13th May 2021

For the attention:
Liam Jukes
Senior Planner – Major Assessment
City Development Branch
Council of City of Gold Coast

Dear **Liam Jukes,**

Objection submission COM/2019/81 -

Environmental Authority EA0002207 Noise Limits will be exceeded for foreseeable future

Please accept this objection as it highlights that the noise limits set by the new Environmental Authority EA0002207 (issued to replace the existing Environmental Authority EPPR00245613) cannot be met by the applicant (as proven by their submitted development application).

The noise limit for the Oxenford Quarry for noise measured at a *'Noise sensitive place'* is 45 dB(A) $L_{Aeq, adj}$ between the hours of 7am and 6pm; and 30dB(A) $L_{Aeq, adj}$ between the hours of 10pm and 7am (as reproduced in Attachment A1).

It is noted a 'Noise-sensitive place', as defined by DES, Noise and vibration guideline includes the following (Attachment A2):

a). A dwelling

f). A protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest, under the Nature Conservation Act 1992.

g). A marine park under the Marine Parks Act 2004.

h). A park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment.

The submitted noise plans for the first twenty years i.e. Stage 1 (Years 0 to 19 as shown in attachment A3) is reproduced in Attachment A4.

Residential Homes will be subjected to noise levels above the Environmental Authority limits

The submitted noise plan shows clearly that 'noise sensitive places' in the form of 'Dwellings' (residential homes) in the west will receive noise levels above the upper limit of 45 dB(A) as specified in the Environmental Authority (reproduced in Attachment B1).

Attachment B2 is a Google Earth view highlighting that the following homes are all guaranteed (according to the submitted DA noise plan, Attachment B1) to receive noise levels above the Environmental Authority upper limit:

- 8 Sherman Drive
- 10 Sherman Drive
- 12 Sherman Drive
- 3 Sherman Drive
- 5 Sherman Drive
- 7 Sherman Drive
- 9 Sherman Drive
- 11 Sherman Drive
- 13 Sherman Drive
- 15 Sherman Drive
- 17 Sherman Drive
- 19 Sherman Drive
- 1 Amanda Street

How can this development application ever be approved when, on its own omission, it cannot meet the required Environmental Authority EA0002207 noise limits for dwellings in the area?

Public Areas will be subjected to noise levels above the Environmental Authority limits

Public areas will also be subjected to noise levels above the environmental Authority as shown in Attachment C1.

For instance, the Coomera Freshwater lake, regularly used by swimmers (Attachment C2) and fishermen (Attachment C3), is a mere 120 m approx from the proposed extractive footprint, will be subjected to noise levels way above the noise limit of 45 dB(A) at up to 52 dB(A).

Similarly, the Council owned Oxenford Community Pony Club (Attachment C4) will also be subjected to noise levels way above the noise limit of 45 dB(A) at up to 52 dB(A).

These are all, I believe, 'Noise sensitive places' covered by: "*h). A park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment"* (Attachment A2).

Also, '241 Tamborine Oxenford Road', an open space zoned lot, not owned by the applicant, but adjacent to the proposed extractive footprint will also be subjected to noise levels way above the noise limit of 45 dB(A), at up to 52 dB(A), as shown in attachment C1.

How can this development application ever be approved when, on its own admission, it cannot meet the required Environmental Authority EA0002207 noise limits, as specified in Attachment A1, for publically accessible 'noise sensitive places'?

Lot 906 will be subjected to noise levels well above the Environmental Authority limits

Lot 906, the 'Quarantined Land' area (identified in attachment D1), to the east of the proposed extractive footprint, will be subjected to noise levels above the environmental Authority EA0002207 as shown in Attachment D2.

However, it is part of the 'Hinterland to coast critical corridor' i.e. it identifies corridors that connect large areas if intact native vegetation in the City's west to coastal areas in the east (Attachment D3). It is also identified as 'Core Koala Habitat area' (Attachment D4 and attachment D5).

This is a 'Noise sensitive place' covered, I believe, by: "*f). A protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest, under the Nature Conservation Act 1992"* (Attachment A2).

How can this development application ever be approved when, on its own omission, it cannot meet the required Environmental Authority EA0002207 noise limits, as specified in Attachment A1, for 'noise sensitive places'?

Noise Control Measures

It is noted that in the development application 'Noise and Dust' submission that the Noise modelled results already assume: *"Acoustic treatment of the primary (jaw) crusher to achieve a minimum 5 dB(A) noise reduction"* and *"Acoustic treatment of Screen 1 to achieve a minimum 5 dB(A) noise reduction"* (Attachment E1). Thus, it would seem, even with proposed *"Acoustic treatment[s]"* applied, the applicant cannot achieve the Environmental Authority EA0002207 noise levels requirements.

Noise Levels Exceeded above Environmental Authoriy Limits EA0002207 Confirmation

From above it is clear to see the noise levels will be above the Environmental Authority limits of 45 dB(A) from the applicants submitted: *"Noise and dust assessment"*.

However, using a third party noise source calculator it is possible to easily confirm these limits will be exceeded at the residential homes to the east (Sherman Drive). Especially give the fairly flat and unimpeded topography between the quarry concrete plant and main processing plant and Sherman Drive, with no buffers or hills to impede the noise propagation (as can be seen in Attachment F1).

From the DA, the level of noise output from the concrete plant will be 115 dB(A) (as shown in attachment F2).

From the DA, the level of noise output from the Main Processing Plant is 123 dB(A) (as shown in attachment F3).

An overview of these locations are shown in Attachment F4.

Based on just the output from the Concrete Plant, using the noise calculator, it can be seen that the noise level at Sherman Drive will be above the EA limit of 45 dB(A) at 47 dB(A) (*'Source 1'* in Attachment F5).

Further, based on just the output from the Main Processing Plant (and assuming the 5 dB(A) noise suppression has been added to reduce the noise output from 123 dB(A) to 118 dB(A) as described in attachment E1), it can be seen that the noise level at Sherman Drive will be above the EA limit of 45 dB(A) 48 dB(A) (*'Source 2'* in Attachment F5).

The combination of these two noise sources (Concrete Pant and Main Processing Plant) will be further increased to an estimated 51 dB(A) (*'Combining Sources'* in Attachment F5). Which is well above the EA 45 dB(A) limit (Attachment A1).

Please note this is not including any haulage trucks, concrete trucks, rock drilling or loaders operating which will all further add to the cumulative total.

It would seem the Environmental Limit of 45 dB(A), even allowing for 'planned' noise suppression (Attachment E1), cannot be achieved at the closest noise sensitive residential areas to the east. Obviously, the public areas highlighted above, would be subjected to even higher levels of noise above EA limits as they are far closer.

<u>Noise Nuisance contra to Gold Coast City Plan 9.3.8 Extractive Industry zone</u>

It is not only extremely worrying to note, just the Concrete Production plant will exceed the Environmental Authority limit on a constant basis but also it has been bestowed by the Council the beneficial operating hours beginning at 4am (October to April) and 5am for the remaining five months (Attachment G1).

This, I believe, is contra to the clear requirements of Gold Coast City Plan 9.3.8. Extractive Industry Code which states in Performance Outcome PO6: *"Activities undertaken on site are conducted within appropriate hours to minimise nuisance to adjoining and surrounding development"* (Attachment G2). Clearly operating at this early hours of 4am/5am will be a "*nuisance to adjoining and surrounding development"* that are affected by noise levels above the EA limit.

Also, Acceptable Outcome AO6.1 states: *"Extracting, crushing and screening operations, loading of materials and maintenance only occur within the following hours: Monday to Friday: 7:00am - 6:00pm"* (Attachment G2). It would seem, as discussed in earlier objections, that the Concrete Production / Batching facility has no place within an Extractive Industry zone as it is not an ancillary quarrying operation covered by any of the categories: *"Extracting, crushing and screening operations, loading of materials and maintenance"* and it is clear operations within an *'Extractive Industry zone"* should be limited to *"Monday to Friday: 7:00am - 6:00pm"*. There is no other acceptable outcome.

<u>Noise Nuisance pre 7am (contra to Gold Coast City Plan 9.3.8 Extractive Industry zone and EA 0002207)</u>

It should also be noted, in combination with the City Plan 9.3.8 Extractive Industry zone requirements: *"Activities undertaken on site are conducted within appropriate hours to minimise nuisance to adjoining and surrounding development"* (Attachment G2), that the Environmental Authority has separate noise limits from 10pm to 7am. This being 30 dB(A) (as shown in Attachment A1).

Unfortunately the submitted sound plan modelling does not differentiate between time of the day so it is up to us to establish the compliancy pre 7am.

Between the hours of 4am (or 5am May-Sep) and 7am it is proposed that the Concrete production / batching plant will be in operation (and associated haulage trucks, loaders and concrete trucks) as shown in DA submission (reproduced in Attachment G1). It is claimed in the DA that the sound output from the Concrete plant will be 115 db(A) (attachment F2). This is 671 metres from the closest residential 'noise sensitive places' (these being homes in Sherman Drive, Upper Coomera) for proposed stages 1 to 5 (first 37 years of operation - attachment A3). From the noise calculator it can easily be established that the approximate noise level will be in the region of 47 dB(A) at the 'noise sensitive places' (ignoring the truck output and any other cumulative output). This is way above the 30 dB (A) noise limit between 10pm and 7am.

It would seem absolutely impossible to approve this Development Application given the extent of noise level non-compliance before 7am (assumed to be in the region of 47 dB(A) as opposed to the EA0002207 30 dB(A) limit) especially with respect of the City Plan requirements for Extractive Industry zone (9.3.8) which states: *"Activities undertaken on site are conducted within appropriate hours to minimise nuisance to adjoining and surrounding development"* and 'Acceptable Outcome AO6.1' which states: *"Extracting, crushing and screening operations, loading of materials and maintenance only occur within the following hours: Monday to Friday: 7:00am - 6:00pm"* (Attachment G2).

Stage 6 onwards, Year 38 to 100 plus years ('Noise sensitive places' to the east)

From Stage 6, the Main Processing Plant and the Concrete Production Plant are to be moved to the North end of the extractive footprint (as shown in the *'Visualisation Stage 6 layout plan'* Attachment H1).

The submitted Noise Plan for Stage 6 is reproduced in Attachment H2. However, comparing the position of the Concrete Plant in attachment H1 and attachment H2 it can be seen that the noise plan has the concrete production plant in the wrong location and is in fact approximately 60 metres further left than it should be (Attachment H3). As in this location it would impede on the car parking area (Attachment H4) I assume the correct position is as shown in the *'Visualisation Stage 6 layout plan'* (Attachment H1).

However, this means the Concrete production / batching noise source will be 260 metres from the closest *'noise sensitive places'*, i.e. homes in Rosewall Place, as opposed to what would seem like a modelled 320 metres.

I have modelled the respective differences (Attachment H5). It is interesting to note that the difference between the 'Noise plan for Stage 6' position for the concrete plant produces an estimated 54 dB(A) (Attachment H5) whereas the, what I believe is the correct proposed location, generates a higher estimated 56 dB(A) (Attachment H5). When the Main Processing Unit is also combined the estimated Noise levels at Rosewall Place will be a massive 59 dB(A) (Attachment H5). However, please note this is not including any of the haulage trucks or concrete trucks or loaders operating in the area.

It is noted that these calculated levels are far, far higher at *'noise sensitive places'* shown on Stage 6 Noise Plan (Attachment H2). My calculations indicate 59 dB(A) whereas submitted plan shows this to be less than 40 dB(A). A considerable difference. I note there is a degree of topography between the extractive footprint and the *'noise sensitive places'*, however, I do not believe it will result in such a

major difference as claimed, especially with no noise restraining buffers utilised over a distance of only 260 metres (approx).

EA noise limits 10pm-7am

Also, it should be remembered, for the concrete production / batching plant, the proposed operating hours begin at 4am (or 5am May-Sep) within 260 metres of the residential *'noise sensitive places'* in Rosewall Place, Oxenford (Attachment G1). The Environmental Authority EA0002207 specifies a noise limit of 30 dB(A) between the hours of 10pm and 7am (Attachment A1) whereas the predicted noise levels at this location will be in the region of 56 dB(A) (attachment H5) which does not include the concrete trucks and/or loaders operating at this time also. I really do not see how this can be seriously considered.

Stage 6 onwards ('Noise sensitive places' to the west)

Similar to the misplaced Concrete plant in Stage 6, highlighted above, it would appear the Main Processing Plant (Crusher, screener etc.) is also misplaced further away from the Tamborine -Oxenford Road and the Coomera River Freshwater lake than the *'Visualisation Stage 6 layout plan'* (Attachment H1) would indicate (Attachment I1). This, approximate 60 metres further away from *"noise sensitive places"* to the west, would again, I believe, affect the modelled noise results (Attachment H2). I can only assume the modelled noise results would have been even further non-compliant than they already are for the noise sensitive places in the west too.

Conclusion

It is clear from the cases discussed above that this proposed development application cannot meet the noise limit requirements bestowed on it by way of Environmental Authority EA0002207 for Stage 1 (Years 0 to 19). This is clearly proven in the noise plan submitted as part of the DA (Attachment A4).

Unfortunately, Stages 2-4 (Years 20 to 34) are not revealed as part of the development application, but, stage 5 clearly shows similar pattern of failure to meet the required noise limits in residential homes, community parks and public parks and the 'Core Koala Habitat area' as shown in Attachment J1.

I believe the applicants failure to be able to meet EA0002207 noise limits were easily confirmed by using a third party noise calculator. Thus, it can be confirmed that noise limits cannot be met at: *"noise sensitive places"* (e.g. Sherman Drive, Oxenford Pony Club, etc.) for the first 38 years of operation (Stages 1 to 5). From Stage 6 onwards (years 39 to 100 years plus) residential homes to the North will be adversely affected when the Main Processing Plant and Concrete Plant etc. move to within a couple of hundred metres from their homes.

Although not discussed within the development application, it has, I believe, become abundantly clear the noise level from the Concrete Production / Batching plant will always exceed the Environmental Authority noise limits of a maximum of 45 dB(A) during normal extractive Industry operating hours (Attachment G2) at *"noise sensitive places"*. However, the proposed starting time of 4am (5am May to Sept), as shown in attachment G1, sees the Environmental Authority limit of a maximum of 30 dB(A)

applied (Attachment A1) i.e. 10pm-7am. It is, I believe, clear, that this limit cannot be met throughout the one hundred plus years planned duration.

I can only assume that at no time in the applicants 100 year proposed extension and expansion development application plan will Noise limits be met at *"noise sensitive places"* as clearly required by the DES and their Environmental Authority EA0002207.

In summary, I believe, it would be absolutely untenable to approve this development application given the applicants seeming complete failure to be able to meet the clearly defined Environmental Authority EA0002207 requirements for noise limits of 45 dB(A) at 'noise sensitive places' surrounding the proposed extractive footprint during normal operating hours for extractive Industry (as per City Plan 9.3.8). Moreover, the Environmental Authorities requirements for a maximum of 30 dB(A) between 10pm to 7am (Attachment A1) would, it would seem, prevent the Concrete production / batching operations from operating outside the City Plan Extractive Industry zone operating hours also.

Thank you in anticipation,

Kind regards

Tony Potter

* Disclaimer. Please note my findings are believed correct and are to the best of my ability. However, there may be errors and assumptions I have made that are incorrect. I do not believe this to be the case, but, realise with the vast amounted of submitted data from the applicant, errors and assumptions on my part may occur. Hopefully this is not the case, but please accept my apologises if this is so. Thank you.

Attachment A1 - Environmental Authority EA0002207 Schedule 3, Condition E3, Noise Limits

Environmental authority EA0002207

Agency interest: Noise **Schedules E**	
Condition	**Condition**
E1	Noise from the activity must not cause an environmental nuisance at any noise sensitive place.
E3	Noise from the activity must not exceed the limits specified in *Schedule E – Table 4 (Noise limits).*

Schedule E – Table 4 (Noise limits)

Noise level dB(A) measured as	*Monday to Saturday*			*Sundays and public holidays*		
	7am–6pm	*6pm–10pm*	*10pm–7am*	*10pm–9am*	*6pm–10pm*	*10pm–9 am*
	Noise measured at a ***'noise sensitive place'***					
$L_{Amax\ adj,\ T}$	N/A	N/A	49 dB(A)	N/A	N/A	49 dB(A)
$L_{Aeq,\ adj,\ T}$	45 dB(A)	35dB(A)	30 dB(A)	40 dB(A)	30 dB(A)	30dB(A)

Associated monitoring requirements

1. All monitoring devices must be calibrated and maintained according to the manufacturer's instruction manual.
2. Any monitoring must be in accordance with the most recent version of the administering authority's *Noise Measurement Manual*.
3. Any monitoring of noise emissions from the activity must be undertaken when the activity is in operation.

Attachment A2 - DES definition of a 'Noise sensitive place'

Noise and vibration from blasting

Noise-sensitive place means any of the following places:

a) a dwelling

b) a library or an educational institution, including a school, college or university

c) childcare centre or kindergarten,

d) a hospital, surgery or other medical institution

e) commercial and retail activity

f) a protected area, or an area identified under a conservation plan as a critical habitat or an area of major interest, under the *Nature Conservation Act 1992*

g) a marine park under the *Marine Parks Act 2004*

h) a park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment.

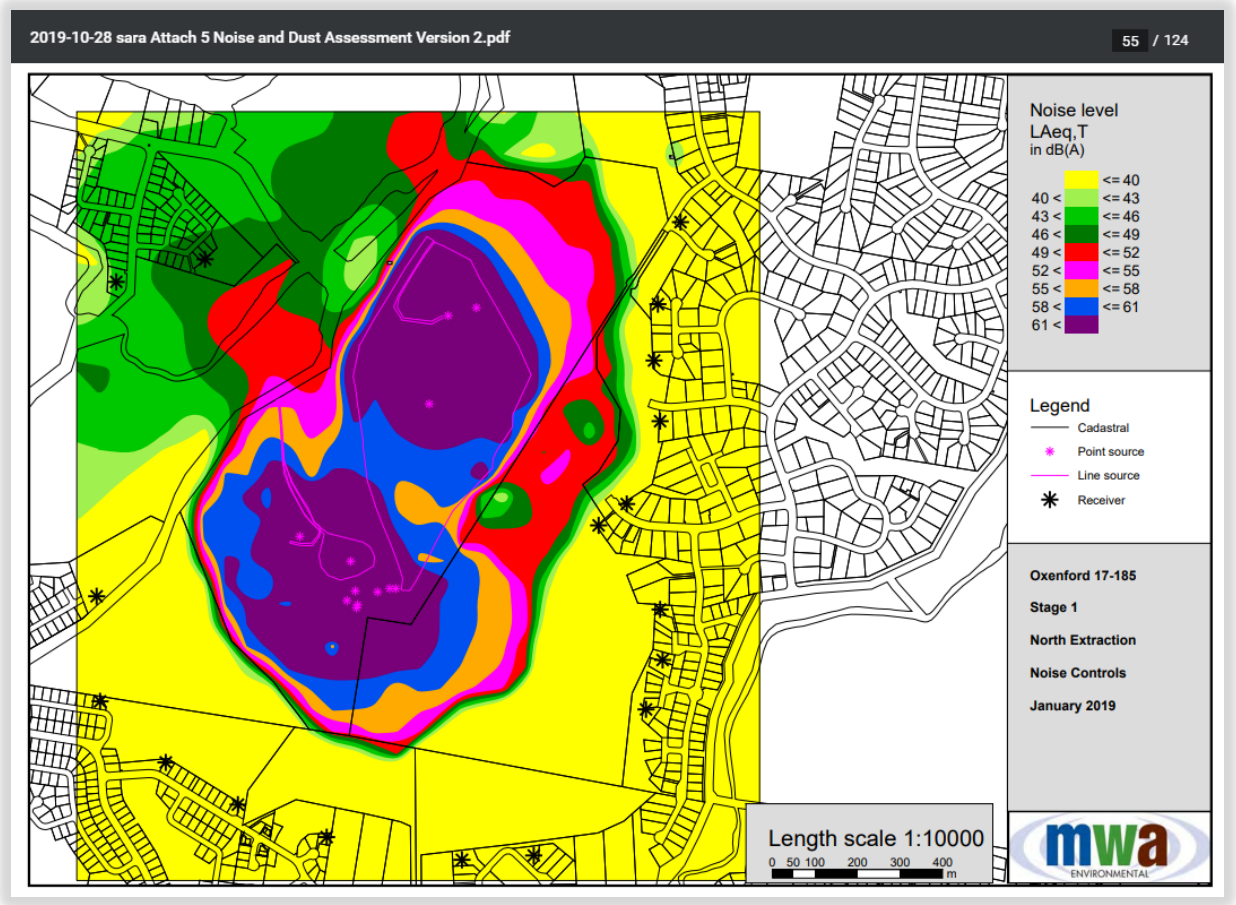
Attachment A3 - Development application Proposed Timescale Stage 1 - 0 - 19 years

Development Application MCU Proposed Timescale:

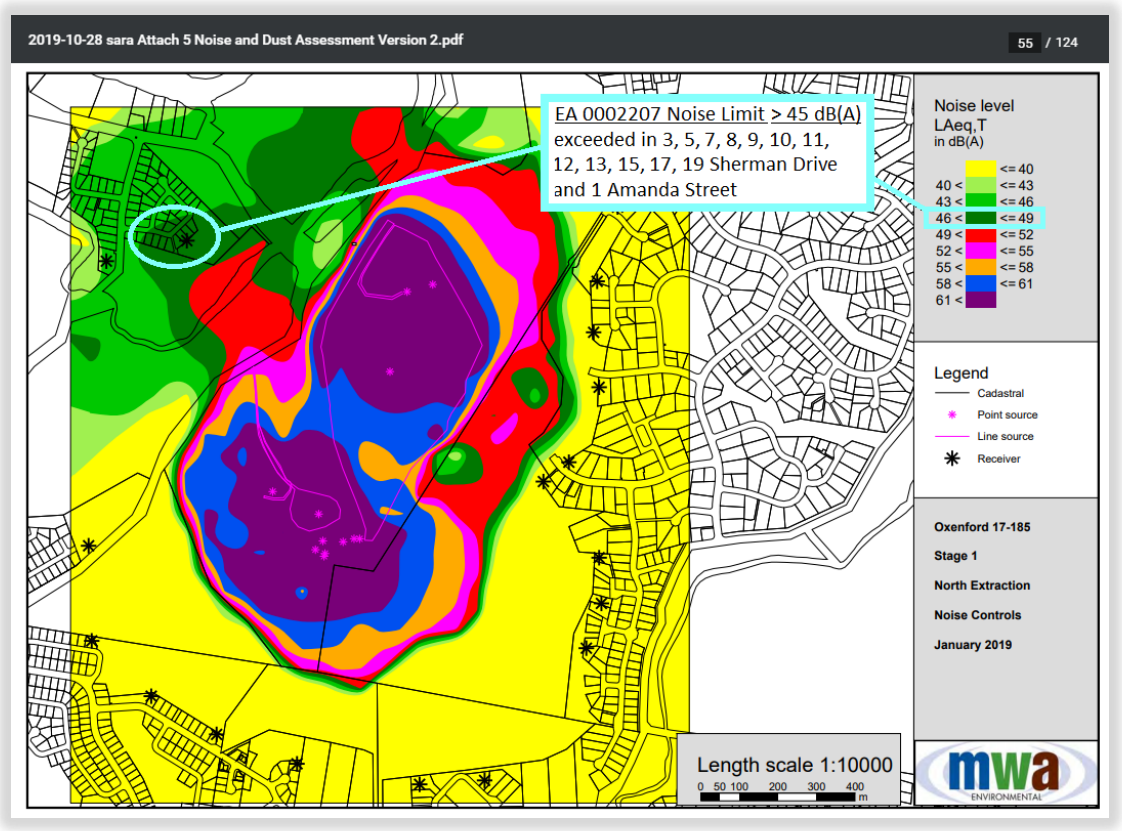
The extraction will be staged over the life of the quarry operation, which is likely to continue for approximately 100 years. The staging sequence for pit development and, hence, subsequent rehabilitation, will be dependent on resource demand and cannot be forecast accurately for the life of the quarry. Estimated (subject to change) stage timing for the development of the pit is as follows:

- Stage 1 - Year 0 to 19
- Stage 2 - Year 19 to 25.
- Stage 3 - Year 25 to 30.
- Stage 4 - Year 30 to 34.
- Stage 5 - Year 34 to 37.
- Stage 6 - Year 37 to 40.
- Stage 7 - Year 40 to 96.
- Stage 8 - Year 96 to 100+.
- Stage 9 - Year 100+.
- Stage 10 – Rehabilitated.

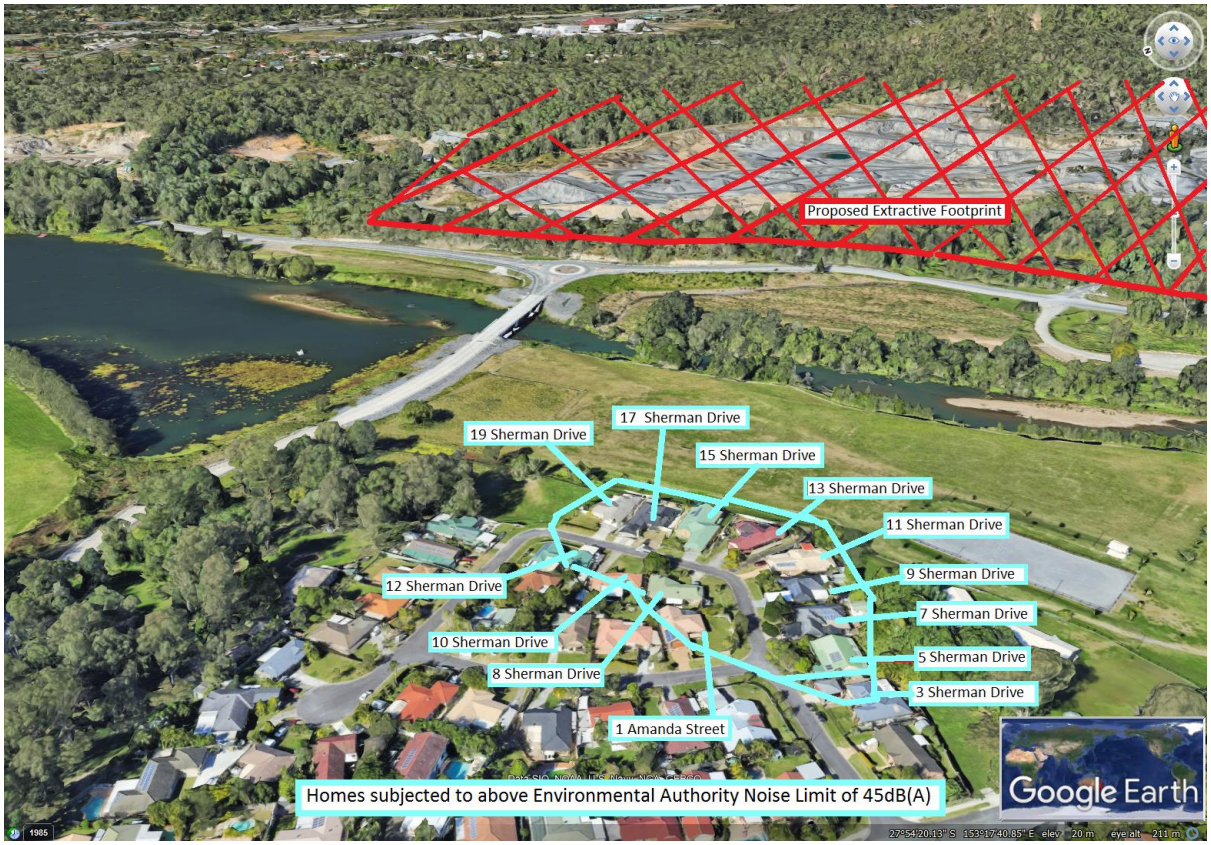
Attachment A4 - Noise Level Map Stage 1 (Years 0 - 19)



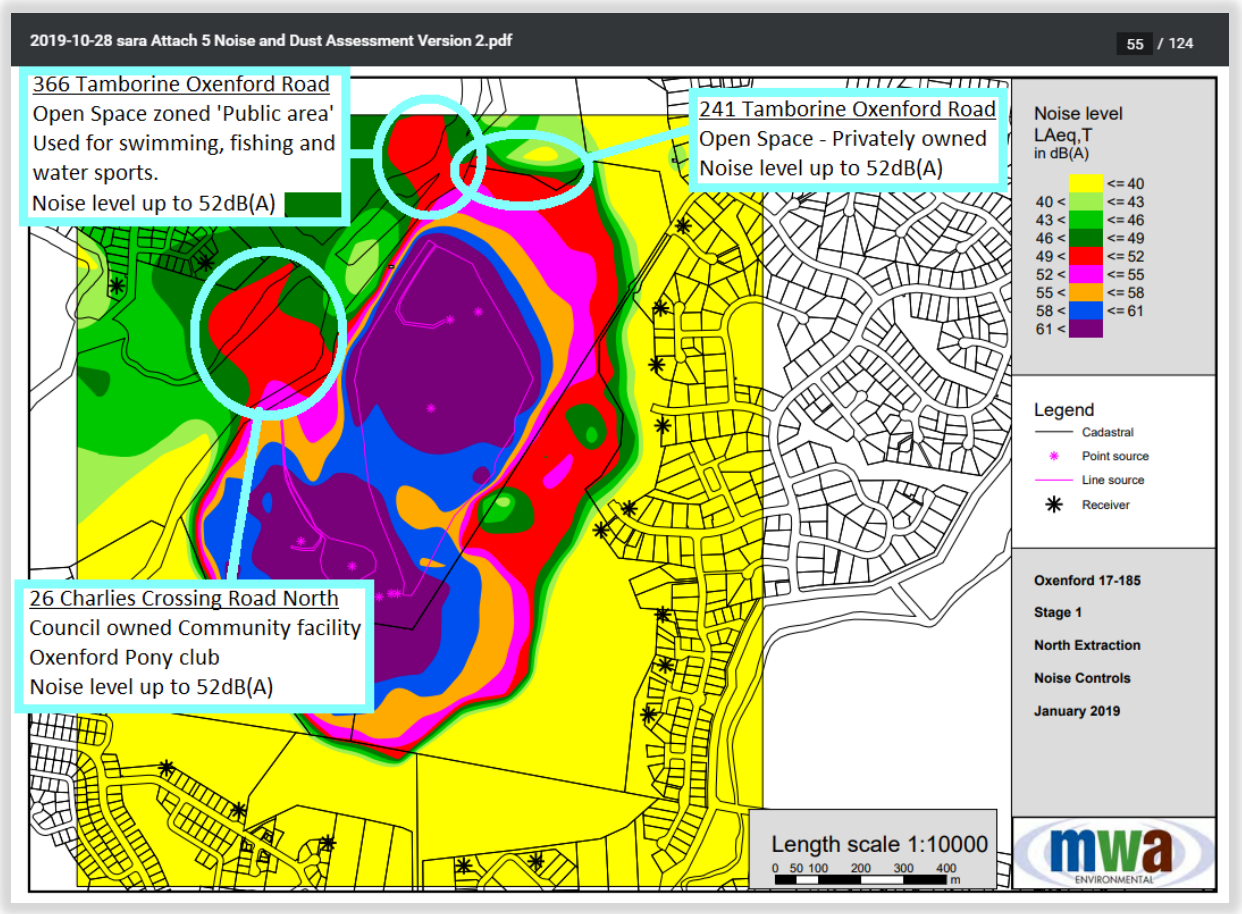
Attachment B1 - Noise Levels in Residential areas above Environmental Limit (45 dB(A))



Attachment B2 - Noise Levels in Residential areas above Environmental Limit (45 dB(A))



Attachment C1 - Noise Levels in Surrounding areas well above Environmental Limit (45 dB(A))



Attachment C2 - Coomera Freshwater Lake - Used by swimmers (within 120m of extractive footprint)

Attachment C3 - Coomera Freshwater Lake - Used by fisheman (within 120m of extractive footprint)

Attachment C4 - Oxenford Community Pony Club (Noise limit well above Environmental Limit)

Oxenford Pony Club

Oxenford Pony Club is situated in Charlies Crossing Road North, Upper Coomera at the northern end of the Gold Coast.

Joining Oxenford Pony Club

2020 Membership costs
First family riding member (includes ground levy & insurance): $335.00
Additional no riding family member: $35.00
Additional riding family member: $100.00
Single rider (includes ground level & insurance): $300.00
Single Social: $60.00
Day membership: $7.00

Current members wishing to sign up will need to go online to join membership . their current account with member No. and password. New members can also online before the first rally. Just follow the link below
https://ponyclubqld.com.au/

About Oxenford Pony Club

Oxenford Pony Club was formed on 29 July, 1974 with the founding members being Mrs Mary Todd and Mr Colin Meagher, and was established at grounds on Oberon Way, Oxenford.

During 2010 the Council advised the Club they were to relocate to grounds at Charlies Crossing Road North, Upper Coomera and with the help and support of grants and members of the community and club, the current grounds were built over the course of about 2 years. The Club took up residence in October 2012.

A wonderful clubhouse and outbuildings for equipment were built above the floodline, and a huge enclosed arena with surrounding mound and extensive flat areas were developed to the banks of the Coomera River.

There are also 16 day yards, a 20 metre round yard and two wash bays. During 2013 the club acquired undercover day yards and lighting from the former Parklands site, with the assistance of the Gold Coast City Council. These were erected in 2014. With the assistance of a Grant, during 2016 night lighting was erected over the arena and some parts of the parking area, and this has enabled the club to hold night rallies during the warmer months. Additional shed storage for equipment and trailers was also erected.

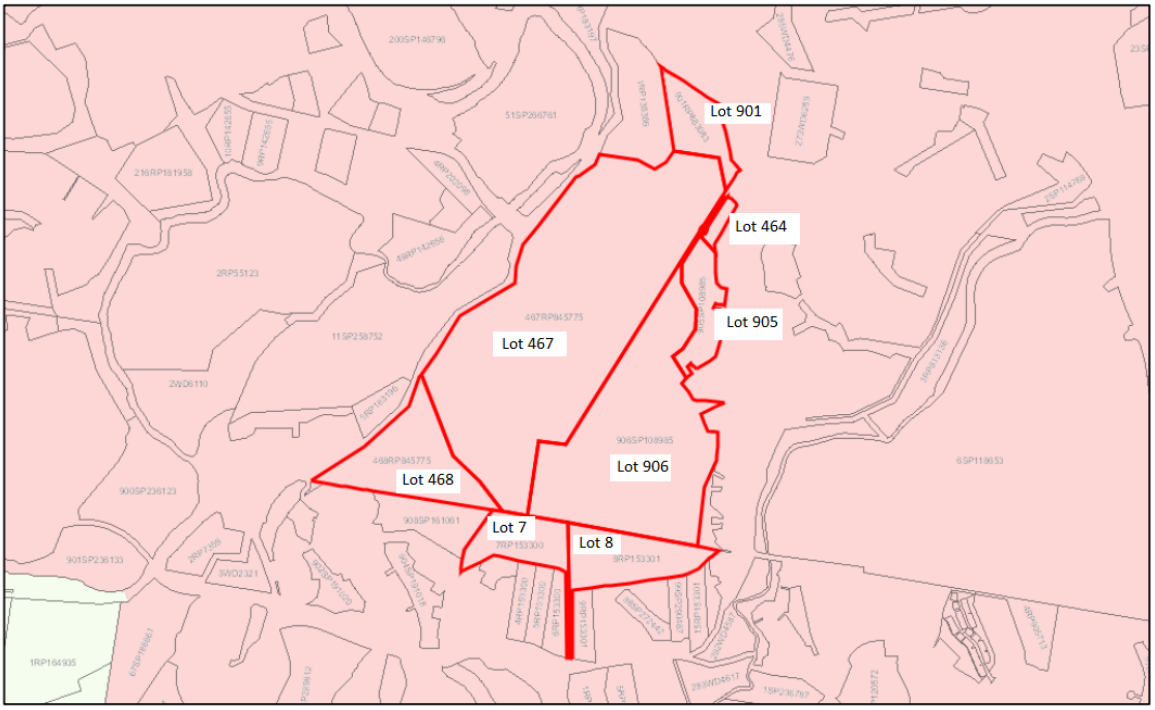
Oxenford Pony Club caters for riders who bring their own horses and participate in all disciplines, from beginners to experienced, with age groups from young to old. We are not a riding school, therefore do not provide horses for lessons or rides.

Gold Coast City Council

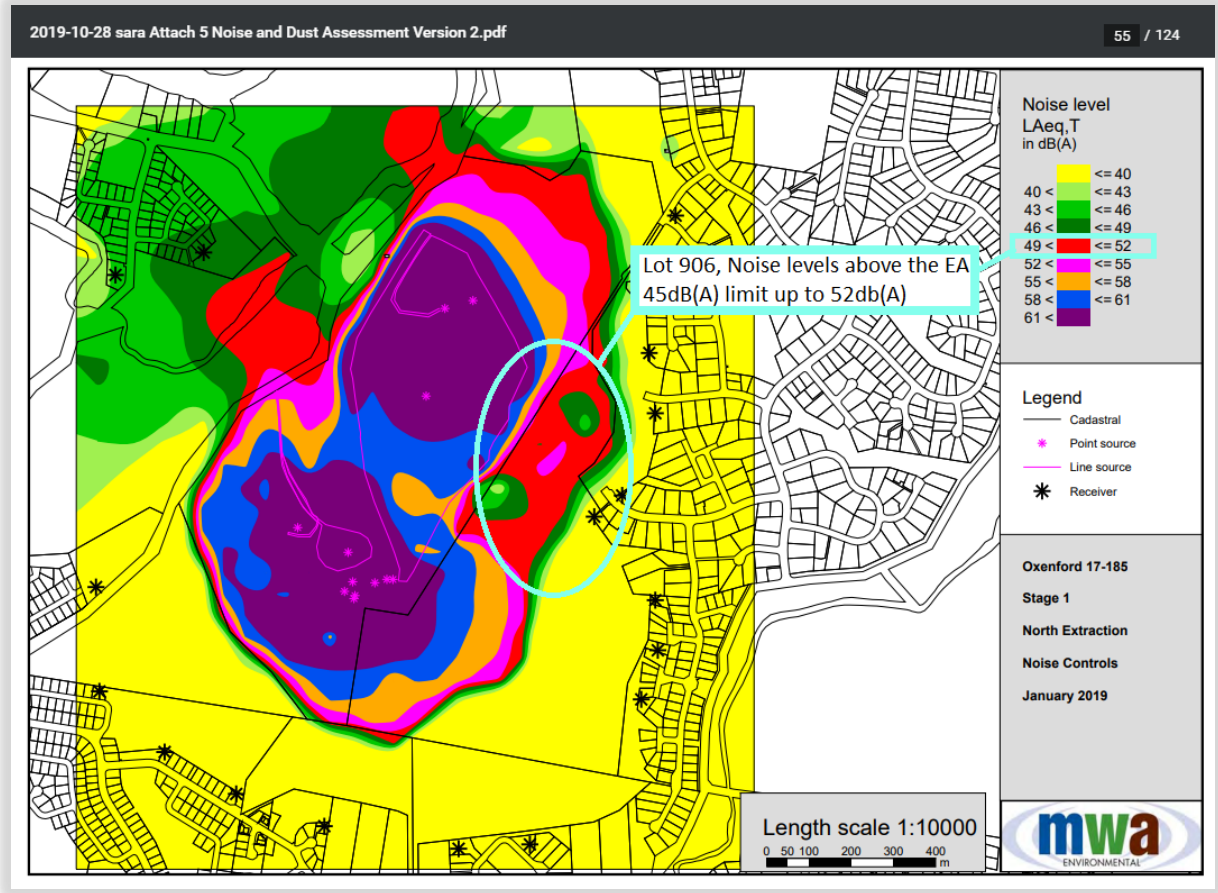
Queensland Government

Oxenford Pony Club is based on community grounds at Upper Coomera and is supported by the Gold Coast City Council and the Queensland Government.

Attachment D1 - Lot Identification

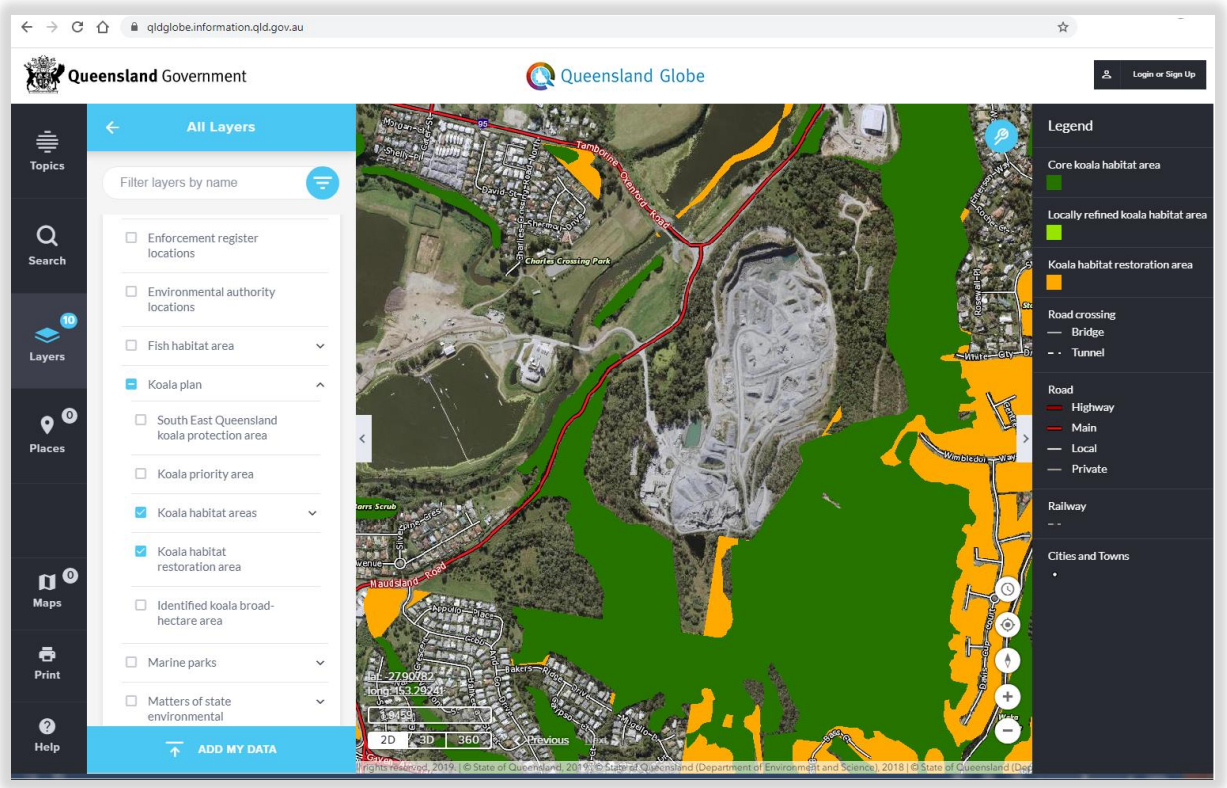


Attachment D2 - Lot 906 subjected to noise levels well above the EA0002207 limit of 45 dB(A)

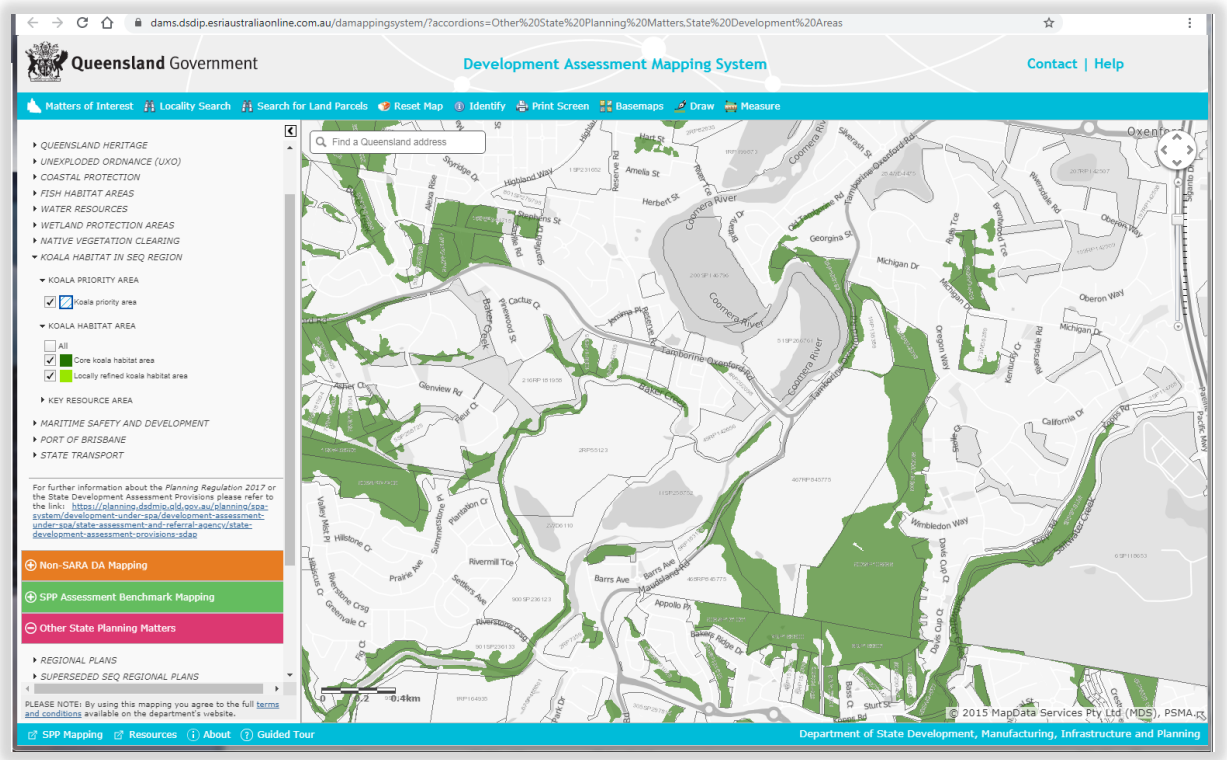


Attachment D3 - Lot 906 is part of the Hinterland to Coast Critical Corridor

Attachment D4 - Lot 906 is part of the 'Core koala habitat area' (1)



Attachment D5 - Lot 906 is part of the 'Core koala habitat area' (2)



Attachment E1 - DA Noise Control measures

2.3.2 NOISE CONTROL MEASURES

Based upon an iterative noise modelling process, it has been determined that the following noise control measures may be required to comply with the adopted noise criteria:

- **Acoustic treatment of the existing fixed processing plant** which is expected to remain at the same location from the commencement of operations within the realigned extraction boundary until Stage 5, specifically:
  - **Acoustic treatment of the primary (jaw) crusher to achieve a minimum 5 dB(A) noise reduction** e.g. construction of partial acoustic enclosures or acoustic screens adjacent the crusher.
  - **Acoustic treatment of Screen 1 to achieve a minimum 5 dB(A) noise reduction** e.g. construction of partial acoustic enclosures or acoustic screens adjacent the crusher.
- **A new fixed processing plant at the identified northern 'Plant Area' from Stage 6 onwards is to be acoustically treated** (e.g. enclosures to crushers and screens) as necessary to achieve the relevant noise limits in effect at that time. It is recommended that an acoustic design assessment be undertaken prior to construction of a relocated fixed processing plant to consider noise emissions from processing technologies at that time and the relevant noise limits in effect at that time.
- **Blast hole drilling at the southwestern extraction area during Stage 1 may need to be undertaken using a quietened drill rig if drilling locations are not topographically shielded to the northwest.**
- It is recommended that **mobile plant** (e.g. front-end loaders, dozers, haul trucks, excavators) **be fitted with broadband reversing alarms** to mitigate potential nuisance from tonal characteristics of traditional beeper alarms.

In addition to the above specific noise control measures, all fixed and mobile plant and equipment operated at the site should be selected and maintained to minimise noise emissions.

Attachment F1 - Virtually unimpeded view from Sherman Drive to Concrete Production and Main Processing Unit

Attachment F2 - Concrete Production plant noise output 115 dB(A)

SoundPLAN Emission Library

Oxenford Quarry

No.	Element name	Unit	Type	12.5 Hz	16 Hz	20 Hz	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1k Hz	1.25k Hz	1.6k Hz	2k Hz	2.5k Hz	3.15k Hz	4k Hz	5k Hz	6.3k Hz	8k Hz	10k Hz	12.5k Hz	16k Hz	20k Hz	Sum
3	**Rock Drill	dB(A)/ Lw/unit	Octave					77.2			104.2			100.2			103.9			110.1			111.4			113.1			109.4			106.3					118.0
26	**OX_SC1_SWL	dB(A)/ Lw/unit	3rd	-11.6	4.4	7.2	9.4	19.1	32.9	49.2	52.0	57.9	63.7	71.1	80.9	82.2	87.6	88.9	94.4	99.1	101.9	106.0	106.8	107.9	108.4	109.4	108.6	107.1	104.3	100.5	96.6	90.9	84.2	76.2	66.1	55.2	117.0
27	**OX_CR2_SWL	dB(A)/ Lw/unit	3rd	-14.4	-0.8	0.5	6.2	16.3	28.8	48.6	51.6	54.2	64.3	69.6	78.6	83.7	91.7	94.2	94.1	99.5	100.7	104.1	108.8	105.5	104.9	103.8	103.0	99.7	97.6	94.8	91.4	86.5	80.6	73.1	64.2	54.2	114.2
28	**OX_CR3_SWL	dB(A)/ Lw/unit	3rd	-11.6	1.6	1.8	15.9	25.0	34.2	46.1	50.3	57.3	66.1	68.5	76.3	82.0	87.4	89.5	91.2	95.9	96.0	97.9	98.1	98.8	98.8	99.2	99.0	98.7	98.3	98.1	96.4	93.2	89.0	87.6	80.0	70.3	59.5	109.2
29	**OX_SC2_SWL	dB(A)/ Lw/unit	3rd	-7.5	4.9	0.7	18.0	24.2	37.6	47.2	53.0	60.0	67.7	72.0	77.8	81.8	87.3	89.7	92.2	95.5	96.9	99.0	100.3	100.2	100.9	101.3	100.3	99.3	97.4	95.2	92.8	89.0	82.8	74.9	65.4	54.1	109.9
30	**OX_SC3_SWL	dB(A)/ Lw/unit	3rd	-17.8	6.7	3.0	5.4	16.9	31.2	44.3	54.4	57.7	64.6	66.6	74.4	78.5	81.4	84.0	90.1	93.1	94.4	98.2	100.2	102.0	103.8	107.4	107.0	105.6	105.0	104.2	101.3	97.2	91.2	84.0	75.0	65.2	114.5
36	**OX_EXC_SWL	dB(A)/ Lw/unit	3rd	-29.0	-18.5	-6.0	8.1	22.2	47.9	44.3	56.7	68.7	71.7	87.8	78.2	78.3	78.3	82.5	91.2	95.2	95.5	99.2	99.1	103.7	101.3	99.8	97.2	95.4	93.2	91.6	88.1	83.8	78.8	72.3	63.9	53.8	109.3
37	**OX_TIP_SWL_1hr	dB(A)/ Lw/unit	3rd	-10.9	-8.2	-0.4	20.7	20.8	43.9	47.0	54.1	62.5	72.2	75.6	81.0	81.9	80.4	81.6	88.0	94.5	95.7	96.6	100.4	103.6	102.8	101.8	98.9	96.3	93.8	91.8	88.9	85.1	79.2	72.2	64.2	55.0	109.9
38	**OX_CR1_SWL_Box	dB(A)/ Lw/unit	3rd	1.1	7.0	12.6	26.7	28.0	40.3	56.9	60.3	66.4	69.5	76.2	87.6	94.4	97.7	98.4	98.9	102.5	105.2	106.9	107.5	110.4	108.5	107.1	105.8	105.8	101.0	97.6	94.1	88.6	81.9	74.1	65.2	57.2	117.1
39	**OX_DUMPYAVG_EMPTY_SWL	dB(A)/ Lw/unit	3rd	-17.4	-7.4	-0.3	16.4	24.3	35.1	46.7	54.4	60.6	68.5	74.7	80.2	82.3	87.7	88.0	91.0	97.8	102.2	99.5	100.1	102.0	103.9	103.0	107.2	99.2	96.9	95.5	92.6	90.2	84.1	78.2	67.8	58.6	112.5
40	**OX_DUMPY_FULL_SWL	dB(A)/ Lw/unit	3rd	-21.3	-8.3	-3.3	7.1	17.5	29.2	44.0	51.9	58.1	65.9	77.5	82.3	80.1	84.1	84.2	93.3	97.6	98.6	98.6	102.5	103.4	106.1	107.7	104.4	101.7	98.2	95.8	93.7	92.8	86.7	81.2	68.6	59.2	113.4
41	**Road Truck	dB(A)/ Lw/unit	Octave					41.7			64.6			76.6			86.7			95.4			99.6			99.5			95.3			86.4					104.1
42	**Concrete Plant	dB(A)/ Lw/unit	Octave					42.8			61.0			86.1			91.6			104.0			108.2			109.4			109.2			107.1					115.0

Max Winders & Associates Pty Ltd

SoundPLAN 7.4

Attachment F3 - Main Processing Plant noise output 123 dB(A)

2.3 NOISE MODELLING

2.3.1 NOISE MODELLING METHODOLOGY

Table 6 below summarises the noise sources modelled to represent noise emissions from the proposed quarrying activities.

Table 6: Summary of Modelled Noise Sources

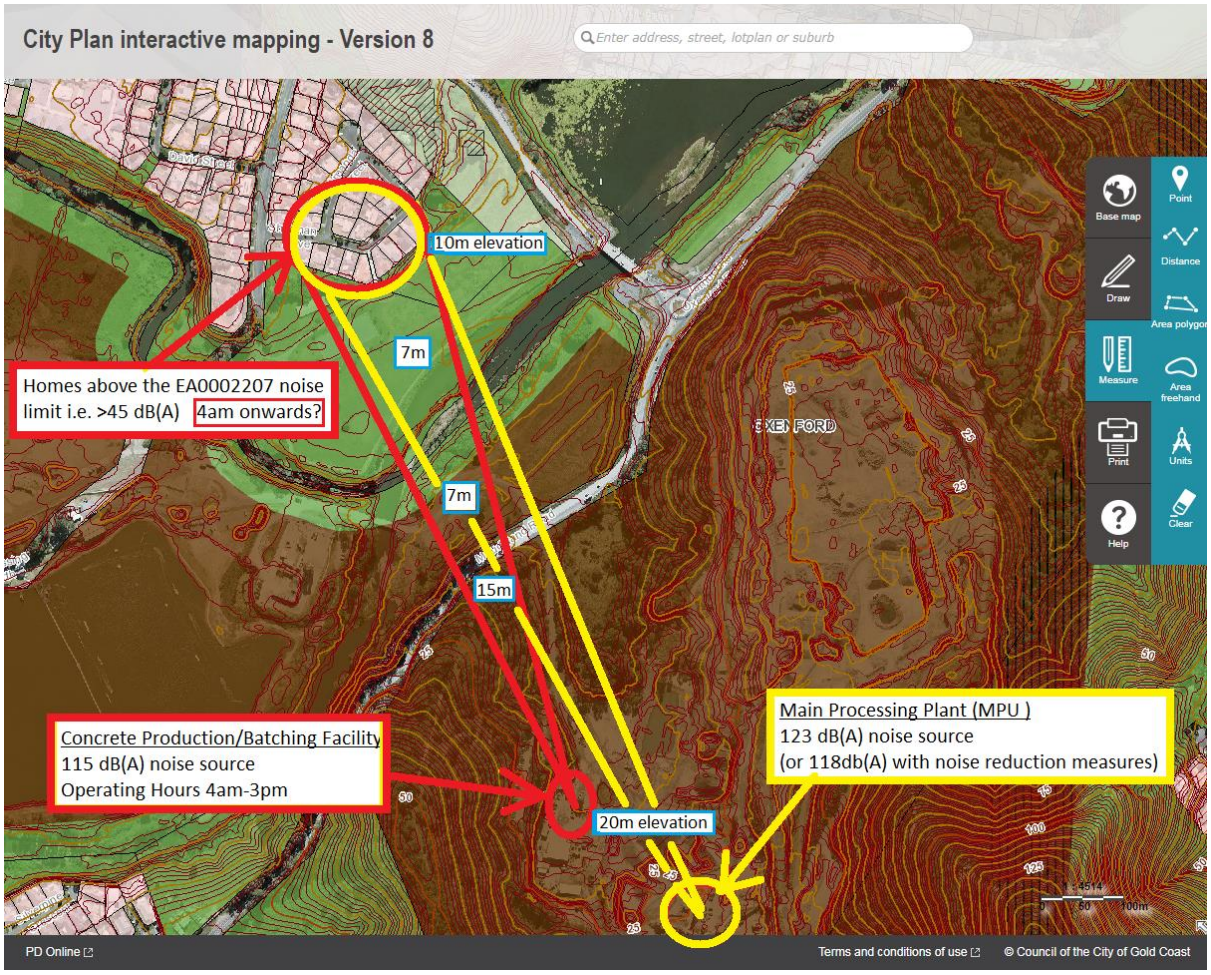
NOISE SOURCE	SOURCE REPRESENTATION	SOURCE HEIGHT (mAGL)	SOUND POWER LEVEL L_{Aeq} (dB(A))
Main Processing Plant (combined SWL without noise control measures)	Numerous Point Sources	5	123
Access Road – 14 trips per hour from entry to stockpiles[2]	Line Source	2.5	68/m (one-way)
Internal Haulage– 10 trips per hour from pit to plant[3]	Line Source	2.5	80.4/m laden trip 74.7/m unladen trip
Loader at Stockpiles (x2)	Point Source	2.5	107
Excavator / Loader at Pit / Bench	Point Source	2.5	109
Rock Drill at Elevated Bench	Point Source	1.5	118
Concrete Plant onsite[4]	Point Source	2.5	115
Concrete Trucks – indicative 10 loads per hour	Line Source	2.5	67/m (one-way)

[2] Peak estimate based upon 35t load and peak plant production rate of 475 tph

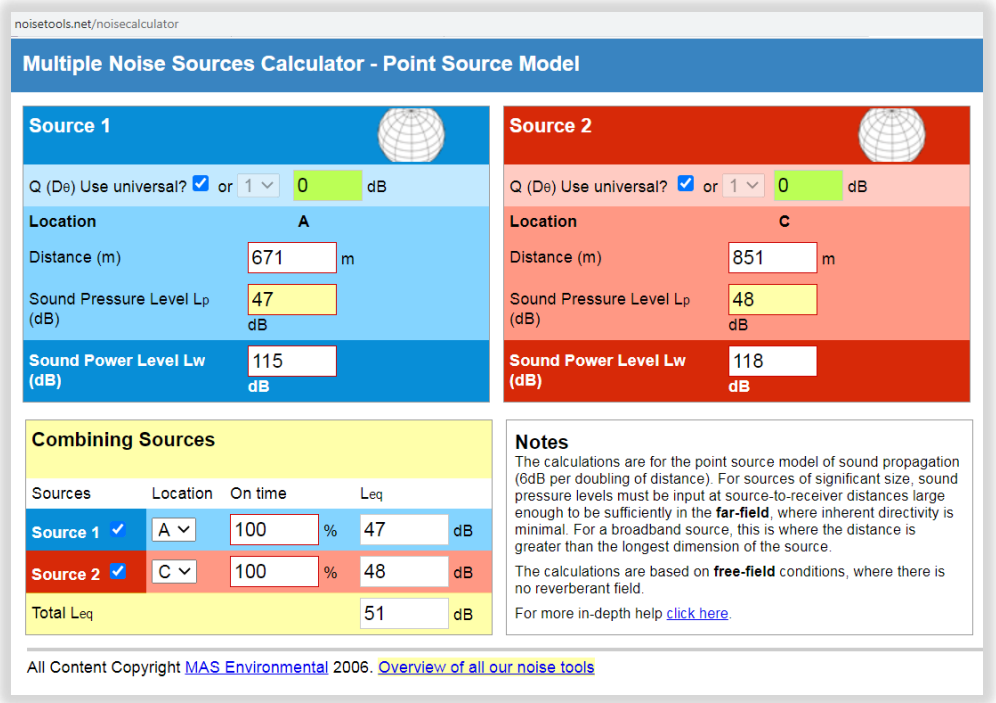
[3] Peak estimate based upon 50t load and peak plant production rate of 475 tph

[4] Composite of a range of sources including loading at batching point, slump stand, washout pit, conveyor, unloading bulk cement, dust extraction fan, front-end-loader

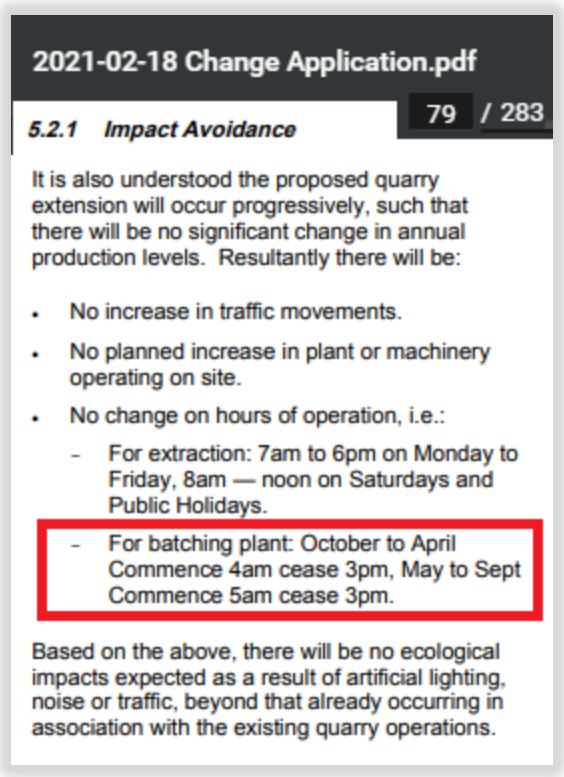
Attachment F4 - Proximity of Sherman Drive from noise sources



Attachment F5 - Noise Level Calculator



Attachment G1 - Concrete Plant Operating Hours



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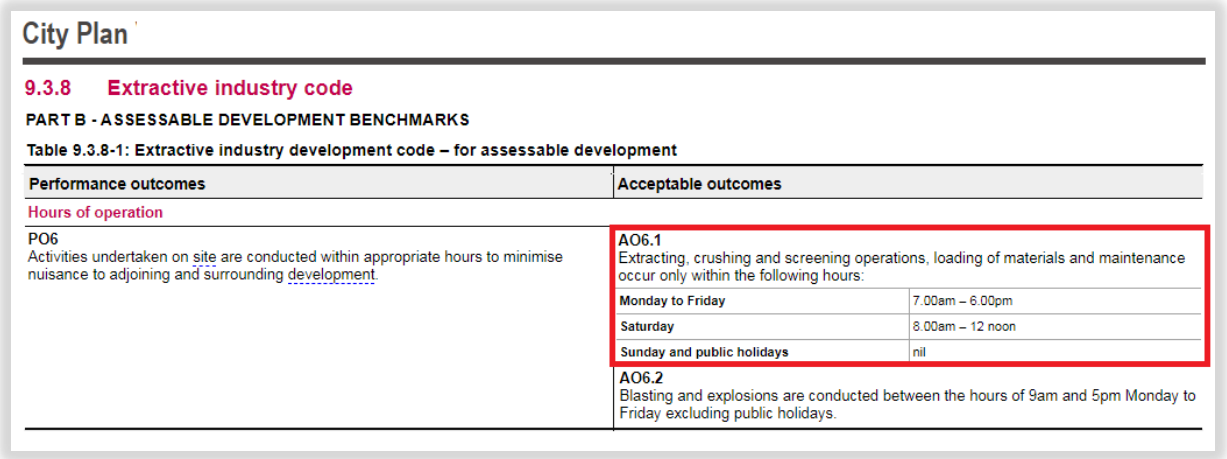
5.2.1 Impact Avoidance

It is also understood the proposed quarry extension will occur progressively, such that there will be no significant change in annual production levels. Resultantly there will be:

- No increase in traffic movements.
- No planned increase in plant or machinery operating on site.
- No change on hours of operation, i.e.:
  - For extraction: 7am to 6pm on Monday to Friday, 8am — noon on Saturdays and Public Holidays.
  - For batching plant: October to April Commence 4am cease 3pm, May to Sept Commence 5am cease 3pm.

Based on the above, there will be no ecological impacts expected as a result of artificial lighting, noise or traffic, beyond that already occurring in association with the existing quarry operations.

Attachment G2 - City Plan Extractive Industry Code 9.3.8



City Plan

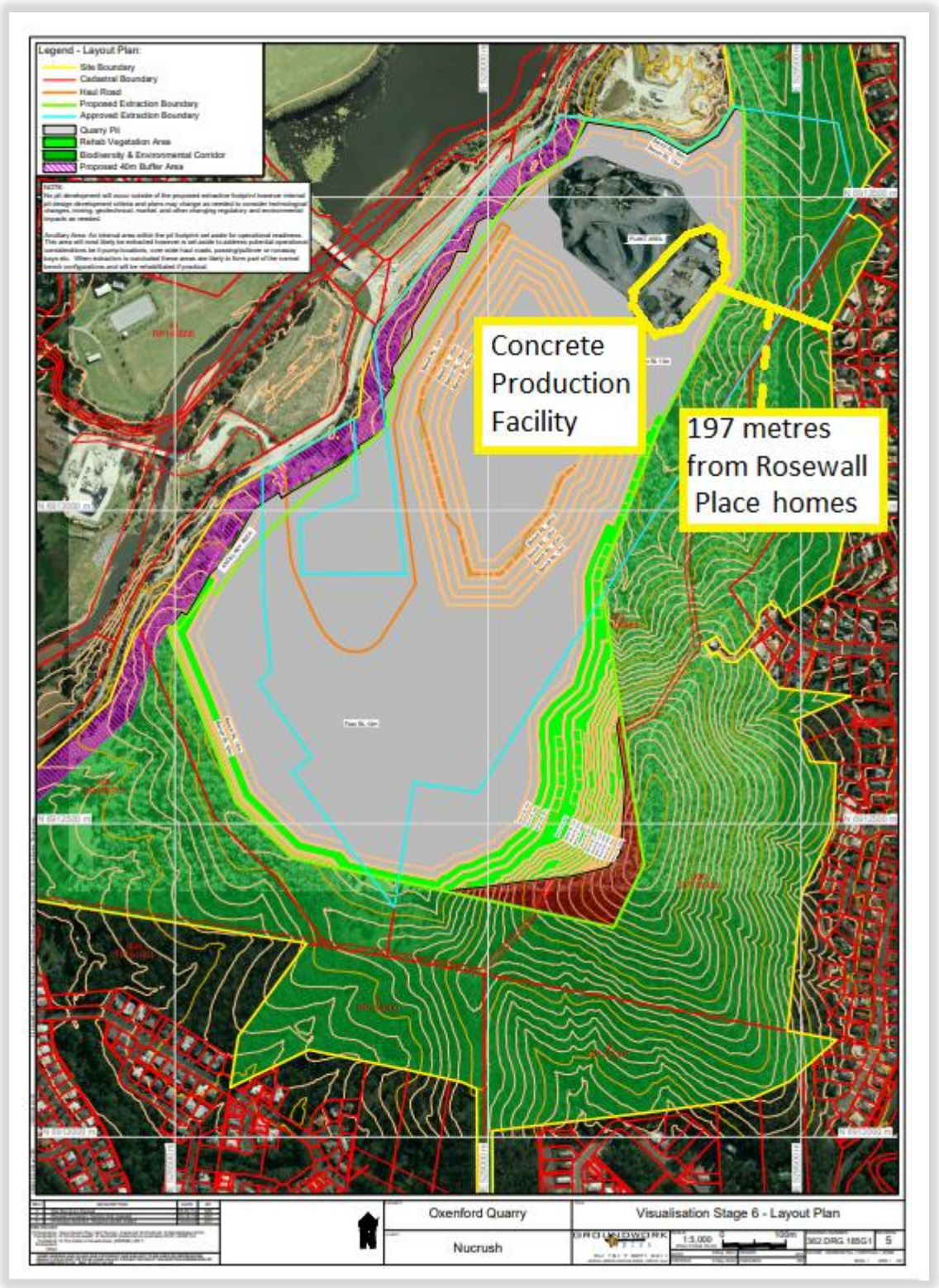
9.3.8 Extractive industry code

PART B - ASSESSABLE DEVELOPMENT BENCHMARKS

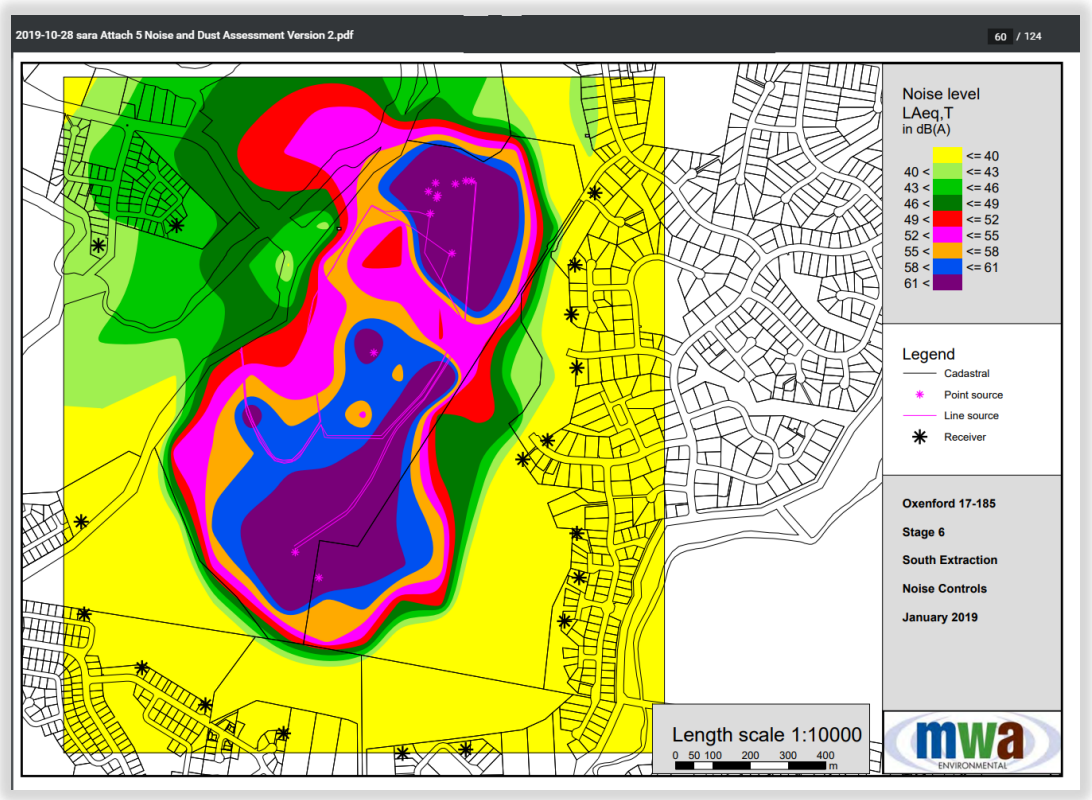
Table 9.3.8-1: Extractive industry development code – for assessable development

Performance outcomes	Acceptable outcomes
Hours of operation	
PO6 Activities undertaken on site are conducted within appropriate hours to minimise nuisance to adjoining and surrounding development.	AO6.1 Extracting, crushing and screening operations, loading of materials and maintenance occur only within the following hours: **Monday to Friday** 7.00am – 6.00pm **Saturday** 8.00am – 12 noon **Sunday and public holidays** nil AO6.2 Blasting and explosions are conducted between the hours of 9am and 5pm Monday to Friday excluding public holidays.

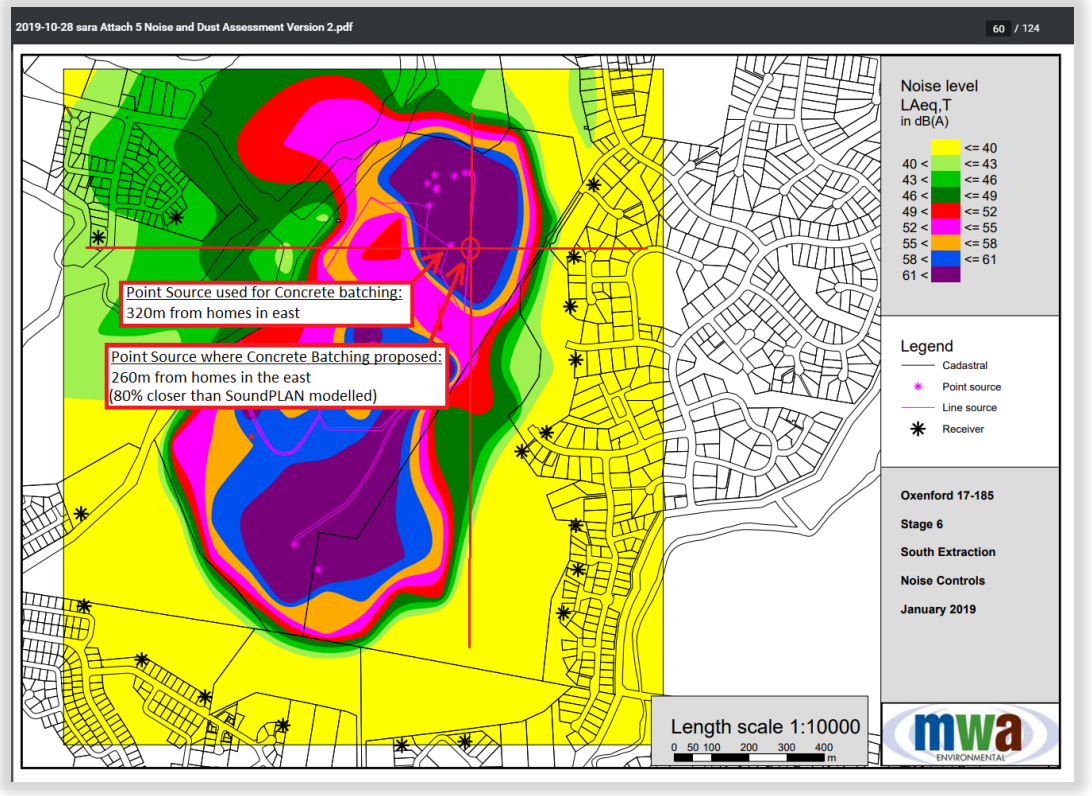
Attachment H1 - Concrete Production Facility location Stage 6 onwards



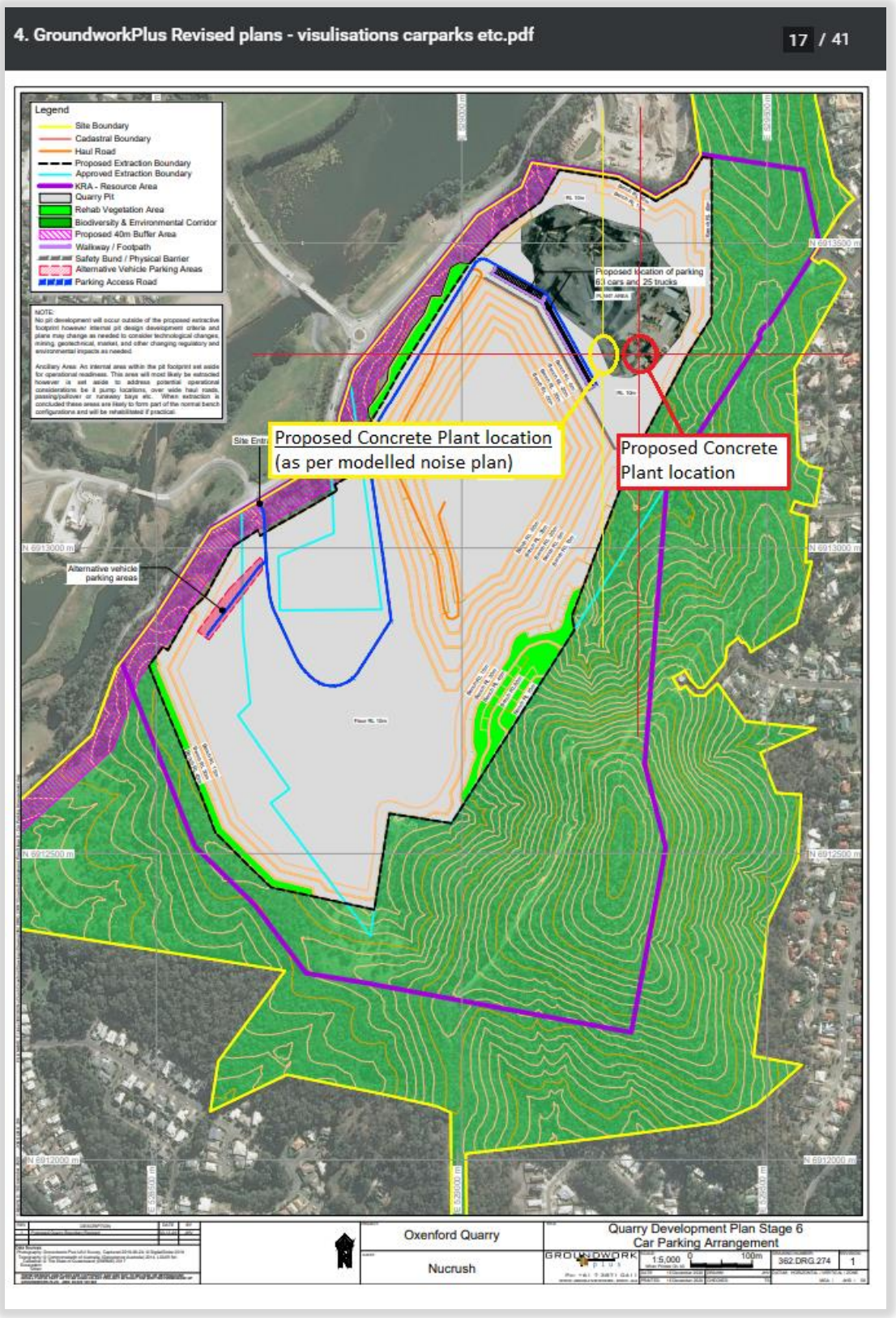
Attachment H2 - Noise plan Stage 6



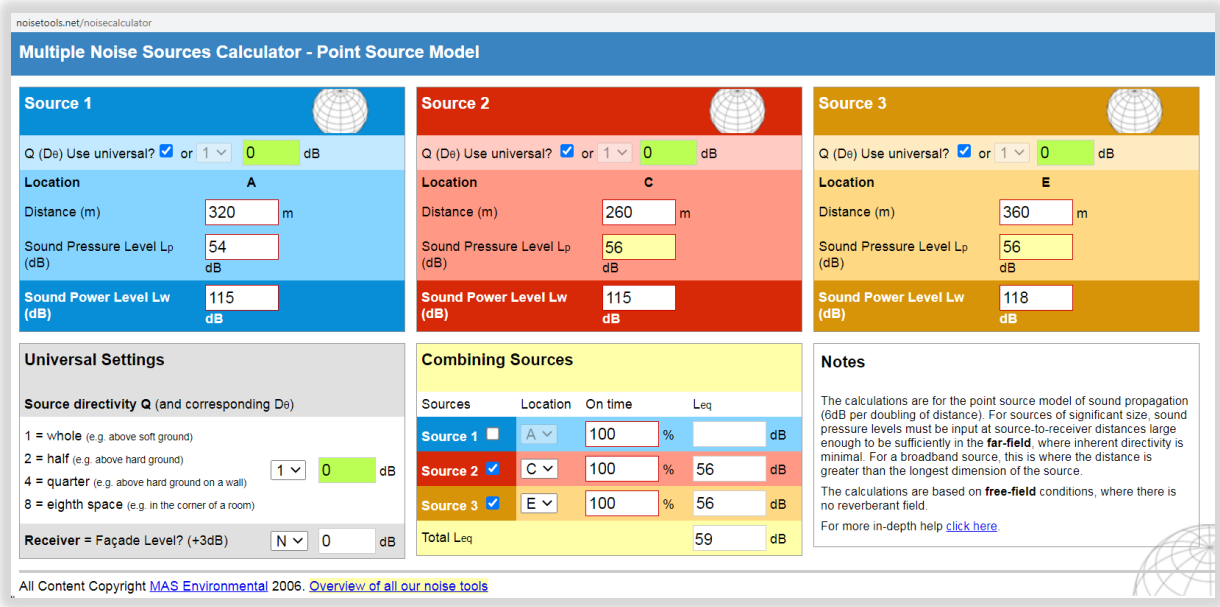
Attachment H3 - Noise plan Stage 6 (with correct Concrete Plant Noise Source identified)



Attachment H4 - Concrete Plant will impede on car parking (where shown on the modelled noise plan - Attachment H3)



Attachment H5 - Car Park and Concrete Plant shown together at 320 metres from Rosewall Place



noisetools.net/noisecalculator

Multiple Noise Sources Calculator - Point Source Model

Source 1	Source 2	Source 3
Q (Dθ) Use universal? ☑ or 1 0 dB	Q (Dθ) Use universal? ☑ or 1 0 dB	Q (Dθ) Use universal? ☑ or 1 0 dB
Location A	Location C	Location E
Distance (m) 320 m	Distance (m) 260 m	Distance (m) 360 m
Sound Pressure Level L_p (dB) 54 dB	Sound Pressure Level L_p (dB) 56 dB	Sound Pressure Level L_p (dB) 56 dB
Sound Power Level Lw (dB) 115 dB	Sound Power Level Lw (dB) 115 dB	Sound Power Level Lw (dB) 118 dB

Universal Settings

Source directivity Q (and corresponding Dθ)

1 = whole (e.g. above soft ground)
2 = half (e.g. above hard ground)
4 = quarter (e.g. above hard ground on a wall)
8 = eighth space (e.g. in the corner of a room)

1 0 dB

Receiver = Façade Level? (+3dB) N 0 dB

Combining Sources

Sources	Location	On time		Leq	
Source 1 ☐	A	100	%		dB
Source 2 ☑	C	100	%	56	dB
Source 3 ☑	E	100	%	56	dB
Total Leq				59	dB

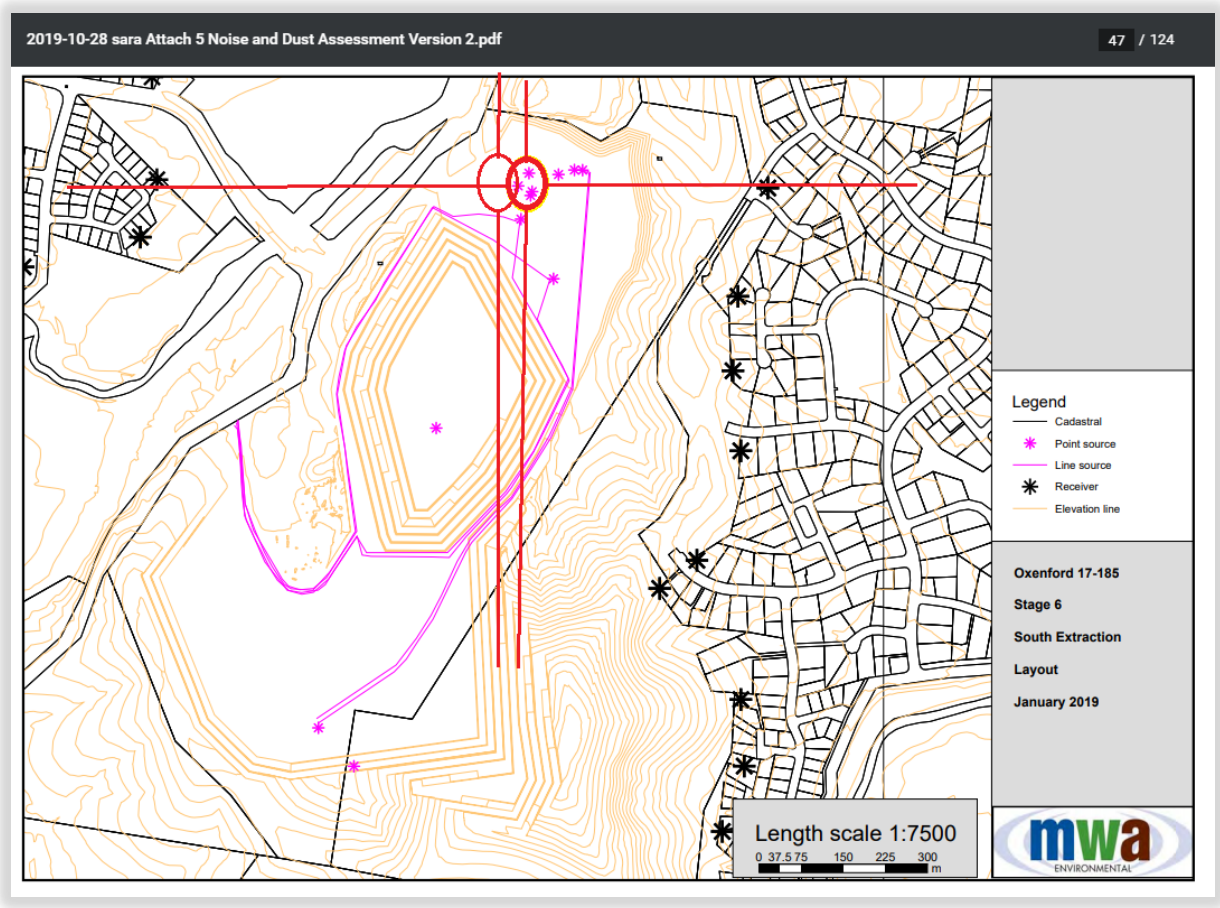
Notes

The calculations are for the point source model of sound propagation (6dB per doubling of distance). For sources of significant size, sound pressure levels must be input at source-to-receiver distances large enough to be sufficiently in the **far-field**, where inherent directivity is minimal. For a broadband source, this is where the distance is greater than the longest dimension of the source.

The calculations are based on **free-field** conditions, where there is no reverberant field.

For more in-depth help click here.

Attachment I1 - Noise Point Source (with correct Main Processing Plant identified)



Attachment J1 - Submitted Noise map for Stage 5 (Years 34 to 37)