Letter

Head Office: Suite 1504, 275 Alfred Street, North Sydney, NSW 2060
Riverina Office: PO Box 483, Albury, NSW 2640
Web: northstar-env.com | Tel: 1300 708 590

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Date: Wednesday, 10 September 2025

Mapletree SR Australia Management Pty Ltd (Mapletree)
Suite 9.01, Level 9 580 George Street, Sydney

FAO: Eng Tan Khoon

Project Name:	**Project Marvel – Concept Design Review, Air Quality**
Reference:	**23.1126.FR3V1**
Status	**FINAL**

The following letter has been prepared by Northstar Air Quality Pty Ltd (Northstar) on behalf of Mapletree SR Australia Management Pty Ltd (Mapletree). Since the submission of the original air quality impact assessment (AQIA), and as part of the response to submissions stage, some changes to the built form are proposed. The purpose of this letter is to address implications of those proposed changes on the conclusions of the AQIA performed by Northstar.

It is concluded that considering the insignificant incremental impacts from operational activities, the minor changes in modelled variables are unlikely to alter the report findings or significantly affect the predicted short-term or long-term pollutant concentrations. Consequently, remodelling the Project operations for the proposed amended design is not considered to be warranted.

For and on behalf of:

Northstar Air Quality Pty Ltd

Varun Marwaha

Principal Air Quality Consultant

Reviewed by: DA/MD

1. AIR QUALITY IMPACT ASSESSMENT

Northstar prepared an air quality impact assessment (AQIA) for the construction and operation of Project Marvel in September 2023[1] as part of a state significant development application (SSDA). The assessment method and corresponding findings are provided below.

Construction Phase Assessment

Construction phase activities are anticipated to involve demolition, earthworks, construction works and associated vehicle traffic. The associated risks of impacts were assessed using the published Guidance on the Assessment of Dust from Demolition and Construction, developed in the United Kingdom by the Institute of Air Quality Management (IAQM), and adapted by Northstar for use in Australia. This methodology has been used in a similar context in numerous other similar AQIAs.

The construction phase dust risk assessment showed there to be a 'high risk' of health impacts and a 'medium risk' of dust soiling associated with demolition activities should no mitigation measures be applied. All other construction phase activities were associated with a 'medium risk' of health impacts and 'low risk' of dust soiling.

Correspondingly, a range of standard mitigation measures were recommended to ensure that short-term impacts associated with construction activities are minimised, which would result in the residual risk being 'negligible'.

Operational Phase Assessment

The prediction of potential impacts associated with operational activities was performed in general accordance with the requirements of the New South Wales Environment Protection Authority (NSW EPA) Approved Methods for the Modelling and Assessment of Air Pollutants in NSW document, using an approved and appropriate dispersion modelling technique (GRAL). The estimation of emissions was performed using referenced vehicle emission factors and the traffic data contained within the traffic consultant's report for the proposed development (Genesis, 2023).

The relevant concept design documentation provided the basis for the dispersion modelling assumptions, specifically, the location and number of loading docks, operational traffic throughput numbers (heavy vehicles and passenger vehicles) and the ingress and egress routes within the Proposal site boundary.

The limiting variable in the dispersion modelling assessment was the traffic data provided by Genesis Traffic, as reproduced in Table 1.

[1] Northstar, 2023 *Project Marvel – Moorebank, Air Quality Impact Assessment* (ref: 23.1126.FR1V3, dated 7 September 2023)

Table 1 Adopted traffic data for AQIA

Vehicle classification	AM peak (vehicles·hr^{-1})	PM peak (vehicles·hr^{-1})	Daily total (vehicles·day^{-1})
Light	69	52	754
Heavy	20	15	225
Total	**89**	**67**	**979**

Source: (Northstar, 2023)

A summary of the maximum predicted incremental concentrations of modelled pollutants at the identified sensitive receptors is shown in Table 2. The findings of the assessment indicated that the operation of the Proposal was not predicted to result in any additional exceedances of the air quality criteria.

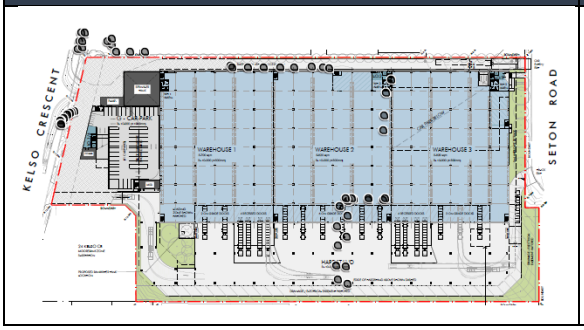
Table 2 Predicted maximum incremental pollutant concentrations

Pollutant criterion	Criterion (µg·m^{-3})	Incremental maximum concentration (µg·m^{-3})	Incremental maximum concentration (as % of criterion)
Maximum 24-hr average PM_{10}	50	0.8	1.6
Annual Average PM_{10}	25	< 0.1	< 0.1
Maximum 24-hr average $PM_{2.5}$	25	0.7	2.8
Annual Average $PM_{2.5}$	8	< 0.1	1.0
Maximum 1-hr average NO_2	164	0.5	0.3
Annual Average NO_2	31	2.5	8.1

2. PROPOSED CHANGES

The AQIA was submitted with the SSDA. While no air quality issues were raised in submissions at the Response to Submissions (RTS) stage, changes to the built form were required in response to other matters. A summary of these changes is provided in Figure 1.

Figure 1 Summary of changes to the built form

Previously Submitted Design (SSDA 2023)	Proposed Amended Design
	

Note: Ground Floor Plan

As identified in Section 1, traffic generated due to the proposed warehouse operations is the limiting variable in dispersion modelling assessment. The updated traffic data and the relevant changes are shown in Table 3.

Table 3 Proposed amended traffic data for AQIA

Vehicle classification	AM peak (vehicles·hr^{-1})	PM peak (vehicles·hr^{-1})	Daily total (vehicles·day^{-1})
Light	40 (-42 %)	50 (-4 %)	646 (-14 %)
Heavy	18 (-10 %)	21 (+40 %)	304 (+35 %)
Total	**58 (-35 %)**	**71 (+6 %)**	**950 (-3 %)**

Source: (Genesis, 2025)

3. IMPLICATIONS OF PROPOSED CHANGES TO AQIA

3.1. Construction Phase

Briefly, the adapted IAQM method employs a six-step process to assess dust impact risks from construction activities, based on the function (product) of receptor sensitivity and potential impact magnitude, and identifies key activities for control.

Given that the proposed changes relate to the built form only, and that the receptor sensitivity and surrounding land uses remain unchanged, the risk assessment for demolition, earthworks, track-out and construction traffic are assessed the same.

Regarding the construction phase (i.e. built form), although the proposed reduction in warehouse gross floor area (GFA) is slight (~2 %), the total building volume is still estimated to exceed 100 000 m^3 (the threshold for a 'large' dust emission magnitude).

Therefore, the risk assessment for all phases of the construction (i.e. demolition, earthworks, construction, track-out and construction traffic) are assessed to remain the same, as previously reported and reproduced in Table 4.

Table 4 Risk of air quality impacts from construction activities

Impact	Sensitivity of area	Preliminary risk				
		Demolition	Earthworks	Construction	Track-out	Const. traffic
Dust soiling	Low	Med.	Low	Low	Low	Low
Human health	Med	High	Med.	Med.	Med.	Med.

Note: Med. = Medium

The methods to control dust emissions during construction would remain the same as those reported in the original AQIA.

3.2. Operational Phase

As presented in Section 2, changes to the built form result in a reduction in the predicted AM peak and daily total traffic movements, with a slight increase observed in PM peak traffic movements. These changes would also lead to minor adjustments in the modelled source locations. However, the changes in emission source locations due to the altered built form are not expected to materially affect the conclusions of the original AQIA, given the minor incremental impacts predicted during the operational phase.

The changes in traffic volumes are expected to result in slight decreases in particulate matter impacts over a 24-hour period, reflecting the reduction in daily vehicle flows. These reductions may be partially offset by a slight increase in heavy vehicle numbers. Nevertheless, given the minor incremental impacts predicted, these changes are not considered sufficient to materially alter the conclusions of the AQIA report.

Regarding NO_2, the increases in PM peak and daily total heavy vehicle flows may result in slightly higher 1-hour maximum NO_2 impacts compared with the original AQIA modelling. However, these increases are not expected to materially impact the conclusions of the original AQIA as the original predicted impacts were well below the relevant criteria.

Overall, considering the insignificant incremental impacts from operational activities, the minor changes in modelled variables are unlikely to alter the report findings or significantly affect the predicted short-term or long-term pollutant concentrations. Consequently, remodelling the Project operations for the proposed amended design is not considered to be warranted.

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air quality	Northstar specialises in all aspects of air quality, dust, and odour management, covering monitoring, modelling and assessment, due diligence and process specification, licencing and regulatory advice, peer review and expert witness.
environment	Our team has extensive experience in environmental management, covering environmental policy and management plans, licencing, compliance reporting, auditing, data, and spatial analysis.
sustainability	We look beyond compliance to add value and identify opportunities. Our services range from sustainability strategies, ecologically sustainable development reporting and assessment, to bespoke greenhouse gas and energy estimation and reporting.

Head Office

Suite 1504, 275 Alfred Street,
North Sydney NSW 2060

Riverina Office

PO Box 483
Albury NSW 2640

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