	Body Gear Box Motor	70 75	
TP 02	Screw Conveyor	Body Gear Box Motor	60	
704	Flakers	Body Motor Control Panel Hydraulic pump	85 75	
714F	Cyclone for Flakers	Body		
708F	Rotary Valve	Body Gear Box Motor	75	
736F	Centrifugal Fan	Casing Motor	80 75	

Section 2700 – 500 TPD Canola and Safflower / 350 soya seed preparation

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
TP 07	Inclined Chain Conveyor	Body Gear Box Motor	70 75	
TP 07A	Chain Conveyor	Body Gear Box Motor	70 75	
TP 07B	Chain Conveyor	Body Gear Box Motor	70 75	
TP 08	Chain Conveyor	Body Gear Box Motor	70 75	
TP 12	Screw Conveyor	Body Gear Box Zero speed detector Motor	60 75	
2705	Cooker	body double bottom Gear box Motor Pneumatic control gates High level detectors Temperature Transmitter Slide gate	85	
2725	Prepress	DE Bearing Centre of Cage Gear Box Output Gear Box Input Motor Motor Fan	74 76 76 76 78 78	

2713	Cake Cooler	Body and Cover		
		Gear Box		
		Variable Frequency Drive		
		Motor	75	
2713/08	Screw Conveyor	Body and Screw	60	
		Gear Box		
		Motor	75	
2714/13	Cyclone for Cake cooler	Body		
2736/05	Centrifugal Fan	Casing	80	
		Motor	75	
2736/13	Centrifugal Fan	Casing	80	
		Motor	75	
2708/13	Rotary Valve	Body		
		Gear Box		
		Motor	75	
2714/05	Cyclone for cooker	Body		
2708/14/05	Rotary Valve	Body		
		Gear Box		
		Motor		
2744	Vibro Screen Filter	Body		
		Motor		
2782A	Press oil collecting Tank	Tank body		
		Agitator		
		Level Controller		
		Level Switch		
		Motor	75	
2782B	Filtered Oil collecting Tank	Tank body		
		Level Controller		
		Level Switch		
		Motor	75	
2782C	Recovered Oil Tank	Tank body		
		Level Controller		
		Level Switch		
		Motor		
2716A	Vertical Leaf Filter	Body		
		Pneumatic Control Valve		
		Pneumatic Vibrator		
		Level Switch		
		Pressure Switch		
2782X	Filter Cleaning Tank	Body		
		Coil		
2757CK	Cake Collecting Hopper	Body		
		Level switch		
TP 09	Screw Conveyor	Body	60	
		Gear Box		
		Zero speed detector		
		Motor	75	
TP 10	Chain Conveyor	Body	70	
		Gear Box		
		Motor	75	
2729	Filter blowing scrubber	Body		
2716B	Polishing Filters	Body		
2781B	Heat Exchanger	Plate heat exchanger		
P2782A	Pressed oil pump	Pump	5	
		Motor	70	
P2782B	Filtered oil pump	Pump	5	
		Motor	63	
P2782C	Recovered oil pump	Pump	5	
		Motor	63	
P778NA	Caustic Preparation pump	Pump	5	
		Motor	69	
778NA	Caustic Preparation Tank	Body		
		Level Switch		
57	Ducts	Body		



TENTATIVE NOISE LEVELS FOR SOLVENT EXTRACTION PLANT - ROBEA

	ProcE	ProjM
Initials	SLA	RM / SPV
Revision	1	
Date	5-Nov-09	

Colour codes

	Bought out equipments
	Atmospheric tanks
	Pressure vessels/ Piping
	Electric components

Section 00 : Solvent Extraction.

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
1A	Extractor Feed Conveyor	Chain Conveyor (Type 300*180) Geared motor Zerospeed Switch	70 75	
1B	Extractor Feed Vented Conveyor	Chain Conveyor (Type 300*180) Geared motor Zerospeed Switch	70 75	
8A	Extractor Feed Plug Equipment	Dia.440mm (Without heating jacket) Geared motor Zerospeed Switch	75	
8A/C	Safety Slide Gate			
2	Extractor Feed Hopper	(W=1992mm x L=1442mm x H=2500mm) Level Switch Ultrasonic Level transmitter Temperature Transmitter		
3	Extractor	Type 20-16-9/7		
3A	Extractor Feed Agitator	Geared motor Zerospeed Switch	75	
3T	Extractor Main Drive	Motor Gearbox Zerospeed Switch	75 80	
3G	Extractor Discharge Scraper	Geared motor Zerospeed Switch	75	
49P/1	Miscella Line Heater	Jacketed Pipe		
49P/2-7	Miscella Line Heater	Jacketed Pipe		
49P1	Hexane Preheater	(D=219.1mm ; L=2800mm) Tube side (Fluid = Steam) Shell side (Fluid = Hexane)		
58P1	Hexane Head Tank	(D=219.1mm ; H=1000mm)		
P1HP	Hexane Belt Cleaning Feed Pump	Pump Motor	5 68	
P2A	Hexane Belt Cleaning Pump	Pump Motor	5 68	
P2B	Miscella Belt Cleaning Pump	Pump Motor	5 68	
P3/1	Extractor Stage Pump	Pump Motor	5 70	
P3/2-7	Extractor Stage Pumps	Pump Motor	5 70	
4	Extractor Discharge Hopper	(W=1400mm x L=2470mm x H=1350mm) Geared motor Variable Frequency Drive Level Switch Zerospeed Switch	75	
36P	Extractor Purge Fan	Fan Motor	80 75	
35	Extractor Vapour Condensor	(D=355.6mm ; L=5400mm) Tube side (Fluid = Cooling Water) Shell side (Fluid = Hexane Vapours)		

Section 70 – Toaster

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
5	Extracted Meal Conveyor	Chain Conveyor (Type 400*230) Geared motor Zerospeed Switch	80 75	
8B	Desolventiser Plug Inlet Equipment	(D=440mm ; With heating jacket) Heating Jacket Geared motor Zerospeed Switch	75	
8B/B	Desolventiser Safety Plug Valve			
70DTC	Desolventiser Toaster Dryer Cooler	1 PD + 4 DT + 2D +1C (Dia.3000mm) DT Double Bottom (Stages 1-4) Sparge Steam Tray (Stage 5)		

70T	DTDC Drive	Main motor	75	
		Gearbox	95	
		Geared motor for DT rotary valves	75	
		Variable Frequency Drives for rotary valves		
		Level Transmitters		
		Level Switch		
		Temperature Switch		
		Zerospeed Switch		
46/70	Condensate Collecting Tank	(D=273mm ; H=1146mm)		
29	Vapour Scrubber	(D=1000mm ; H=3890mm)		
		Sprayers		
		Level Switch		
P29	Scrubber Water Circulating Pump	Pump	5	
		Motor	70	
23A	Solvent/Vapour Heat Exchanger	(D=450mm ; H=3000mm)		
		Tube side (Fluid = Liquid Hexane)		
		Shell side (Fluid = Hexane/Water Vapours)		
20B/C	DT Vent Condensor	(D=650mm ; H=6000mm)		
		Tube side (Fluid = Cooling Water)		
		Shell side (Fluid = Hexane/Water Vapours)		
57A	Vapour Ducts of Distillation			
36AB	Dryer/Cooler Fan	Fan	80	
		Motor	75	
94	Air Heater	Shell side (Fluid = Air)		
		Tube side (Fluid = Steam)		
14A	Dryer Air Cyclone (Type CK84)	Heating Coil	98	
		Level Switch		
8D/A	Rotary Valve	D=300mm		
		Geared motor	75	
14B	Cooling Air Cyclone (Type CK54)	Heating Coil	98	
		Level Switch		
8D/B	Rotary Valve	D=200mm		
		Geared motor	75	
57C	Air Ducts for Meal Conditioning			
57C/B	Closing Valve for Air Ducts			
10A	Discharge Meal Conveyor	Chain Conveyor	70	
		Geared Motor	75	
		Zerospeed Switch		
10B	Final Discharge Meal Conveyor	Chain conveyor	70	
		Geared Motor	75	
		Zerospeed Switch		
Section 18H-22B : Distillation, Oil Finishing and Drying				
TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
P15	Extractor Miscella Discharge Pump	Pump	5	
		Motor	70	
16H/1-2-3	Miscella Hydrocyclones	D=100mm ; H=855mm		
17	Miscella Tank	D=2000mm ; H=2100mm		
P8	Evaporator Feed Pump	Pump	5	
		Motor	63	
60A	First Stage Evaporator	(D=950mm ; H=6000mm)		
		Tube side (Fluid = Miscella)		
		Shell side (Fluid = Hexane/Water Vapours)		
		Level Transmitter		
60B	Separator Dome for First Stage Evaporator	(D=1816mm ; H=2322mm)		
P60	First Stage Evaporator Transfer Pump	Pump	5	
		Motor	63	
81A	Oil/miscella Heat Exchanger	(D=365.9mm ; L=6000mm)		
		Tube side (Fluid = Edible Oil)		
		Shell side (Fluid = Miscella)		
18A	Second Stage Evaporator	(D=250mm ; H=6000mm)		
		Tube side (Fluid = Miscella)		
		Shell side (Fluid = Steam)		
19	Vacuum Condensor	(D=1050mm ; L=6000mm)		
		Tube side (Fluid = Cooling Water)		
		Shell side (Fluid = Hexane/Water Vapours)		
41/19	Steam Ejector of Condensor 19		85	
18B/22A	Edible Oil Stripper	(D=450mm ; H=11135mm)		
		Level Transmitter		
P22A	Stripper Discharge Pump	Pump	5	
		Motor	63	
22B	Oil Dryer	(D=600mm ; H=4300mm)		
P22B	Dryer Discharge Pump	Pump	5	
		Motor	68	
41/22B	Steam Ejector for Oil Dryer		85	
81B	Final Oil Cooler	Plate type heat exchanger		
57B	Distillation Vapour Ducts	Item 60A/B to 19 (before expansion)		
		Item 60A/B to 19 (after expansion)		
		Item 18B to 19		
		Item 22A to 19		
		Item 122 to 19		
		Header connecting ducts from items 122,18B/22A		

32/34	Water/Solvent Separator	(D=1200mm ; H=5000mm)		
P1	Hexane Pump	Pump	5	
		Motor	63	
45	Safety Waste Water Boiler	(D=600mm ; H=3736mm)		
P32	Water Transfer Pump	Pump	5	
		Motor	63	
46B	Condensates Flash Drum	(D=950mm ; L=1673mm)		
		Level Transmitter		
P46B	Condensates Return Pump	Pump	5	
		Motor	69	

Section 100H : Solvent Recovery

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
120	Solvent Vapour Absorber	(D=708/500mm ; H=10516mm)		
		Level Transmitter		
121	Absorption Oil Heater	(D=219.1mm ; H=6000mm)		
		Tube side (Fluid = Mineral Oil)		
		Shell side (Fluid = Steam)		
122	Absorption Stripper	(D=700/250mm ; H=10119mm)		
		Level Switch		
181A	Rich/lean Oil Heat Exchanger	Plate type heat exchanger		
181B	Lean Absorption Oil Cooler	Plate type heat exchanger		
P120	Absorber Discharge Pump	Pump	5	
		Motor	63	
P122	Absorption Stripper Discharge Pump	Pump	5	
		Motor	63	
136	Fan	Fan	80	
		Motor	75	

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
63	Solvent Storage Tanks	D=2800mm ; L=9995mm		
		Level Transmitter		
P63	Hexane Feed Pump	Pump	5	
		Motor	68	
46A	Plant Incoming Steam Separator	D=600mm ; H=1000mm		
46B1	DT Direct Steam Separator	D=273.1mm ; H=700mm		
46B2	Ejectors' Steam Separator	D=273.1mm ; H=700mm		



TENTATIVE NOISE LEVELS FOR REFINERY PLANT - ROBEA

	ProcE	ProjM
Initials	PBN/ SVA	RM/ SPV
Revision	1	
Date	5-Nov-09	

Colour codes

	Bought out equipments
	Atmospheric tanks
	Pressure vessels/ Piping
	Electric components

Section 500 : 100 TPD Water degumming with drying.

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
501	Buffer feed tank	Shell		
		Safety coil		
		Level Switch		
		Temperature Transmitter		
524	Oil strainer	Shell		
P501	Oil Feed Pump(Centrifugal)	Pump	5	
		Motor	68	
521B	Oil heater (PHE)			
504A	Static mixer	Mixer		
503	Degumming reactor	Shell		
		Motor	68	
		Level Switch		
		DP Cell		
P503	Degumming reactor transfer pump (Progressive cavity/ Gear pump)	Pump	5	
		Motor	80	
518	Degumming Separator (Self desludging)	Separator	81+5	
		Panel		
P518	Separator oil booster pump (Centrifugal)	Pump	5	
		Motor	68	
521A	Oil/Oil heat exchanger (PHE)	Oil/Oil heat exchanger (PHE)		
521C	Oil heater (PHE)	Oil heater (PHE)		
506	Oil dryer	Shell		
		DP Cell		
		Level Switch		
		Sprayer		
P506	Dryer discharge pump (centrifugal)	Pump	5	
		Motor	70	
541/06	Vacuum System	Vacuum pump.	70	
		Motor	5	
		Tube side of surface condensor (process side)		
		Shell side of surface condensor		
582GL	Gums tank	Shell		
		Level Switch		
P582GL	Wet gum pump	Pump	5	
		Motor	80	
581B	Final oil cooler (PHE)	Final oil cooler (PHE)		

Section W500 – 200 TPD Acid Degumming Plant

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	REMARKS
W501	Oil feed tank, D= 2000mm, H= 3850mm	Shell		
		Safety coils		
		Level Switch		
		Temperature Transmitter		
W524	Oil strainer	Oil strainer		
PW501	Oil feed pump (centrifugal)	Pump	5	
		Motor	70	
W521A	Oil/oil heat exchanger (PHE)	Oil/oil heat exchanger (PHE)		
W521B	Oil heater (PHE)	Oil heater (PHE)		
W534	Acid preparation tank	Shell		
		Level Switch		
		Safety coils		
PW534	Acid transfer pump (centrifugal)	Pump	5	
		Motor	61	
W534AC1	Citric Acid Dosing Unit	Citric acid dosing tank (200lt)		
		Flowmeter		
		Level Switch		
PW534AC1	Citric acid dosing pump	Pump	5	
		Motor	65	
W504AC	Acid mixer (Dynamic type)	Shell		
		Motor	70	
W503AC	Acid reactor, D= 1200mm, H= 3740mm	Shell		
		Pressure Transmitter		
		Motor	68	
		Temperature Transmitter		
W578NA1	Caustic soda buffer tank	Shell		
		Motor	61	
		Safety coils		
PW578NA1	Caustic soda recirculation pump (centrifugal)	Pump	5	
		Motor	63	

W534NA	Caustic Soda Dosing Unit	Caustic soda tank – 200ltrs. Flowmeter Level Switch		
PW534NA	Caustic dosing pump	Pump Motor	5 65	
W504NA	Caustic soda mixer (Dynamic type)	Shell Motor	70	
W581A	Oil/ oil heat exchanger (PHE)	Oil/ oil heat exchanger (PHE)		
W581B	Oil/ water heat exchanger (PHE)	Oil/ water heat exchanger (PHE)		
W503B	Reagent reactor, D= 1800mm, H= 6320mm	Shell Motor DP Cell Level Switch Temperature Transmitter	68	
PW503B	Reagent reactor transfer pump	Pump Motor	5 70	
W521C	Oil heater (PHE)	Oil heater (PHE)		
W518NA	Centrifugal separator (Self De-sludging)	Separator Panel Motor	81+5	
W582G	Acid gums tank, D=970mm, H= 2634mm	Shell Safety coils Level Switch		
PW582G	Acid gums pump (Gear pump)	Pump Motor	5 70	
PW518W1	Washing separator feed pump (centrifugal- inline)	Pump Motor	5 70	
W521W	Oil heater (PHE)	Oil heater (PHE)		
W504W1	Water wash mixer (Dynamic type)	Shell Motor	70	
W503W1	Water wash reactor, D= 220mm, H= 1550mm	Shell		
W518W1	Washing centrifugal separator (Solid bowl)	Separator Panel Motor	81+5	
W532C	Fat- trap, L=2428mm, W= 1057mm, H= 1500mm	Shell Level Switch		
PW532C	Recovered oil pump (centrifugal)	Pump Motor	5 61	
W578HW1	Hot water tank, D= 1600mm, H= 2000mm	Shell Steam Distributor Temperature Transmitter Level Switch		
PW578HW1	Hot water pump (centrifugal)	Pump Motor	5 69	
W578X	separator bowl cleaning station, H= 1000mm, L= 1400mm, W= 700mm	Shell		

T5/600PS – 200 TPD Dry Pre-Treatment With Continuous Bleaching And Filtration

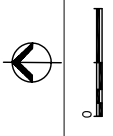
TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	
T501	Oil dryer/buffer feed tank- D= 2000 mm and H= 3962 mm	Shell Safety coils Temperature Transmitter Level Switch		
PT501	Oil feed pump (Centrifugal)	Pump Motor	5 70	
T521A	Oil/oil heat exchanger (PHE)	Oil/oil heat exchanger (PHE)		
T521B	Oil heater (PHE)	Oil heater (PHE)		
T504	Acid mixer (Dynamic)	Shell Motor	70	
T534AC	Acid dosing unit	Tank-200 Ltrs Flow meter Level Switch		
PT534AC	Acid dosing pump	Pump Motor	5 65	
609AC	Bag discharge hopper for activated carbon (Combined with 609A)	Shell Rotary Valve Motor		
630AC	Activated carbon hopper.	Shell Level Switch paddle type Stirrer with motor	62	
607AC	Activated carbon dosing device	Trough Screw Motor	62	
T503AC	Oil activated carbon reactor	Shell Motor	68	
PT503AC	Oil transfer pump (Centrifugal)	Pump Motor	5 61	
609A	Pneumatic earth feed assembly	Shell Level Switch paddle type Stirrer with motor	70	
630A	Bleaching earth hopper W- 1500 mm, L-1000 mm, H-2836 mm	Shell Level Switch paddle type Stirrer with motor	62	
607A	Bleaching earth dosing device, D= 95mm, L= 2590mm	Trough Screw Motor	62	
635	Oil / Earth mixer	Shell Motor	61	
641/35	Exhaust ejector	T503/635 exhaust ejector		
622/21	Continuous heater/bleacher D= 1800mm, H= 6510mm	Shell Steam coils DP Cell Level Switch Temperature Transmitter		
646A	Oil/water separator	Shell		

P622	Filter feed pump (centrifugal)	Pump	5	
		Motor	70	
616A1/2	Bleaching filter model Ama make (38 m2)	Shell		
		Butterfly valve		
		Pneumatic vibrator	75	
		Pressure gauge		
657CK1/2	Spent earth collecting hopper	Shell		
682B	Bleaching oil tank	Shell		
		Level Switch		
P682B	Bleached oil transfer pump (centrifugal)	Pump	5	
		Motor	70	
616C1/2	Safety bag filter	Shell		
		Pressure gauge		
682A	Recovered oil tank D= 1750mm H(Cyln)-2510mm V=4.3 m3	Shell		
		External steam coil		
		Level Switch		
629	Filter blowing condenser	Shell side of Condenser		
		Tube side of condenser		
641A	Vacuum production unit	Y-Ejector	85	
		Z- Ejector	85	
		Precondensor (surface condensor) Shell Side		
		Tube side (process side)		
		Secondary condensor		
682X	Filter element cleaning tank (Modify for 15 leaves)	Shell		
		Steam coil		
800Qs – 200 TPD Continuous				
TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	
P802	Deareator oil transfer pump (centrifugal)	Pump	5	
		Motor	70	
822Q	Qualistock deodorizer D= 2400 mm H= 21963 mm	821A, 822A1/2, 822B, 880A1/2 and 880B, 808, 802, 814, dschem skirt		
		821A coil		
		880A1 coil		
		880A2 coil		
		802 coil		
		814 coil		
		Temperature Transmitter		
		Level Switch		
		Level Controller		
834A	Acid dosing unit	200lt tank		
		Flow meter		
		Level Switch		
P834AC	Acid dosing pump	Pump	5	
		Motor	65	
P822	Deodorized oil pump (centrifugal)	Pump	5	
		Motor	70	
824B1/2	Out going oil strainer	Shell		
881B1	Shut down cooler (shell and tube)	Shell Side		
		Tube side		
881B2	Deodorized oil final cooler (PHE)	Deodorize oil final cooler (PHE)		
P850/81B	Final oil cooler tempered water pump	Pump	5	
		Motor	69	
816B1/2	Safety bag filter	Shell		
841A	Vacuum production unit	X-Booster	85	
		Primary condensor dia 680 mm		
		Secondary condensor dia 273mm		
		Tertiary condensor dia 273mm		
		Y1-Ejector	85	
		Y2-Ejector	85	
		Z-Ejector	85	
841B	Start up ejector	Start up ejector	85	
849	Sparge Steam Superheater	Body		
		Heater		
846E	Sparge steam separator	Shell		
857C	Duct from 822Q to Vacuum unit	Shell		
881AG	Fatty acid cooler (PHE)	Fatty acid cooler (PHE)		
P814AG	Fatty acid circulating pump (centrifugal)	Pump	5	
		Motor	70	
P850/81AG	Fatty acid tempered water pump (centrifugal)	Pump	5	
		Motor	69	
890HP	High pressure steam boiler 500,000 Kcal/hr capacity	Body		
		Boiler coil 290 litres		
		Panel		
		Pump		
		Motor	85	
		HP piping		
		Fan		
		Motor for fan		
884	Chimney	Shell		

TAG NO	DESCRIPTION	COMPONENTS	TYPICAL SOUND PRESSURE LEVEL @ 1M dBA	
632B	Barometric leg discharge tank for 541/06 and 641A.	Shell		
		Safety coil		
832B	Barometric Leg discharge tank	Shell		
		Steam coil		
P832B	Barometric water pump (Centrifugal)	Pump	5	
		Motor	72	
834NA	Caustic Soda dosing unit	Atmospheric tank-200 Lt		
		Flow meter		
		Level Switch		
P834NA	Acid dosing pump	Pump	5	
		Motor	65	
881W	Water Cooling exchangers PHE	Water Cooling exchangers PHE		
878W	CIP Solution tank	Shell		
		Steam coil		
		Level Switch		
		Temperature Transmitter		
P878W	CIP circulation pump (centrifugal)	Pump	5	
		Motor	69	
811	Chiller	Evaporator		
		Condenser		
		Compressor	82	
		Panel		
		Motor		
878GL	Glycol water tank	Shell		
		Temperature Transmitter		
		Level Switch		
P878GL	Glycol water pump (Centrifugal)	Pump	5	
		Motor	70	



REV	DATE	AMENDMENT / ISSUE DESCRIPTION	PREPARED	CHECKED	FILE NAME	DRAWING No.	REVISION
0					model.dwg	001	0
Heggles Pty Ltd Level 1, 14 Watt Street PO Box 1768 Newcastle NSW 2300 Email address newcastle@heggles.com.au Telephone 02 4908 4500 Facsimile 02 4908 4501							
Appendix B Integrated Oilseed Processing Plant Noise Contours - Calm Conditions							



75 mm ON ORIGINAL

