MACKA'S SAND PTY LTD

AIR QUALITY MONITORING PROGRAM FOR LOT 218 AND LOT 220, SALT ASH NSW

FINAL

June 2025

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1.0 Introduction

Mackas Sand Pty Ltd (Mackas Sand) operations on Lot 218 and Lot 220 are located approximately 25 kilometres north east of Newcastle near Salt Ash in the Port Stephens local government area (LGA), in New South Wales (refer to Figure 1.1).

Mackas Sand directors have operated sand extraction operations in the area since 1992. Lot 218 and Lot 220 are owned by the Worimi Local Aboriginal Lands Council.

Mackas Sand was granted Project Approval No. 08_0142 (PA 08_0142) on 20 September 2009 by the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979* to operate sand extraction operations at Lot 220 and Lot 218 (referred to hereafter as the Project). It is estimated that in excess of 21 million tonnes of sand resource will be extracted from the Project, with Lot 218 having an indefinite extraction life due to the ongoing movement of sand from the adjoining mobile dunes.

The Project has been the subject of two (2) approved modifications, being:

- **Modification 1**: The modification included a change to the approved extraction level from 1.0 metre (m) to 0.7 m above the maximum predicted groundwater level (subject to satisfying additional requirements), as well as the construction and use of an alternative haul route to access Lot 218. The alternate route connects directly from Lot 218, northward to Nelson Bay Road, as depicted within Figure 1.1.
- Modification 1 (MOD 1) was approved on 30 September 2013 by the NSW Planning Assessment Commission (PAC) under delegation of the Minister for Planning and Infrastructure. Construction of the MOD 1 alternate route commenced on 9 December 2013, with the subsequent extraction of sand commencing at Lot 218 in February 2015.
- **Modification 2**: Altering the truck movements (in and out) of Lot 218. Modification 2 (MOD 2) was approved by the PAC on 16 March 2016.

In 2024, Mackas Sand consulted with the EPA regarding ongoing issues associated with the former Air Quality Monitoring Program (AQMP), in particular the near proximity to both agricultural activities and aeolian sand dunes, resulting in highly variable air quality monitoring results. Copies of EPA correspondence are provided in **Appendix B**.

In accordance with Schedule 3, Condition 13 (a) of PA 08_0142 (as modified), Mackas Sand's invited the Environment Protection Authority (EPA) to comment on this revision of the Air Quality Monitoring Program (AQMP), refer to **Section 1.4.3** and **Appendix B** for stakeholder consultation.

1.1 Mackas Sand Operations

Key operational features relevant to this AQMP are:

- The approved hours of extraction being 24 hours a day 7 days a week except for operations within 250 m of the Hufnagl Residence (R27) when operations are limited to 7.00 am to 6.00 pm with no operations within 250 m of R27 outside these times, unless Mackas Sand has an agreement with R27 to

generate higher noise levels and the Department of Planning, Housing and Infrastructure (DPHI) has been advised in writing of the terms of this agreement.

- Ongoing transportation of sand from the Project in accordance with Schedule 3, Condition 9 (b) of PA 08_0142 (as modified) allows for transportation between 5.00 am and 10.00 pm Monday to Saturday and 8.00 am to 12.00 pm Sundays and Public Holidays subject to Mackas Sand holding agreements with the identified owners. Copies of these agreements have been provided to the DPHI.

- Sand extraction at Lot 218 to a maximum approved rate of 1,000,000 tonnes per annum (tpa). Sand extraction at Lot 220 is largely completed with current operations involving rehabilitation works to establish final landform of the area. Current extraction operations involve the removal of excess sand resulting from final landform re-shaping for rehabilitation purposes.

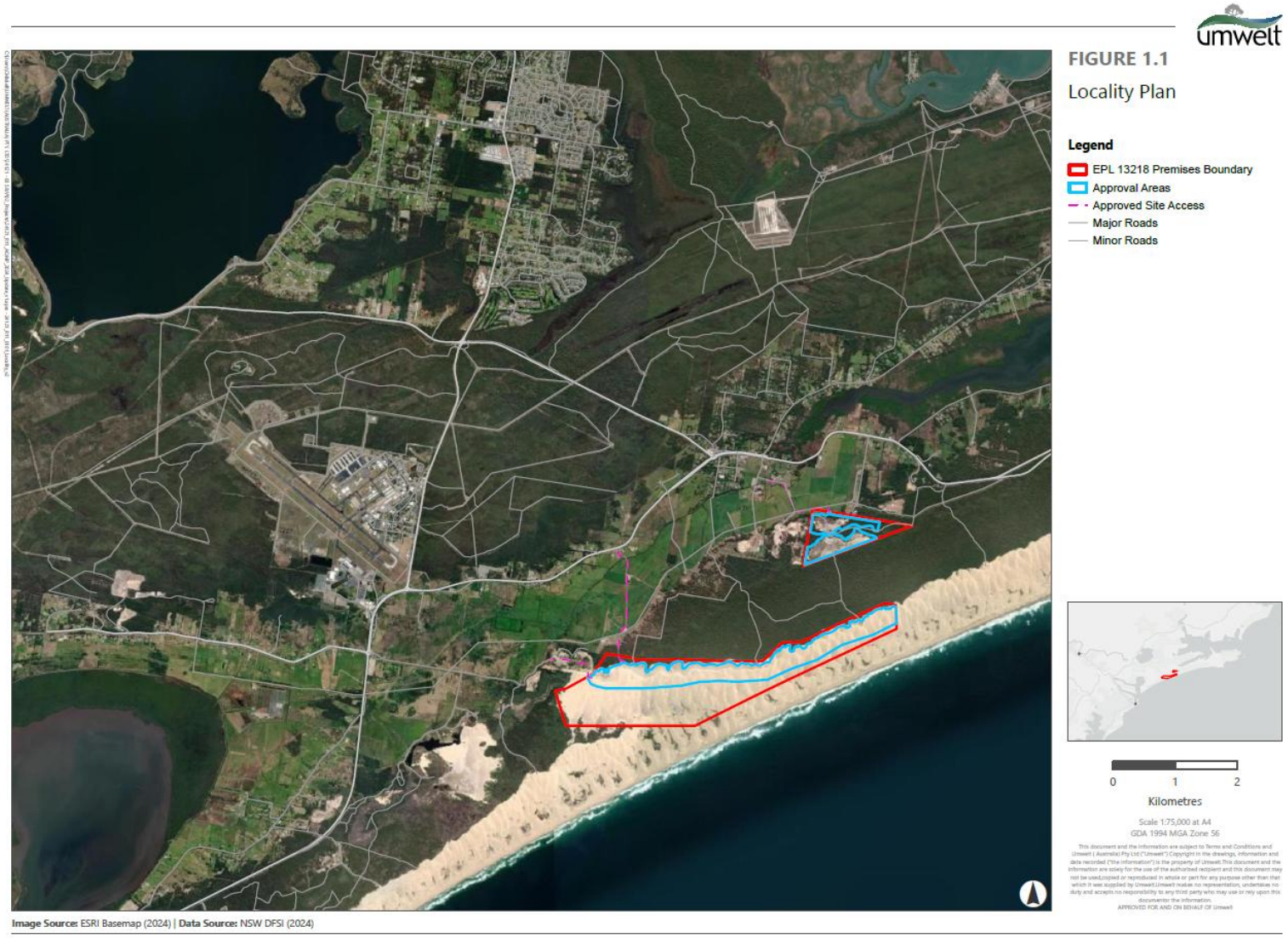


Figure 1.1 Mackas Sand Locality Plan

1.2 Purpose and Scope

To satisfy Schedule 3, Condition 13 of PA 08_0142 (as modified), an AQMP is required to be prepared and implemented for the Project. The AQMP was prepared in consultation with the EPA and submitted to the DPHI for approval.

The purpose of the AQMP is to:

- provide Mackas Sand employees and contractors with a clear and concise description of their responsibilities, regarding air quality management
- address the relevant conditions in PA 08_142 (as modified), Statement of Commitments and legislative commitments and guidelines relevant to this document
- describe the measures to be implemented to monitor dust emissions from the operations against relevant regulatory criteria
- provide a mechanism for assessing air quality monitoring results against the relevant air impact assessment criteria
- provide mechanisms for the establishment of best practice with respect to minimising air quality emissions/impacts.

1.3 Objectives

The objectives of this AQMP include the following:

- detail the controls to be implemented to minimise dust emissions from the site (**Section 3.0**);
- operate an air quality management system to guide the day to day extraction operations and the implementation of air quality mitigation measures to ensure compliance with the relevant conditions of this approval (**Section 3.0**)
- minimise any visible off-site air pollution (**Section 3.0**)
- respond to air quality related community complaints in a timely and effective manner (**Section 5.0**)
- detail the requirement for reporting air quality criteria exceedances to the relevant stakeholders (**Section 5.0**).

1.4 Regulatory Requirements

1.4.1 Project Approval Conditions

A detailed list of the PA 08_142 (as modified) conditions and the relevant Statement of Commitments outlined in the Project Approval, and where they are addressed in this document is included in **Table 1.1** and **Table 1.2**.

Table 1.1 Project Approval Conditions

<table>
<tr><th>Conditions</th><th>Addressed in Section</th></tr>
<tr><td colspan="2">Schedule 3 – Environmental Performance Conditions
Impact Assessment Conditions</td></tr>
<tr><td>11.</td><td>The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 5, 6 and 7 at any residence on privately owned land, or on more than 25 per cent of any privately owned land.
Table 5: Long term impact assessment criteria for particulate matter<table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>90 µg/m^3</td></tr><tr><td>Particulate matter < 10 µm (PM$_{10}$)</td><td>Annual</td><td>30 µg/m^3</td></tr></table>Table 6: Short term impact assessment criterion for particulate matter<table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM$_{10}$)</td><td>24 hour</td><td>50 µg/m^3</td></tr></table>Table 7: Long term impact assessment criteria for deposited dust<table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>2 g/m^2/month</td><td>4 g/m^2/month</td></tr></table>Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.</td><td>Section 2.0</td></tr>
<tr><td colspan="2">Schedule 3 – Environmental Performance Conditions
Operating Conditions</td></tr>
<tr><td>12.</td><td>The Proponent shall ensure any visible air pollution generated by the project is assessed regularly, and that quarrying operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately-owned land, to the satisfaction of the Secretary.</td><td>Section 3.3 and Section 4.0.</td></tr>
<tr><td colspan="2">Schedule 3 – Environmental Performance Conditions
Air Quality Monitoring</td></tr>
<tr><td>13.</td><td>The Proponent shall prepare an Air Quality Monitoring Program for the project to the satisfaction of the Secretary. This program must:
be prepared in consultation with EPA, and be submitted to the Secretary for approval within 3 months of the date of this approval; and
include details of how the air quality performance of the project will be monitored, and include a protocol for evaluating compliance with the relevant air quality criteria in this approval.
Note: Initially, this program should concentrate on monitoring the dust deposition impacts of the project. However, in time, it may be expanded to include other pollutants.
The Proponent shall implement the approved monitoring program as approved from time to time by the Secretary.</td><td>This AQMP
Section 4.0</td></tr>
</table>

Table 1.2 Statement of Commitments

Condition		Addressed in Section
1.7.1	Dust suppression activities, such as spraying a suitable dust suppressant, will be undertaken on all unsealed access roads used to transport product from Lot 218 and Lot 220 so that at least a 75 per cent reduction in dust generation is achieved.	**Section 3.1**[1]

1.4.2 Environment Protection Licence

The EPA provides set guidelines for air quality based on human comfort levels. Environmental Protection Licences (EPL) set out criteria for dust deposition and dust concentration levels and conditions for air quality monitoring and reporting. Air quality monitoring at Mackas Sand will be undertaken in accordance with the conditions of EPL 13218. The EPL was issued on 30 November 2009 for sand extraction operations on the Project site at Salt Ash. The EPL was most recently varied in 2024 and the EPL conditions relevant to this plan are included below.

A full list of the EPL conditions relating to air quality monitoring and an indication of where they are addressed within this document are included in **Table 1.3**.

Table 1.3 Environment Protection Licence Conditions

Conditions		Addressed in Section
O3.1	All areas in or on the premises must be maintained in a condition that prevents or minimises the emission of dust to the air.	**Section 3.0**
O3.2	Any activity carried out in or on the premises must be carries out by such practical means as to prevent dust or minimise the emission of dust to the air.	**Section 3.0**
O3.3	Any plant operated in or on the premises must be operated by such practical means to prevent or minimise dust or other air pollutants.	**Section 3.0**
O3.4	All trafficable areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the emission of dust to the air, or emission from the premises of wind-blown or traffic generated dust.	**Section 3.0**
O3.5	Trucks entering and leaving the premises that are carrying loads of dust generating materials must have their loads covered at all times, except during loading and unloading.	**Section 3.0**

[1] Also see Mackas Sand Soil and Water Management Plan (Umwelt, 2021).

Conditions		Addressed in Section
M6.2	The licensee must implement ambient air quality monitoring via High Volume Air Sampler (HVAS) or Tapered Element Oscillating Microbalance (TOEM) unit, to monitor particulate matter emissions from site operations at the nearest or most affected residential receiver/s for Lot 220 DP 1049608. An ambient air quality monitor must be installed at a suitable location within the vicinity of Residence "R27" within 6 months of the owner of R27 requesting in writing that the unit be installed. EPA must grant approval to the proposed location of the monitor. Residence R27 is shown on Figure 4.4 of the Environmental Assessment "Sand Extraction Operations from Lots 218 and 220. Salt Ash" dated April 2009. A copy of this figure is filed as EPA document DOC16/140051. The licensee must advise the EPA within seven days of commissioning of any ambient air quality monitor. Note: Resident R27 does not currently want a HVAS sampler to be placed on the property. This resident may change his mind or the property may change ownership in the future.	**Section** Error! Reference source not found.

1.4.3 Stakeholder Consultation Regarding this Document

This Plan was first submitted to the then Department of Planning and Environment (now Department of Planning, Housing and Infrastructure) in December 2009. A copy of the AQMP was submitted to the NSW EPA concurrently with DPHI. The AQMP was last revised in June 2018 and was submitted concurrently to the EPA and DPHI for comment. The revised AQMP was subsequently approved by DPHI in July 2018.

Consultation occurred with the EPA in 2024 regarding ongoing issues with the dust deposition gauges, in particular variable results and the influence of contextual aspects such as surrounding agricultural activities, including ploughing, cultivating, seeding, cropping, agricultural vehicle movements, farm earthworks, and livestock movements. In addition, the proximity to the extensive aeolian sand dunes of the Stockton Bite was also noted and the potential for wind blown sand to be present from natural sources.

It was also noted that there have been no air quality related community complaints generated by the approved operations since the commencement of operations under PA 08_0142 in 2010.

The AQMP was updated in January 2025 and a copy of the revised AQMP is to be provided to the EPA and DPHI for comment. Any comments received will be considered and addressed during the compilation of a final version, prior to the AQMP submission to DPHI for the Secretary's satisfaction. A copy of relevant correspondence is included in **Appendix B**.

1.5 Roles and Responsibilities

The Quarry Manager will be responsible for ensuring that the Project is undertaken in accordance with the requirements of PA 08_0142 (as modified) and EPL 13218. Responsibilities in relation to air quality management and monitoring are outlined in **Table 1.4.**

Table 1.4 Roles and Responsibilities

Role	Responsibilities
Quarry Manager	• provide that sufficient resources are allocated for the implementation of this AQMP; • ensure that air quality impacts are considered when infrastructure or extraction planning changes; • ensure strategies to reduce air quality impacts for the operation are effectively implemented; • develop and implement an air quality inspection schedule; • ensure dust controls are implemented and maintained; • authorise internal and external reporting requirements as well as subsequent revisions of this program; • ensure that the plan is relevant to current operations; • update monitoring data on the Mackas Sand website; • coordinate incident investigation processes including associated reporting requirements and the implementation of corrective actions and evaluate their effectiveness; and • ensure that all personnel are aware of noise management obligations.
All employees and contractors	• undertake all activities in accordance with this AQMP; and • undertake the compulsory site induction.

2.0 Air Quality Impact Assessment Criteria

The Project Approval conditions, including an indication of where the requirements are addressed in this plan, are provided in **Section 1.4.1**. This AQMP is designed to assess compliance with the criteria in **Section 2.0** using the methodology defined in **Section 4.0**.

2.1 Dust Concentration

Goals for dust concentration are referred to as long term (annual average) and short term (24 hour maximum) goals. Relevant goals for Total Suspended Particulates (TSP) and PM_{10} are outlined in **Table 2.1** in relation to both Project specific and cumulative goals applied at a regional level. The TSP and PM_{10} annual average goals relate to the total dust in the air and not just the dust from the Project.

Table 2.1 Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3
	24 hour	50 µg/m^3

2.2 Dust Deposition

Dust deposition levels refer to the quantity of dust particles which settle out of the air as measured in grams per square metre per month (g/m^2/month) at a particular location.

The Project Approval expresses dust deposition criteria in terms of an acceptable increase in dust deposition over the existing background deposition levels. For example, in residential areas with annual average dust deposition levels of between 0 and 2 g/m^2/month, an increase of up to 2 g/m^2/month would be permitted before it would be considered that a significant degradation of air quality had occurred. The criterion for dust deposition is included in **Table 2.2** below.

Table 2.2 Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust[2]	**Annual**	2 g/m^2/month	4 g/m^2/month

[2] *Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.*

2.3 Cumulative Emissions

The air quality assessment component of the Mackas Sand Environmental Assessment (Umwelt, 2009a) provided an indication of the cumulative dust emissions associated with the Project, determining that the Project would not increase potential air quality impacts on surrounding residential properties. The cumulative emissions associated with potential sources have been predicted in relation to TSP, annual average PM_{10} and dust deposition.

The potential cumulative effects of dust emissions from other operations within close proximity to Mackas Sand in relation to the volume of natural windblown sand are considered to be insignificant.

3.0 Air Quality Management Controls

In order to mitigate any potential air quality impacts from the operation, a number of air quality management controls are to be implemented throughout the life of the operation. These controls are detailed in **Sections 3.1** and **Section 3.2** below.

The principal measures used to control dust are the sealing of sections of the approved alternate haul route and the use of a water cart for dust suppression on the gravel section of haul roads as required. At this time, it is not intended to use Lavis Lane to transport product from Lot 218.

It is also noted that during 2017, additional unsealed sections of internal haul roads at the Project were bitumen sealed. The bitumen seal associated with Lot 218 extends from Nelson Bay Road to approximately 200 m north of the northern boundary of Lot 218, a total distance of approximately 1,650 m. The bitumen seal associated with Lot 220 extends from Oakvale Drive to the extraction area, also a total distance of approximately 1,650 m.

In addition, dust control will be assisted by ongoing rehabilitation activities (revegetation) of the Lot 220 extraction areas.

3.1 Operational Controls

Mackas Sand has completed sealing of two site access roads: approximately 1,650 m of the alternate haul road to Lot 218, and approximately 1,650 m of the private access road to Lot 220, to minimise dust generation in proximity to nearby residences including those along Nelson Bay Road. Note the sealing of approximately 1,650 m of the alternate haul road to Lot 218 includes the sealing of the first 200 m of the alternate haul road to Lot 218, as required by Schedule 3, Condition 31A c) of PA 08_0142 (as modified).

Mackas Sand implements a number of ongoing air quality management procedures to control dust emissions which may be generated from trafficable areas and extraction and handling operations. As part of this system, Mackas Sand has an ongoing commitment to implement the following controls to manage dust generation:

- water carts are used when necessary on the remaining sections of all active unsealed haul routes and unsealed working areas used for transporting sand product
- speed limits apply and are enforced on all roads on the quarry site
- visual inspections of active haul routes and extraction operations to monitor dust impacts
- air quality monitoring utilising depositional dust gauges
- all personnel and contractors are provided with training in dust controls during the Mackas Sand quarry induction
- all loaded trucks leaving the site are required to have covered loads.

3.2 Screening Operations

Sand screening operations on the Project are unlikely to result in any significant increase in dust generation. This is attributed to the low dust content of the extracted sand and its moisture content which assists in suppressing the entrainment or mobilisation of dust. As ongoing works in Lot 220 involves establishing the final landform and rehabilitation, no further sand screening operations are planned to be undertaken within Lot 220. Lot 218 is screened by vegetation to the north and sand dunes to the south. Additional dust controls for sand screening operations are not considered to be required at the Project but will be reviewed as required.

3.3 Active Management Practices

Mackas Sand will investigate any complaints regarding impacts to air quality at private residences on a case-by-case basis. Should the investigation indicate adverse dust impacts from extraction activities and/or transport operations, reasonable and feasible measures to mitigate dust at the affected receiver will be implemented including:

- Inspect active operations to identify any dust generation that could be the source of the complaint
- Undertake operational controls outlined in **Section 3.1** to manage any identified dust sources
- In the event of an ongoing dust complaint, Mackas Sand will contact the EPA to discuss the scope of an appropriate air quality monitoring investigation, with the EPA and DPHI notified of the outcomes of the monitoring program, as detailed in **Section 4.2.**

All complaints will be logged and reported annually in the Mackas Sand Annual Review.

3.4 Continuous Improvement

Mackas Sand will implement all reasonable and feasible best practice air quality mitigation measures. The basis for continuous improvement of air quality mitigation measures will be through the ongoing monitoring of dust impacts and the corrective/preventative action process. Through the development of corrective/ preventative actions, Mackas Sand will investigate ways to reduce air quality impacts shown to be generated by the operation. Any new mitigation measures that are implemented as a result of these investigations will be reported annually in the Mackas Sand Annual Review and in subsequent revisions of the AQMP.

Mackas Sand notes that it has voluntarily bitumen sealed the entirety of the haul roads at the Project outside operating areas which are used to transport sand off site. This is considered to be a best practice ongoing air quality management measure, and a significantly greater commitment than required by relevant approval obligations.

3.5 Change Management

When change is considered to have an impact on the AQMP, the process below must be followed:

- identify the change
- assess the potential risks associated with the change and develop a risk management plan

- approve the change subject to the risk management plan
- communicate and implement the change and risk management actions.

3.6 Training

To ensure the effective implementation of this AQMP, all Mackas Sand personnel and contractors working on the site (i.e. not contract road haulage truck drivers) undertake an induction which outlines environmental awareness including the importance of dust mitigation at the Mackas Sand site. However, all truck drivers will continue to have a responsibility to minimise the potential of dust generation onsite. This is effectively managed through the adherence of site-specific speed limits and coverage of loads leaving the site outlined in the Mackas Sand Drivers Code of Conduct (Umwelt, 2023).

4.0 Air Quality Monitoring Methodology

In accordance with the requirements of PA 08_0142 (as modified) and EPL 13218, air quality monitoring will be undertaken as set out in the AQMP.

4.1 Monitoring Standards

When required, air quality monitoring will be undertaken in accordance with the relevant Australian Standards and OEH approved methods for sampling including:

- EPA's 'Approved methods for the sampling and analysis of air pollutants in NSW' (EPA 2022).
- The dust deposition gauges will be operated in accordance with AS/NZS 3580.10.1:2016 Methods for Sampling and Analysis of Ambient Air, Method 10.1: Determination of Particulate Matter – Deposited Matter – Gravimetric Method.

4.2 Air Quality Monitoring Program

In the event of an air quality community complaint being received, Mackas Sand will implement the Active Management Practices outlined in **Section 3.3** to manage any identified sources of dust generated by operations.

Additionally, in the event of an air quality-related community complaint, Mackas Sand will engage the EPA to discuss the scope of an appropriate air quality monitoring program investigating the specifics of the complaint.

This will include consideration of:

- relevant weather conditions to identify if operations are likely to be the source of the elevated dust levels
- implement further operational controls to manage dust levels shown to be sourced from operations, in order to achieve the relevant air quality criteria outlined in **Section 2.0**
- dust monitoring to confirm control of dust from operations has been achieved.

The monitoring program will determine if a non-compliance of the relevant air quality criteria outlined in **Section 2.0** has occurred, and DPHI and EPA will be notified of the outcomes of the monitoring program.

4.3 Operational Context

As noted in **Section 1.0**, sand extraction at Lot 220 has largely ceased with the previous extraction rate reduced significantly from 1,000,000 tonnes per annum (tpa) to around 10,000 tpa. The current sand extraction being excess sand resulting from current site rehabilitation works to establish final landform of the Lot 220 extraction area. This has significantly reduced the risk of dust impacts being generated from sand extraction operations at Lot 220.

Extraction operations at Lot 218 have expanded since the commencement of operations and extends approximately 3 km further to the east, away from nearby residences. Sand extraction area is between 1.6 km and 2.5 km from residential receivers and unlikely to cause unacceptable levels of dust.

Previously, the main potential source of dust was identified as being from product transport on unsealed haul roads. To mitigate this risk, the entire length of the alternate access road was sealed, including the most northern 200 m closest to residential receivers on Nelson Bay Road.

With the implementation of the other ongoing operational dust controls detailed in **Section 3.1,** the risk of dust impacts to residential receivers has been effectively mitigated.

No complaints of excess dust have been received from nearby residents since the commencement of operations.

4.3.1 Land Use Context

Ongoing monitoring results at dust deposition gauge locations DDG1 and DDG2 have both shown exceedances of monthly dust deposition levels during 2023 and 2024 with no apparent connection to Mackas Sand extraction operations.

Potential sources of extraneous dust having been identified due to the dust gauges being located within ongoing agricultural land. Ongoing agricultural activities in proximity to the dust gauges include ploughing, cultivating, seeding, cropping, agricultural vehicle movements, farm earthworks, and livestock movements.

An increased intensity of surrounding agricultural activities has been noted in this period, with agricultural land uses extending from the edge of native vegetation areas near the extraction areas to residential receivers, resulting in any alternative monitoring locations being likely to be subject to the same extraneous inputs due to agricultural activities.

4.3.2 Ongoing Dust Deposition Monitoring

Given the significant reduction in sand extraction activities at Lot 220, and the ongoing agricultural land uses between the operation and local residences, no further ongoing regular dust deposition monitoring is proposed for Lot 220. Monitoring site DDG1 will be decommissioned.

Similarly, due to the increased distances from Lot 218 sand extraction areas to residences resulting from the expansion of the extraction area to the east, and due to the ongoing agricultural land uses between Lot 218 operations and residences to the north, no further ongoing regular dust deposition monitoring is proposed for Lot 218. Monitoring site DDG2 will be decommissioned.

As outlined in **Section 3.1** , in the event of an ongoing dust complaint, Mackas Sand will install a dust deposition gauge in proximity to the residence of the complainant, located between the operations and the residence, in order to quantify the dust deposition level with regard to relevant criteria outlined in **Section 2.0**, as outlined in **Section 4.2**.

Results of the dust deposition monitoring will be considered with regard to relevant weather conditions to identify if operations are likely to be the source of the elevated dust levels. Mackas Sand will implement further operational controls to manage dust levels shown to be sourced from operations.

Following the implementation of further dust controls, Mackas Sand will continue dust deposition monitoring for an additional six months to confirm control of dust from operations has been achieved.

4.3.3 Additional Air Quality Monitoring

In accordance with condition M6.2 of the EPL, additional ambient air quality monitoring is required to be implemented by Mackas Sand if requested by Resident R27 as shown on Figure 4.4 of the Environmental Assessment "Sand Extraction Operations from Lots 218 and 220 Salt Ash" April, 2009. Condition M6.2 of the EPL details the requirements related to the air quality monitor and also notes that Resident R27 does not currently want a HVAS sampler to be placed on his property.

Due to the significant reduction in sand extraction tonnages at Lot 220, the risk of air quality impacts to residence R27 generated by Mackas Sand extraction activities is significantly reduced.

5.0 Reporting and Review

5.1 Reporting

Mackas Sand will undertake regular visual reviews of dust emissions from quarry operations in accordance with the NSW EPA *Dust Assessment Handbook* (NSW EPA, 2019), and will keep a log of any incidents that have the potential to adversely impact on the air quality of surrounding privately owned land. The Mackas Sand Quarry Manager (or delegate) will investigate any complaints and any exceedances of the air quality impact assessment criteria.

Results of air quality monitoring undertaken in response to complaints will be discussed at the Mackas Sand Community Consultative Committee (CCC) meetings which are held annually or as agreed by the CCC. Performance monitoring, which includes an assessment of the effectiveness of controls and compliance with the relevant Project Approval and EPL conditions, may be discussed at CCC meetings where air quality related complaints occur.

An Annual Review will be prepared and submitted to the Secretary and relevant agencies in accordance with the requirements of Schedule 5, Condition 4 of PA 08_0142 (as modified). The Annual Review will include an assessment of any air quality monitoring results against the air quality impact assessment criteria, any trends in monitored air quality levels over the period and any additional dust management controls that have been implemented since the previous report. In addition, any complaints relating to dust emissions from Mackas Sand, and the response actions taken, will be reported in the Annual Review. Results from monitoring undertaken in response to complaints will also be provided to the EPA.

The Annual Review and air quality monitoring results will be made publicly available on the Mackas Sand website (www.mackassand.com.au) in accordance with Schedule 5, Condition 9 (b) of PA 08_0142 (as modified).

5.2 Complaints Handling

In accordance with Project Approval and EPL requirements, Mackas Sand has established a 24 hour complaints line. The number is listed on the Mackas Sand website (www.mackassand.com.au).

Complaints received on the number will be directed to the Quarry Manager who will respond to the complainant within 24 hours if the complainant is contactable. A record of all complaints will be kept on-site, and a summary published on the Mackas Sand website. The Annual Review will also provide a summary of community complaints during the reporting period (i.e. each calendar year).

Management responses to complaints are outlined in **Section 3.3.** The installation of a dust deposition gauge in response to ongoing complaints is outlined in **Section 4.2**. All complaints and information in regard to responses will be provided to the CCC meetings.

5.3 Incident Reporting Protocol

Schedule 5, Condition 2 of PA 08_0142 (as modified) requires any exceedances of limits/ performance criteria within the approval to be reported to the DPHI and other relevant agencies within 24 hours of the exceedances being recorded. This included any incidents that cause (or may cause) material harm to the environment.

Following the reporting of an exceedance or incident to the DPHI and other relevant agencies, Schedule 5, Condition 3 of PA 08_0142 (as modified) requires the proponent to prepare a written report of the exceedance within six days of the exceedance being reported. The written report must contain:

- a description of the date, time and nature of the exceedance
- identification of the cause (or likely cause) of the exceedance
- a description of actions taken to date
- a description of the proposed measures to address the exceedance.

The Quarry Manager will be responsible for ensuring these reporting requirements are complied with.

5.4 Material Harm Incidents

Mackas Sand is committed to minimising any potential for material harm to the environment and surrounding community. A Pollution Incident Response Management Plan (PIRMP) has been developed for Mackas Sand operations which outlines the response and notification procedures in the event of a potential material harm incident. In addition to reporting required by Schedule 5, Condition 2 of PA 08_0142 (as modified), incidents resulting or having the potential to result in material harm to the environment, (as defined by Section 147 of the *Protection of the Environment Operations Act 1997*) shall be reported to the following authorities (as relevant) as soon as it is safe to do so:

- the Appropriate Regulatory Authority (ARA)
- the NSW EPA – Environment Line (if not the ARA)
- the Ministry of Health
- Safework NSW
- the Local Authority (Council) if not the ARA
- Fire and Rescue NSW.

The information about a pollution incident that must be notified includes:

- the time, date, nature, duration and location of the incident
- the location of the place where pollution is occurring or is likely to occur
- the nature, the estimated quantity or volume and the concentration of any pollutants involved, if known
- the circumstances in which the incident occurred, including the cause of the incident, if known
- the action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known.

5.5 Corrective Action

Table 5.1 summarises the potential air quality related issues that may arise and the appropriate corrective action to be taken.

Table 5.1 Corrective/ Preventative Actions

Issue	Corrective Action
Exceedance of EPL or Project Approval Air Quality Conditions	Investigation of exceedance, undertaking air quality mitigation measures for future operations where applicable. Report exceedance to EPA, DPHI and other stakeholders, as required.
Community complaints	Investigation of complaint, review dust monitoring results undertaken in accordance with **Section 4.2**, and if required, undertake mitigating measures where applicable (see **Section 3.0**) and provide feedback to the complainant. Report complaint to relevant stakeholders and CCC as required. Provide feedback to site personnel, where relevant.

5.6 Records

In accordance with EPL condition M1.2, monitoring records will be maintained on site for at least four years.

In addition, the following records must be kept in respect to any samples required to be collected as per EPL condition M1.3:

- date(s) on which the sample was taken
- time(s) at which the sample was collected
- the point at which the sample was taken
- the name of the person who collected the sample.

5.7 Review

The AQMP is to be reviewed in accordance with Condition 4A and Condition 7 of Schedule 5 of PA 08_0142 (as modified), or as directed by the Secretary of DPHI. The review will reflect changes in environmental requirements, technology and operational procedures.

6.0 References

Australian Standard AS 3580.14:2014 Methods for Sampling and Analysis of Ambient Air, Part 14: Meteorological Monitoring for Ambient Air Quality Monitoring Applications.

Australian Standard AS/NZS 3580.10.1:2016 Methods for Sampling and Analysis of Ambient Air, Method 10.1: Determination of Particulate Matter – Deposited Matter – Gravimetric Method.

EPA, 2019. Dust Assessment Handbook.

EPA, 2022. Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.

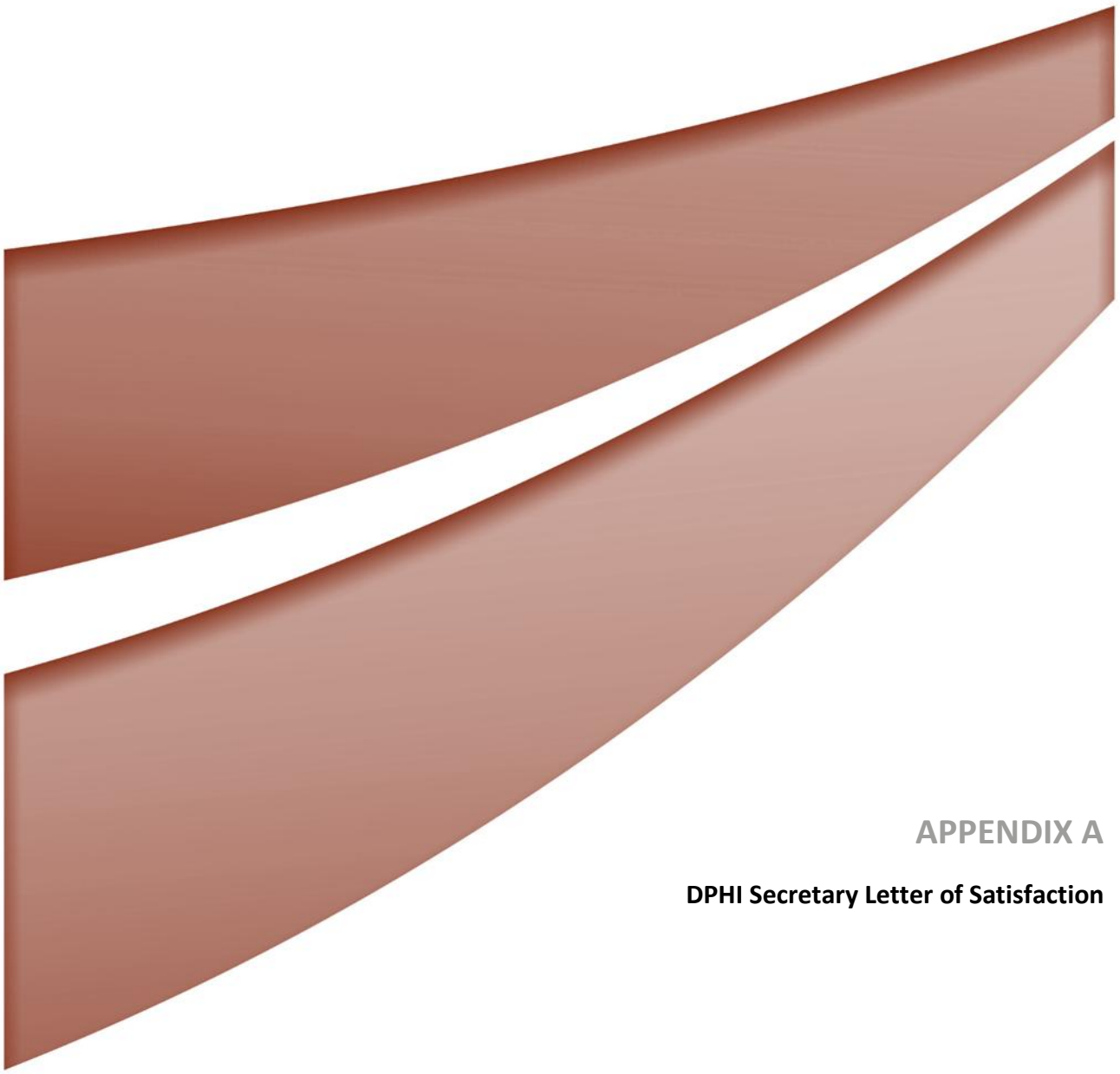
Umwelt (Australia) Pty Limited (2009a). Environmental Assessment for Sand Extraction Operations from Lot 218 DP 1044608 and Lot 220 DP 1049608, Salt Ash.

Umwelt (Australia) Pty Limited (2009b). Environmental Assessment for Modifications to Mackas Sand Extraction Operations from Lot 218 and Lot 220, Salt Ash.

Umwelt (Australia) Pty Limited (2016). Mackas Sand Annual Environmental Management Strategy.

Umwelt (Australia) Pty Limited (2021). Mackas Sand Soil and Water Management Plan. *For Lot 218 and Lot 220, Salt Ash, NSW. November 2021.*

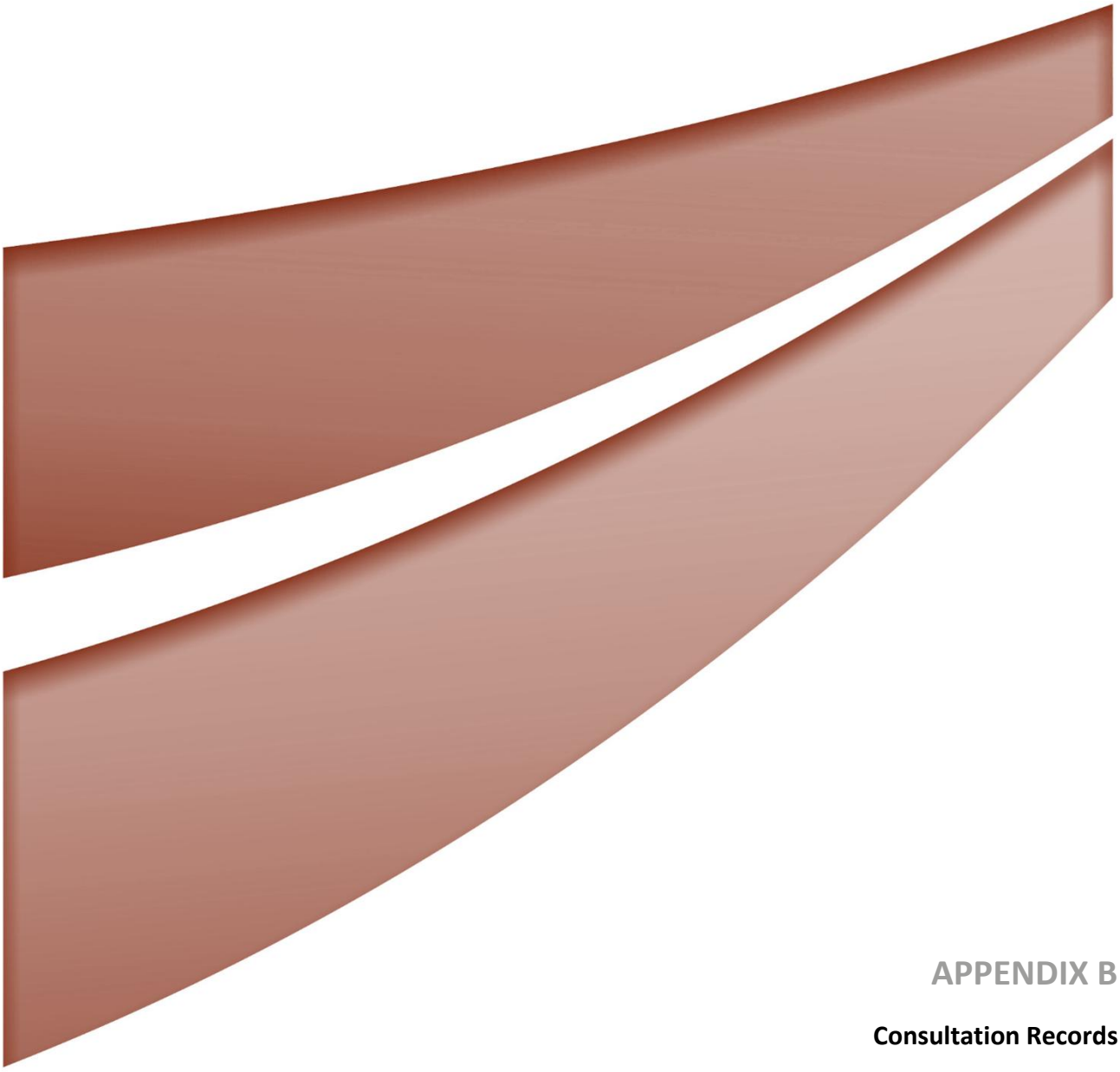
Umwelt (Australia) Pty Limited (2023). Drivers Code of Conduct. *Mackas Sand Pty Limited. February 2023.*



APPENDIX A

DPHI Secretary Letter of Satisfaction

DPHI Secretary Letter of Satisfaction is to be received after final DPHI review of this document.



APPENDIX B

Consultation Records

From: Bret Jenkins
To: Jai Roby
Subject: Fw: Mackas Sand EPL13218 Dust Gauge result notification and investigation
Date: Thursday, 23 January 2025 1:54:08 PM
Attachments: image001.png

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*This message originated from outside of Umwelt - **BE CAUTIOUS** opening any link or attachment.*

EPA feedback on discussion of removing DDGs

Regards,

Bret Jenkins
Manager HSE
Mackas Sand
m: 0427 665523

From: Anthony Van der Horst <Anthony.vanderHorst@epa.nsw.gov.au>
Sent: Monday, 9 December 2024 10:24 AM
To: Bret Jenkins <bret.j@mackas.com.au>
Cc: Laura Gothard <laura.gothard@dpie.nsw.gov.au>
Subject: RE: Mackas Sand EPL13218 Dust Gauge result notification and investigation

Hi Bret,

As previously discussed, EPA doesn't generally recommend use of dust deposition gauges these days due to not being able to reliably differentiate between background dust levels and dust from an operation.

These days we typically rely on either visual dust observations (https://www.epa.nsw.gov.au/publications/air/19p1502-dust-assessment-handbook) or if there are significant issues require upwind/downwind real time PM monitoring which is usually prohibitively expensive for quarries.

Given there has not been any issues with air quality raised by the surrounding community, and the proximity to the Stockton Sand Dunes, the proposed methodology sounds like it would meet EPA requirements, however we would need to see the final proposal before providing formal feedback.

My understanding is that the current monitoring requirements on the licence are based on planning consent requirements.
As discussed, DPHI will need to provide feedback if they are happy to proceed with a change in monitoring strategy with the consent as is or if a minor modification to the consent will be required.

Our ref: DOC25/238835-1

NSW Department of Planning, Housing and Infrastructure
Planning and Assessment Division
Locked Bag 5022
PARRAMATTA NSW 2124Returned

Returned via Major Projects Portal

Attention: Jarrod Blane
By email: jarrod.blane@dpie.nsw.gov.au

Dear Jarrod Blane

Public Authority Consultation (PAE-81004710) – Macka's Sand MP08-0142- Mod 2
Update of Air Quality Monitoring Program

Thank you for the request to the NSW Environment Protection Authority (EPA) from the NSW Department of Planning, Housing and Infrastructure (DPHI) for Public Authority Consultation (PAE-81004710) on approval MP08-0142-Mod 2. I understand the consultation is in relation to a draft Air Quality Management Program submitted to DPHI for MACKA'S SAND PTY LTD (the Licensee) sand quarry located at Lot 218 and Lot 220 Salt Ash NSW 2318 (the Premises). Sand extraction activities at the Premises is regulated under Environment Protection Licence 13218 (the Licence).

The EPA understands that the Licensee wishes to cease routine depositional dust monitoring required by the existing Air Quality Management Plan (AQMP) approved by DPHI and is also required by the Licence. Given these considerations below, the EPA does not object to the Licensee ceasing depositional dust monitoring at the Premises subject to approval by DPHI. Should DPHI provide approval the Licensee will need to apply to the EPA to vary the Licence to request removing the monitoring requirement.

The EPA no longer views depositional dust monitoring as best practice for the determination of air quality impacts from extractive industries, however it can be a useful indicator in limited circumstances.

The local air quality environment at the Premises includes a significant source of naturally occurring particulate matter, being wind-blown sand from the Stockton Sand Dunes. In this environment it is extremely difficult to differentiate between background particulate matter and the particulate matter generated by activities at the sand quarry when using depositional dust as the air quality monitoring technique. It is also noted that the EPA has not received any recent reports of issues or concerns related to air quality management at the Premises.

The revised AQMP proposes that the Licensee will undertake a campaign of depositional dust monitoring should they receive a community complaint about air quality. The EPA alternatively recommends that should the Licensee receive any community complaints related to air quality, that the Licensee contact the EPA to discuss the scope of an appropriate air quality monitoring investigation targeting the specifics of the complaint. Conditions to this effect can be included on the Licence should DPHI and the Licensee agree with this approach.

NSW Environment Protection Authority
As the environmental steward and regulator of our State we are committed to a sustainable future. Join us on our mission to protect tomorrow together.

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NSW GOVERNMENT