APPENDIX 6 ACOUSTIC IMPACT ASSESSMENT AP06

T-BLOCK FREE RANGE LAYER FARM & OGN

Acoustic Report

Prepared For

MCLEAN FARMS AUSTRALIA PTY LTD C/- RMA ENGINEERS

DOC. REF: V2294-03-E FREE RANGE & OGN ACOUSTIC REPORT (R0)
31 OCTOBER 2025

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1 Introduction & Scope

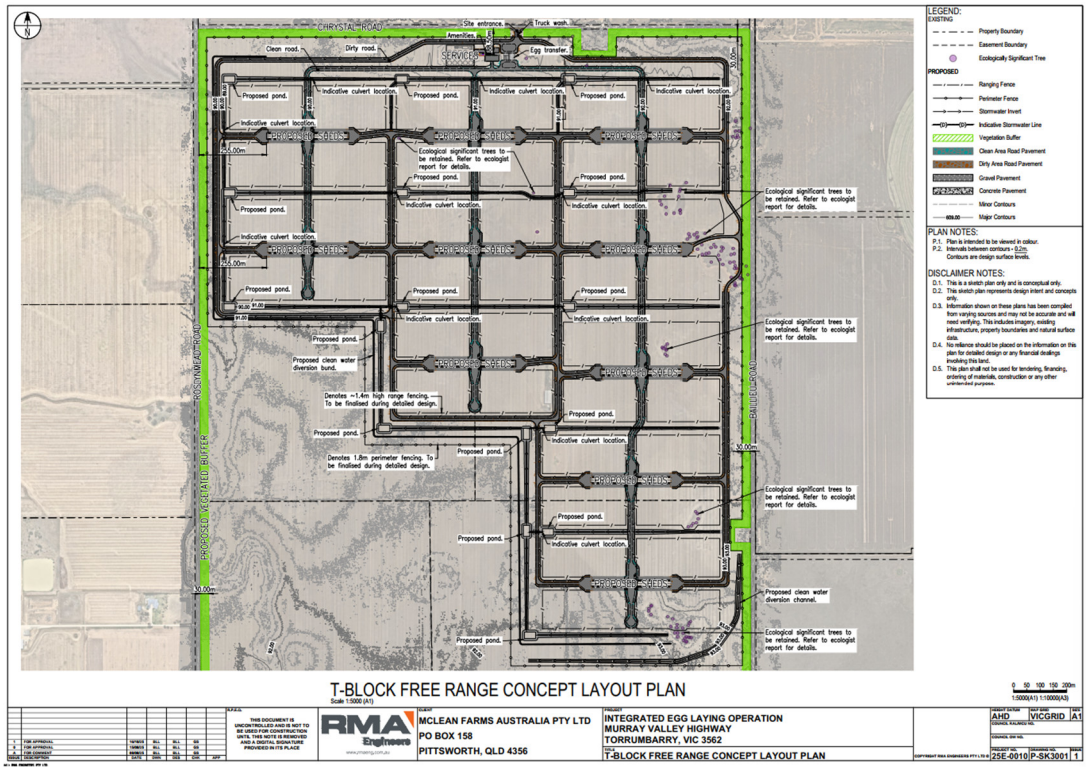
Enfield Acoustics has been engaged by McLean Farms Australia Pty Ltd c/- RMA Engineers to assess potential noise impacts from the proposed T-Block Free Range Layer Farm and 'Organic Nutrients' (OGN) composting facility, located at 192 Baillieu Road, Torrumbarry (Subject Land).

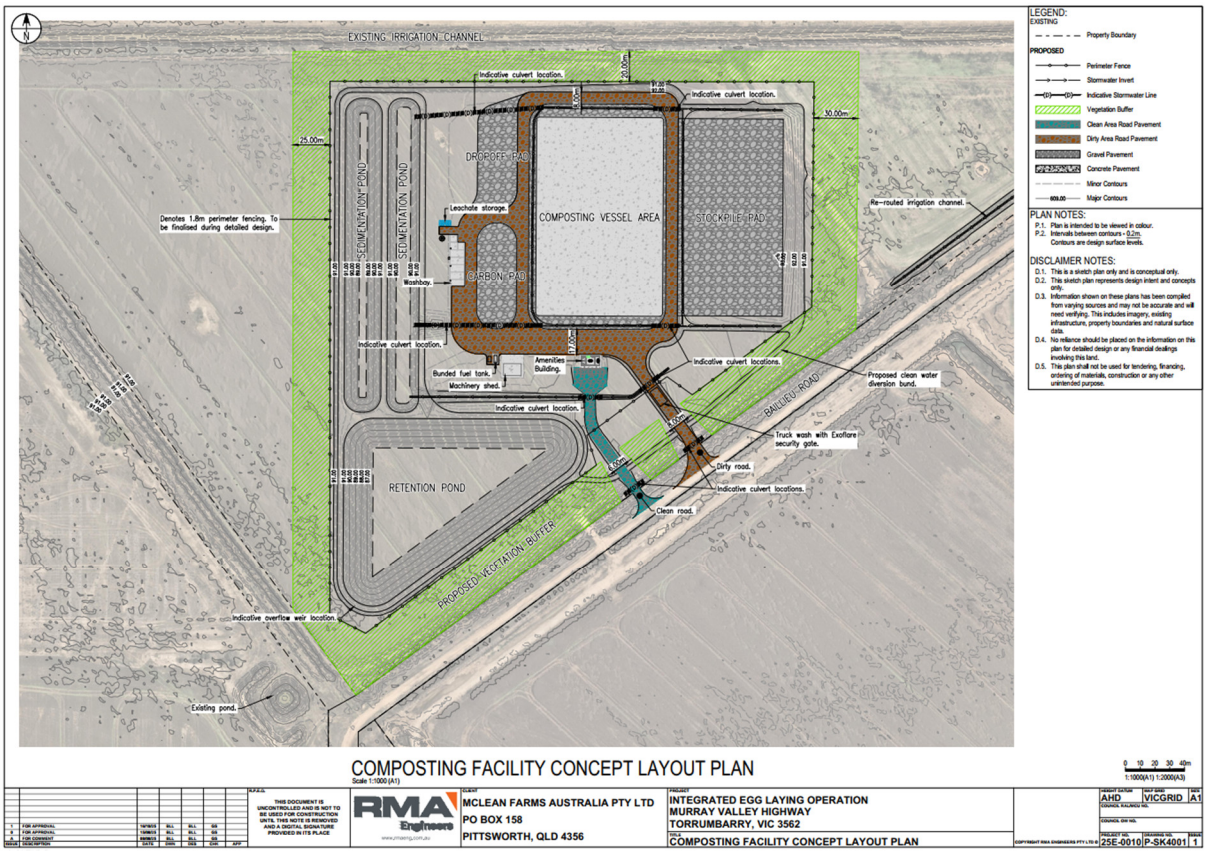
The proposed development involves the construction of a new poultry layer farm which is used for production of eggs intended for human consumption. The proposed farm will accommodate a maximum of 800,000 layer birds within 20 purpose built, best practice layer sheds. These sheds will be constructed in 2 stages (10 sheds each). The farm is intended to operate as a free-range layer farm whereby the birds are provided with daily access to the range areas. However, the sheds will be constructed to allow them to operate as free range or cage free sheds as required.

The development also includes supporting ancillary services and infrastructure including a staff office and amenities building, egg collection infrastructure and holding rooms, workshop, water treatment, feed silos, truck wash, perimeter fencing, and internal range areas.

In addition to poultry farm, this application also includes an ancillary composting facility located on Lot 2 on PS404891. This facility is located directly to the north-east of T-Block farm and will accept manure and floor litter directly from the poultry farm which is then composted to create a soil conditioner and fertilizer product for the Applicant's own use off-site. The composting facility will be sized to also take material from Mclean Farms' Cage Free and Rearing Farms in Torrumbarry.

A site plan of the poultry farm and composting facility is shown below.





It is understood that the remainder of the poultry farm will continue to be used for cropping.

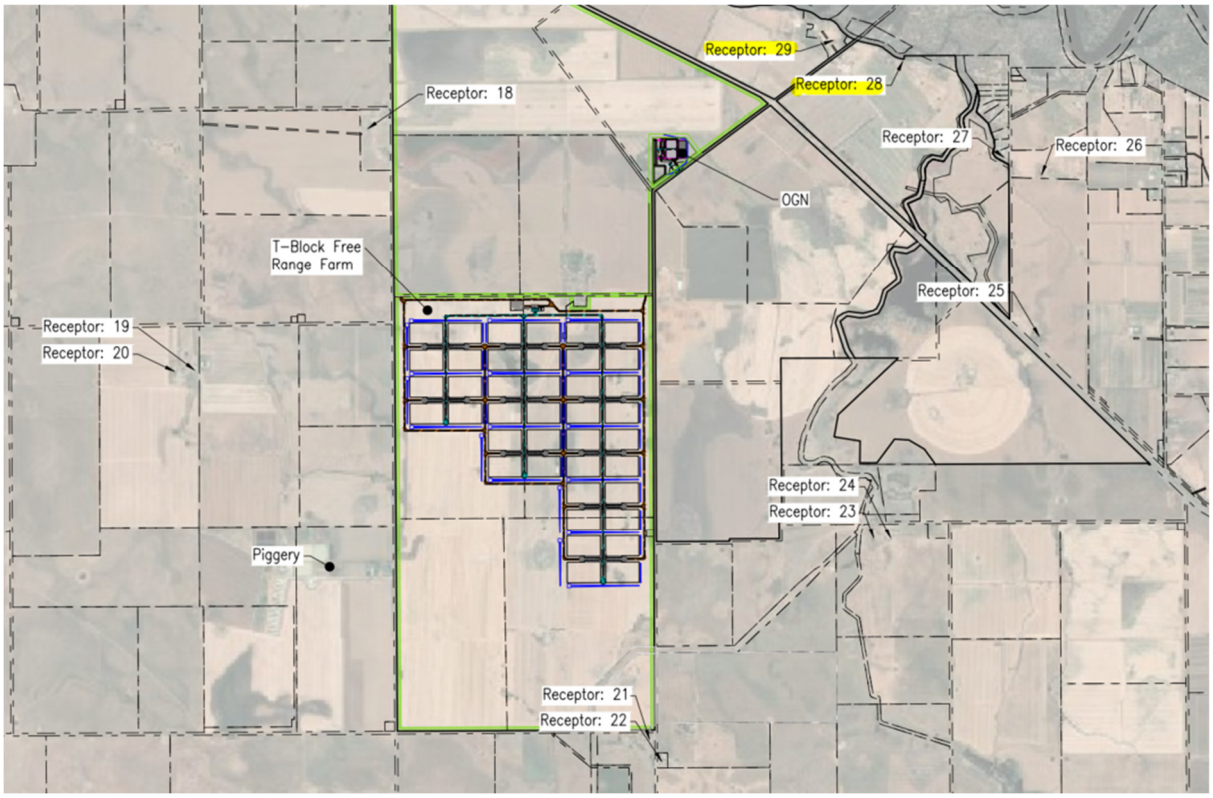
The Subject Land development forms part of a greater Integrated Egg Laying operation (Project 4G) proposed by the Applicant, which includes the following components:

- Pollock's Block Rearing Farm
- Warwick's Cage Free Layer Farm
- T-Block Free Range Layer Farm
- 'Organic Nutrients' Composting Facility (OGN)

This acoustic report has been specifically prepared to assess noise impacts associated with the T-Block Free Range Layer Farm and OGN component of Project 4G. Noise impacts from other development components will be addressed in separate acoustic assessments and reports.

2 Site Context

Based on our review of satellite imagery and instruction from the Applicant, nearby sensitive uses have been identified as follows:



The Subject Land and the surrounding sensitive uses are located within the Farming Zone (FZ1), with dwellings setback >1km from the poultry farm and composting facility.

Receptor 28 & 29 is understood to be owned by the Applicant.

Given that the sensitive uses identified above are the closest to the Subject Land, it is intrinsic that compliance at these locations would also result in compliance at all other possible sensitive uses proximate to the Subject Land that are set back further away.

3 Policy Requirements

3.1 Noise Protocol (Publication 1826)

Noise from any agricultural use must comply with the *Environmental Protection Regulations 2021* (Regulations) and *Publication 1826: Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* (Noise Protocol).

The methodology for determining the applicable noise limits under the Noise Protocol is dependent on several factors, in particular for this site, whether a sensitive use is located within a Major Urban Area (MUA).

Given that all sensitive uses are located outside the MUA boundary, the applicable limits have been derived based on Table B.1 of the Noise Protocol, as follows:

All sensitive uses

Period	Zone Levels *FZ to FZ/TZ*	Adjustment for intense agricultural activities	Noise Limit
'Day' Period 7am to 6pm (Monday to Saturday)	46 dB(A)	+3 dB(A)	49 dB(A)
'Evening' Period 6pm to 10pm (Monday to Saturday) 7am to 10pm (Sundays)	41 dB(A)		44 dB(A)
'Night' Period 10pm to 7am (All days)	36 dB(A)		39 dB(A)

Given that the Subject Land is within a Farming Zone and the proposed use as a poultry farm is classified as an intensive agricultural activity, an adjustment of +3dB is applied to the Zone Levels to determine Noise Limits, in accordance with Clause 139 & 140 of the Noise Protocol.

Distance adjustments do not apply here as the source and generator are within the same contiguous zone.

The Noise Protocol considers 30-minute average energy noise emissions, meaning that the relevant assessment metric being considered is $L_{Aeq\text{-}30min}$, dB(A).

3.2 Low Frequency Noise (Publication 1996)

Regulation 120 of the EP Regulations includes frequency spectrum as a prescribed factor when assessing noise from agricultural premises. The frequency spectrum from 10Hz to 160Hz should be used to assess whether low frequency noise (LFN) could be considered as unreasonable under the EP Act.

The following LFN thresholds are recommended by Publication 1996:

Table 3: Outdoor one-third octave low frequency noise threshold levels from 10 Hz to 160 Hz

Outdoor one-third octave low frequency noise threshold levels													
One-third Octave (Hz)	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
L_{eq} (dB)	92	89	86	77	69	61	54	50	50	48	48	46	44

It is worth noting that LFN impacts are difficult to determine during application phases, given that:

- Manufacturer data does not include LFN data (typically, spectral data begins from 50Hz or 63Hz)
- There is limited availability of benchmarked LFN plant and equipment
- Modelling algorithms (e.g. Concawe, ISO9613) have not been developed for modelling LFN noise impacts

The above limitations are well acknowledged in Publication 1996 already, and to this end, LFN assessments should only be used as a screening tool to assess the risk of potential LFN impacts resulting from the Application.

3.3 General Environmental Duty (GED)

Under the *Environment Protection Act 2017* (EP Act 2017), any agricultural use is required to fulfill their General Environmental Duty (GED). In effect, the GED requires that environmental impacts and the risk of harm are minimised by reasonable and practicable means, however, the GED does not set out prescriptive or objective targets and acceptability under the GED is at the discretion of the Authority.

Under the GED, are required to have reasonable knowledge about the risks the proposed activities pose. Ultimately, ongoing compliance with the GED required operators to take reasonable, proactive steps and employ good environmental work practices, which includes minimising noise impacts where practicable.

In effect, the GED makes it clear that operators are responsible for managing their use and reducing their impact to surrounding sensitive uses.

4 Assessment

4.1 Proposed Activities and Equipment

The free range farm is proposed to house a maximum of 800,000 birds within 20 purpose built sheds. The sheds will be supported by ancillary services and infrastructure including a staff office and amenities building, egg collection infrastructure and holding rooms, workshop, water treatment, feed silos, truck wash, perimeter fencing, and internal range areas.

Due to the Applicant's operation of a poultry farm and composting facility in Queensland that is characteristically similar to the proposal, there is a substantial level of prior knowledge and understanding of their operational requirements.

To support our assessment, the Applicant has provided an acoustic report comissioned for their Queensland farms (QLD Acoustic Report) for our review, which includes source noise levels for equipment similar to that proposed for this site.

Where relevant and instructed by the Applicant, our assessment will adopt these source noise levels in our noise modelling. Our assessment will also rely on source noise levels from previous benchmark measurements conducted by our office, as well as any noise levels supplied by the Applicant.

Based on instructions from the Applicant and our review of the proposed use, we provide the following commentary:

Item	Commentary
Sheds	16 large 'wall' fans are proposed at the end of each shed, equivalent to Big Dutchman AirMaster Blue 130. Each fan will be configured to operate at a maximum speed of 85%. In the worst-case scenario, all 16 fans will be active simultaneously during tunnel ventilation, which is used only in 'emergency' conditions (e.g. high summer temperatures, or to control spotty liver disease). It is important to note that under normal operating conditions, ventilation will primarily be provided by smaller sidewall and chimney fans, with tunnel ventilation required only on occasion. Our assessment will assume the operation of all 16 'wall' fans (for all sheds) to simulate worst-case conditions. Every shed will also include a manure conveyor, which will be included in the noise model.
Vehicle Movements	It is understood that a mix of heavy and light vehicle movements are expected to service the site at various hours of the Day, Evening and Night periods. The highest noise emission is expected to be the use of tractors around the site. Semi-truck and trailers, compost and manure trucks are expected to enter/exit the site between Monday and Friday, generally commencing at 6am and ceasing by 5pm.
Water treatment	Several pumps will be required for water treatment, however, we are instructed that all pumps will be concealed/enclosed. Regardless, noise emissions from pumps (even in open air) are not likely to generate material noise emissions at setback distances of >1.4km.
Egg Collection	Egg collection and packing will occur internally and is expected to be adequately mitigated by minimum forms of built form construction at distances of >1.4km.
OGN Composting Facility	Based on the proposed mobile plant and equipment at the OGN, noise emissions are expected to be primarily generated by the following sources: • Frontier windrow turner • Anaconda TD620 trommel screen • Front end loaders (FEL) Other equipment such as utes, water trucks, and ATV's are not expected to generate material noise emissions relative to the above mobile plant.

Based on instruction from the Applicant, other noise sources such as the truck wash, workshop, poultry vocalisation, passenger vehicles and other minor plant and equipment (e.g. amenities

general exhaust fans, air conditioning) are not expected to generate material noise emissions relative to the shed 'wall' fans and vehicle movements around the site.

We consider this to be a reasonable assumption, noting that the noise model already assumes over 320 fans (16 fans per shed) to be operational at the same time.

The following sound power levels were used in our assessment:

tem	Source	dB(A)	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k
BD Blue Fans at 85% Speed (Leq/fan)	QLD Acoustic Report	84 (A)	72	72	72	71	71	74	78	81	81	82	83	81	78	76	74	71	69	69	70	70	70	69	68	68	67	66
Conveyors (Leq)	QLD Acoustic Report	87 (A)	84	84	84	85	85	84	82	81	79	76	74	75	76	76	77	79	80	79	76	75	74	73	71	69	66	64
Tractors (Lmax-passby)	QLD Acoustic Report	108 (A)	102	102	102	103	103	100	95	92	95	100	102	101	99	98	99	101	102	100	95	93	90	86	83	81	80	78
Trucks (incl compost/manure) (Lmax-passby)	Enfield Measurements	103 (A)	88	98	95	95	93	106	102	94	95	92	94	93	94	94	96	97	93	93	92	89	86	83	82	78	76	72
Windrow Turner	Enfield Measurements	107 (A)	110	110	110	111	111	108	103	100	99	99	98	97	97	96	96	96	95	95	94	94	94	96	96	94	92	90
FEL working in stockpile area	Enfield Measurements	108 (A)	101	99	102	109	108	106	104	92	90	94	90	86	85	87	87	87	86	107	86	83	82	82	80	75	73	71
TD620 Trommel	Applicant	109 (A)	95	103	101	100	99	98	98	102	102	103	104	105	107	101	99	98	98	97	98	96	95	94	92	89	88	84

The QLD Acoustic Report provided source noise levels in 1/1 octave band frequencies. To support our sensitivity assessment of low-frequency noise (LFN) impacts, these levels have been interpolated to 1/3rd octave bands. Additionally, source levels have been extrapolated down to 25 Hz, consistent with the lower frequency limit accepted by the modelling software.

The Applicant provided broadband measurement data for the trommel, which was spectrum corrected based on past measurements of similar equipment measured by our office.

4.2 Noise Modelling

To assess the proposal, a 3D computational noise model has been generated using the software package CadnaA to predict noise levels at all sensitive uses identified. It is noted that the software allows for calculations in 1/3rd octave bands down to 25Hz for the purpose of assessing the likelihood of tonal and LFN impacts occurring.

The following inputs and assumptions were included in our noise model:

- All 320 shed 'wall' fans (16 fans per shed) operating simultaneously
- All 20 conveyors operating simultaneously
- Up to 4 semi-truck and trailer movements within the poultry farm in any 1-hour period (as instructed by the traffic engineer), travelling at 20km/hr
- Up to 3 truck movements within the OGN in any 1-hour period (as instructed by the traffic engineer), travelling at 20km/hr
- Up to two tractors operating continuously around the poultry farm, travelling at 20km/hr
- All OGN mobile plant and equipment operating continuously and simultaneously
- Cumulative noise impacts from both the poultry farm and OGN considered in the assessment
- CONCAWE noise modelling algorithm, assuming worst-case wind in all directions (3m/s)
- Land topography data imported from publicly available resources

We consider the above assumptions to be conservative and representative of worst-case conditions.

4.3 Assessment and Recommendations

Based on the assumptions above, the worst-case noise levels at identified sensitive uses were modelled as follows:

Receptor	Effective Noise Level $L_{Aeq-30min}$	Noise Limit	Exceedance/comply?
Receptor 18	26 dB(A)	49 dB(A) – Day 44 dB(A) – Evening 39 dB(A) - Night	✓ Margin of ≥ 13 dB(A)
Receptor 19	21 dB(A)		✓ Margin of ≥ 18 dB(A)
Receptor 20	19 dB(A)		✓ Margin of ≥ 20 dB(A)
Receptor 21	23 dB(A)		✓ Margin of ≥ 16 dB(A)
Receptor 22	21 dB(A)		✓ Margin of ≥ 18 dB(A)
Receptor 23	21 dB(A)		✓ Margin of ≥ 18 dB(A)
Receptor 24	21 dB(A)		✓ Margin of ≥ 18 dB(A)
Receptor 25	18 dB(A)		✓ Margin of ≥ 21 dB(A)
Receptor 26	19 dB(A)		✓ Margin of ≥ 20 dB(A)
Receptor 27	21 dB(A)		✓ Margin of ≥ 18 dB(A)
Receptor 28	26 dB(A)		✓ Margin of ≥ 13 dB(A)
Receptor 29	30 dB(A)		✓ Margin of ≥ 9 dB(A)
Notes	Effective noise level includes +5dB tonal character adjustment (reverse alarms of front-end loaders)		

The results of our noise modelling indicate that noise emissions would comply with the Noise Protocol by a margin of at least **9dB(A)** during the 'Night' period, indicating compliance with the Noise Protocol during the most sensitive period by a significant margin.

Further the compliance margin is expected to be at least 13dB for the majority of sensitive receptors identified in our assessment.

A map of the noise model is presented in Appendix A of this report.

This result is not surprising, noting that sensitive receptors are significantly setback from the proposal. Based on the noise levels modelled, we expect that noise emissions would be inaudible or barely audible at sensitive receptors, noting that background noise levels do not typically fall below 20dB(A), even in the most rural settings.

It is noted that a tonal factor above than 3.4dB was calculated in accordance with Clause 147 of the Noise Protocol, inferring that a tonal character adjustment of+5dB to the effective noise level.

Overall, we are satisfied that there is sufficient conservatism in the noise modelling inputs and compliance margins in the results to conclude that noise emissions from the proposal will likely comply with the Noise Protocol at all times without specific controls.

4.4 Cumulative Impacts

Given that there are other existing industrial or agricultural uses and vacant land adjacent to the Subject Land, a sensitivity analysis of potential cumulative impacts has been considered.

Guidance for the assessment of cumulative impacts has been adopted from EPA Publication 1997, which recommends the following:

> The contribution from an individual site to the noise within noise sensitive areas in rural areas should be no greater than the noise limit minus five decibels (for each period of the day). This 5 dB reduction from the noise limit is provided on the presumption of three premises in the industrial zone will ultimately affect the noise sensitive areas. Where there is a high potential for industry development, to prevent the combined noise from exceeding the noise limits as more industries are developed over time, a lower level may be required.

The results of our assessment indicate that noise emissions from the proposal would still comply with the noise limit minus five decibels, including an additional margin of **4dB(A)**, inferring a low-risk of any cumulative noise impacts occurring.

In effect, the margins predicted indicate that compliance will still be achieved with >8 contributing premises (including any potential future uses), which is unlikely to occur in practice.

While there technically could be other contributing premises (including any potential future industry or agriculture), noise emissions at sensitive receptors will likely be driven by local, immediate uses and the Subject Land would not be a significant contributor given the low noise levels predicted.

To that end, we are satisfied that the risk of cumulative noise impacts from the application is low.

4.5 Low Frequency Noise

EPA Publication 1996 provides the following low-frequency noise (LFN) thresholds:

Table 3: Outdoor one-third octave low frequency noise threshold levels from 10 Hz to 160 Hz

Outdoor one-third octave low frequency noise threshold levels													
One-third Octave (Hz)	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
L_{eq} (dB)	92	89	86	77	69	61	54	50	50	48	48	46	44

Refer to the following table for modelled spectral noise emissions (linear 1/3rd octave bands), which is expected to occur at Receptor 29:

Modelled LFN levels:

	1 /3 Octave Band Centre Frequency, Hz												
Location	**10**	**13**	**16**	**20**	**25**	**32**	**40**	**50**	**63**	**80**	**100**	**125**	**160**
Receptor 29 (worst-case)					30	30	30	33	32	30	22	19	18
LFN Threshold	92	89	86	77	69	61	54	50	50	48	48	46	44
Comply?	N/A	N/A	N/A	N/A	Y	Y	Y	Y	Y	Y	Y	Y	Y
Compliance Margin					39	31	24	17	18	18	26	27	26

Based on the results above, LFN noise impacts above 20Hz are expected to comply by at least 18dB.

This suggests a low-risk of adverse LFN impacts occurring above 20Hz, noting that the margins predicted assumes activities occurring simultaneously and cumulatively within all areas.

While the modelling software cannot predict noise levels below 25Hz, the assessment above indicates a low-risk of LFN thresholds being exceeded at 20Hz and below given that:

- The plant and equipment proposed peak at frequencies greater than 25Hz
- The compliance margin predicted at 25Hz is 39dB, which is significant
- There is an upward trend in LFN threshold criteria below 25Hz. The proposed plant and equipment are not expected to generate significant low-frequency noise emissions (particularly below 25Hz). This suggests that compliance margins at frequencies below 20Hz are likely to be even greater than those at 25Hz.

On this basis, we are satisfied that the Subject Land is unlikely to result in adverse LFN noise impacts, which is an expected outcome given that the nearest dwellings are >1km away.

4.6 General Environmental Duty (GED)

Under the Environment Protection Act 2017, any agricultural use is required to fulfil its General Environmental Duty (GED). In effect, the GED requires that environmental impacts are minimised if considered reasonable and practicable to do so.

The core principles of the GED relate to the control of noise where:

1. It is practicable to do so, which amongst other factors, includes the cost of these controls being implemented; and
2. It is reasonable to do so, typically meaning there would be some benefit to impacted receptors if those controls were implemented.

Regarding point 1 above, this is not normally a matter that can be addressed by an acoustic expert; however, we note that there may be some benefit if the Applicant is able to demonstrate that either:

- The cost of implementing additional controls would be significant to the business.
- Implementing additional controls would result in unreasonable operational constraints

Guidance on what is reasonably practicable is also provided in EPA Publication 1856, which requires the consideration of six factors (see below).

1. **Eliminate first:** Can you eliminate the risk?
2. **Likelihood:** What's the chance that harm will occur?
3. **Degree (consequence):** How severe could the harm be on human health or the environment?
4. **Your knowledge about the risks:** What do you know, or what can you find out, about the risks your activities pose?
5. **Availability and suitability:** What technology, processes or equipment are available to control the risk? What controls are suitable for use in your circumstances?
6. **Cost:** How much does the control cost to put in place compared to how effective it would be in reducing the risk?

Our office has prepared commentary to address the above factors, as follows:

Item	Commentary
Eliminate First	The facility relies on plant and equipment to operate and noise emissions cannot be eliminated entirely. It may be possible to eliminate tonal alarm noise for on-site mobile plant, where practicable to do so and where not otherwise required by safety provisions. Where possible, replace emergency beepers with broadband alarms.
Likelihood	The likelihood of harm occurring is low, given that noise emissions are significantly below the Noise Protocol limits
Degree	The degree of harm occurring is low, given that noise emissions are significantly below the Noise Protocol limits. Our view is that the context of the site is particularly well suited for the operation proposed, given that it is already sited within a Farming Zone and is well setback from sensitive uses.
Knowledge About the Risks	The Subject Land is reasonably separated from nearby sensitive receptors, with the closest located over 1 km away. Additionally, our assessment draws on data from a comparable poultry farm currently operated by the Applicant in Queensland. This elevates the state of knowledge regarding the proposed development, which is operationally similar, albeit a scaled up version of the existing site. As such, this provides a reliable basis for assessment and reduces the risk of inconsistent or inaccurate assumptions in the noise modelling.
Availability and Suitability	Generally, newer plant and equipment relies on more current technologies as a general approach to improving the efficiency of the operation.

	This inherently compliments efforts in reducing noise impacts as newer equipment tend to have lower noise emissions, compared to older equipment with older technologies
Cost	Given that noise emissions are expected to comply by significant margins, we do not consider that any cost imposition for mandatory mitigation to the Applicant would be reasonable in this context, as the risk of impact has already been sufficiently addressed.

In efforts to further demonstrate compliance with the GED however, several basic measures can be considered by the Applicant, including:

- Installing broadband squawker alarms to all mobile plant to eliminate the risk of tonality impacts where practicable to do so and where not otherwise required by safety provisions.
- Turning off engines and/or equipment when not in use
- Selecting 'low-noise' options for equipment where available

The above is considered general guidance to further minimise the risk of harm, however as above, the practicality of the implementation of the above recommendations is outside the scope of an acoustic expert as it may result in unsatisfactory operational constraints and/or not be reasonably practicable.

5 Conclusion and Recommendations

Enfield Acoustics is satisfied that the poultry farm and composting facility proposed at 192 Baillieu Road, Torrumbarry (Subject Land) can be approved. We assess that the use is expected to comply with the Noise Protocol by significant margins under conservative assumptions, inferring the low-risk nature of the use.

On this basis, we are satisfied that specific acoustic mitigation measures or controls are not necessary beyond compliance with the Regulations and the Noise Protocol, which are statutory requirements enforceable by the EPA irrespective of any planning controls.

Our sensitivity analysis indicates that there are sufficient compliance margins to mitigate potential cumulative noise impacts from existing and/or future industrial/agricultural activities surrounding the Subject Land.

Low-frequency noise impacts have been assessed to comply with the relevant thresholds by significant margins, indicating a low risk of adverse LFN impacts.

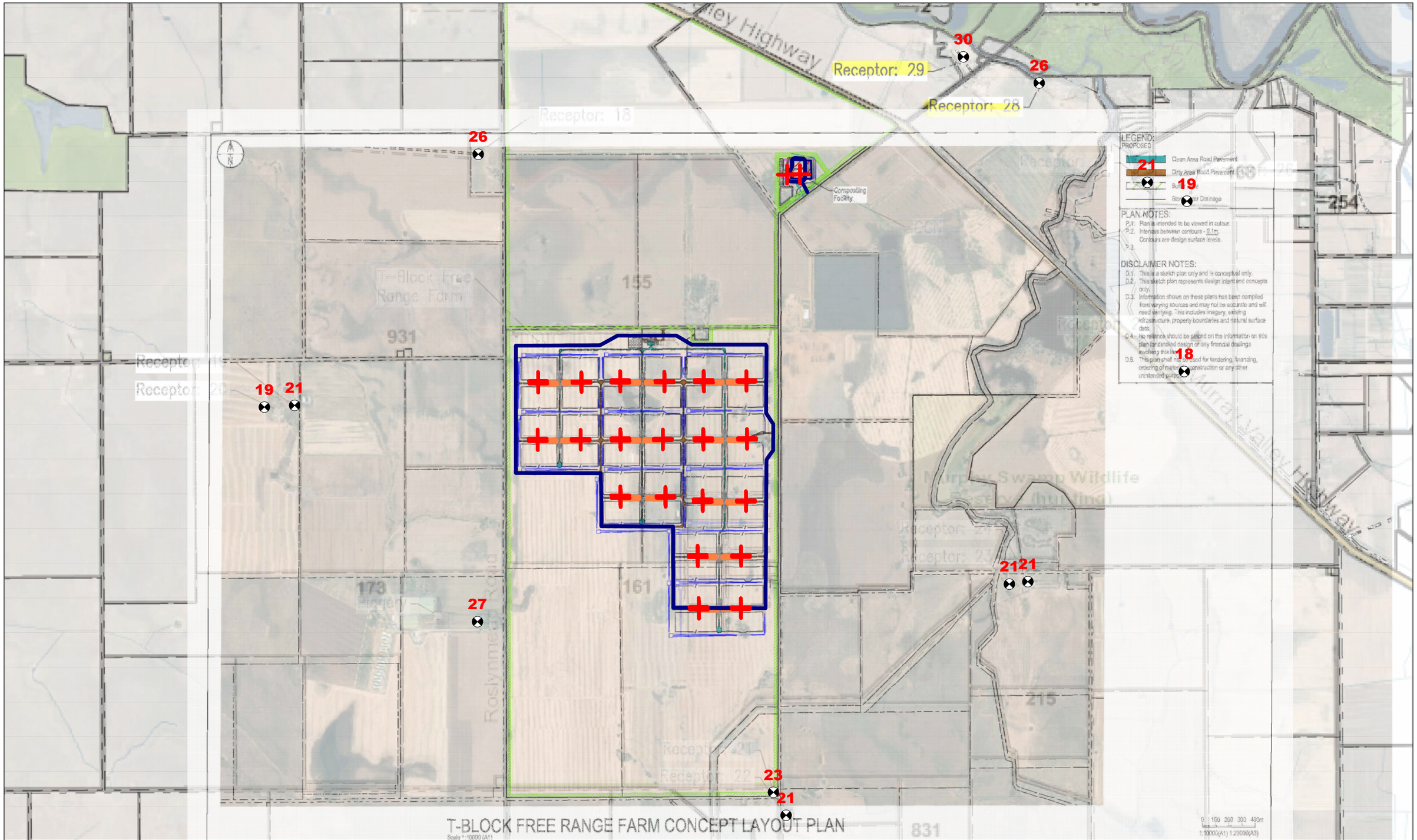
Additional measures to satisfy the requirements of the GED have been presented in Section 4.6, however, it is tentative whether any mitigation would be considered reasonably practicable when noise emissions are already expected to be significantly below Noise Protocol limits.

Overall, the siting of a poultry farm and composting facility on the Subject Land is appropriate given that any noise emissions are reasonably distance-attenuated, noting that the nearest sensitive receptors are >1km away from any proposed noise sources.

On this basis, we are satisfied that the proposal can be approved with the following condition:

1. Noise emissions from the land shall comply with the Environmental Protection Regulations 2021 and EPA Publication 1826 – Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues at all times.

Appendix A: Noise Modelling Map



Legend:

- Point Source
- Line Source
- Area Source
- Crossing
- Building
- Receiver

Scale: 1: 27689 @ A3

McLEAN FARMS

ENFIELD ACOUSTICS NOISE VIBRATION

NOISE EMISSIONS LEVELS - CAGE FREE AND OGN

LAeq-30min Noise Levels

Noise Protocol Assessment - Day/Evening/Night

Noise level includes +5dB tonal character adjustment

Project No: V2294 Drawing No: MAP-01 Date: 31.10.2025

NOTES:

*Propagation in accordance with CONCAWE