

MOOLARBEN COAL COMPLEX
OC3 EXTENSION PROJECT

ENVIRONMENTAL IMPACT STATEMENT

APPENDIX I

AIR QUALITY IMPACT ASSESSMENT

YANCOAL
兖煤澳大利亚有限公司
MOOLARBEN COAL

AIR QUALITY IMPACT ASSESSMENT
MOOLARBEN COAL COMPLEX
OC3 EXTENSION PROJECT

Moolarben Coal Operations Pty Ltd

3 November 2022

Job Number 21051283

Prepared by
Todoroski Air Sciences Pty Ltd
Suite 2B, 14 Glen Street
Eastwood, NSW 2122
Phone: (02) 9874 2123
Fax: (02) 9874 2125
Email: info@airsciences.com.au

Air Quality Impact Assessment
Moolarben Coal Complex
OC3 Extension Project

DOCUMENT CONTROL

Report Version	Date	Prepared by	Reviewed by
FINAL - 001	03/11/2022	P Henschke	A Todoroski

This report has been prepared in accordance with the scope of works between Todoroski Air Sciences Pty Ltd (TAS) and the client. TAS relies on and presumes accurate the information (or lack thereof) made available to it to conduct the work. If this is not the case, the findings of the report may change. TAS has applied the usual care and diligence of the profession prevailing at the time of preparing this report and commensurate with the information available. No other warranty or guarantee is implied in regard to the content and findings of the report. The report has been prepared exclusively for the use of the client, for the stated purpose and must be read in full. No responsibility is accepted for the use of the report or part thereof in any other context or by any third party.

TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 Overview of the Moolarben Coal Complex 1
1.2 Overview of the Project 1
1.3 Assessment Scope 4
2 LOCAL SETTING 6
3 AIR QUALITY CRITERIA 8
3.1 NSW EPA impact assessment criteria 8
3.2 NSW Voluntary Land Acquisition and Mitigation Policy 9
3.3 MCC Project Approval limits 10
3.4 Environment Protection Licence conditions 11
4 STUDY REQUIREMENTS 14
4.1 Secretary's Environmental Assessment Requirements 14
4.2 NSW Environment Protection Authority 14
5 EXISTING ENVIRONMENT 15
5.1 Local climatic conditions 15
5.2 Local meteorological conditions 16
5.3 Local air quality monitoring 20
5.3.1 PM_{10} monitoring 21
5.3.2 $PM_{2.5}$ monitoring 23
5.3.3 Deposited dust monitoring 25
5.4 Review of air quality related complaints 25
6 DISPERSION MODELLING APPROACH 27
6.1 Meteorological modelling 27
6.2 Meteorological modelling evaluation 28
6.3 Dispersion modelling 31
6.4 Modelling scenarios 31
6.4.1 Emission estimation 36
6.4.2 Other mining operations 37
6.4.3 Accounting for background dust levels 37
6.4.4 Model validation 39
6.4.5 Emissions from construction activities 41
6.4.6 Dust mitigation and management 41
7 DISPERSION MODELLING RESULTS 43
7.1 Summary of modelling results 43
7.2 Assessment of cumulative 24-hour average $PM_{2.5}$ and PM_{10} concentrations 44
7.2.1 Impacts without implementation of proactive/ reactive measures 45
7.2.2 Impacts with adoption of proactive/ reactive measures 46
7.3 Assessment of impacts per VLAMP criteria 51
7.3.1 Summary of modelling predictions 51
7.3.2 Dust impacts on privately-owned land 51
8 ASSESSMENT OF TRAIN DUST EMISSIONS 52
8.1 Introduction 52

8.2 Previous assessment of impacts 52
9 ASSESSMENT OF BLAST FUME EMISSIONS 53
9.1 General outline of best practice blast management 53
9.2 Management of potential air quality impacts from blasting 53
10 SUMMARY AND CONCLUSIONS 55
11 REFERENCES 56

LIST OF APPENDICES

Appendix A – Sensitive Receptor Locations
Appendix B – Selection of Meteorological Year
Appendix C – Emission Calculations
Appendix D – Modelling Predictions
Appendix E – Isopleth Diagrams
Appendix F – Further Detail Regarding 24-hour $PM_{2.5}$ and PM_{10} Analysis

LIST OF TABLES

Table 3-1: NSW EPA air quality impact assessment criteria 9
Table 3-2: Particulate matter mitigation criteria 9
Table 3-3: Particulate matter acquisition criteria 10
Table 3-4: Summary of applicable air quality criteria 10
Table 3-5: Summary of applicable air quality acquisition criteria 11
Table 5-1: Monthly climate statistics summary – Mudgee Airport AWS 15
Table 5-2: Summary of PM_{10} levels from TEOM monitoring stations (µg/m^3) 21
Table 5-3: Summary of PM_{10} levels from HVAS monitoring stations (µg/m^3) 22
Table 5-4: Summary of $PM_{2.5}$ levels from monitoring stations (µg/m^3) 24
Table 5-5: Annual average dust deposition (g/m^2/month) 25
Table 6-1: Surface observation stations used in modelling 27
Table 6-2: Seven critical parameters used in CALMET 27
Table 6-3: Summary of estimated dust emissions for the Project (kg of TSP) 36
Table 6-4: Estimated emissions from the approved MCC and Project (kg of TSP) 37
Table 6-5: Estimated emissions from nearby mining operations (kg of TSP) 37
Table 6-6: Summary of background dust levels estimation 38
Table 6-7: Estimated contribution from other non-modelled dust sources 39
Table 6-8: Operational dust mitigation measures applied at the MCC 41
Table 7-1: Summary of modelling predictions – highest maximum predicted level at any privately-owned receptor 43
Table 7-2: NSW EPA contemporaneous assessment - maximum number of additional days in a year above 24-hour average criterion 46
Table 7-3: NSW EPA contemporaneous assessment - maximum number of additional days in a year above 24-hour average criterion with implementation of proactive/ reactive measures 47

LIST OF FIGURES

Figure 1-1: Project location 2
Figure 1-2: Approved MCC and Project 3
Figure 1-3: General arrangement of the Project 5
Figure 2-1: Local setting for the Project and assessed receptor locations 6
Figure 2-2: Representative visualisation of topography in the area surrounding the Project 7
Figure 5-1: Monthly climate statistics summary – Mudgee Airport AWS 16
Figure 5-2: Annual windroses for 2018 17
Figure 5-3 : Annual and seasonal windroses – MCC WS3 (2018) 18
Figure 5-4 : Annual and seasonal windroses – MCC WS4 (2018) 19
Figure 5-5: Monitoring locations 20
Figure 5-6: 24-hour average PM_{10} concentrations from TEOM monitoring stations 22
Figure 5-7: 24-hour average PM_{10} concentrations from HVAS monitoring stations 23
Figure 5-8: 24-hour average $PM_{2.5}$ concentrations 25
Figure 5-9: Summary of air quality related complaints at the MCC 26
Figure 6-1: Representative 1-hour snapshot of wind field for the Project 28
Figure 6-2: Annual and seasonal windroses from CALMET 29
Figure 6-3: Meteorological analysis of CALMET 30
Figure 6-4: Indicative mine plan – Project Year 4 33
Figure 6-5: Indicative mine plan – Project Year 5 34
Figure 6-6: Indicative mine plan – Project Year 7 35
Figure 6-7: Quantile-quantile plots of measured and predicted 24-hour average PM_{10} concentrations during 2018 modelling period 40
Figure 7-1: Locations considered as part of the contemporaneous assessment 45
Figure 7-2: Predicted cumulative 24-hour average $PM_{2.5}$ concentrations for Receptor 41B 47
Figure 7-3: Predicted cumulative 24-hour average $PM_{2.5}$ concentrations for Receptor 60 48
Figure 7-4: Predicted cumulative 24-hour average PM_{10} concentrations for Receptor 41B 49
Figure 7-5: Predicted cumulative 24-hour average PM_{10} concentrations for Receptor 60 50

1 INTRODUCTION

Todoroski Air Sciences has assessed the potential for air quality impacts associated with the proposed Moolarben Coal Complex (MCC) Open Cut 3 (OC3) Extension Project (hereafter referred to as the Project).

1.1 Overview of the Moolarben Coal Complex

The MCC is operated by Moolarben Coal Operations Pty Ltd (MCO) on behalf of the Moolarben Joint Venture (Moolarben Coal Mines Pty Ltd [MCM], Yancoal Moolarben Pty Ltd [YM] and a consortium of Korean power companies). MCO, MCM and YM are wholly owned subsidiaries of Yancoal Australia Limited (Yancoal).

Mining operations at the MCC are currently approved until 31 December 2038 with a combined coal production rate of 22 million tonnes per annum (Mtpa) in accordance with Project Approval (05_0117) (Stage 1) (as modified) and Project Approval (08_0135) (Stage 2) (as modified).

The MCC comprises four approved open cut mining areas (OC1 to OC4), three approved underground mining areas (UG1, UG2 and UG4) and other mining related infrastructure (including coal processing and transport facilities), located in Western Coalfields approximately 40 kilometres (km) northeast of Mudgee, New South Wales (NSW) (see **Figure 1-1** and **Figure 1-2**).

1.2 Overview of the Project

MCO has identified an opportunity to extend open cut mining operations immediately south of the approved OC3 open cut pit as well as develop four new open cut pits to the east and south-east of the approved OC3 mining area, within existing mining tenements. The extended open cut mining operations would provide approximately 10 years of mining (from 2025 to 2034), maximise use of the existing mining fleet and maintain steady production of run-of-mine (ROM) coal at the MCC post-completion of mining within the approved OC3 mining area.

It is expected the Project would include the following activities:

- extension of open cut mining operations within mining lease (ML) 1691, exploration licence (EL) 6288, and EL 7073 to allow mining of additional coal resources;
- extraction of up to 9 Mtpa of ROM coal with a total of approximately 40 million tonnes over the life of the Project;
- mining operations between approximately 2025 to 2034 (which is within the approved life of the MCC ending on 31 December 2038);
- extension of employment of existing open cut workforce;

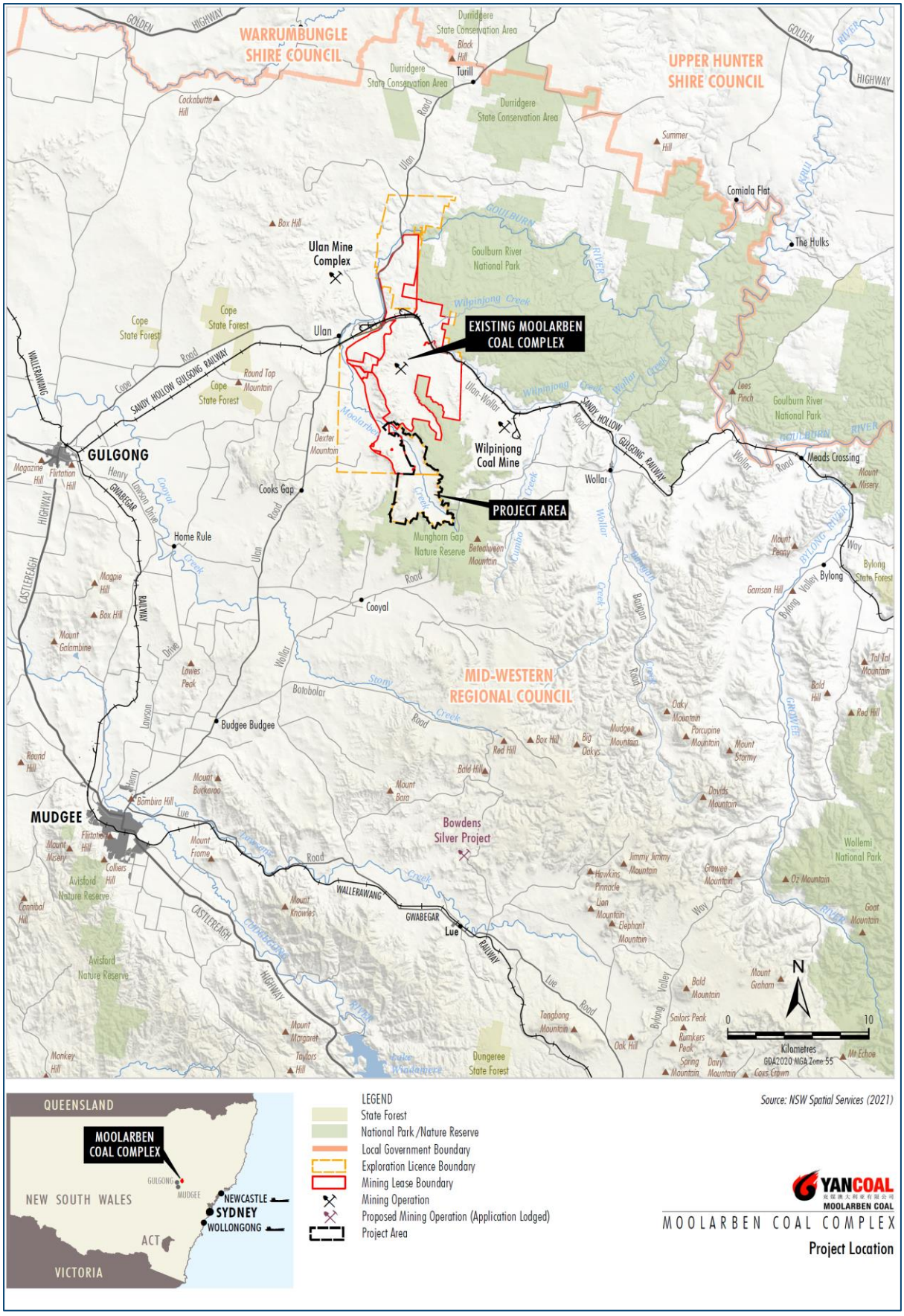


Figure 1-1: Project location

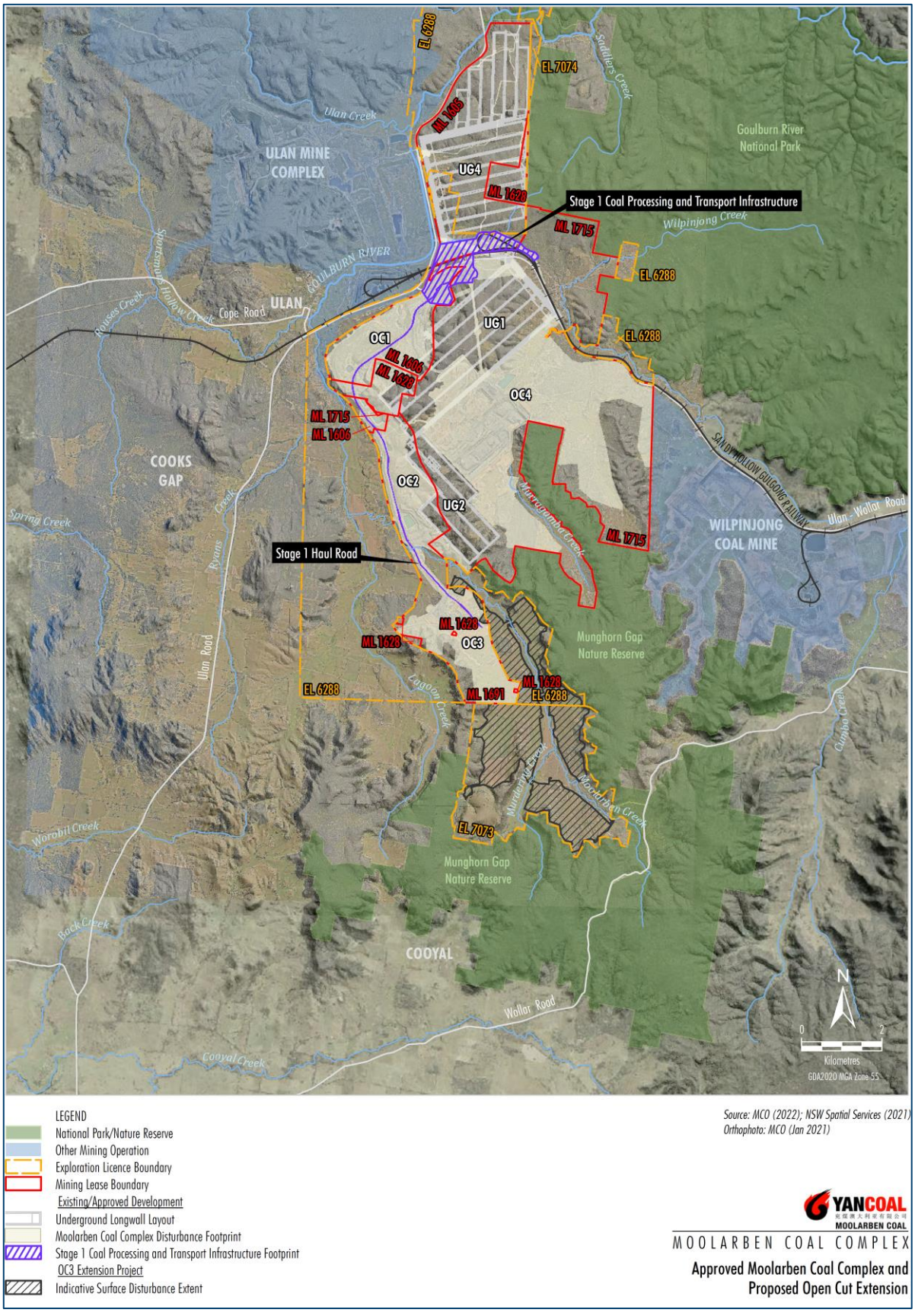


Figure 1-2: Approved MCC and Project

- construction and operation of ancillary infrastructure, services, plant and equipment in support of mining operations;
- construction and operation of water management and water storage infrastructure in support of mining operations;
- development of an integrated final landform with the approved OC3 mining area;
- ongoing exploration activities in the Project area;
- construction of haul road creek crossings;
- quarrying and/or excavation of borrow pits within approved disturbance areas to retrieve construction materials;
- conventional open cut mining related activities such as drilling and blasting, and other associated activities; and,
- rehabilitation, decommissioning and closure.

The Project general arrangement is shown in **Figure 1-3**.

1.3 Assessment Scope

This report focuses on the potential air quality impacts of the Project, in consideration of the Secretary's Environmental Assessment Requirements (SEARs) for the Project (**Section 4**). Assessment of the potential greenhouse gas emissions of the Project has also been conducted by **Todoroski Air Sciences (2022)** and is provided in Appendix J of the Environmental Impact Statement (EIS).

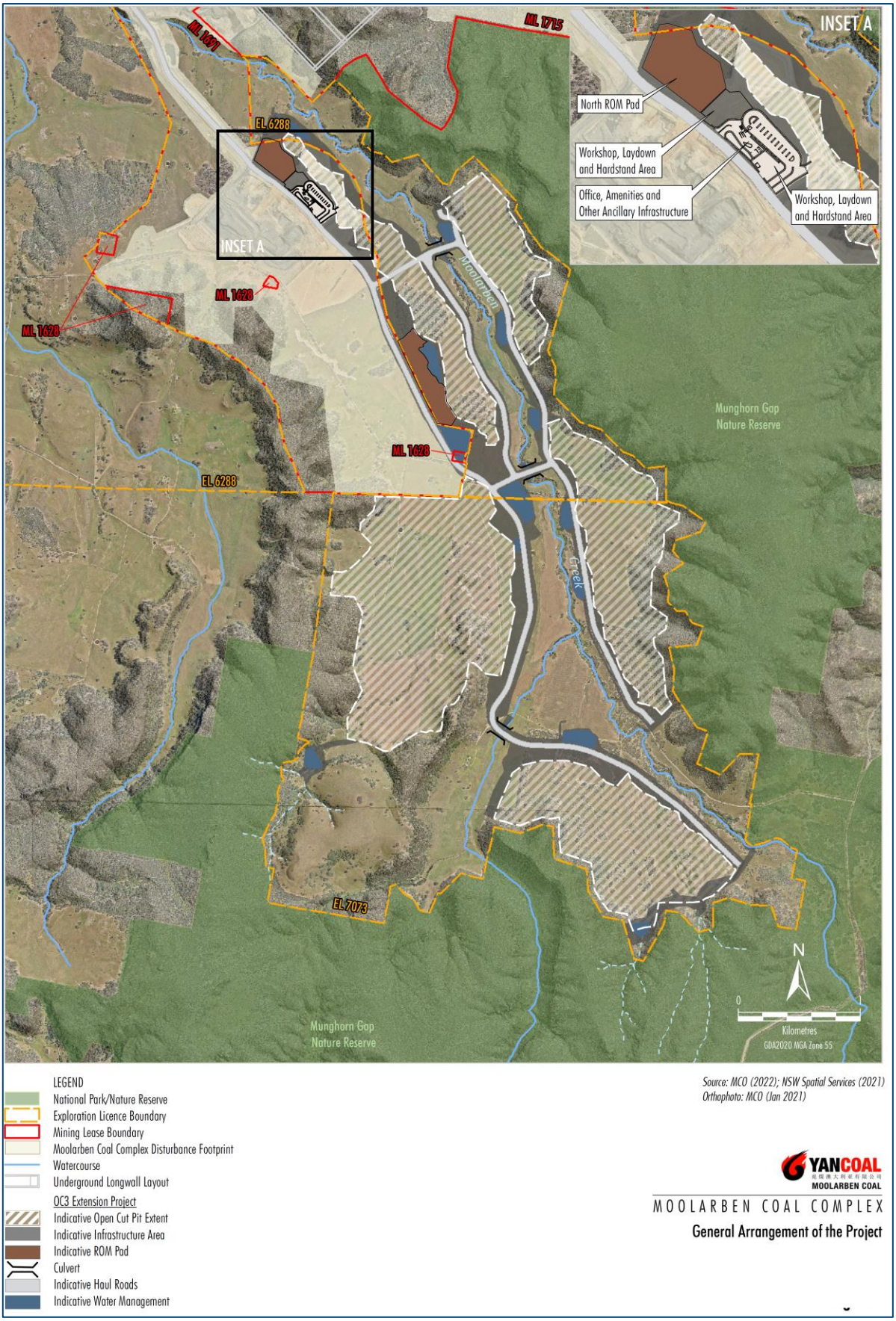


Figure 1-3: General arrangement of the Project

2 LOCAL SETTING

The Project is located within the Moolarben Valley, which is characterised by lower lying areas associated with Moolarben Creek and is surrounded by the undulating foothills and ridges of the adjacent Munghorn Gap Nature Reserve and MCC in the north.

The MCC is bordered by the Goulburn River to the northwest and the Goulburn River National Park to the northeast. The Ulan Mine Complex is located to the northwest and Wilpinjong Coal Mine is located to the east. Cooks Gap and Cooyal are located to the southwest and south, respectively.

Figure 2-1 presents the location of the Project in relation to the existing MCC, neighbouring coal mining operations and receptor locations. **Appendix A** provides a detailed list of all the privately-owned and mine-owned receptors considered in this assessment.

Figure 2-2 presents a three-dimensional visualisation of the topography in the vicinity of the Project. The area can be characterised as complex hilly terrain with the majority of the elevated areas forming the Goulburn River National Park and the Munghorn Gap Nature Reserve. The local terrain in this area has a significant effect on wind patterns and the dispersion of dust.

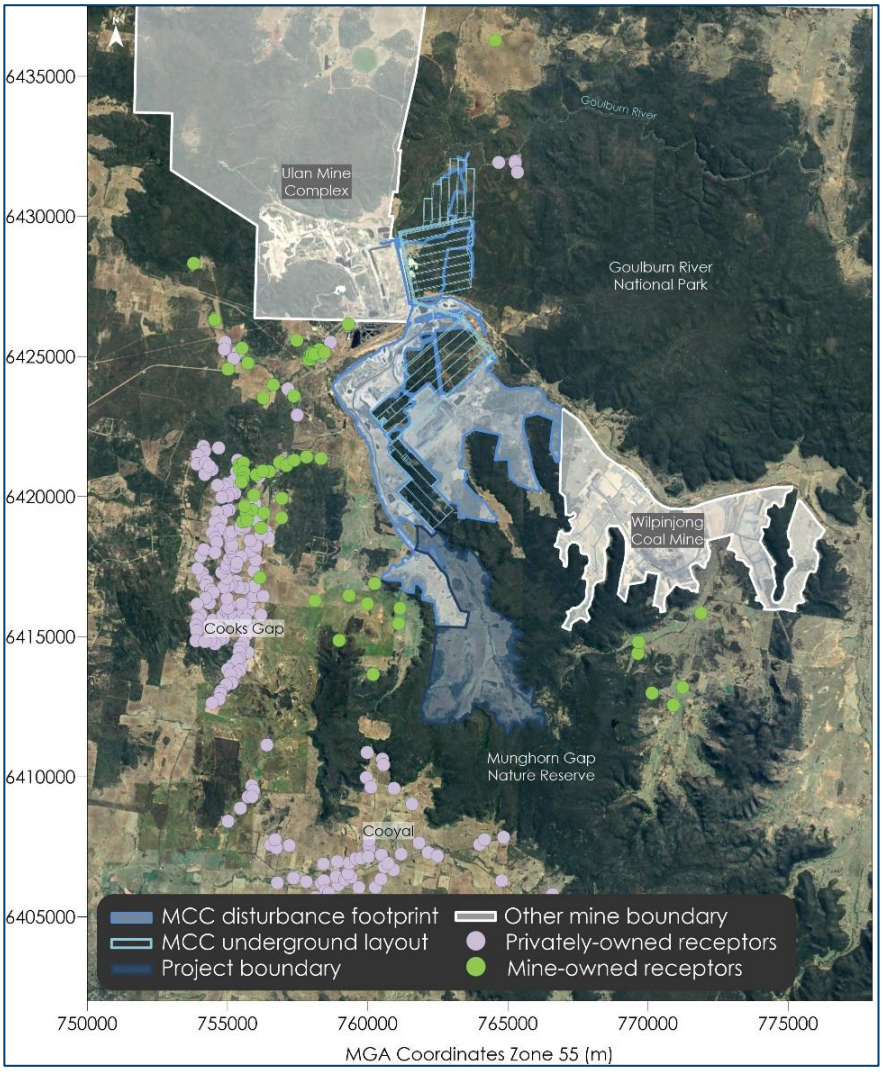


Figure 2-1: Local setting for the Project and assessed receptor locations

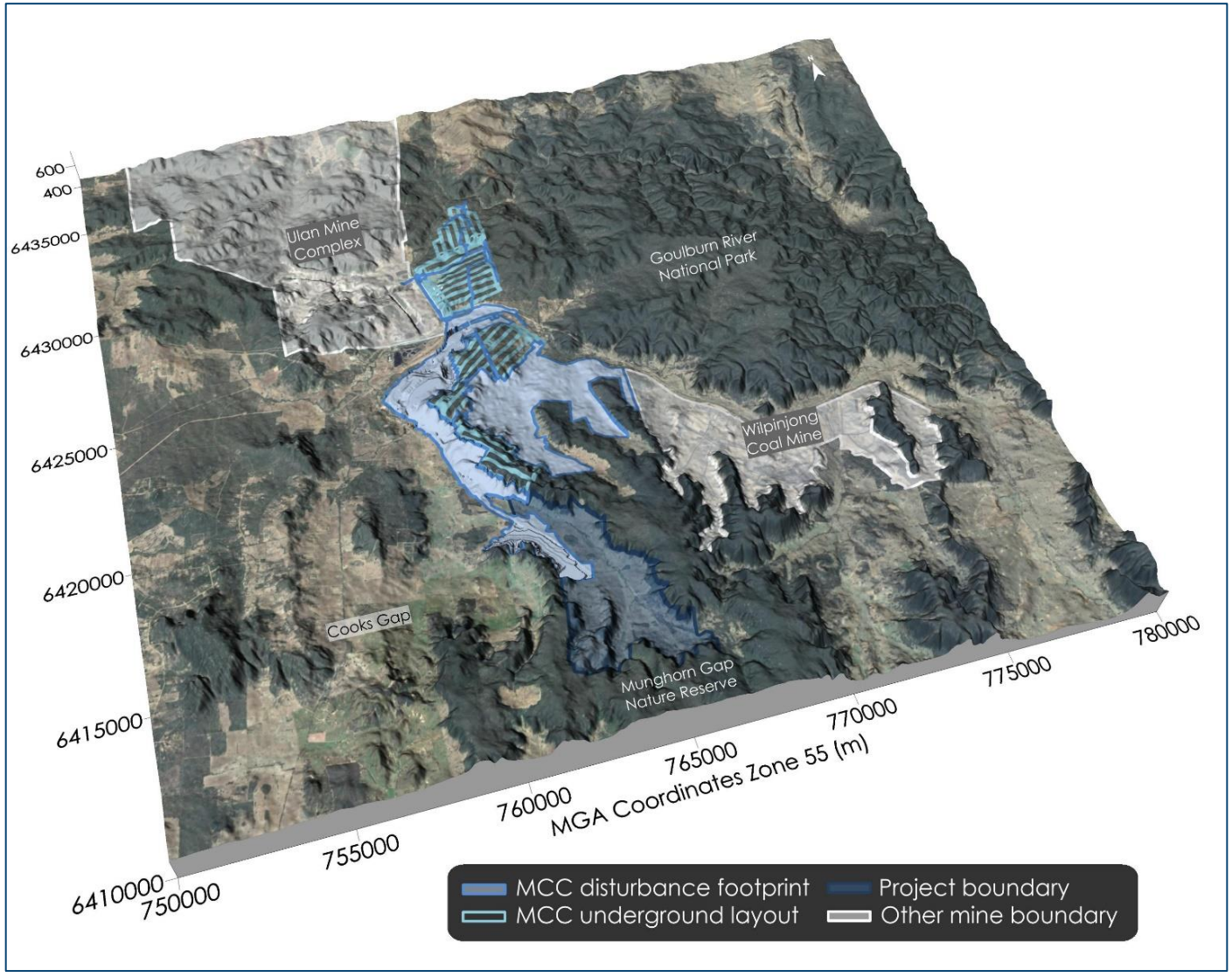


Figure 2-2: Representative visualisation of topography in the area surrounding the Project

3 AIR QUALITY CRITERIA

Air quality criteria are benchmarks set to protect the general health and amenity of the community in relation to air quality. The sections below identify the potential air emissions generated by the Project and the applicable air quality criteria.

The key emissions generated by mining operations are particulate matter/dust. Particulate matter consists of dust particles of varying size and composition. Air quality goals refer to measures of the total mass of all particles suspended in air defined as the Total Suspended Particulate matter (TSP). The upper size range for TSP is nominally taken to be 30 micrometres (µm) as in practice particles larger than 30 to 50µm will settle out of the atmosphere too quickly to be regarded as air pollutants.

Two sub-classes of TSP are also included in the air quality goals, namely PM_{10}, particulate matter with equivalent aerodynamic diameters of 10µm or less, and $PM_{2.5}$, particulate matter with equivalent aerodynamic diameters of 2.5µm or less.

Particulate matter, typically in the upper size range, that settles from the atmosphere and deposits on surfaces is characterised as deposited dust. The deposition of dust on surfaces may be considered a nuisance and can adversely affect the amenity of an area by soiling property in the vicinity.

While the combustion of fuels in mining equipment also releases combustion products such as carbon monoxide (CO), sulfur dioxide (SO_2) and nitrogen oxides (NO_X), the emissions are typically of such a low magnitude, and spread over such a large spatial extent, that the ground-level concentrations are very low. Blasting activities also have the potential to generate noxious gases such as nitrogen dioxide (NO_2). Blast fume emissions from each blast event can vary greatly depending on a number of factors but largely on the tendency of a particular blast (or holes within the shot). The potential blast fume emissions associated with blasting activity have been assessed qualitatively in **Section 9**.

There are three key sets of air quality criteria used to assess the potential air quality impacts associated with the Project. These include the NSW EPA air quality impact assessment criteria to determine whether air emissions from a premises will comply with an appropriate environmental outcome, the NSW Government (**2018**) *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments* (VLAMP) which specifically applies to state significant mining, petroleum and extractive industry development and the MCC Project Approval air quality criteria. Each of these air quality criteria are described below.

3.1 NSW EPA impact assessment criteria

The NSW Environment Protection Authority (NSW EPA) document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA, 2022**) includes criteria for a range of air pollutants that may be emitted from a development or facility.

Table 3-1 summarises the air quality goals that are relevant to this assessment as outlined in the NSW EPA's Approved Methods (**NSW EPA, 2022**).

The air quality goals for total impact relate to the total pollutant burden in the air and not just the contribution from the Project. Consideration of background pollutant levels needs to be made when using these goals to assess potential impacts.

Table 3-1: NSW EPA air quality impact assessment criteria

Pollutant	Averaging Period	Impact	Criterion
TSP	Annual	Total	90 µg/m³
PM_{10}	Annual	Total	25 µg/m³
	24-hour	Total	50 µg/m³
$PM_{2.5}$	Annual	Total	8 µg/m³
	24-hour	Total	25 µg/m³
Deposited dust	Annual	Incremental	2 g/m²/month
		Total	4 g/m²/month

µg/m³ = micrograms per cubic metre and g/m²/month = grams per square metre per month.
Source: **NSW EPA, 2022**

3.2 NSW Voluntary Land Acquisition and Mitigation Policy

Part of the VLAMP describes the NSW Government's policy for voluntary mitigation and land acquisition to address particulate matter impacts from state significant mining, petroleum and extractive industry developments.

Voluntary mitigation rights (such as air conditioning [including heating]) may apply per the VLAMP where, even with best practice management, the development contributes to exceedances of the criteria in **Table 3-2** at any residence on privately owned land or workplace on privately owned land[1].

Table 3-2: Particulate matter mitigation criteria

Pollutant	Averaging period	Mitigation criterion		Impact type
$PM_{2.5}$	Annual	8 µg/m³*		Human health
$PM_{2.5}$	24 hour	25 µg/m³**		Human health
PM_{10}	Annual	25 µg/m³*		Human health
PM_{10}	24 hour	50 µg/m³**		Human health
TSP	Annual	90 µg/m³*		Amenity
Deposited dust	Annual	2 g/m²/month**	4 g/m²/month*	Amenity

Source: **NSW Government (2018)**

*Cumulative impact (i.e. increase in concentration due to the development plus background concentrations due to all other sources).

**Incremental impact (i.e. increase in concentrations due to the development alone), with zero allowable exceedances of the criteria over the life of the development.

Voluntary acquisition rights may apply as per the VLAMP where, even with best practice management, the development contributes to exceedances of the criteria in **Table 3-3** at any residence on privately owned land, workplace on privately-owned land or on more than 25% of any privately-owned land where there is an existing dwelling or where a dwelling could be built under existing planning controls (vacant land).

[1] Where any exceedance would be unreasonably detrimental to workers health or carrying out of the business at that workplace.

Table 3-3: Particulate matter acquisition criteria

Pollutant	Averaging period	Acquisition criterion		Impact type
$PM_{2.5}$	Annual	8 µg/m³*		Human health
$PM_{2.5}$	24 hour	25 µg/m³**		Human health
PM_{10}	Annual	25 µg/m³*		Human health
PM_{10}	24-hour	50 µg/m³**		Human health
TSP	Annual	90 µg/m³*		Amenity
Deposited dust	Annual	2 g/m²/month**	4 g/m²/month*	Amenity

Source: **NSW Government (2018)**

*Cumulative impact (i.e. increase in concentration due to the development plus background concentrations due to all other sources).

**Incremental impact (i.e. increase in concentrations due to the development alone), with up to five allowable exceedances of the criteria over the life of the development.

3.3 MCC Project Approval limits

A summary of the applicable air quality criteria for the MCC as outlined in Project Approval (05_0117) (Moolarben Coal Project Stage 1) and Project Approval (08_0135) (Moolarben Coal Project Stage 2) is presented in **Table 3-4**.

MCO must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the MCC do not exceed the criteria in **Table 3-4** at any residence on privately-owned land.

Table 3-4: Summary of applicable air quality criteria

Pollutant	Averaging period	Criterion
TSP	Annual	[a, d] 90 µg/m³
PM_{10}	Annual	[a, d] 25 µg/m³
	24-hour	[a, d] 50 µg/m³
$PM_{2.5}$	Annual	[a, d] 8 µg/m³
	24-hour	[b, d] 25 µg/m³
[c] Deposited dust	Annual	[b] 2 g/m²/month
		[a] 4 g/m²/month

Notes:

a. *Cumulative (i.e. incremental increase in concentrations due to the Moolarben mine complex plus background concentrations due to all other sources);*

b. *Incremental impact (i.e. incremental increase in concentrations due to the Moolarben mine complex on its own) with up to 5 allowable exceedances over the life of the project;*

c. *Deposited dust is to be 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; and*

d. *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents, illegal activities or any other activity agreed by the Secretary.*

If particulate matter emissions generated by the MCC exceed the incremental criteria, or contribute to an exceedance of the relevant cumulative criteria in **Table 3-5** at any residence on privately-owned land or on more than 25% of any privately-owned land (and a dwelling could be built on that land under the existing planning controls), then upon receiving a written request for acquisition from the landowner, MCO shall acquire the land.

Table 3-5: Summary of applicable air quality acquisition criteria

Pollutant	Averaging period	Criterion
TSP	Annual	[a, d] 90 µg/m³
PM_{10}	Annual	[a, d] 30 µg/m³
	24-hour	[b, d] 50 µg/m³
$PM_{2.5}$	Annual	[a, d] 8 µg/m³
	24-hour	[b, d] 25 µg/m³
[c] Deposited dust	Annual	[b] 2 g/m²/month
		[a] 4 g/m²/month

Notes:

a. *Cumulative (i.e. incremental increase in concentrations due to the Moolarben mine complex plus background concentrations due to all other sources);*

b. *Incremental impact (i.e. incremental increase in concentrations due to the Moolarben mine complex on its own) with up to 5 allowable exceedances over the life of the project;*

c. *Deposited dust is to be 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; and*

d. *Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents, illegal activities or any other activity agreed by the Secretary.*

3.4 Environment Protection Licence conditions

Air quality criteria and other air quality related conditions stipulated in Environment Protection Licence (EPL) 12932 for the existing MCC include:

O3 Dust

O3.1 All areas in or on the premises must be maintained in a condition that prevents or minimises the emission into the air of air pollutants (which includes dust).

O3.2 Any activity in or on the premises must be carried out by such practicable means as to prevent or minimise the emission into the air of air pollutants (which includes dust).

O3.3 Any plant in or on the premises must be operated by such practicable means as to prevent or minimise the emission into the air or air pollutants (which includes dust).

M2 Requirement to monitor concentration of pollutants discharged

...

M2.2 Air Monitoring Requirements

Point 15, 17, 27

Pollutant	***Units of measure***	***Frequency***	***Sampling Method***
PM10	*Micrograms per cubic metre*	*Continuous*	*AM-22*

Point 16

Pollutant	***Units of measure***	***Frequency***	***Sampling Method***
PM10	*Micrograms per cubic metre*	*Every 6 days*	*AM-18*

Point 27

Pollutant	***Units of measure***	***Frequency***	***Sampling Method***
PM2.5	*Micrograms per cubic metre*	*Continuous*	*Special Method 1*

M2.3 For the purposes of the table(s) above Special Method 1 means AS/NZS 3580.9.13:2013 - Methods for sampling and analysis of ambient air determination of suspended particulate matter - PM 2.5 continuous direct mass method using a tapered element oscillating microbalance monitor.

…

Note: For the purposes of conditions M2.2 and M2.4, 'continuous' refers to the capture of relevant pollutant data for the duration of the frequency reporting period. Data capture rates across the frequency reporting period do not apply under the following situations:

a) equipment breakdown;
b) power loss;
c) scheduled maintenance;
d) performance specification testing;
e) vandalism.

M2.5 When continuous monitoring equipment is unavailable for a period of time greater than 48 hours, the licensee must notify the EPA to determine whether equivalent manual sampling, testing or estimation needs to be undertaken on a daily basis at the monitoring point(s) prior to the return to service of the monitoring equipment.

M4 Weather monitoring

M4.1 The meteorological station (licence point 50) must be maintained so as to be capable of continuously monitoring the parameters specified in condition M4.2.

M4.2 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

Point 50

Parameter	***Sampling method***	***Units of measure***	***Averaging period***	***Frequency***
Wind Direction at 10 metres	*AM-2 & AM-4*	*Degrees*	*15 minutes*	*Continuous*
Wind Speed at 10 metres	*AM-2 & AM-4*	*Metres per second*	*15 minutes*	*Continuous*
Sigma Theta	*AM-2 & AM-4*	*Degrees*	*15 minutes*	*Continuous*
Rainfall	*AM-4*	*Millimetres*	*15 minutes*	*Continuous*
Temperature at 10 metres	*AM-4*	*Degrees Celsius*	*1 hour*	*Continuous*
Relative humidity	*AM-4*	*percent*	*1 hour*	*Continuous*

Note: For the purposes of conditions M4.1 and M4.2, 'Continuous' refers to the continuous monitoring of the relevant weather parameters for the duration of the frequency reporting period except during the following situations:

a) equipment breakdown;
b) power loss;
c) scheduled maintenance;
d) performance specification testing;
e) vandalism.

M4.3 When the meteorological station is unavailable for a period of time greater than 48 hours, the licensee must notify the EPA and state what alternative weather monitoring arrangements will be put in place until the return to service of the meteorological station.

4 STUDY REQUIREMENTS

The purpose of this report is to provide an assessment of the likely Project-related effects on air quality over the life of the Project. In recognition that the Project would interact with the existing/approved MCC, the assessment also considers the impacts of the Project and MCC. The assessment presented in this report addresses planning and regulatory agency requirements, as set out below.

4.1 Secretary's Environmental Assessment Requirements

This Air Quality Assessment forms part of an EIS which has been prepared to accompany a Development Application made for the Project in accordance with Part 4 of the *Environmental Planning and Assessment Act 1999* (EP&A Act). The SEARs states the following requirement in regard to the air quality assessment:

> ***3. Amenity*** *– including:*
>
> ...
>
> *an assessment of the likely air quality impacts of the development in accordance with the Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW; and*

4.2 NSW Environment Protection Authority

This air quality assessment has been prepared in consideration of the NSW EPAs input to the SEARs that states the *proposed level and scope of assessment summarised for each environmental matter in Table 3* (of the SEARs) *is appropriate*.

5 EXISTING ENVIRONMENT

This section describes the existing environment including the climate and ambient air quality in the area surrounding the Project.

5.1 Local climatic conditions

Long-term climatic data from the Bureau of Meteorology (BoM) weather station at Mudgee Airport Automatic Weather Station (AWS) (Site No. 062101) were analysed to characterise the local climate in the proximity of the Project. The Mudgee Airport AWS weather station is located approximately 33km southwest of the MCC. The Mudgee Airport AWS weather station is the nearest BoM weather station with suitable available long-term data used to select the meteorological year for the dispersion modelling as outlined in **Appendix B**.

Table 5-1 and **Figure 5-1** present a summary of data from the Mudgee Airport AWS collected over an approximate 18 to 30-year period for various meteorological parameters. These data assist in characterising the local climatic conditions based on long-term meteorological parameters.

The data indicate that on average January is the hottest month with a mean maximum temperature of 31.0 degrees Celsius (°C) and July the coldest month with a mean minimum temperature of 1.2°C.

Rainfall levels are elevated in the summer months compared to the other seasons. The data show December is the wettest month with an average rainfall of 79.0mm over 6.1 days and August is the driest month with an average rainfall of 34.4mm over 4.1 days. The annual average rainfall is 659.1 millimetres (mm) over 60.9 days.

Relative humidity levels exhibit variability over the day and seasonal fluctuations. Mean 9am relative humidity levels range from 61 percent (%) in October to 87% in June and July. Mean 3pm relative humidity levels vary from 37% in January and December to 57% in July.

The mean 9am wind speeds range from 7.4 kilometres per hour (km/h) in July to 11.5 km/h in October. The mean 3pm wind speeds vary from 14.8 km/h in May to 18.7 km/h in September.

Table 5-1: Monthly climate statistics summary – Mudgee Airport AWS

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann.
Temperature													
Mean max. temp. (°C)	31.0	29.4	26.7	22.9	18.6	15.0	14.5	16.3	19.7	23.2	26.5	28.9	22.7
Mean min. temp. (°C)	16.1	15.7	12.8	7.9	4.0	2.4	1.2	1.5	4.3	7.8	11.3	13.8	8.2
Rainfall													
Rainfall (mm)	64.6	65.6	65.4	35.1	37.1	45.6	44.8	34.4	54.2	50.6	72.3	79.0	659.1
No. of rain days (≥1mm)	5.6	5.2	5.3	2.7	4.1	5.6	5.5	4.1	4.8	5.6	6.3	6.1	60.9
9am conditions													
Mean temp. (°C)	21.5	20.4	17.8	15.2	10.7	7.3	6.4	8.4	12.5	16.2	18.1	20.1	14.5
Mean R.H. (%)	63	70	72	71	80	87	87	78	70	61	63	62	72
Mean W.S. (km/h)	10.5	9.8	9.5	9.1	7.9	7.7	7.4	9.2	10.6	11.5	11.3	10.7	9.6
3pm conditions													
Mean temp. (°C)	29.1	27.9	25.4	21.8	17.6	14.0	13.5	15.3	18.4	21.5	24.6	27.1	21.4
Mean R.H. (%)	37	42	42	41	49	57	55	47	44	41	40	37	44
Mean W.S. (km/h)	16.7	15.9	15.2	15.1	14.8	15.6	16.2	18.4	18.7	18.6	18.1	17.3	16.7

Source: **BoM, 2021**

R.H. – Relative Humidity, W.S. – wind speed

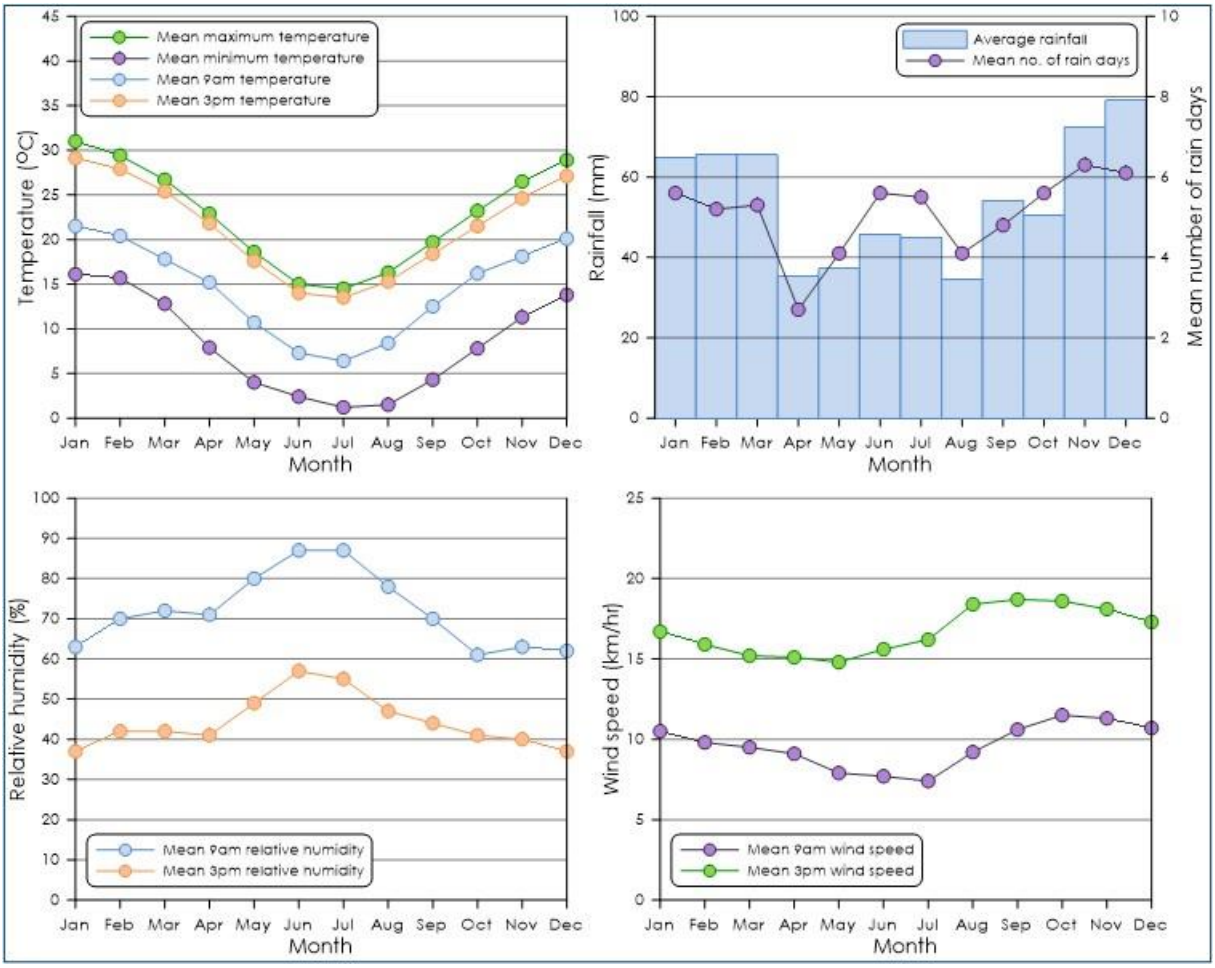


Figure 5-1: Monthly climate statistics summary – Mudgee Airport AWS

5.2 Local meteorological conditions

MCO operates three local meteorological stations identified as WS3, WS4, and WS5 (WS5 has recently been installed in December 2020) to assist with management of operations at the MCC. The neighbouring mines, Ulan Mine Complex and Wilpinjong Coal Mine also operate independent individual meteorological stations.

Figure 5-2 presents the annual windroses for 2018 for the MCC (WS3 and WS4), Ulan Mine Complex and Wilpinjong Coal Mine weather stations. The 2018 calendar year was selected as the meteorological year for the dispersion modelling based on an analysis of data trends in meteorological data recorded as outlined in **Appendix B**.

The local terrain features surrounding the Project have a significant effect on local wind patterns and is apparent in the annual windroses for each of the weather stations. The annual windrose for WS3 indicates winds along a south-southwest to the east-northeast axis. The WS4 weather station records winds predominantly from the south which is likely attributed to local drainage flows followed by winds from the east-southeast. The Ulan Mine Complex weather station shows winds typically flowing on a west-southwest to east axis and the Wilpinjong Coal Mine weather station records winds flow on an east to west axis.

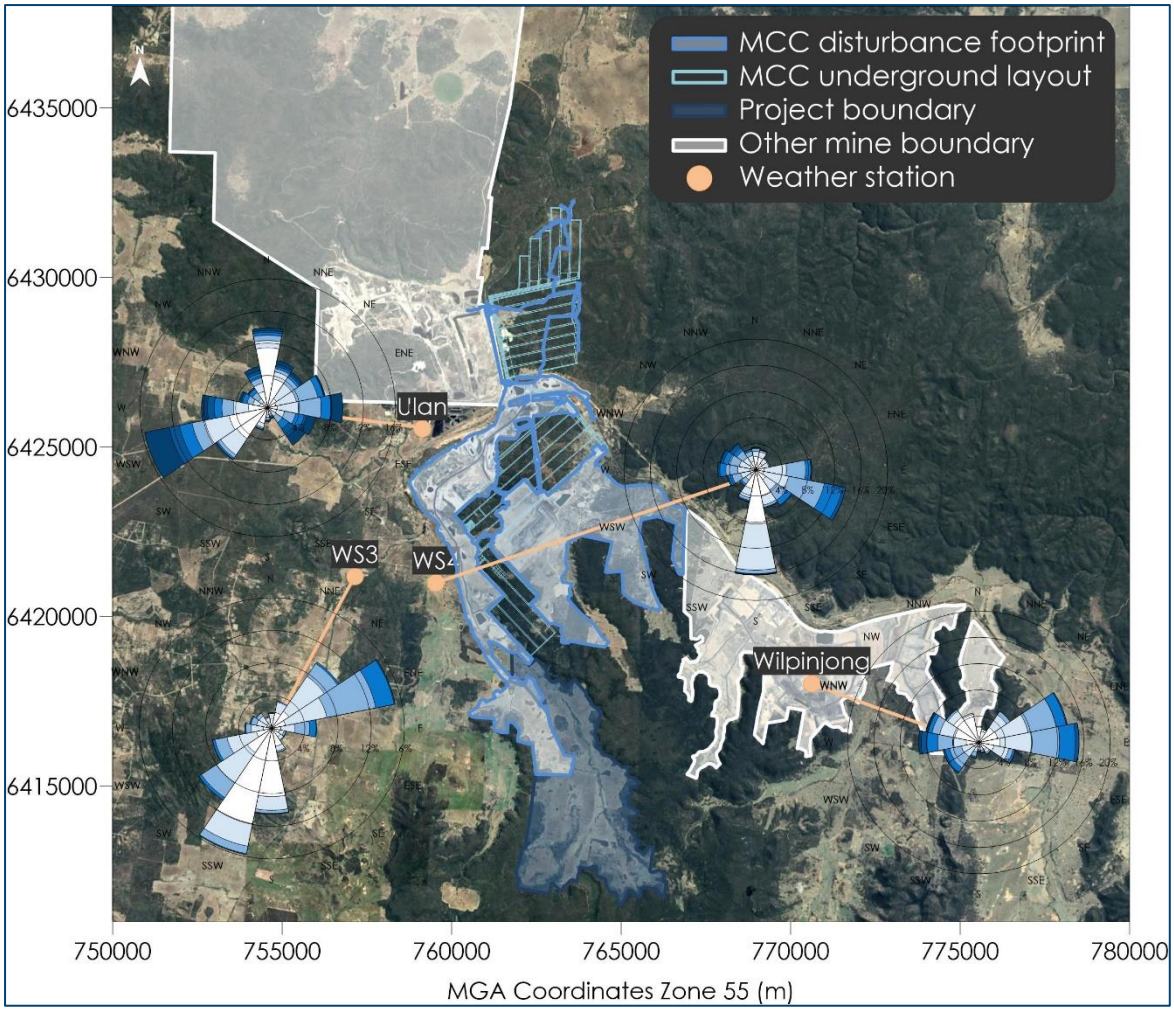


Figure 5-2: Annual windroses for 2018

Annual and seasonal windroses for the WS3 and WS4 meteorological stations during the 2018 calendar period are presented in **Figure 5-3** and **Figure 5-4** respectively.

The summer windroses show winds from the east-northeast and northeast at WS3 and from the east-southeast and east are most prominent at WS4. In autumn, both stations show a similar distribution pattern as the respective annual windroses with the greatest winds from the south-southwest at WS3 and the south at WS4. During winter, winds from the south-southwest are most frequent at WS3 and from the south at WS4. The spring windroses shows winds are most frequent from the east-northeast and east-southeast at WS3 and WS4, respectively.

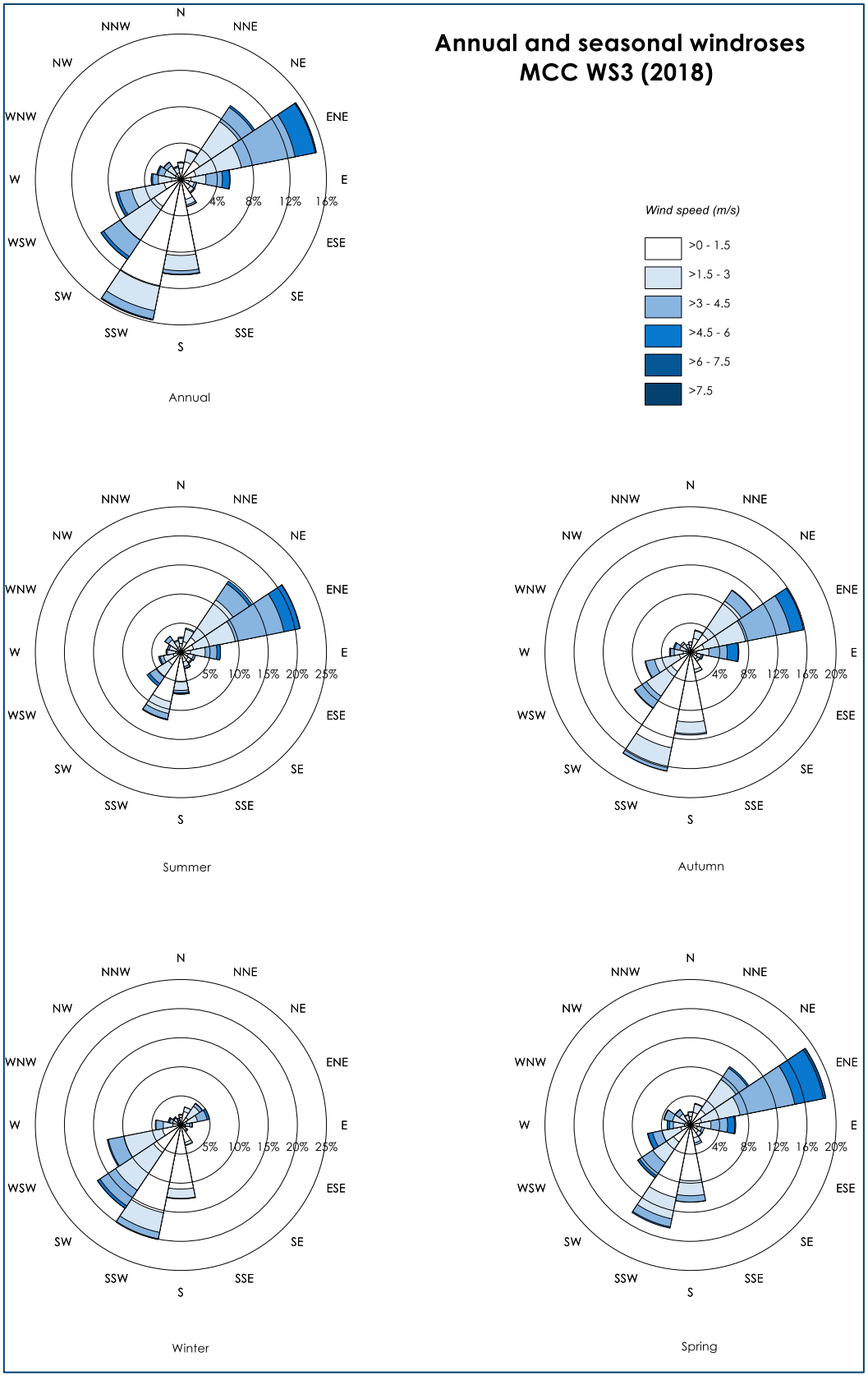


Figure 5-3 : Annual and seasonal windroses – MCC WS3 (2018)

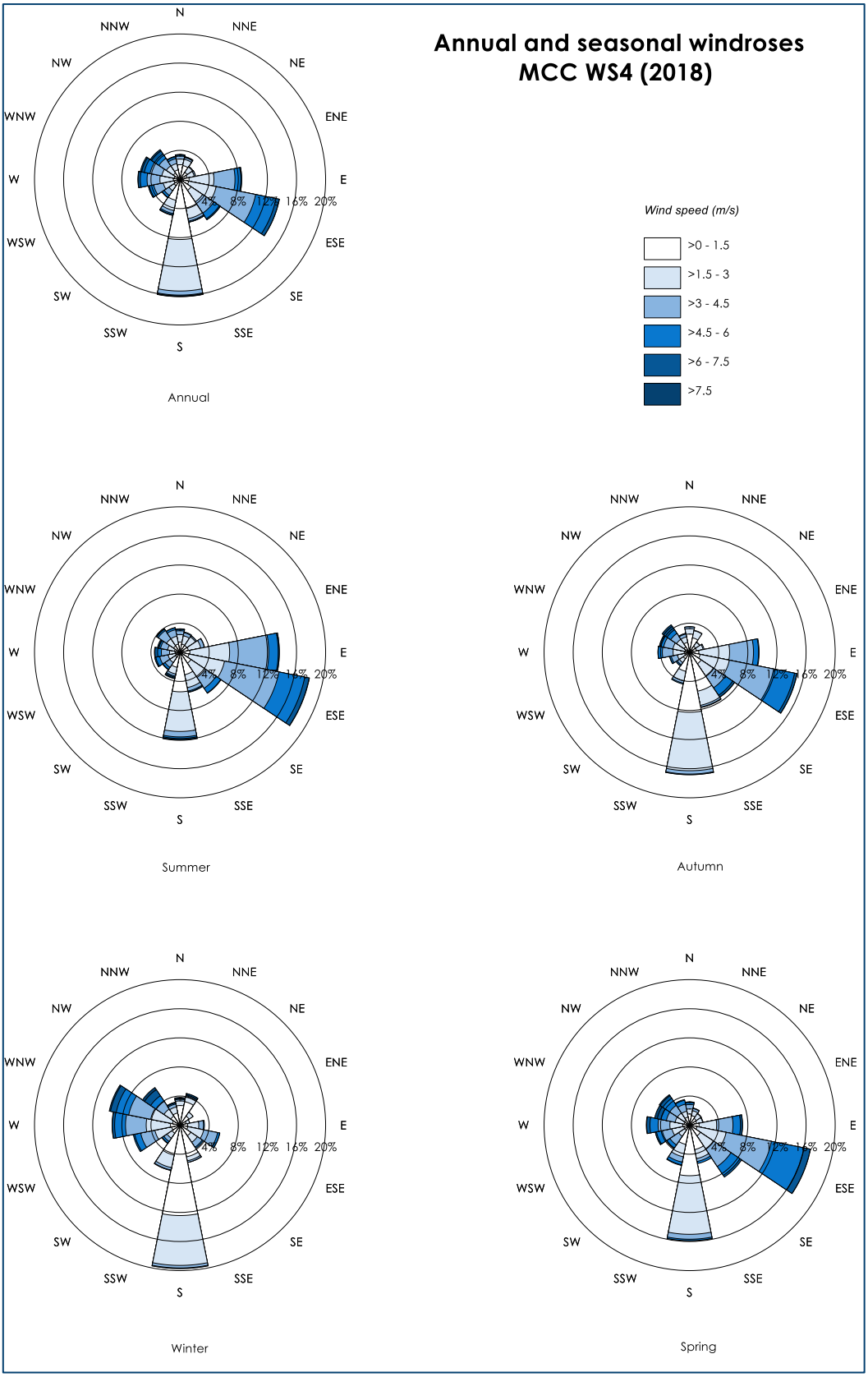


Figure 5-4 : Annual and seasonal windroses – MCC WS4 (2018)

5.3 Local air quality monitoring

The main sources of particulate matter in the wider area include active mining, agricultural activities, emissions from local anthropogenic activities such as motor vehicle exhaust and domestic wood heaters, urban activity, and various other commercial and industrial activities.

This section reviews the available ambient air quality monitoring data sourced from MCC's air quality monitoring network along with the nearby Ulan Mine Complex and Wilpinjong Coal Mine monitoring networks.

Figure 5-5 shows the approximate location of each of the monitoring stations with reference to the Project.

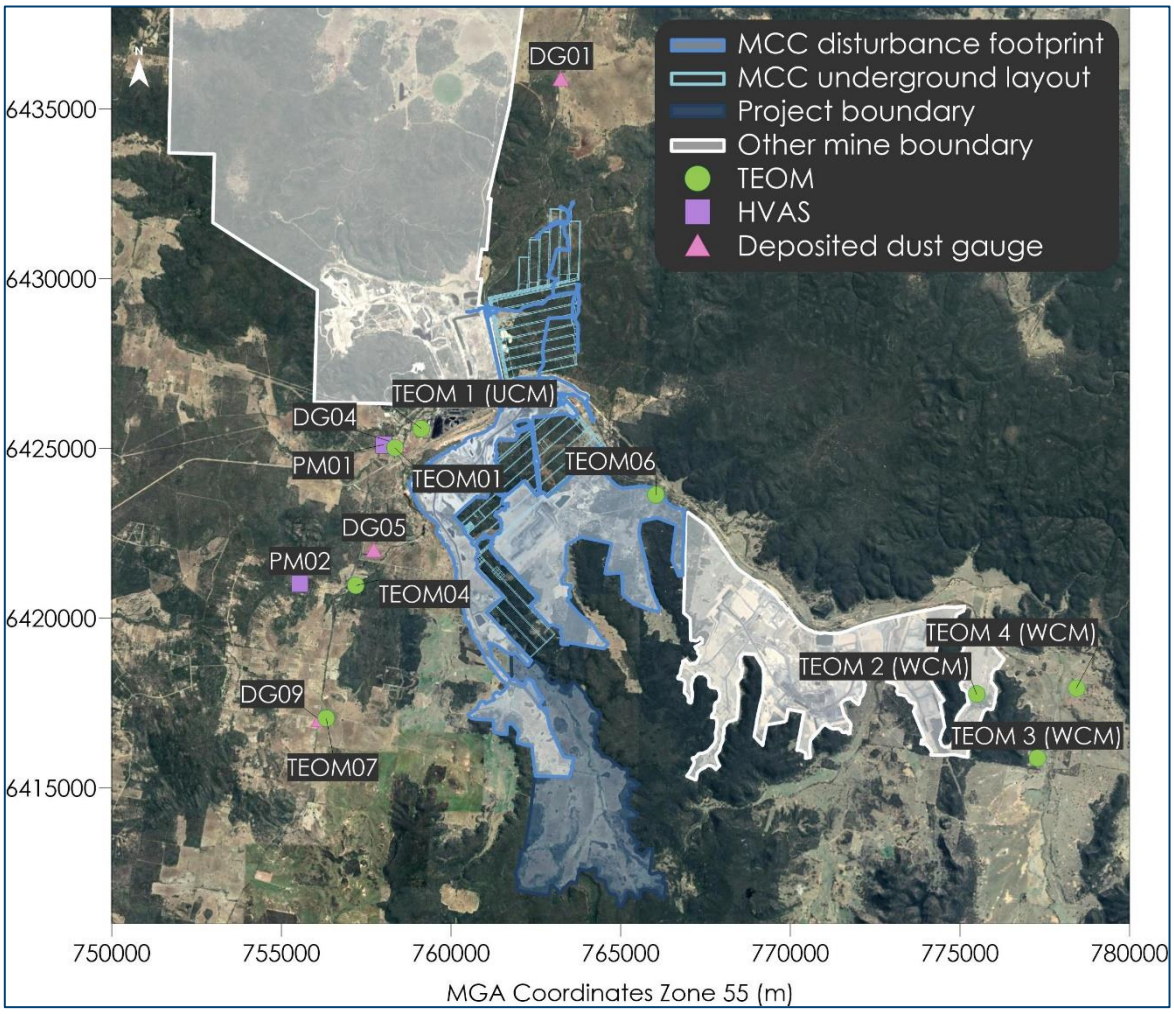


Figure 5-5: Monitoring locations

5.3.1 PM_{10} monitoring

A summary of the available Tapered Element Oscillating Microbalance (TEOM) PM_{10} monitoring data is presented in **Table 5-2** and excludes periods of extraordinary events.

A review of **Table 5-2** indicates that the annual average PM_{10} concentrations at all monitoring stations were below the NSW EPA impact assessment criterion of 25µg/m³ for all years. The maximum 24-hour average PM_{10} concentrations were found to exceed the relevant criterion of 50µg/m³ on occasion for all years of the review period at each monitoring station except for 2016.

Table 5-2: Summary of PM_{10} levels from TEOM monitoring stations (µg/m³)

Year	TEOM01	TEOM04	TEOM06	TEOM07	TEOM 1	TEOM 2	TEOM 3	TEOM 4	Criteria
	MCC				Ulan Mine Complex	Wilpinjong Coal Mine			
	Annual average (excluding extraordinary events)								
2016 ^	-	-	-	-	-	-	-	-	**25**
2017	12.2	15.1	12.6	10.4	13.5	18.4	9.4	12.7	**25**
2018	14.7	18.4	15.4	16.2	16.2	19.8	13.0	15.8	**25**
2019	15.6	18.7	19.2	14.9	16.6	-	16.6	22.9	**25**
2020	14.6	13.3	16.0	10.3	12.8	ND	9.5	15.3	**25**
2021	12.2	11.6	11.7	7.8	-	ND	-	-	**25**
	Maximum 24-hour average (excluding extraordinary events)								
2016	27.5	31.1	26.9	22.8	29.4	41.4	20.3	34.6	**50**
2017	39.5	44.5	49.5	42.5	43.5	**79.6**	40	47.3	**50**
2018	40.2	46.5	**55**	45.4	46.7	**78.8**	34.5	**50.6**	**50**
2019	40.4	48.5	**63.4**	44.5	44.2	**94**	**53.4**	**70.7**	**50**
2020	43.6	48	49.4	46.1	40.9	ND	**53.2**	**52.1**	**50**
2021	29.2	28.6	36.3	25.5	**65.4**	ND	25.1	35	**50**
	Number of days >50µg/m³ (excluding extraordinary events)								
2016	0	0	0	0	0	0	0	0	N/A
2017	0	0	0	0	0	10	0	0	N/A
2018	0	0	1	0	0	8	0	2	N/A
2019	0	0	4	0	0	10	2	11	N/A
2020	0	0	0	0	0	ND	1	1	N/A
2021	0	0	0	0	1	ND	0	0	N/A

^ Data available from August 2016
ND = no data
'-' denotes less than 75% data available
TAS has undertaken a review of regional events and identified additional extraordinary events. As a result, the annual average concentrations provided above, excluding additional extraordinary events, are lower than those reported in MCO Annual Reviews.
Bold denotes levels above the NSW EPA impact assessment criteria

Recorded 24-hour average PM_{10} concentrations are presented in **Figure 5-6** including periods of extraordinary events.

During late 2018 the recorded high PM_{10} concentrations are generally associated with regional dust events impacting the area and across the state. Anomalously high PM_{10} concentrations recorded at each monitoring station in late 2019 and early 2020 are attributed to the events associated with drought conditions and severe bushfires affecting a large part of NSW.

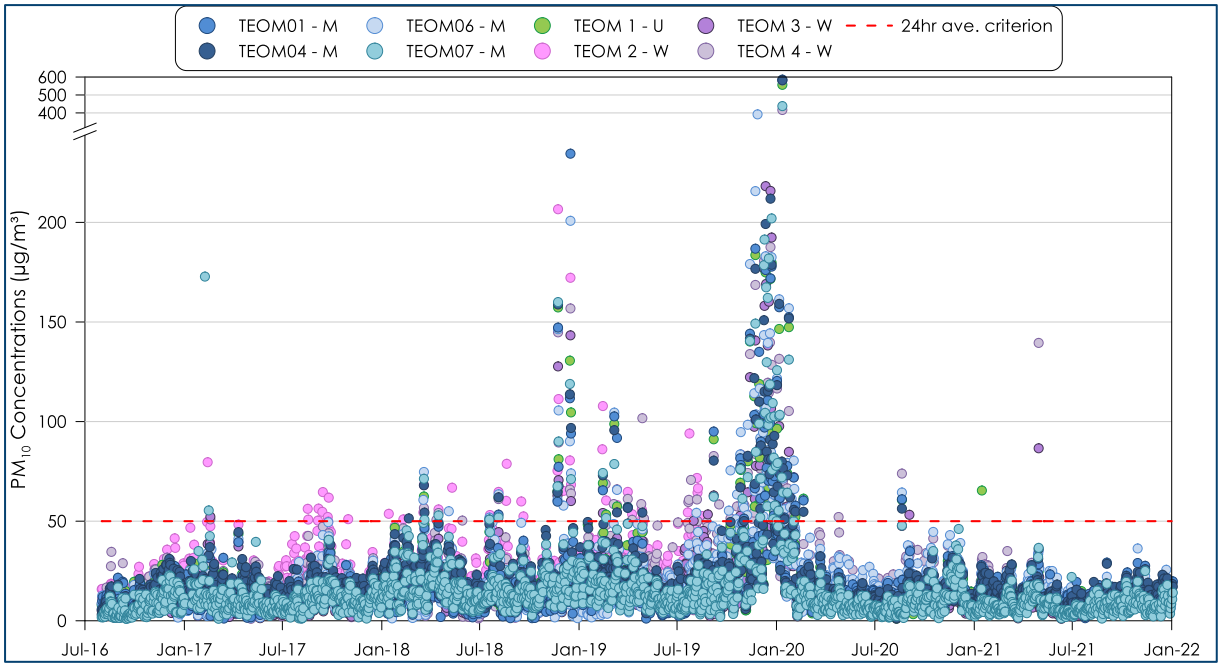


Figure 5-6: 24-hour average PM_{10} concentrations from TEOM monitoring stations

A summary of the available High Volume Air Sampler (HVAS) PM_{10} monitoring data collected between 2016 and 2021 is shown in **Table 5-3** and excludes periods of extraordinary events.

The monitoring data presented in **Table 5-3** indicate that the annual average PM_{10} concentrations for the monitoring stations are below the criterion of 25µg/m³ for all years. The maximum 24-hour average PM_{10} concentrations were found to exceed the relevant criterion of 50µg/m³ on occasion during 2020.

Table 5-3: Summary of PM_{10} levels from HVAS monitoring stations (µg/m³)

Year	PM01	PM02	Criteria
	Annual average (excluding extraordinary events)		
2016	11.9	10.3	**25**
2017	13.2	13.7	**25**
2018	16.3	17.4	**25**
2019	18.1	18.0	**25**
2020	12.1	12.7	**25**
2021	8.7	9.6	**25**
	Maximum 24-hour average (excluding extraordinary events)		
2016	36	28	**50**
2017	34	38	**50**
2018	48	44	**50**
2019	43	39	**50**
2020	**55**	**62**	**50**
2021	24	28	**50**
	Number of days >50µg/m³ (excluding extraordinary events)		
2016	0	0	N/A
2017	0	0	N/A
2018	0	0	N/A
2019	0	0	N/A
2020	1	1	N/A
2021	0	0	N/A

'-' denotes less than 75% data available
TAS has undertaken a review of regional events and identified additional extraordinary events. As a result, the annual average concentrations provided above, excluding additional extraordinary events, are lower than those reported in MCO Annual Reviews.
Bold denotes levels above the NSW EPA impact assessment criteria

Recorded 24-hour average PM_{10} concentrations are presented in **Figure 5-7** including periods of extraordinary events.

Figure 5-7 shows that the recorded 24-hour average PM_{10} concentrations follow a seasonal trend with concentrations nominally highest in the spring and summer months with the warmer weather raising the potential for drier ground elevating windblown dust, pollen levels and the occurrence of bushfires. Regional dust events and bushfires in late 2018 and late 2019 into early 2020 which influenced the TEOM monitoring data are also seen in the HVAS data.

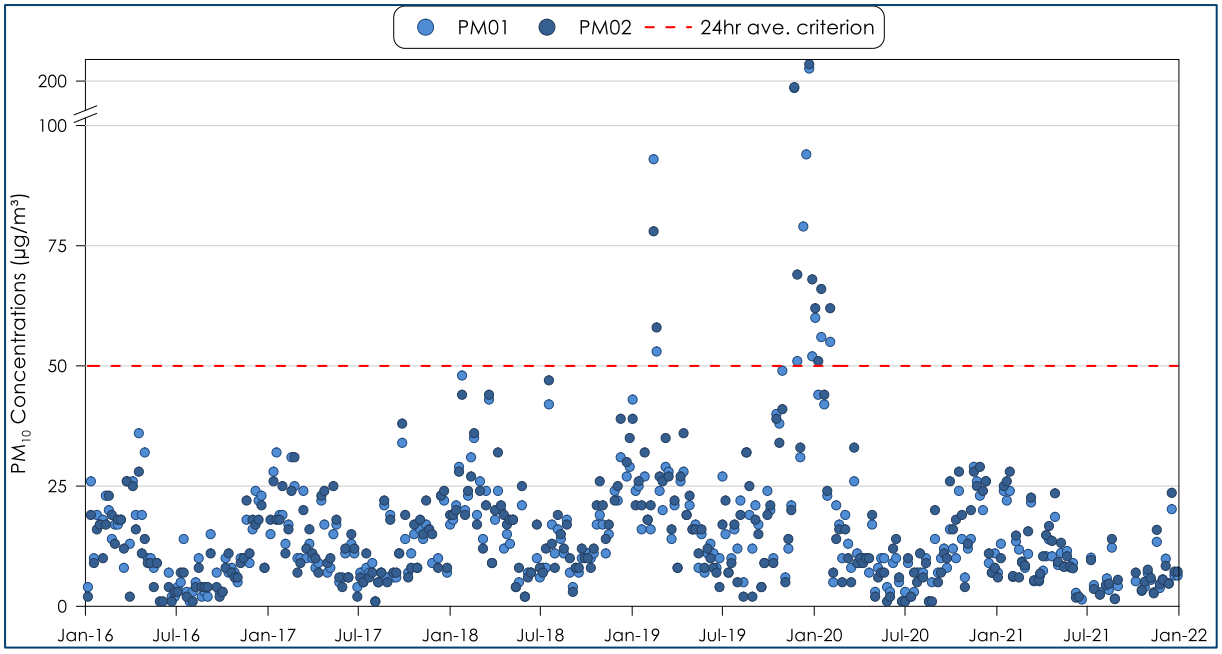


Figure 5-7: 24-hour average PM_{10} concentrations from HVAS monitoring stations

5.3.2 $PM_{2.5}$ monitoring

In February 2019 MCO commissioned a dual function TEOM unit at the existing monitoring site of TEOM01 to monitor both PM_{10} and $PM_{2.5}$.

A summary of the available TEOM $PM_{2.5}$ monitoring data is presented in **Table 5-4** and excludes periods of extraordinary events.

Table 5-4 indicates that the annual average $PM_{2.5}$ concentrations were below the annual average criterion of 8µg/m³ for all years of the review period. The maximum 24-hour average $PM_{2.5}$ concentrations at the monitoring stations were found to exceed the criterion of 25µg/m³ in all years reviewed except for 2017 and 2021.

Table 5-4: Summary of $PM_{2.5}$ levels from monitoring stations (µg/m³)

Year	TEOM01	TEOM 3	Criteria
	MCC	Wilpinjong Coal Mine	
	Annual average (excluding extraordinary events)		
2016	ND	ND	**8**
2017	ND	-	**8**
2018	ND	6.3	**8**
2019	5.5^	7.6	**8**
2020	5.2	5.2	**8**
2021	4.3	-	**8**
	Maximum 24-hour average (excluding extraordinary events)		
2016	ND	ND	**25**
2017	ND	10	**25**
2018	ND	**27.7**	**25**
2019	20.9^	**31.6**	**25**
2020	**33.6**	**51.1**	**25**
2021	18.1	19.3	**25**
	Number of days >25µg/m³ (excluding extraordinary events)		
2016	ND	ND	N/A
2017	ND	ND	N/A
2018	ND	2	N/A
2019	0^	2	N/A
2020	2	2	N/A
2021	0	0	N/A

^ Data available from February 2019
ND = no data
'-' denotes less than 75% data available
TAS has undertaken a review of regional events and identified additional extraordinary events. As a result, the annual average concentrations provided above, excluding additional extraordinary events, are lower than those reported in MCO Annual Reviews.
Bold denotes levels above the NSW EPA impact assessment criteria

Recorded 24-hour average $PM_{2.5}$ concentrations are presented in **Figure 5-8** including periods of extraordinary events. Similar to the PM_{10} monitoring data, the bushfires affecting NSW in late 2019 and early 2020 can be seen in the $PM_{2.5}$ monitoring data in **Figure 5-8**.

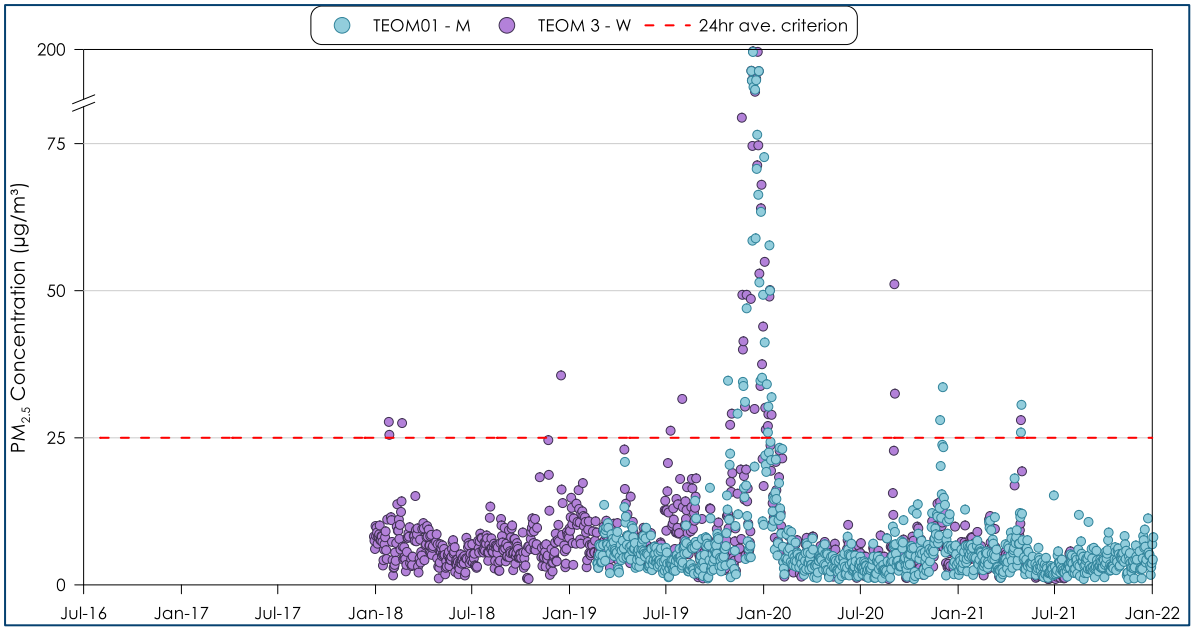


Figure 5-8: 24-hour average $PM_{2.5}$ concentrations

5.3.3 Deposited dust monitoring

Table 5-5 summarises the annual average deposition levels at each MCO operated gauge during 2016 to 2021.

All gauges recorded an annual average insoluble deposition level below the criterion of 4g/m^2/month.

Table 5-5: Annual average dust deposition (g/m²/month)

Monitor	2016	2017	2018	2019	2020	2021	Criteria
DG01	0.5	0.6	0.9	1.3	0.9	0.5	**4**
DG04	1.2	1	1.4	1.8	1.0	0.5	**4**
DG05	1.3	1.5	1.8	1.5	1.3	0.9	**4**
DG09	0.6	0.9	1.9	1.5	1.3	0.4	**4**

5.4 Review of air quality related complaints

A summary of the number of air quality related complaints received by MCO between 2016 to 2021 is presented in **Figure 5-9**. The graph shows the number of air quality related complaints are generally low with between 0 to 4 complaints per year.

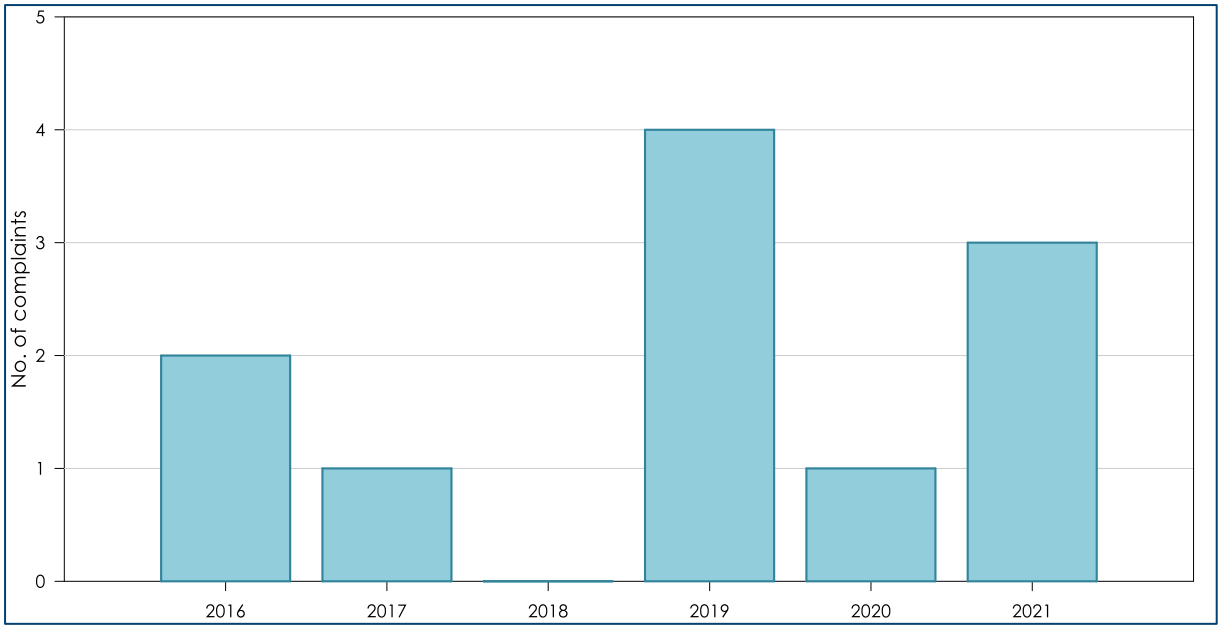


Figure 5-9: Summary of air quality related complaints at the MCC

6 DISPERSION MODELLING APPROACH

The following sections are included to provide the reader with an understanding of the model and modelling approach applied for the assessment.

Modelling was undertaken using a combination of the CALPUFF Modelling System and The Air Pollution Model (TAPM). The CALPUFF Modelling System includes three main components: CALMET, CALPUFF and CALPOST and a large set of pre-processing programs designed to interface the model to standard, routinely available meteorological and geophysical datasets. TAPM is a prognostic air model used to simulate meteorological data for input into CALMET.

The model was set up in general accordance with the NSW EPA's *Generic Guidance and Optimum Model Settings for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessments of Air Pollutants in NSW, Australia'* (**TRC Environmental Corporation**, **2011**).

6.1 Meteorological modelling

The meteorological modelling methodology applied a 'hybrid' approach which includes a combination of prognostic model data from TAPM with surface observations.

The TAPM model was applied to the available data to generate a three-dimensional upper air data file for use in CALMET. The centre of analysis for the TAPM modelling used is 32deg 17min south and 149deg 49min east. The simulation involved an outer grid of 30km, with three nested grids of 10km, 3km and 1km with 35 vertical grid levels.

The CALMET initial domain was run on a 100 x 100km grid with a 2km grid resolution and refined for a final domain on a 30 x 36km grid with a 0.3km grid resolution for each modelled year. The available meteorological data for January 2018 to December 2018 from seven surrounding meteorological monitoring sites were included in the simulation. The 2018 calendar year was selected as the period for modelling the Project based on an analysis of five consecutive years of meteorological data as outlined in **Appendix B**. **Table 6-1** outlines the parameters used from each station.

Table 6-1: Surface observation stations used in modelling

Weather Stations	Parameters						
	WS	WD	CH	CC	T	RH	SLP
MCC weather station WS3	✓	✓			✓	✓	
MCC weather station WS4	✓	✓			✓	✓	
Ulan Mine Complex weather station	✓	✓			✓	✓	
Wilpinjong Coal Mine weather station	✓	✓			✓	✓	
Merriwa (Roscommon) (BoM) (Station No. 061287)	✓	✓	✓	✓	✓	✓	✓
Mudgee Airport AWS (BoM) (Station No. 062101)	✓	✓	✓	✓	✓	✓	✓
Nullo Mountain AWS (BoM) (Station No. 062100)	✓	✓			✓	✓	

WS = wind speed, WD= wind direction, CH = cloud height, CC = cloud cover, T = temperature, RH = relative humidity, SLP = station level pressure

The seven critical parameters used in the CALMET modelling are presented in **Table 6-2**.

Table 6-2: Seven critical parameters used in CALMET

Parameter	Value
TERRAD	10
IEXTRP	-4
BIAS (NZ)	-1, -0.5, -0.25, 0, 0, 0, 0, 0
R1 and R2	10, 10
RMAX1 and RMAX2	15, 15

6.2 Meteorological modelling evaluation

The outputs of the CALMET modelling are evaluated using visual analysis of the wind fields and extract data. **Figure 6-1** presents a visualisation of the wind field generated by CALMET for a single hour of the modelling period (i.e. example only). The wind fields follow the terrain well and indicate the simulation produces realistic fine scale flow fields (such as terrain forced flows) in surrounding areas.

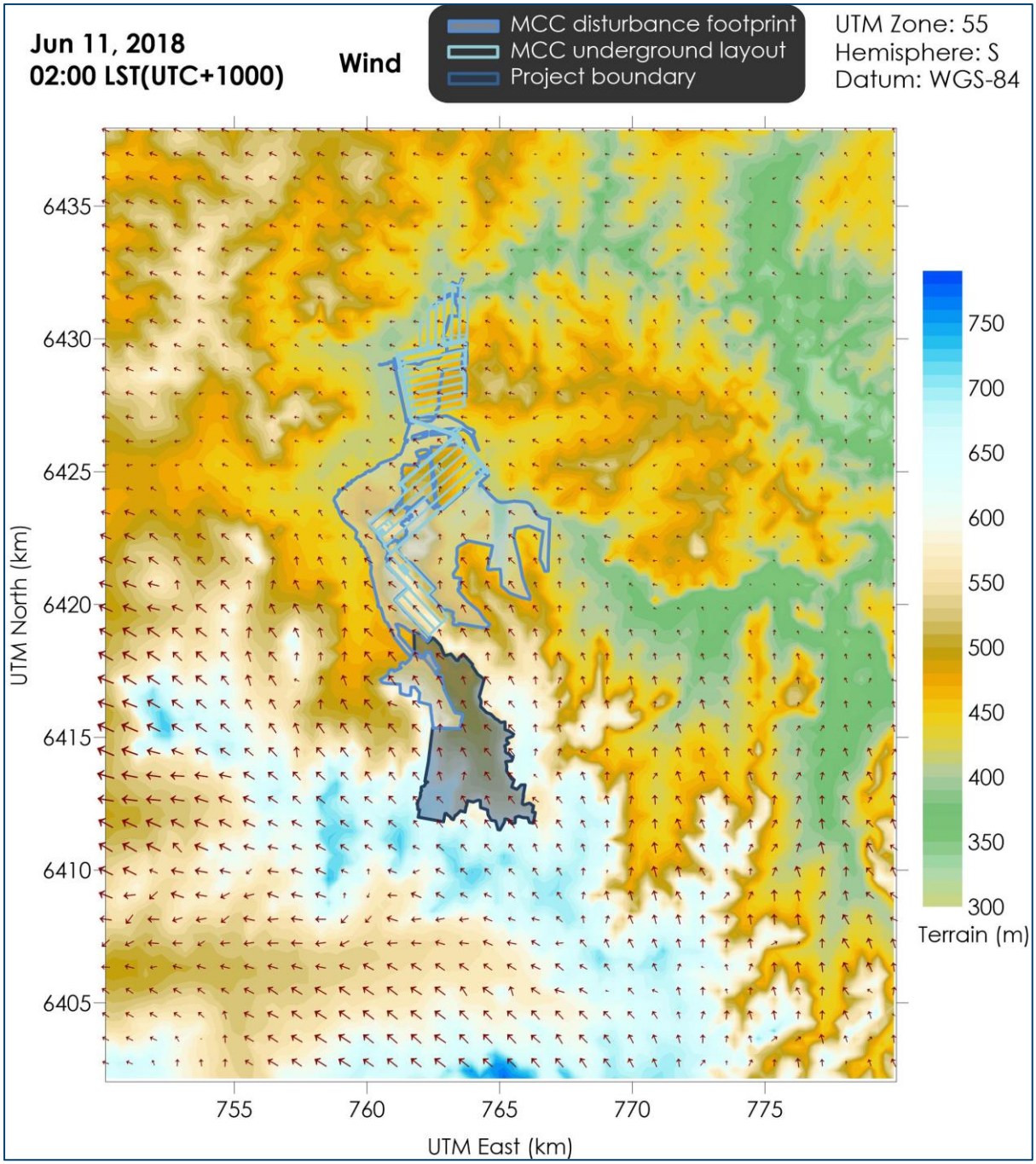


Figure 6-1: Representative 1-hour snapshot of wind field for the Project

CALMET generated meteorological data were extracted from a point within the CALMET domain and are graphically represented in **Figure 6-2** and **Figure 6-3**.

Figure 6-2 presents the annual and seasonal windroses from the CALMET data. Overall, the windroses generated in the CALMET modelling reflect the expected wind distribution patterns of the area as determined based on the available measured data and the expected terrain effects on the prevailing winds. **Figure 6-3** includes graphs of the temperature, wind speed, mixing height and stability classification over the modelling period for each modelled year and shows sensible trends considered to be representative of the area.

In conclusion, the CALMET generated meteorological data are considered suitable for use in the air dispersion modelling for the Project.

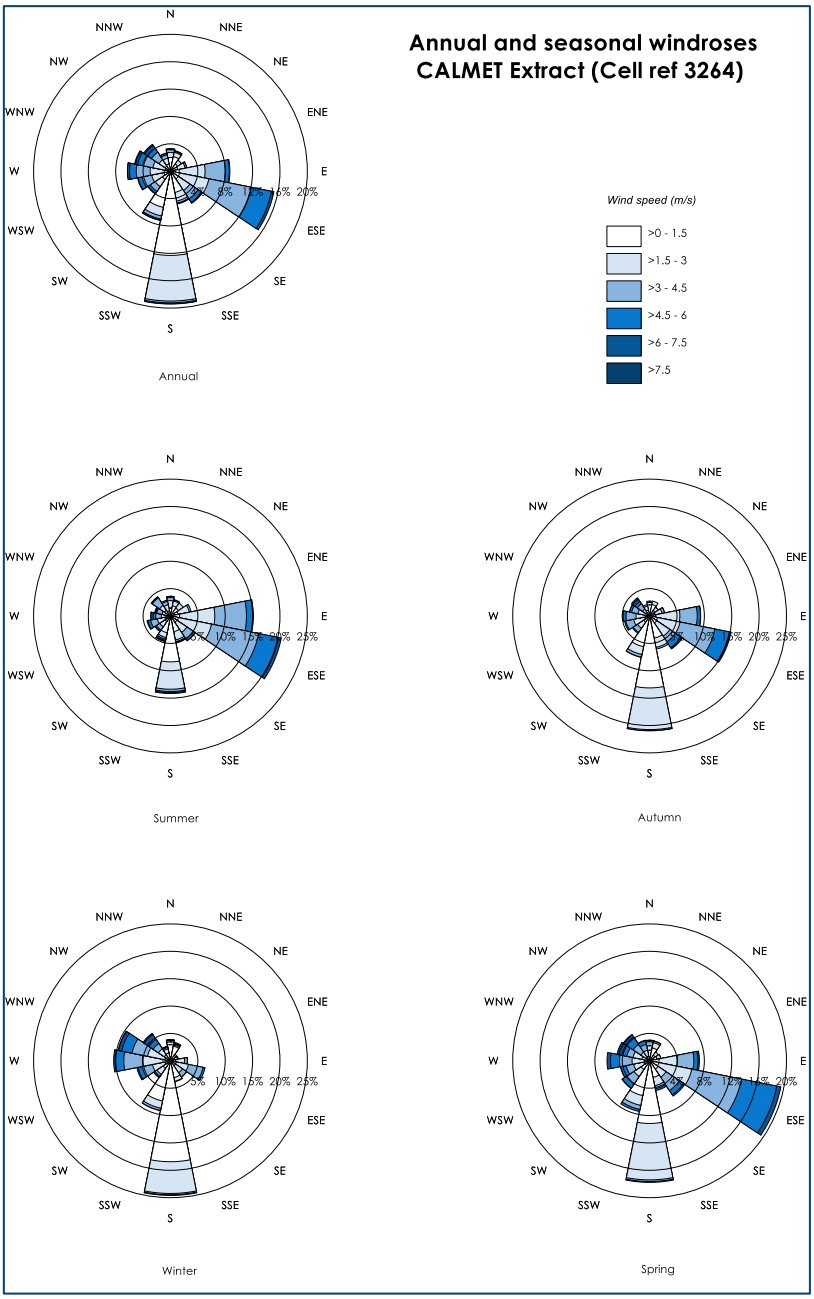


Figure 6-2: Annual and seasonal windroses from CALMET

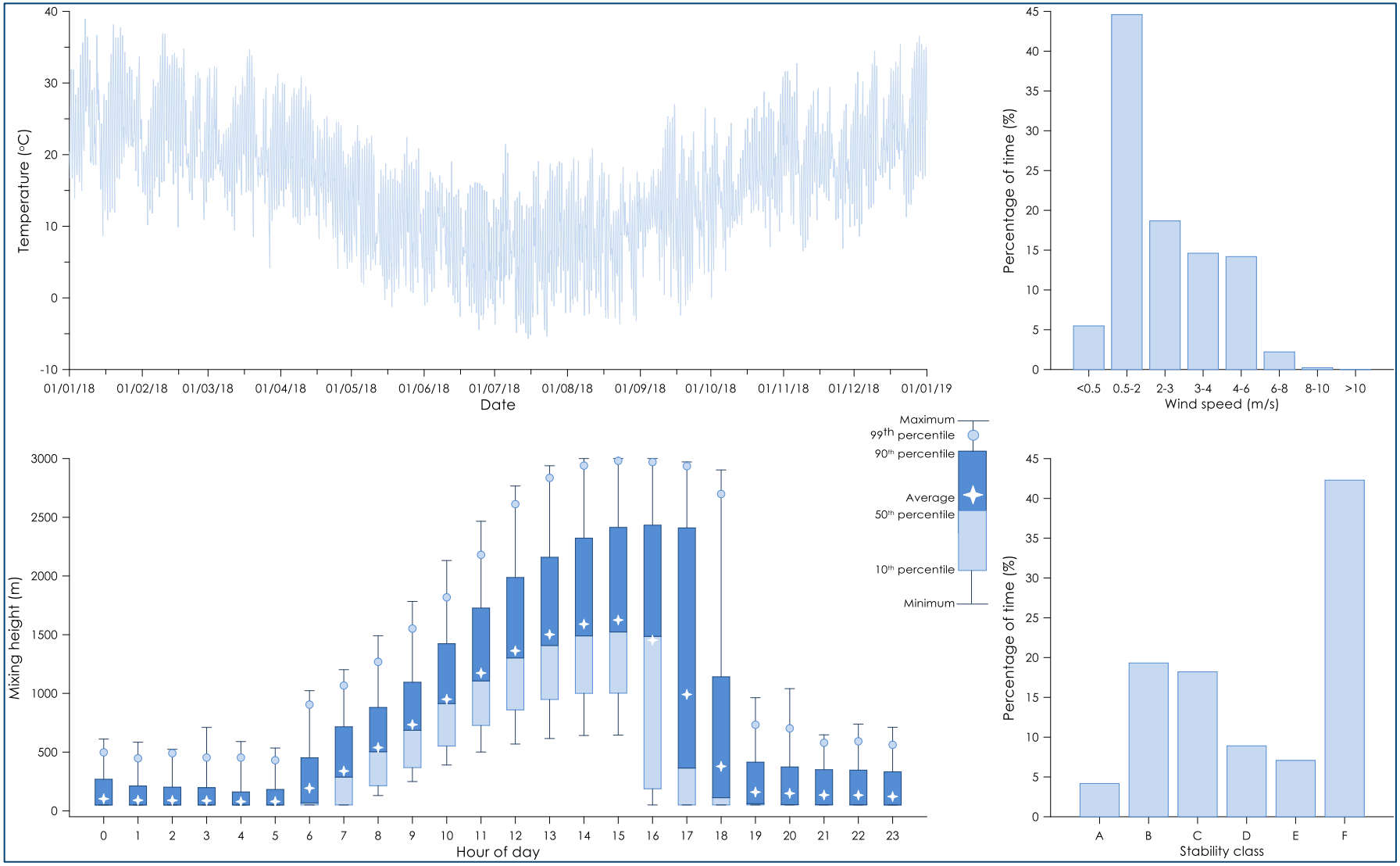


Figure 6-3: Meteorological analysis of CALMET

6.3 Dispersion modelling

Dust emissions from each operational activity of the Project were represented by a series of volume sources and were included in the CALPUFF model via an hourly varying emission file. Meteorological conditions associated with dust generation (such as wind speed) and levels of dust generating activity were considered in calculating the hourly varying emission rate for each source.

It should be noted that as a conservative measure, the effect of the precipitation rate (rainfall) in reducing dust emissions has not been considered in this assessment

6.4 Modelling scenarios

The assessment considered three indicative mine plan years (Project years) to represent the different stages of the operation of the Project. The Project years were chosen to represent potential worst-case impacts (i.e. highest dust generating activities and locations) in regard to the quantity of material extracted and handled in each period, the location of the activity and the potential to generate dust at the receptor locations. The selected Project years also considered the worst-case impacts of the existing/ approved MCC with the Project.

The three Project years selected for the assessment are described below.

- **Project Year 4 (nominally Year 2028)**. This year represents when overburden and ROM handling at the Project is at a maximum rate (30.6 million bank cubic metres [MBCM] and 9Mtpa, respectively). Mining activity is also occurring at OC4 in this year such that the total open cut ROM coal extraction at the MCC is at the maximum approved rate (16Mtpa) in addition to ROM extraction from the underground.

- **Project Year 5 (nominally Year 2029)**. In this year there is interaction with mining activity occurring at both the Project and OC2 which has potential to generate dust at the privately-owned receptors to the west. Mining activity is also occurring at OC4 in this year such that the total open cut ROM coal extraction at the MCC is at the maximum approved rate (16Mtpa) as with ROM extraction from the underground.

- **Project Year 7 (nominally Year 2031)**. Mining at OC3 has reached the southernmost pit extent in this year (i.e. closest proximity to receivers in Cooyal). Mining activity is also occurring at OC4 such that the total open cut ROM coal extraction at the MCC is at the maximum approved rate (16Mtpa) however, the approved underground operations have ceased. As a conservative approach to the assessment, the peak overburden handling for OC4 (of 71.8 MBCM for Year 2034) has been assumed to apply in this year.

In recognition that the Project would interact with the existing/approved MCC, the assessment also considers the impacts of both the Project with the MCC, including:

1. The Project in isolation (incremental impacts);
2. The Project with the approved MCC; and,
3. The Project with the approved MCC, other sources (e.g. Ulan Mine Complex and Wilpinjong Coal Mine) and background levels (total (cumulative) impact).

In all three Project years it has been assumed that quarrying of gravel for use on-site is occurring within the Project area. Quarrying activities involve the use of mobile equipment including a crusher, screening, front-end-loader, operating at a production rate of 50,000tpa.

Indicative locations for the respective Project years are presented in **Figure 6-4** to **Figure 6-6**.

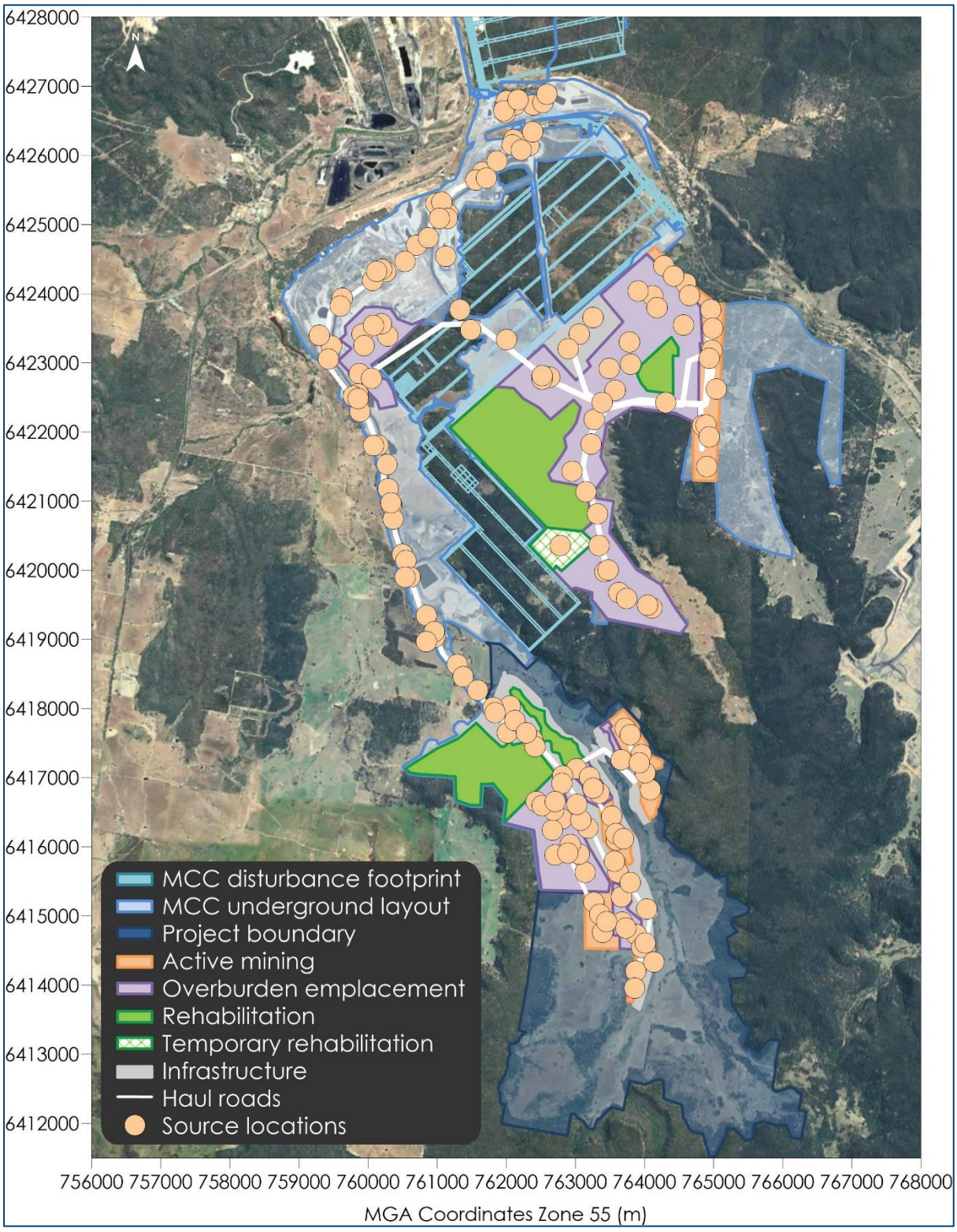


Figure 6-4: Indicative mine plan – Project Year 4

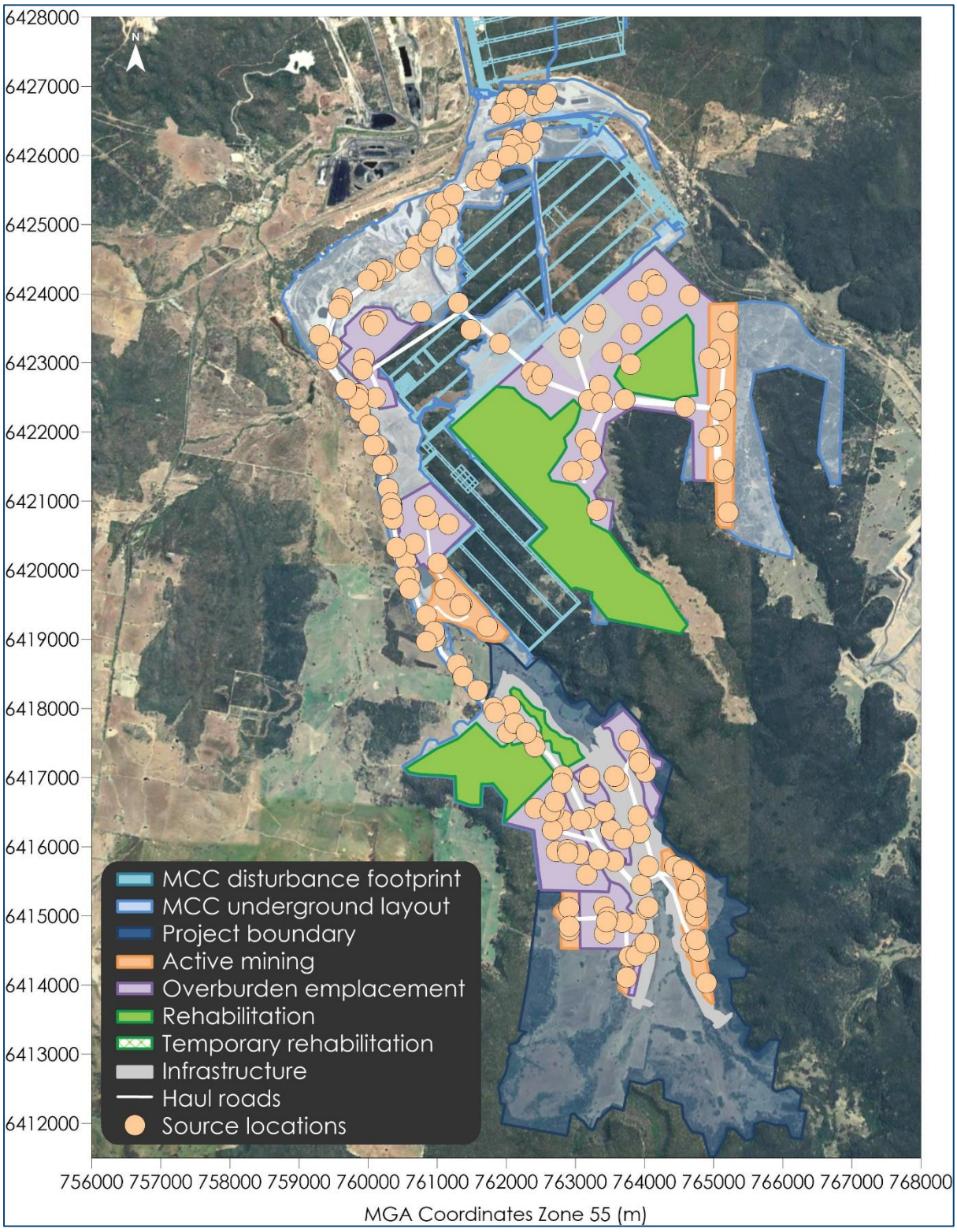


Figure 6-5: Indicative mine plan – Project Year 5

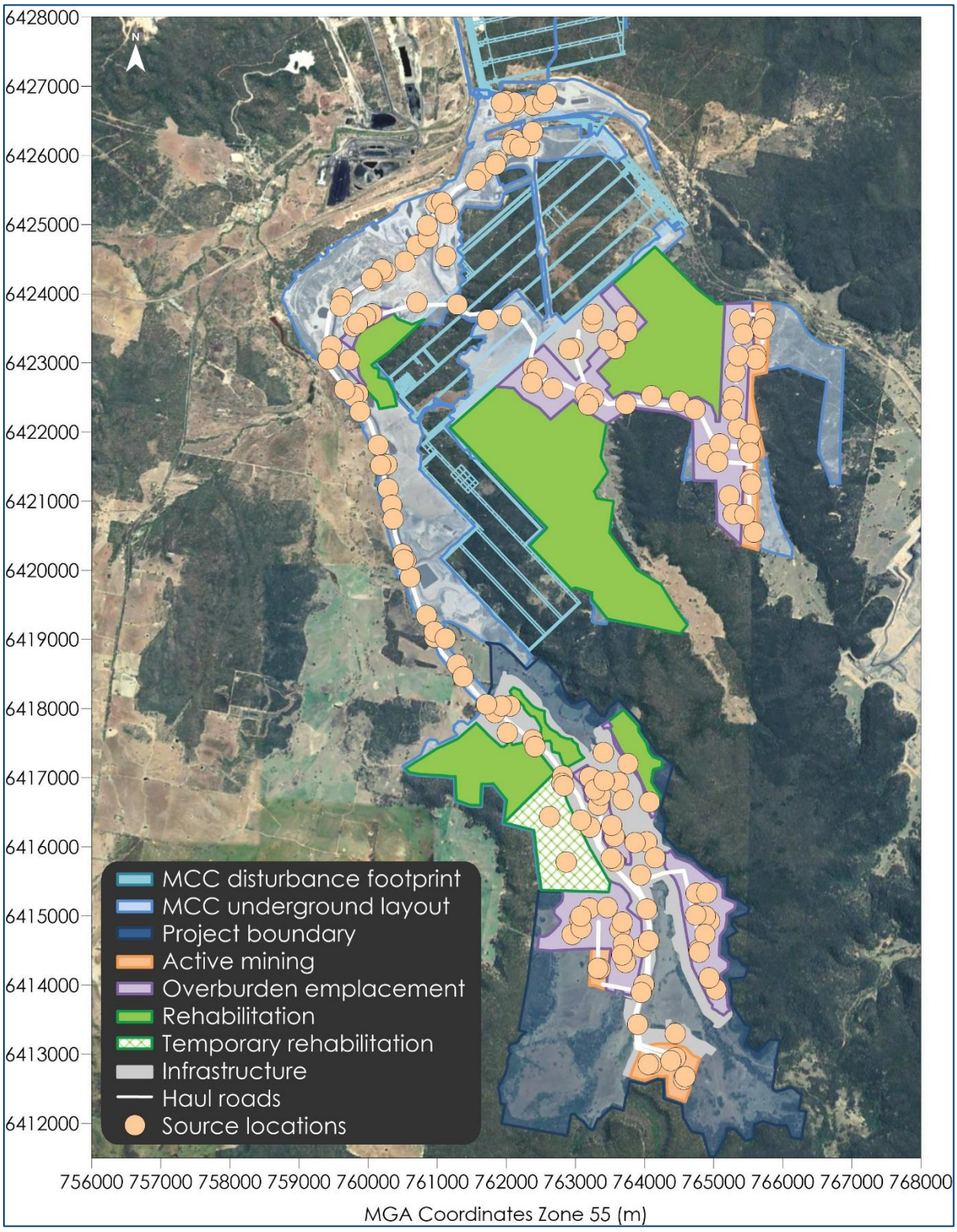


Figure 6-6: Indicative mine plan – Project Year 7

6.4.1 Emission estimation

For each assessed Project year, emissions have been estimated by analysing the dust generating activities and utilising suitable emission factors.

The emission factors were sourced from both locally developed and United States Environmental Protection Agency developed documentation as approved by the NSW EPA. TSP emissions from all significant activities for the Project are presented in **Table 6-3**. Full emission inventories for TSP, PM_{10} and $PM_{2.5}$ and associated calculations are presented in **Appendix C**.

The estimated emissions are commensurate with utilising reasonable best practice dust mitigation applied where feasible. Further details on the dust control measures applied for the Project are outlined in **Section 6.4.6**.

Table 6-3: Summary of estimated dust emissions for the Project (kg of TSP)

Activity	Project Year 4	Project Year 5	Project Year 7
Overburden			
OB – Stripping Topsoil – OC3 Ext	3,160	2,139	1,302
OB - Drilling - OC3 Ext	8,825	5,551	5,385
OB - Blasting - OC3 Ext	80,883	50,872	49,349
OB - Excavator loading OB to haul truck - OC3 Ext	92,195	57,986	56,251
OB - Excavator rehandle - OC3 Ext	2,028	1,276	1,238
OB - Hauling to dump - OC3 Ext	325,502	261,073	492,534
OB - Emplacing at dump - OC3 Ext	92,195	57,986	56,251
OB - Dozers on OB (dump and pit) - OC3 Ext	780,580	490,949	476,253
Quarry			
QU - Excavator loading material to crusher	68	68	68
QU - Crushing	30	30	30
QU - Screening	55	55	55
QU - Unloading material to stockpile	68	68	68
QU - Excavator loading material to haul truck	68	68	68
QU - Excavator rehandle	68	68	68
QU - Hauling to emplacement	2,611	2,611	2,611
QU - Emplacing material	68	68	68
Coal			
CL - Drilling - OC3 Ext	270	139	146
CL - Blasting - OC3 Ext	22,425	11,504	12,119
CL - Dozers ripping/pushing/clean-up - OC3 Ext	55,920	28,686	30,220
CL - Loading ROM coal to haul truck - OC3 Ext	472,707	242,496	255,456
CL - Hauling ROM to hopper - OC3 Ext	484,370	267,133	318,879
CL - Unload to hopper or stockpile for washing (OC1, OC2, OC3)	236,354	150,136	127,728
CL - Rehandling - (OC1 + OC2 + OC3) - at hopper for washing	125,929	79,992	68,054
Wind Erosion			
OC3 Ext - Active mining area (pit, active dumping area)	244,894	321,521	290,942
OC3 Ext - Inactive area (no rehabilitation)	-	-	52,633
OC3 Ext - Partially rehabilitated (e.g. stable and seeded)	40,494	40,497	50,902
OC3 Ext - Hard Stand Areas (Workshops, roads, conveyors etc)	177,686	265,398	264,684
Total TSP emissions due to the Project (kg/yr)	**3,249,456**	**2,338,371**	**2,613,362**

In recognition that the Project would interact with the existing/ approved MCC, the TSP emissions from all significant activities for the approved MCC and Project are presented in **Table 6-4**.

Table 6-4: Estimated emissions from the approved MCC and Project (kg of TSP)

Activity	Project Year 4	Project Year 5	Project Year 7
Total TSP emissions due to approved MCC (kg/yr)	4,285,347	5,345,551	6,505,178
Total TSP emissions due to the Project (kg/yr)	3,249,456	2,338,371	2,613,362
Total TSP emission (approved MCC + Project) (kg/yr)	**7,534,803**	**7,683,922**	**9,118,540**

6.4.2 Other mining operations

In addition to the estimated dust emissions from the Project, emissions from nearby approved open cut mining operations were also modelled, in accordance with their current consents, to assess potential cumulative dust effects into the future.

Emission estimates from these sources were derived from information provided in the air quality assessments available in the public domain at the time of modelling. These estimates are likely to be conservative, as in many cases, mines do not continually operate at the maximum extraction rates assessed in their respective environmental assessments.

Table 6-5 summarises the emissions adopted in this assessment for each nearby mining operation.

Table 6-5: Estimated emissions from nearby mining operations (kg of TSP)

Operation	Project Year 4	Project Year 5	Project Year 7
Ulan Mine Complex [1]	1,279,674	1,279,674	1,279,674
Wilpinjong Coal Mine [2]	4,179,306	3,813,249	3,081,133

[1] **PAEHolmes (2009)**

[2] **Todoroski Air Sciences (2015)**

In addition to the emissions from nearby open cut mining operations, there would be numerous smaller or more distant sources which contribute to the background dust level. The residual level of dust due to all such non-modelled sources has been included in the cumulative results as discussed in the following section.

6.4.3 Accounting for background dust levels

To account for the contribution from other non-mining sources of particulate matter in the wider area, an allowance has been added to the modelling predictions to fully address the total potential cumulative impact.

The contribution to the prevailing annual average background dust level from other non-modelled dust sources was estimated as the difference between the modelled past mining activities (including the distant mines) during 2018 and the actual measured data during 2018. The modelling of the past 2018 mine activities is based on the known rates of activity and mine locations and included activities occurring at MCC, Ulan Mine Complex and Wilpinjong Coal Mine which were occurring in that year.

The average difference between the measured and predicted $PM_{2.5}$, PM_{10} and deposited dust levels from each of the monitoring points (shown in **Figure 5-5**) was considered to be the contribution from other dust sources, and was added to the future predicted values to ensure the total contribution to the background levels from all sources is included in the cumulative total levels.

Table 6-6 presents a summary of the modelling predictions and the measured levels at each monitoring location and the calculated difference. The average difference between the measured and the predicted dust metric from each of the monitoring points is considered to be the contribution from other non-modelled sources of particulate matter (the Residual dust levels) at that location. The Residual dust levels is added to the predicted levels for each Project year to account ensure the total contribution to the background levels from all sources is included in the cumulative total levels, i.e. Predicted incremental contribution from all modelled mining operations (which is part of the background level) + Residual dust level (the remaining part of the background level) = Cumulative level.

Table 6-6: Summary of background dust levels estimation

Dust Metric	Monitor ID	Type	Annual average (including extraordinary events)	Model prediction (MCC + Ulan + Wilpinjong)	Difference (Residual dust level)	Unit
$PM_{2.5}$	TEOM 4 – Wilp	TEOM	6.6	1.8	4.8	µg/m³
PM_{10}	TEOM01 - MCC	TEOM	17	10.7	6.3	µg/m³
	TEOM04 - MCC	TEOM	20.9	7.9	13.0	µg/m³
	TEOM06 – MCC	TEOM	18	14.8	3.2	µg/m³
	TEOM07 - MCC	TEOM	18.9	3.2	15.7	µg/m³
	TEOM 3 - Wilp	TEOM	14.8	5.0	9.8	µg/m³
	TEOM 4 - Wilp	TEOM	17.8	10.9	6.9	µg/m³
	TEOM 2 - Wilp	TEOM	22.3	39.9	-17.6	µg/m³
	TEOM 1 - Ulan	TEOM	18.9	26.5	-7.6	µg/m³
	PM01 – MCC	HVAS	17.2	10.7	6.5	µg/m³
	PM02 – MCC	HVAS	18.4	6.4	12.0	µg/m³
Dust deposition	DG01 – MCC	DD gauge	0.9	0.0	0.9	g/m²/mth
	DG04 – MCC	DD gauge	1.4	0.4	1.0	g/m²/mth
	DG05 – MCC	DD gauge	1.8	0.5	1.3	g/m²/mth
	DG09 – MCC	DD gauge	1.9	0.1	1.8	g/m²/mth

Each air quality monitor experiences varying levels of dust from the mining operations depending on their proximity, and also from dust sources local to each monitor (e.g. farming practices occurring nearby). The modelling explicitly includes emissions from all of the mining operations and an allowance for the contribution from local dust sources known as the residual dust level. For monitors close to the mining activity, the residual dust level is lower as the major contributor is the mining operations that occupy much larger part of the nearby environment than other land uses such as farming or the natural environment. Near the mine the residual dust levels (due to other non-mining sources) are generally lower than further out away from the mine, where the mine would have an increasing smaller and smaller contribution, but the other sources occupy more of the surround land and have an increasing contribution. A spatially varying residual dust level could be thus determined, however, applying the average level presents a more conservative (over) estimate of the total cumulative level for locations close to the mining operations where cumulative impacts are likely to arise.

A review of the calculated residual difference for the TEOM 2 – Wilp monitor shows a large overestimation in the modelling prediction (-17.6µg/m^3) and as such has been excluded from the calculation of the Residual level. This monitor is located well away from the Project and would have minimal influence from activity at MCC. We note that the exclusion of this value results in a more conservative (larger) calculated Residual level that is contributed to the total level.

In the absence of TSP monitoring data, estimates of the annual average background TSP concentrations have been determined from a relationship between TSP and PM_{10} concentrations and the measured PM_{10} levels. This relationship assumes that PM_{10} concentrations are approximately 40% of TSP concentrations. Applying this relationship with the estimated annual average PM_{10} concentration of 7.3µg/m^3 indicates an approximate annual average TSP concentration value of 18.3µg/m^3.

The estimated annual average contribution from other dust sources (i.e. background) applied in the assessment is presented in **Table 6-7**.

Table 6-7: Estimated contribution from other non-modelled dust sources

Dust metric	Averaging period	Unit	Estimated contribution
TSP	Annual	µg/m^3	18.3
PM_{10}	Annual	µg/m^3	7.3
$PM_{2.5}$	Annual	µg/m^3	4.8
Dust deposition	Annual	g/m^2/month	1.4

It is important to recognise that the values in **Table 6-7** are not the total measured background levels, rather they are the residual amount of the background dust which is not already accounted for in the air dispersion modelling from other mining operations.

6.4.4 Model validation

To assess the performance of the modelling predictions, the predicted 24-hour average levels at each of the MCC TEOM locations during the 2018 period are compared with the measured data and visualised using quantile-quantile plots.

The modelling predictions consider hourly varying source emissions and background levels in each 24-hour period. The background level is estimated from the hourly average level from upwind TEOMs at MCC and is applied to the corresponding model prediction. A key assumption to this approach is that the upwind monitors reflect a location that is not being influenced by emissions from MCC based on the wind direction for each hourly timestep.

Quantile-quantile plots for each TEOM for the modelling period (January 2018 to December 2018) is presented in **Figure 6-7**. Overall, the plots indicate good agreement with slight overestimation for TEOM01, TEOM04 and TEOM06. TEOM07 shows the best alignment with only slight underestimation for the higher measured levels.

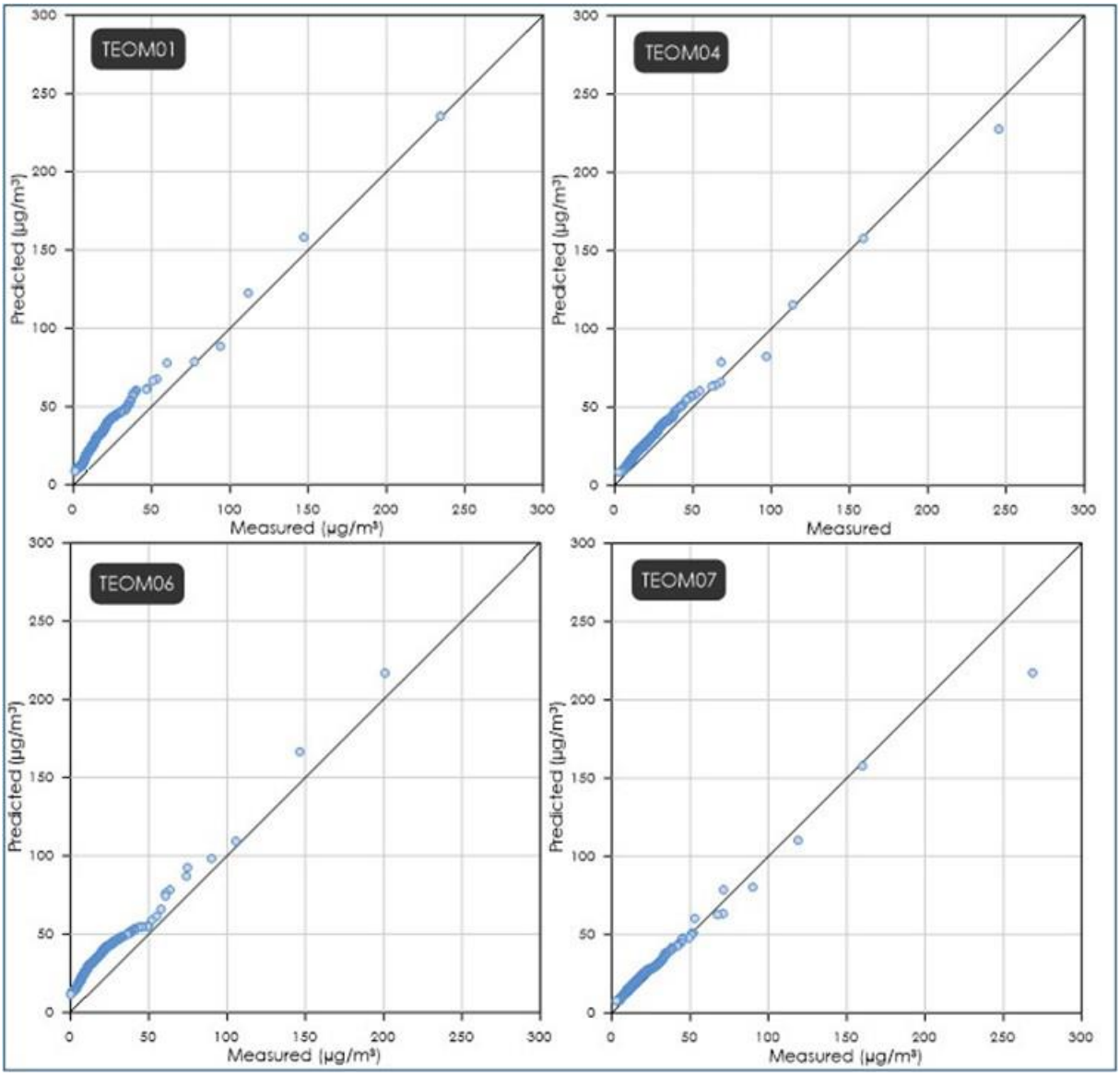


Figure 6-7: Quantile-quantile plots of measured and predicted 24-hour average PM_{10} concentrations during 2018 modelling period

The predicted results at each of the four MCC TEOM monitors compare very well with the actual measured data, and generally show a tendency for some overestimation in the amount of dust emissions (as is appropriate for regulatory approval modelling).

6.4.5 Emissions from construction activities

Dust emissions associated with Project construction activities would include a range of different temporary activities and arise from a small construction area. The dust emissions can be managed effectively through commonly applied mitigation measures such as water sprays and progressive rehabilitation. As such, dust emissions associated with the construction activities are unlikely to be significant given that the nature of the activities are minimal relative to the rest of the operational coal mine activities and are impractical to model in detail in this study. These emissions would be managed on a day-by-day basis depending on the activity.

6.4.6 Dust mitigation and management

The dust mitigation and management measures applied for the MCC would also be applied for the Project and are commensurate with those outlined in the NSW EPA document, *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining* (**Katestone Environmental, 2011**). These are also outlined in the current Air Quality Management Plan for the MCC (**MCO, 2020a**).

A summary of the key dust controls applied at MCC is shown in **Table 6-8**. Where applicable these controls have been applied in the dust emission estimates shown in **Table 6-3** as these controls would be applied to Project operations. Further specific detail on the level of control applied is set out in **Appendix C**.

Table 6-8: Operational dust mitigation measures applied at the MCC

Source	Mitigation Measure
General	Include air quality requirements in site inductions to ensure employee awareness of potential dust impacts.
	Review, mining operations in adverse weather conditions, or when 1-hour average wind speeds are >8m/s in a direction from the mine to sensitive receptor locations and modify relocate and/or pause dust generating activities where required.
	Visual surveillance of dust plumes.
Exposed and disturbed areas	Disturbance of only the minimum area necessary for mining.
	Adoption of progressive rehabilitation of mining operations, to minimise exposed soils.
	Design of overburden emplacements to minimise the disturbance area and minimise out-of-pit dumping as far as practicable.
	Use of temporary cover crops to stabilise rehabilitation areas.
	Use of cleared trees and branch material for stabilising rehabilitated landforms.
	Application of interim stabilisation.
	Active maintenance of vegetation.
Handling of materials	Avoidance or postponement of ripping of overburden during adverse weather conditions, or when 1-hour average wind speeds are >8m/s in a direction from the mine to sensitive receptor locations.
	Minimisation of spillage from loading/unloading and clean-up of any spillage as soon as practicable.
	Relocation/rescheduling of activities known to produce excessive visible dust plumes, or when 1-hour average wind speeds are >8m/s in a direction from the mine to sensitive receptor locations, where practicable.
	Use of sheltered dumping during adverse weather conditions.
	Minimisation of fall distance of materials.
	Modification of operations during periods of adverse weather conditions.

Source	Mitigation Measure
	Enclosure of dump hopper and water sprays.
	Adoption of slower, more precise, low drop height loading during adverse weather conditions.
	Minimisation of dozer travel speeds during adverse weather.
Trafficked areas and Haul roads	Use of water carts as necessary and practicable on all trafficked areas to minimise excessive visible dust.
	Use of chemical suppression if necessary.
	Use of constructed roads only, minimisation of access roads and removal of obsolete access roads.
	Watering of access tracks used by topsoil stripping equipment.
	Enforcement of speed limits.
	Rehabilitation of disused roads as soon as practicable.
	Construction of roads to achieve a compact, stable, and durable surface using material with a low silt/fines content.
	Regular maintenance of haul roads to maintain a smooth surface, define road edges and removal of excessively fine/silty material.
	Clear definition of edges of haul roads with marker posts or equivalent to control their locations, especially when crossing large overburden emplacement areas.
	Minimisation of material spillage on haul roads.
	Optimisation of fleet to reduce vehicle kilometres travelled.
Material stockpiles	Use of water carts and/or sprays on all coal-handling and stockpile areas to minimise dust generations as necessary and practicable.
	Revegetation of long-term topsoil stockpiles (i.e. those not used for over six months).
	Progressive reshaping of topsoil and overburden emplacement areas.
	Use of remotely operated water sprays during high winds.
Drilling and blasting	Use of dust aprons during drilling.
	Use of water injection systems on all drills.
	Adherence to all measures outlined in the Blast Management Plan with consideration given to prevailing wind conditions and residential receivers.
	Use of adequate stemming in drill holes at all times.
	Limitation of blasting during adverse weather conditions as described in the Blast Management Plan.
	Application of water on areas prone to excessive dust lift off prior to drilling.
	Application of water on areas prone to excessive dust lift off (including drill fines) post drilling, where safe and practicable.
Coal Handling and Preparation Plant (CHPP)	Employing appropriate dust suppression methods at the coal handling facilities.
	Fitting, inspection and maintenance of dust suppression systems to stationary plant (such as dump hopper and transfer stations).
	Partial enclosure of raw coal transfer and rejects conveyors where possible.
	Fitting of all conveyors with appropriate cleaning and collection devices.
	Use of enclosed conveyor transfers.
	Regular cleaning of areas where spilt material can build up.
	Use of enclosed chutes.
	Loading of rail wagons with a streamlined and consistent profile, where possible.
	Minimisation of spillage during loading.
	Regular collection and disposal of coal spillage.

7 DISPERSION MODELLING RESULTS

The dispersion modelling predictions for the assessed Project years are presented in this section. The results presented include those for the Project in isolation (incremental impacts), the Project with the approved MCC and the Project with the approved MCC, other sources (e.g. Ulan Mine Complex and Wilpinjong Coal Mine) and background levels (total (cumulative) impact) for each assessed Project year (**Section 6.4**).

Each of the privately-owned and mine-owned receptors of relevance to this study as shown in **Figure 2-1**, and detailed in **Appendix A**, were assessed individually as discrete receptors.

The predicted results are presented in tabular form for the assessed Project years in **Appendix D**.

Associated isopleth diagrams of the dispersion modelling predictions are presented in **Appendix E**.

7.1 Summary of modelling results

Table 7-1 presents a summary of the highest maximum predicted level at any privately-owned receptors assessed for each of the assessed Project years. Cumulative 24-hour average $PM_{2.5}$ and PM_{10} impacts are assessed separately in **Section 7.2**. The results in **Table 7-1** indicate that no exceedances of the relevant criteria are predicted to arise for the assessed dust metrics.

Therefore, the results indicate that predicted incremental impacts associated with the Project only are relatively minor. Predicted air quality levels at the receptor locations also remain below the relevant criteria for all assessed dust metrics for the Project with the approved MCC and with other sources.

Table 7-1: Summary of modelling predictions – highest maximum predicted level at any privately-owned receptor

Pollutant		Period	Criteria	Results per modelling year		
				Project Year 4	Project Year 5	Project Year 7
$PM_{2.5}$ (µg/m³)	Project in isolation (Incremental)	24-hr ave.	25*	3.5	2.6	2.2
		Ann. ave.	-	0.7	0.5	0.5
PM_{10} (µg/m³)		24-hr ave.	50*	14.2	11.5	10.1
		Ann. ave.	-	3.0	2.4	2.2
TSP (µg/m³)		Ann. ave.	-	5.3	3.9	3.6
DD (g/m²/mth)		Ann. ave.	-	0.1	0.1	0.1
$PM_{2.5}$ (µg/m³)	Project + Approved MCC	24-hr ave.	25*	7.3	8.1	10.7
		Ann. ave.	-	1.8	2.0	2.4
PM_{10} (µg/m³)		24-hr ave.	50*	33.2	36.4	43.8
		Ann. ave.	-	8.5	9.1	10.3
TSP (µg/m³)		Ann. ave.	-	16.8	18.3	20.7
DD (g/m²/mth)		Ann. ave.	-	0.4	0.5	0.5
$PM_{2.5}$ (µg/m³)	Total impact (Cumulative)	Ann. ave.	8	7.4	7.3	7.6
PM_{10} (µg/m³)		Ann. ave.	25	22.5	22.0	22.7
TSP (µg/m³)		Ann. ave.	90	45.8	44.4	45.6
DD (g/m²/mth)		Ann. ave.	4	2.1	2.0	2.1

* Note that cumulative 24-hour average criteria also apply.

7.2 Assessment of cumulative 24-hour average $PM_{2.5}$ and PM_{10} concentrations

It is important to note that when assessing impacts per the maximum 24-hour average $PM_{2.5}$ and PM_{10} criteria, the predictions show the highest predicted 24-hour average concentrations modelled at each point within the modelling domain for the worst day (a 24-hour period).

When assessing the total (cumulative) 24-hour average impacts based on model predictions challenges arise with identification and quantification of emissions from non-modelled sources over the 365 separate 24-hour periods modelled in the year.

Due to these factors, an assessment of cumulative 24-hour average $PM_{2.5}$ and PM_{10} impacts was undertaken in accordance with Section 11.2 of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (**NSW EPA**, **2022**). The "Level 2 assessment - Contemporaneous impact and background approach" was applied to assess potential impacts. In simple terms, the Level 2 assessment involves matching one year of ambient air quality monitoring data with meteorological data representing the same period.

The analysis has focused on selected privately-owned receptors which represent the closest and most likely impacted receptor locations surrounding the Project and the approved MCC. The locations considered as part of the contemporaneous assessment are shown in **Figure 7-1**.

There are three surrounding PM_{10} monitoring stations where suitable ambient monitoring are available (TEOM01, TEOM04 and TEOM07). The assessment of cumulative impact uses the monitoring data from the closet monitor. There are no $PM_{2.5}$ monitoring stations with contemporaneous data available, as such the $PM_{2.5}/PM_{10}$ ratio from available monitoring data during other periods indicates a value of 0.51. This value has been applied to the contemporaneous PM_{10} monitoring dataset to convert it to an equivalent $PM_{2.5}$ dataset for the purposes of the contemporaneous assessment.

As the MCC was operational during 2018, it would have contributed to the measured levels of dust in the area on some occasions. Due to this, it is important to account for these existing activities in the cumulative assessment. Modelling of the actual mining scenario for the 2018 period (in which the weather and background dust data were collected) was conducted to determine the existing contribution of the MCC to the measured levels of dust. The results were applied in the cumulative assessment to minimise potential double counting of existing MCC operations (as they would occur in both the measured data and in the predicted levels), and thus to make a more reliable prediction of the likely cumulative total dust level.

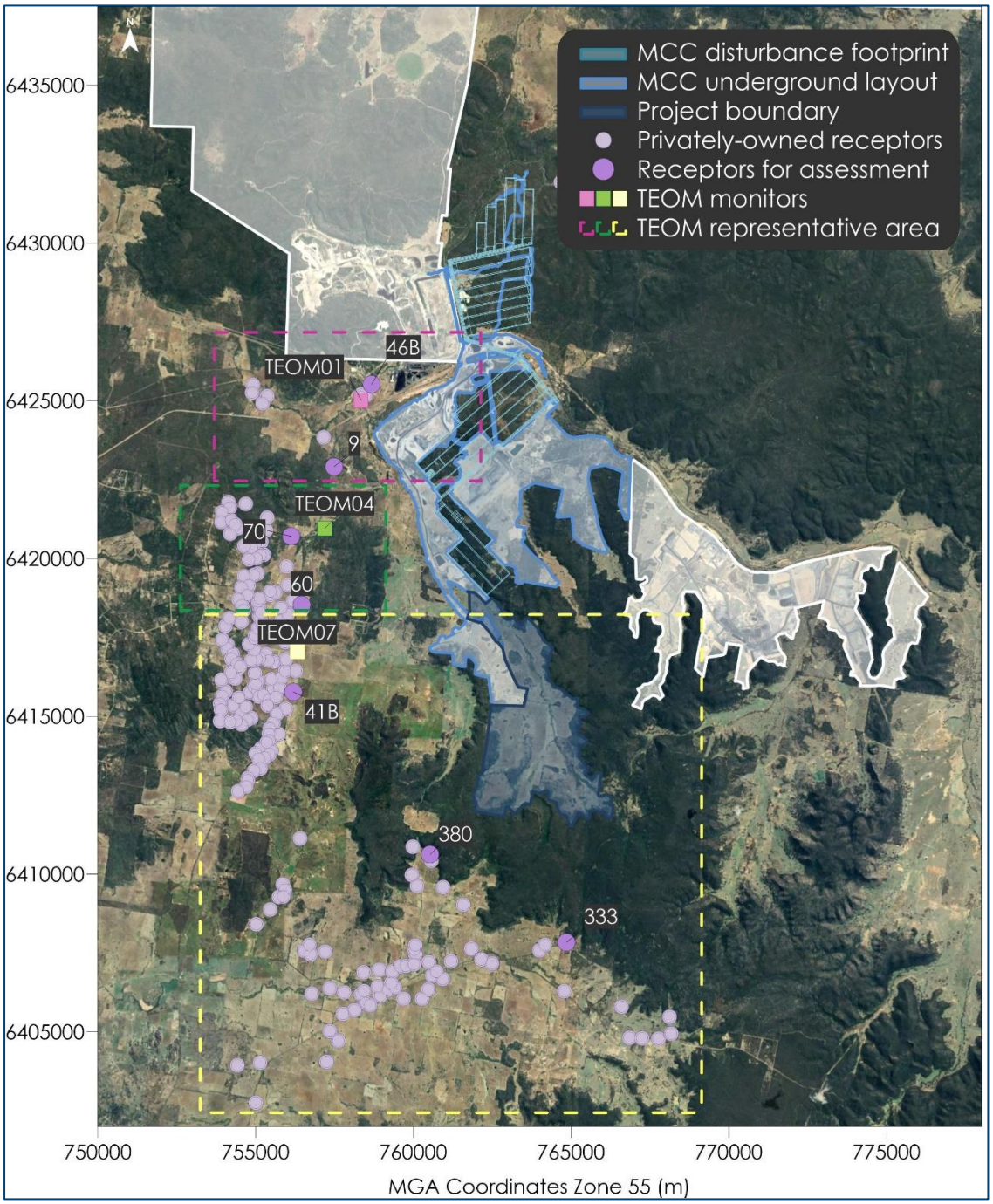


Figure 7-1: Locations considered as part of the contemporaneous assessment

7.2.1 Impacts without implementation of proactive/ reactive measures

Table 7-2 provides a summary of the contemporaneous assessment at each assessed receptor location. The results in **Table 7-2** indicate that for the assessed receptors, potential cumulative 24-hour average $PM_{2.5}$ and PM_{10} impacts may occur without proactive and reactive mitigation.

Detailed tables of the contemporaneous assessment results are provided in **Appendix F**.

Table 7-2: NSW EPA contemporaneous assessment - maximum number of additional days in a year above 24-hour average criterion

Receptor ID	$PM_{2.5}$ analysis			PM_{10} analysis		
	Project Year 4	Project Year 5	Project Year 7	Project Year 4	Project Year 5	Project Year 7
46B	0	0	0	0	0	0
9	0	0	0	0	0	0
70	0	0	0	0	0	0
60	1	0	1	1	1	1
41B	1	0	0	3	2	2
333	0	0	0	0	0	0
380	0	0	0	0	0	0

Further analysis of the predicted cumulative $PM_{2.5}$ and PM_{10} impacts at Receptors 41B and 60 (where some additional exceedances are predicted without the implementation of proactive/ reactive measures) are presented in **Figure 7-2** to **Figure 7-5**. The figures show time series plots of the 24-hour average $PM_{2.5}$ and PM_{10} concentrations predicted to be experienced as a result of the Project with the approved MCC. The light blue bars represent the existing ambient background level at the monitoring location, the dark blue bars represent the potential reduction in background level due to the Project and approved MCC in the future modelled year and the orange bars represent the predicted incremental contribution due to the Project and approved MCC in the future modelled year.

7.2.2 Impacts with adoption of proactive/ reactive measures

MCO use predictive meteorological modelling software to predict daily weather events and identify adverse conditions in combination real-time dust monitoring to inform proactive and reactive dust management requirements.

To demonstrate the effectiveness of the implementation of the proactive/ reactive measures at the Project and the approved MCC, the dispersion modelling was re-run to consider the effects of temporarily pausing activities in the pit and overburden areas during periods of elevated dust.

Only the activities that can be controlled in the pit and overburden areas were ceased in the model, and dust from other sources such as wind erosion was still assumed to be occurring for the purpose of the revised modelling.

Table 7-3 outlines the maximum number of additional days in a year predicted to exceed the 24-hour criterion with the implementation of reactive measures.

The results indicate that all of the predicted additional exceedance days due to the Project with the approved MCC activities can be prevented using the proactive/ reactive controls, which would be effective in reducing the incremental contribution of the Project to cumulative levels.

Table 7-3: NSW EPA contemporaneous assessment - maximum number of additional days in a year above 24-hour average criterion with implementation of proactive/ reactive measures

Receptor ID	$PM_{2.5}$ analysis			PM_{10} analysis		
	Project Year 4	Project Year 5	Project Year 7	Project Year 4	Project Year 5	Project Year 7
46B	0	0	0	0	0	0
9	0	0	0	0	0	0
70	0	0	0	0	0	0
60	0	0	0	0	0	0
41B	0	0	0	0	0	0
333	0	0	0	0	0	0
380	0	0	0	0	0	0

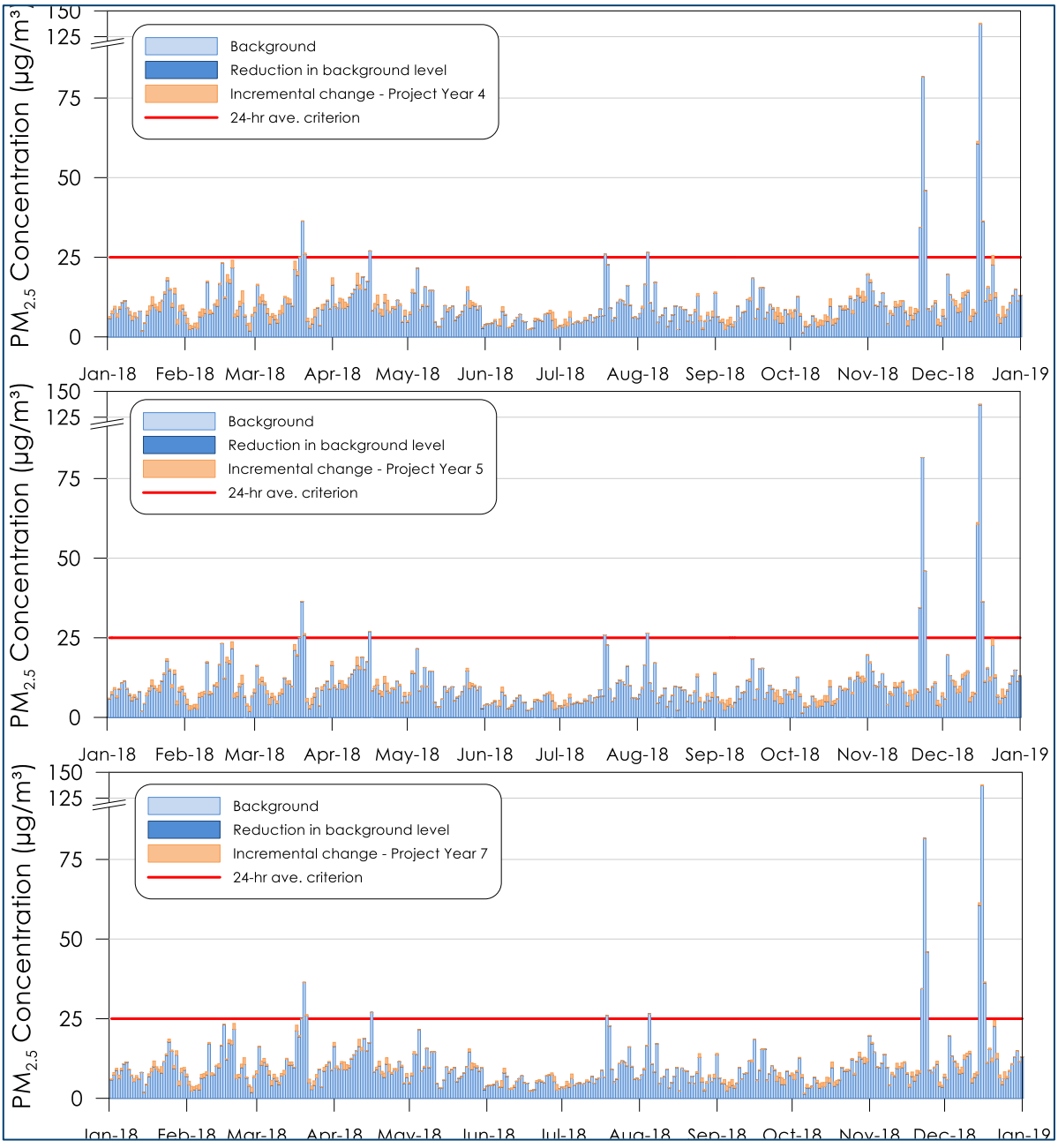


Figure 7-2: Predicted cumulative 24-hour average $PM_{2.5}$ concentrations for Receptor 41B

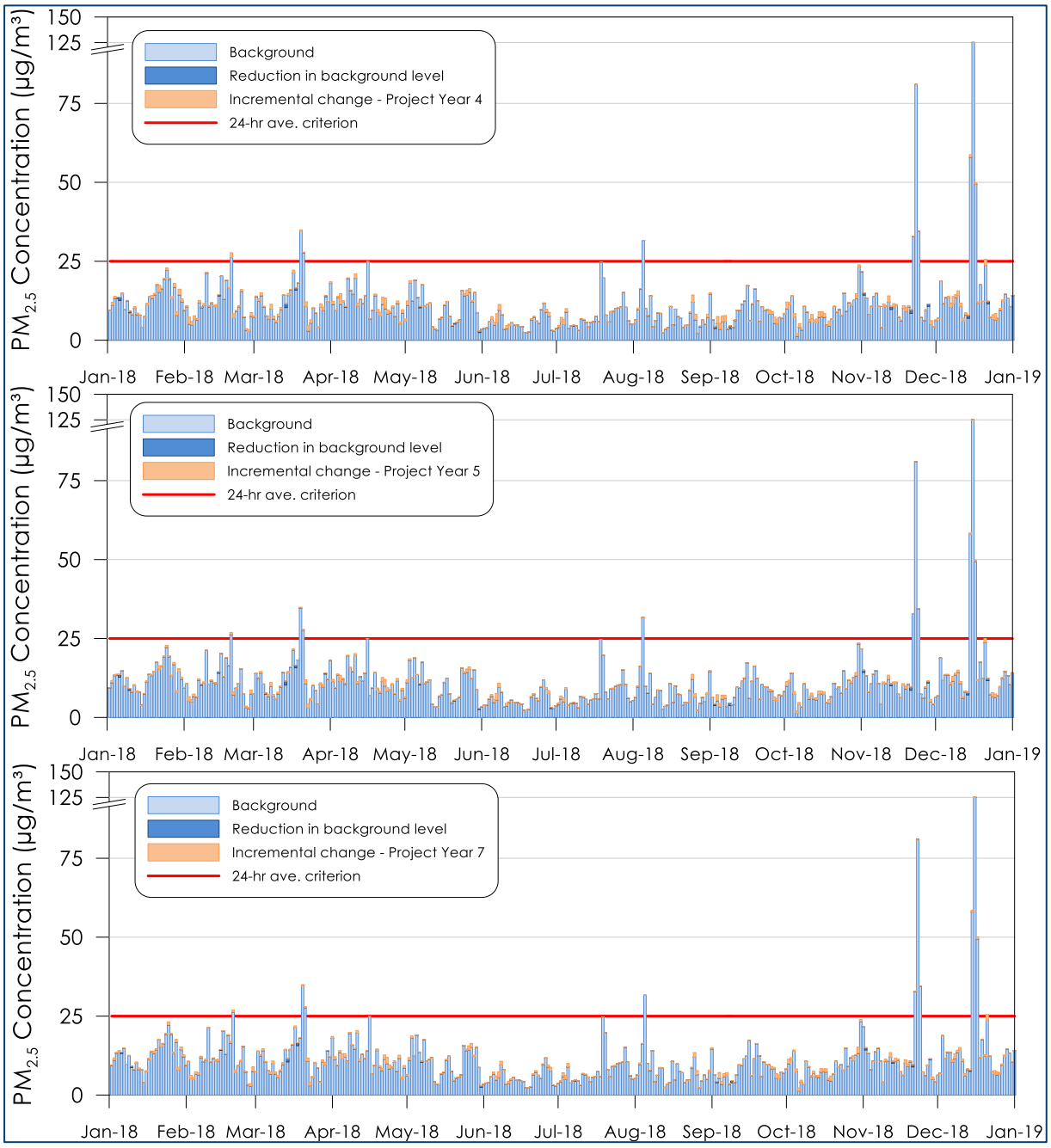


Figure 7-3: Predicted cumulative 24-hour average $PM_{2.5}$ concentrations for Receptor 60

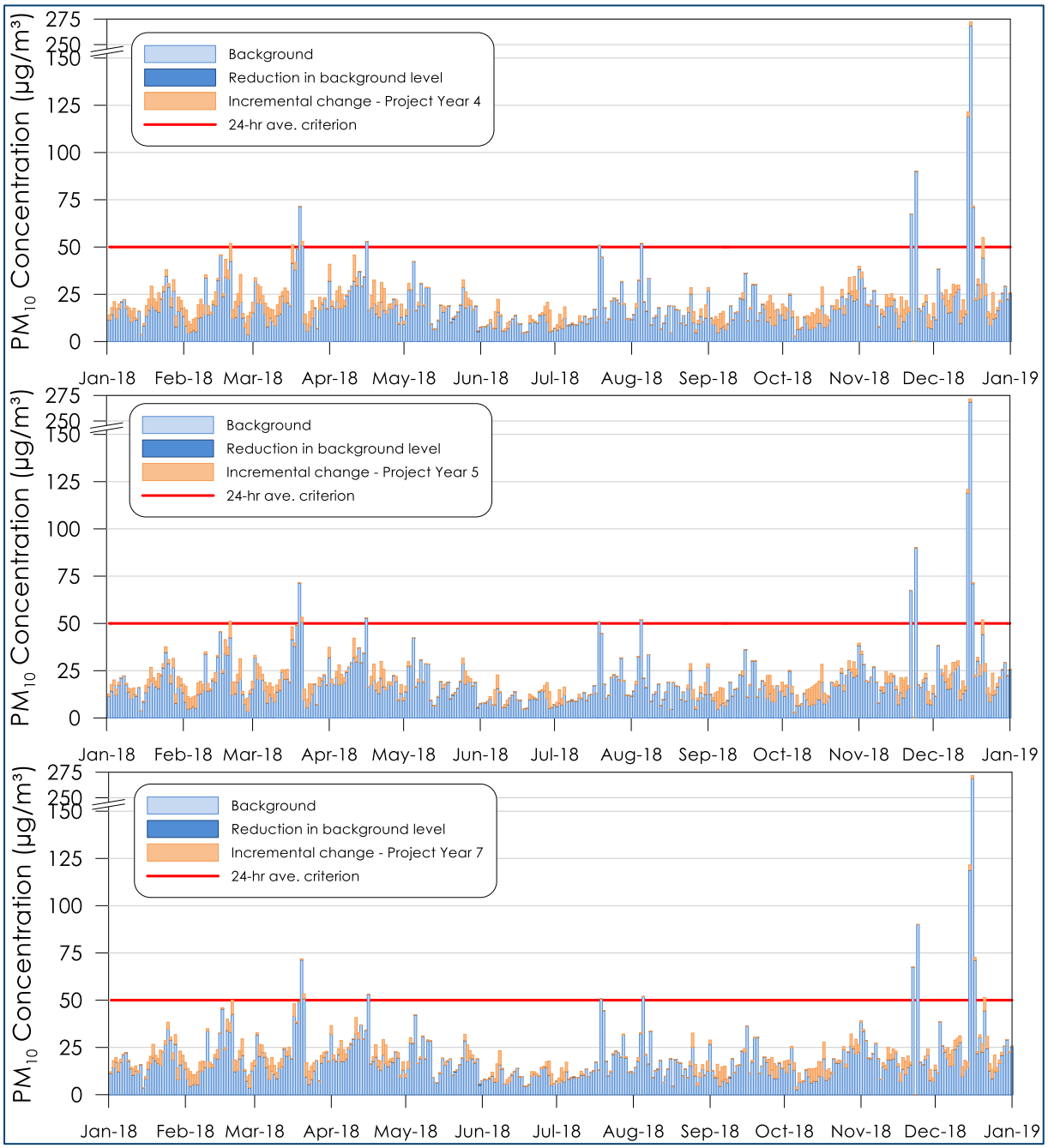


Figure 7-4: Predicted cumulative 24-hour average PM_{10} concentrations for Receptor 41B

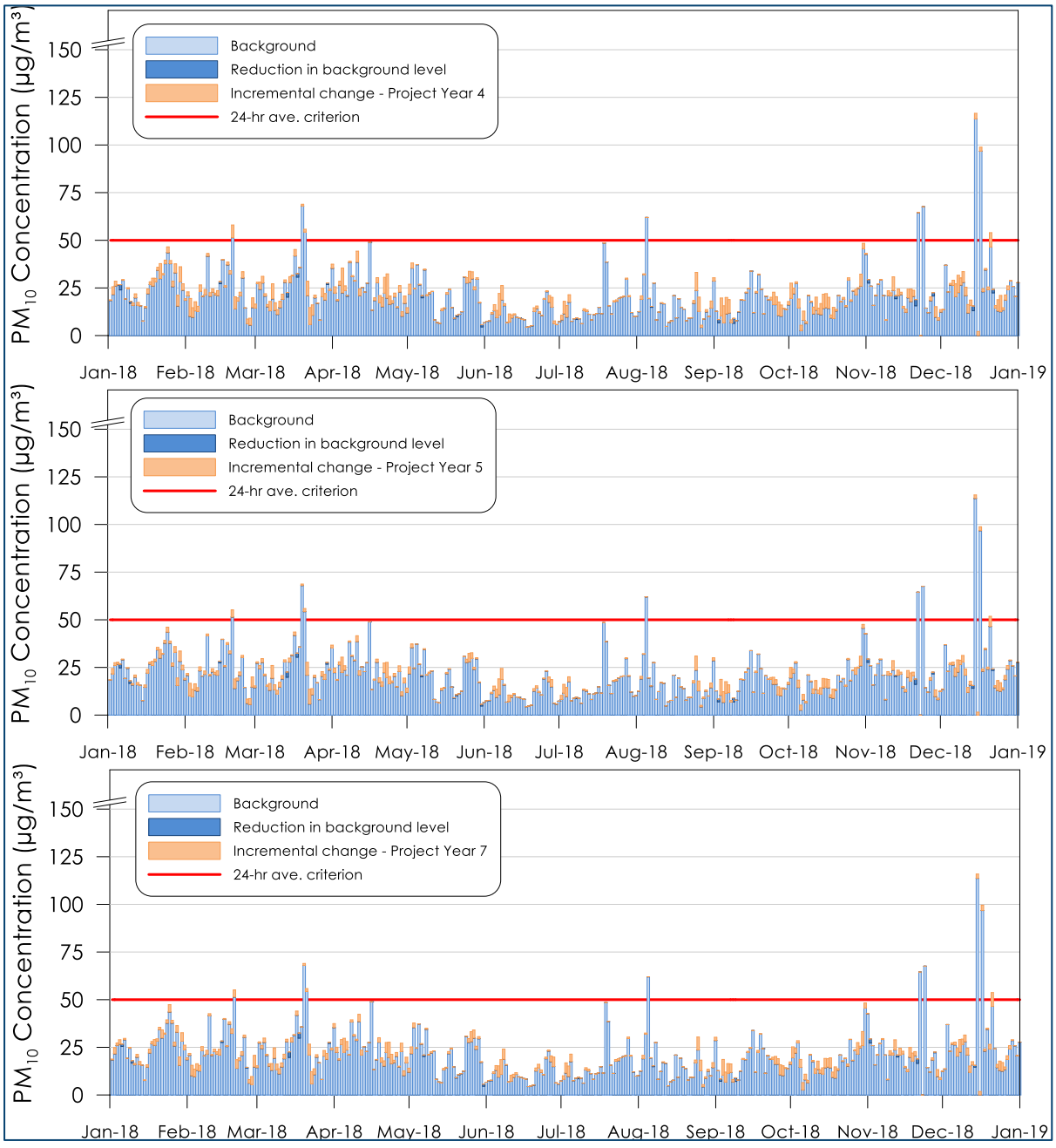


Figure 7-5: Predicted cumulative 24-hour average PM_{10} concentrations for Receptor 60

7.3 Assessment of impacts per VLAMP criteria

7.3.1 Summary of modelling predictions

The results in **Table 7-1** indicate the highest maximum predicted level at the assessed privately-owned receptors would be below the applicable VLAMP mitigation and acquisition criteria outlined in **Table 3-2** and **Table 3-3** respectively, for each of the assessed Project years.

7.3.2 Dust impacts on privately-owned land

As required by the VLAMP, the potential impacts due to the Project, extending over more than 25% of any privately-owned land, have been evaluated using the predicted pollutant dispersion contours.

The results at the criteria level concentrations show the maximum 24-hour average PM_{10} predictions would have the most spatial extent, relative to any of the other assessed dust metrics and hence 24-hour average PM_{10} represents the most impacting parameter.

Based on the isopleth diagrams in **Appendix E**, the extent of the predicted maximum 24-hour average PM_{10} level of 50µg/m^3 would not extend over more than 25% of any privately-owned land parcels as a result of the Project, and as such the Project would not exceed this criterion.

8 ASSESSMENT OF TRAIN DUST EMISSIONS

8.1 Introduction

Coal dust emissions from train wagons have the potential to originate from the coal surface of loaded wagons, leakage from wagon doors, re-suspension and wind erosion of coal spilled in the rail corridor, residual coal in unloaded wagons, and parasitic load on sills, shear plates and bogies of wagons.

The surface of loaded wagons provides a significant exposed area, which is subject to wind erosion and air movement during transport. The amount of dust potentially generated during transport is related to the inherent dustiness of the coal material and the interactions of the air with the exposed coal surface (**Connell Hatch, 2008**).

Coal dust can potentially leak from the bottom doors of train wagons and fall into the ballast of the train line. This occurs when the doors of the wagon are not completely sealed. The amount of material released will depend on the material properties of the coal, and the vibrational forces experienced by the coal in the wagons that potentially break down the coal material. Dust impacts from this source are considered to be low as the ballast would provide a sufficient shielding effect to prevent particle lift-off (**Connell Hatch, 2008**).

During the loading process and in transit, there is potential for coal material to be spilled into the train corridor and cause parasitic loading on the sills, shear plates and bogies. These sources of emissions are easily prevented by careful loading of the material and profiling the shape of the load (**Connell Hatch, 2008**).

Residual coal remaining in an unloaded wagon can dry and become airborne during travel back to the site. This source is dependent on meteorological conditions, the train travel speed and the extent of any turbulent air generated in the unloaded wagon space causing the residual coal particles to become airborne.

8.2 Previous assessment of impacts

The *Air Quality Assessment Moolarben Coal Project OC Optimisation Modification* (**Todoroski Air Sciences, 2017**) previously assessed the potential for dust impacts to arise from the transportation of coal via trains from the MCC. The assessment found that at distances approximately 50m from the rail track centreline, the potential for dust impacts is negligible.

This finding was like other studies that found that concentrations of coal dust at the edge of the rail corridor are below levels known to cause adverse impacts on amenity (**Connell Hatch, 2008**). Another study identified that a key mechanism for the increased particulate levels was due to the passing trains stirring up existing dust particles settled on the tracks and nearby ground and not from the wagons (**Ryan & Malecki, 2015**).

As the Project does not seek to increase the approved maximum number of trains per day or duration of train movements from the approved MCC, there would be no additional impact due to dust from coal trains and the potential for any adverse air quality impacts associated with coal dust generated during rail transport would be low and would not make any appreciable difference to air quality.

9 ASSESSMENT OF BLAST FUME EMISSIONS

Air quality impacts from blast fume emissions are rare but are possible when there are unforeseeable complications with a blast that causes high levels of NO_2 or dust emission, and when this occurs during unfavourable air dispersion conditions.

MCO employs best practice blast management measures to ensure that blasting activities are managed in a manner which would minimise the risk of impacts arising at the approved MCC. These measures would also be applied to the Project.

9.1 General outline of best practice blast management

The potential effects from blasting activities are generally managed by scheduling the blast to times when there would be a low risk of impact, for example, when winds blow away from receptors. These conditions are forecast using a predictive blast dust management system. Blast operators make the final decision to blast based on the available information, including available forecasts.

The decision of whether to initiate a blast at any given time will generally need to balance many potentially conflicting factors; for example, water ingress will increase the risk of a high emissions event, thus waiting too long for ideal air dispersion conditions to occur may present an unacceptable level of risk and therefore the blast may be initiated under less than ideal weather conditions.

On the other hand, a dry blast with low scope for any degradation of the explosive over time or low potential to lead to any elevated emissions might be delayed if it appears that air dispersion conditions would soon improve significantly.

Occasionally safety concerns may also arise and may require a blast to be detonated under less than ideal (environmental) conditions.

9.2 Management of potential air quality impacts from blasting

Air quality impacts of blast operations at the MCC would continue to be managed via the Blast Management Plan (BMP) (**MCO, 2020b**). The purpose of the BMP is to ensure that blasting operations comply with all relevant requirements particularly noise, overpressure, vibration, blast fume and dust effects.

The BMP requires a pre-blast environmental assessment to be conducted to guide operators on the suitability of various factors including the current weather conditions for blasting. The pre-blast environmental assessment takes into consideration an exclusion zone of 500m, meteorological factors such as wind speed and direction which can affect the scale of potential blast impacts at receptor locations, the design of the blast and notification to external stakeholders.

A predictive blast management system is also part of the BMP at the MCC to aid with management of blasting operations. Such a system uses the weather conditions for each blast to predict the potential impact which may occur. The prediction is made on the basis of forecast weather data, allowing operators to schedule a blast to the time of least impact up to 48 hours in advance.

Overall, it is anticipated that with due care and implementation of management via the BMP, potential blast impacts would be averted at the Project. The BMP is regularly reviewed to ensure it is consistent with contemporary best practice blast management.

10 SUMMARY AND CONCLUSIONS

This study has examined the air quality impacts that may arise from the Project for three Project years.

The air dispersion modelling methodology uses local weather and dust monitoring data, incorporates conservative emission estimation, and considers activities at other nearby coal mining operations. This study has applied a similar methodology for assessing the potential air quality impacts associated with the Project as has been applied for assessments of potential impacts for approved operations at the MCC.

The results indicate that the Project would result in no exceedances of long-term criteria for $PM_{2.5}$, PM_{10}, TSP or dust deposition at any privately-owned receptor due to emissions from the Project in isolation, or from the Project with the approved MCC and other sources.

Short-term cumulative $PM_{2.5}$ and PM_{10} dust impacts may potentially arise at a small number of privately-owned receptor locations. However, with the application of the existing MCC proactive/ reactive dust mitigation measures for the Project by MCO, it is predicted that short-term cumulative $PM_{2.5}$ and PM_{10} dust would be adequately managed to acceptable levels.

There are no likely adverse air quality impacts associated with rail transport for the Project. Any blast fume impacts would be mitigated using existing management practices.

11 REFERENCES

Bureau of Meteorology (2021)

Climate statistics for Australian locations, Bureau of Meteorology website, accessed October 2021. http://www.bom.gov.au/climate/averages

Connell Hatch (2008)

"Final Report, Environmental Evaluation of Fugitive Coal Dust Emissions from Coal Trains Goonyella, Blackwater and Moura Coal Rail Systems Queensland Rail Limited", March 2008.

Katestone Environmental (2011)

"NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining", Katestone Environmental Pty Ltd prepared for DECCW, 2011.

MCO (2020a)

"Moolarben Coal Air Quality Management Plan", prepared by Moolarben Coal Operation, October 2020.

MCO (2020b)

"Moolarben Coal Blast Management Plan", prepared by Moolarben Coal Operations, October 2020.

National Pollutant Inventory (2012)

"Emission Estimation Technique Manual for Mining Version 3.1", National Pollutant Inventory, January 2012.

New South Wales Environment Protection Authority (2014)

"NSW Coal Mining Benchmarking Study Best-practice measures for reducing non-road diesel exhaust emissions", December 2014.

NSW EPA (2022)

"Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales", NSW Environment Protection Authority, August 2022.

NSW Government (2018)

"Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments". NSW Government, September 2018.

PAEHolmes (2009)

"Air Quality Impact Assessment Ulan Coal – Continued Operations", prepared for Umwelt (Australia) Pty Limited on behalf of Ulan Coal Mines Limited by PAEHolmes, September 2009.

Ryan L. and Malecki A. (2015)

"Additional analysis of ARTC Data on Particulate Emissions in the Rail Corridor", NSW Environment Protection Authority. Prepared by accessUTS Pty Ltd, August 2015.

Todoroski Air Sciences (2015)

"Air Quality and Greenhouse Gas Assessment Wilpinjong Extension Project", prepared for Wilpinjong Coal Pty Ltd by Todoroski Air Sciences, November 2015.

Todoroski Air Sciences (2017)

"Air Quality Assessment Moolarben Coal Project OC Optimisation Modification", prepared for Moolarben Coal Operations Pty Ltd by Todoroski Air Sciences, October 2017.

Todoroski Air Sciences (2022)

"Moolarben Coal Complex OC3 Extension Project Greenhouse Gas Calculations", prepared for Moolarben Coal Operations Pty Ltd by Todoroski Air Sciences, September 2022.

TRC (2011)

"Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia", Prepared for the NSW Office of Environment and Heritage by TRC Environmental Corporation.

US EPA (1995 and update)

"Compilation of Air Pollutant Emission Factors", AP-42, Fourth Edition United States Environmental Protection Agency, Office of Air and Radiation Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711.

Appendix A

Sensitive Receptor Locations

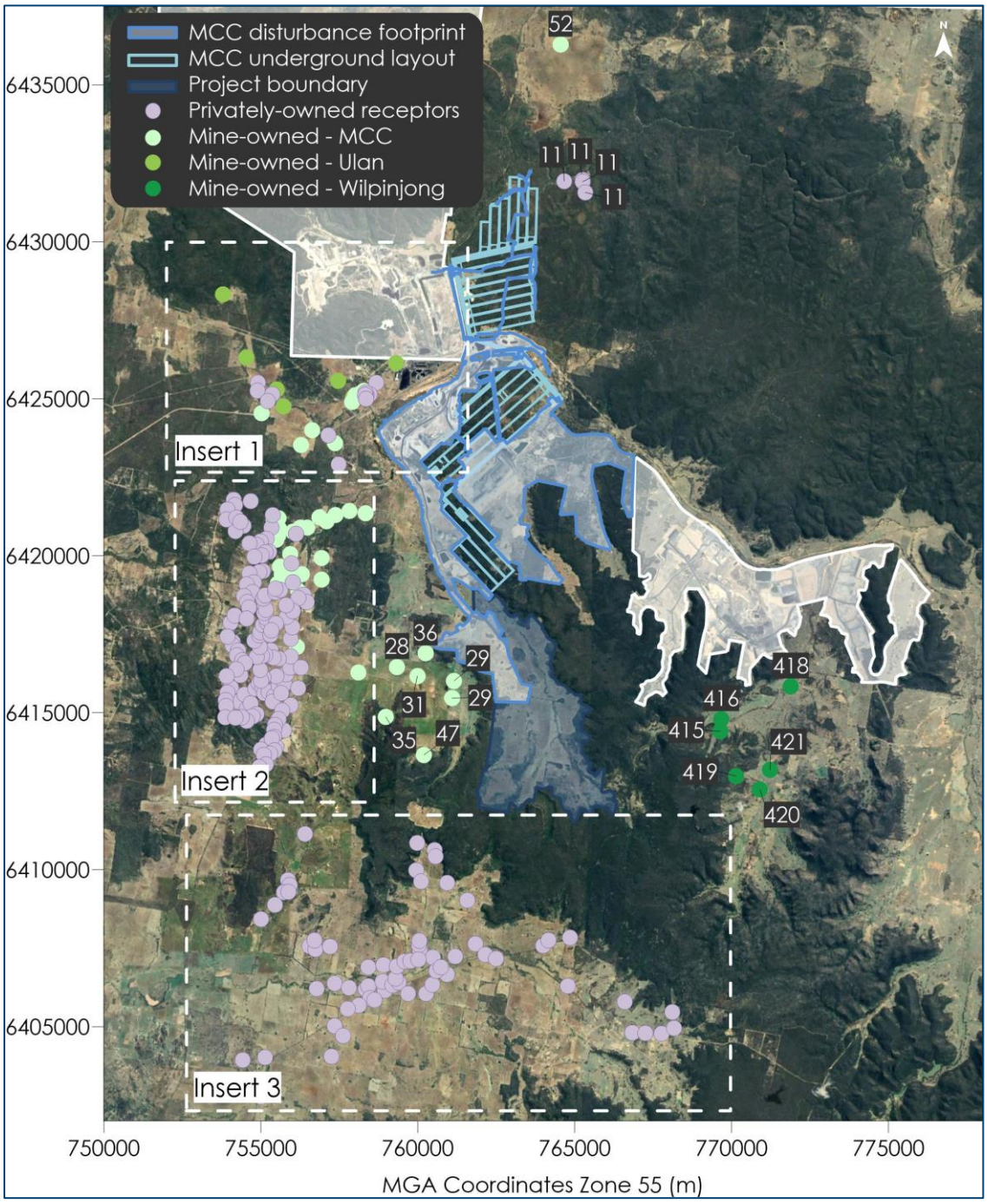


Figure A-1: Receptor locations

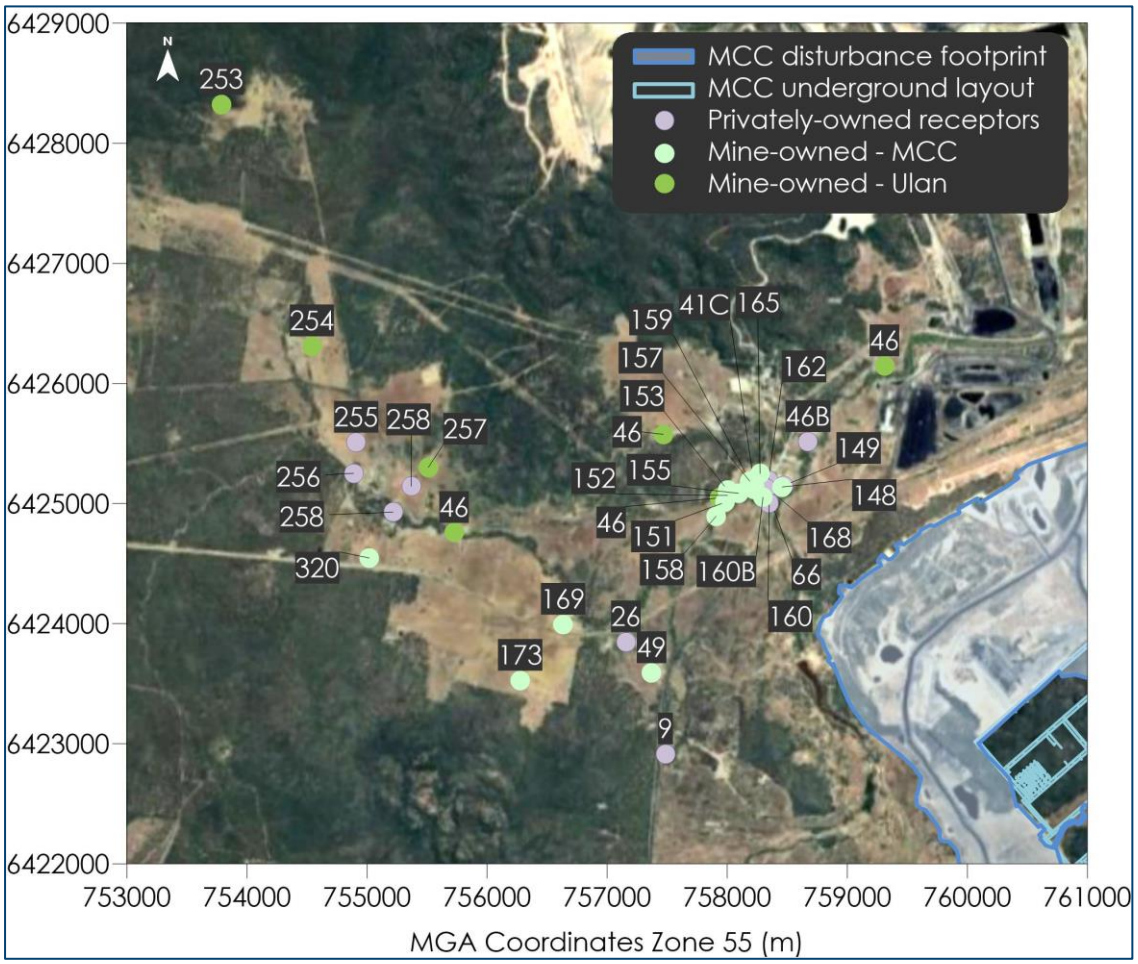


Figure A-2: Receptor location – Insert 1

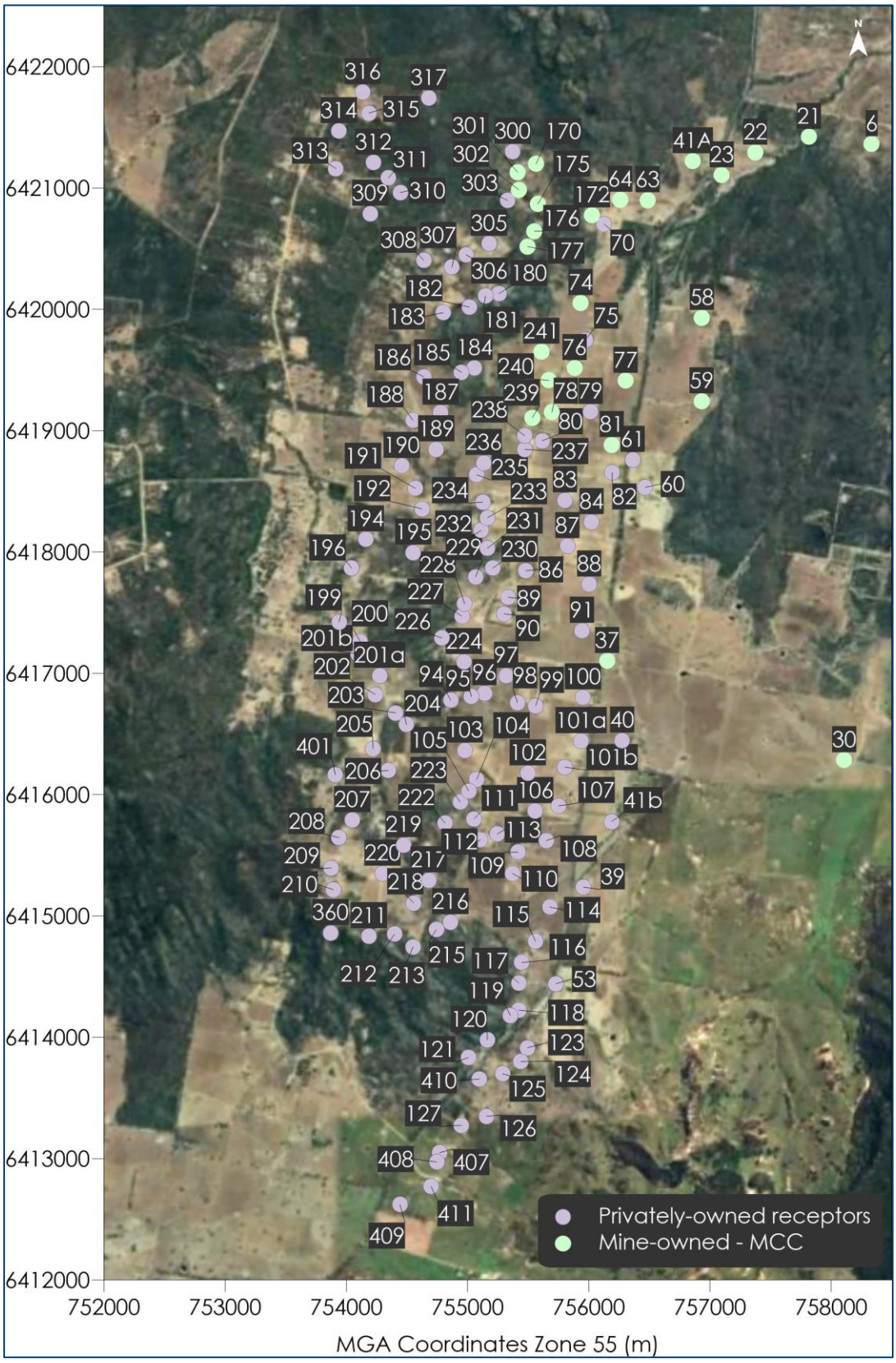


Figure A-3: Receptor locations – Insert 2

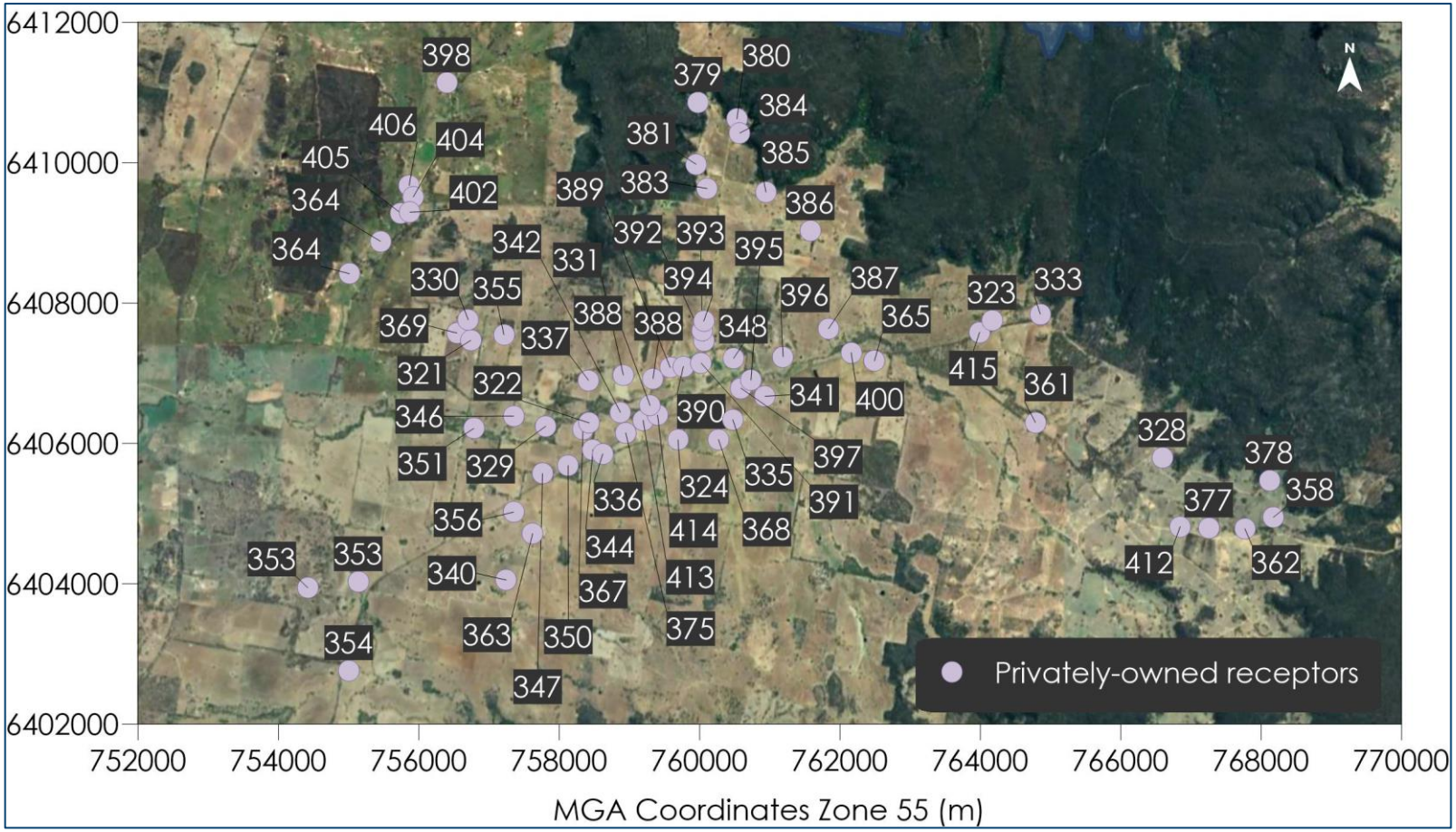


Figure A-4: Receptor location – Insert 3

Table A-1: Receptor identification

Easting	Northing	ID	Easting	Northing	ID
Privately-owned					
757486	6422915	9	755206	6417867	230
765257	6431971	11	755162	6418030	231
764668	6431931	11	755113	6418179	232
765254	6431915	11	755163	6418282	233
765340	6431576	11	755125	6418411	234
757156	6423848	26	755075	6418636	235
755957	6415238	39	755132	6418735	236
756276	6416447	40	755471	6418847	237
755729	6414441	53	755471	6418959	238
756465	6418533	60	754910	6425510	255
756362	6418760	61	754888	6425252	256
758326	6425129	66	755369	6425144	258
756127	6420702	70	755217	6424928	258
755972	6419749	75	755371	6421300	300
756016	6419156	79	755330	6420897	303
755616	6418917	80	755177	6420541	305
756194	6418654	82	754987	6420449	306
755803	6418427	83	754870	6420348	307
756023	6418247	84	754639	6420404	308
755480	6417846	86	754197	6420789	309
755823	6418049	87	754445	6420962	310
756004	6417733	88	754347	6421083	311
755335	6417627	89	754222	6421210	312
755302	6417490	90	753913	6421160	313
755944	6417351	91	753937	6421469	314
754861	6416778	94	754185	6421618	315
755030	6416808	95	754135	6421791	316
755139	6416837	96	754680	6421741	317
755318	6416980	97	756740	6407469	321
755411	6416759	98	758428	6406292	322
755563	6416733	99	764166	6407753	323
755952	6416803	100	759691	6406053	324
755802	6416227	101b	766594	6405798	328
755497	6416176	102	757807	6406245	329
754977	6416365	103	756703	6407761	330
755076	6416125	104	758913	6406974	331
755010	6416030	105	764853	6407842	333
755558	6415865	106	760472	6406339	335
755751	6415907	107	758620	6405852	336
755649	6415620	108	758418	6406899	337
755418	6415526	109	757245	6404055	340
755372	6415350	110	760931	6406673	341
755053	6415799	111	758873	6406441	342
755104	6415629	112	758480	6405913	344
755246	6415676	113	757352	6406390	346
755679	6415074	114	757763	6405572	347
755559	6414793	115	760483	6407213	348
755447	6414617	116	758128	6405688	350
755422	6414448	117	756784	6406214	351
755425	6414223	118	755137	6404030	353
755354	6414179	119	754419	6403943	353
755164	6413978	120	755002	6402764	354
755006	6413833	121	757211	6407550	355
755494	6413914	123	757350	6405023	356
755438	6413800	124	768172	6404949	358
755288	6413699	125	753869	6414860	360

Easting	Northing	ID	Easting	Northing	ID
755158	6413349	126	764783	6406298	361
754950	6413275	127	767765	6404788	362
758469	6425147	149	757622	6404717	363
758348	6425003	160	755454	6408880	364
758344	6425197	162	755012	6408419	364
758361	6425106	168	762490	6407176	365
755259	6420128	180	758337	6406198	367
755148	6420111	181	760268	6406057	368
755014	6420019	182	756544	6407573	369
754798	6419973	183	758948	6406150	375
755057	6419516	184	767252	6404797	377
754949	6419481	185	768118	6405474	378
754638	6419444	186	759980	6410860	379
754779	6419149	187	760532	6410623	380
754549	6419085	188	759949	6409977	381
754741	6418847	189	760106	6409632	383
754457	6418711	190	760571	6410422	384
754568	6418525	191	760943	6409580	385
754624	6418356	192	761575	6409031	386
754160	6418104	194	761835	6407635	387
754552	6417996	195	759294	6406541	388
754042	6417867	196	759337	6406923	388
753940	6417424	199	759581	6407081	389
754114	6417262	200	759769	6407097	390
754097	6417159	201b	760023	6407144	391
754274	6416981	201a	760064	6407459	392
754238	6416826	202	760039	6407610	393
754406	6416674	203	760058	6407742	394
754496	6416577	204	760732	6406902	395
754220	6416380	205	761189	6407235	396
754346	6416199	206	760588	6406788	397
754049	6415791	207	756400	6411139	398
753939	6415646	208	762159	6407295	400
753875	6415395	209	753908	6416164	401
753893	6415216	210	755097	6413654	410
754186	6414834	211	754769	6413050	407
754397	6414851	212	754746	6412972	408
754551	6414746	213	754699	6412771	411
754742	6414888	215	754442	6412622	409
754858	6414950	216	755862	6409675	406
754679	6415294	217	755921	6409512	404
754556	6415106	218	755742	6409282	405
754473	6415585	219	755872	6409294	402
754298	6415350	220	759195	6406331	413
754816	6415764	222	759401	6406407	414
754939	6415939	223	763989	6407586	415
754969	6417094	224	766845	6404815	412
754789	6417292	226	755937	6416442	101A
754954	6417471	227	756189	6415779	41B
754975	6417573	228	758673	6425516	46B
755066	6417794	229			
Mine-owned					
758334	6421362	6	758094	6425085	155
757817	6421422	21	758188	6425186	157
757373	6421292	22	757907	6424895	158
757097	6421105	23	758225	6425117	159
759342	6416462	28	758273	6425250	165
761095	6415467	29	756634	6423994	169

Easting	Northing	ID	Easting	Northing	ID
761158	6416019	29	755566	6421198	170
758108	6416284	30	756025	6420775	172
759988	6416169	31	756276	6423528	173
758977	6414871	35	755580	6420869	175
760250	6416894	36	755552	6420644	176
756151	6417102	37	755495	6420518	177
759310	6426147	46	755533	6419106	239
757468	6425576	46	755669	6419416	240
755725	6424759	46	755608	6419651	241
757937	6425047	46	753786	6428325	253
760198	6413659	47	754541	6426313	254
757370	6423591	49	755511	6425301	257
764548	6436286	52	755412	6421129	301
756933	6419930	58	755422	6420986	302
756931	6419243	59	755019	6424547	320
756486	6420900	63	769637	6414407	415
756259	6420905	64	769667	6414802	416
755933	6420053	74	771231	6413184	417
755883	6419517	76	771890	6415841	418
756303	6419412	77	770142	6412988	419
755696	6419153	78	770903	6412558	420
756189	6418882	81	771231	6413184	421
758458	6425138	148	758297	6425052	160B
757981	6425011	151	756858	6421221	41A
758003	6425068	152	758228	6425136	41C
758003	6425113	153			

Appendix B

Selection of Meteorological Year

Selection of meteorological year

A statistical analysis of the latest five contiguous years of meteorological data from the nearest BoM weather station with suitable available long-term data, Mudgee Airport AWS weather station, is presented in **Table B-1**.

The standard deviation of the latest five years of meteorological data spanning 2016 to 2020 was analysed against the available long-term measured wind speed, temperature and relative humidity. The analysis indicates that the 2016 dataset is closest to the mean for wind speed, the 2020 dataset for temperature and the 2018 dataset for relative humidity. On the basis of a score weighting analysis, 2018 was found to be most representative as it was calculated to have the lowest score.

Table B-1: Statistical analysis results for Mudgee Airport AWS

Year	Wind speed	Temperature	Relative humidity	Score
2016	0.3	1.1	5.2	6.5
2017	0.4	1.4	5.0	6.7
2018	0.3	1.2	4.6	6.1
2019	0.4	1.6	7.6	9.6
2020	0.3	1.0	5.2	6.5

Figure B-1 shows the frequency distributions for wind speed, temperature, wind direction and relative humidity for the 2018 year compared with the mean of the 2016 to 2020 data set. The 2018 year data appear to be well aligned with the mean data for wind direction and temperature.

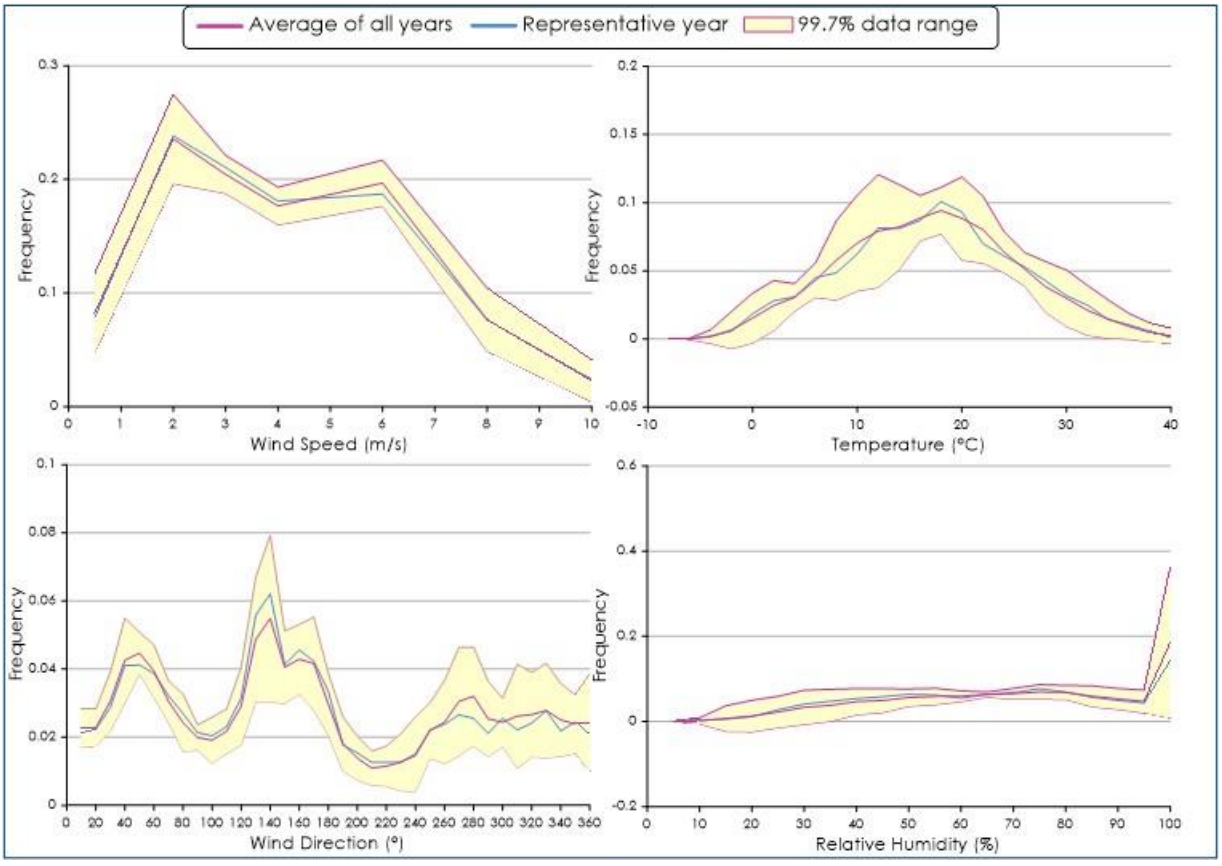


Figure B-1: Frequency distributions for wind speed, wind direction, temperature and relative humidity

Appendix C

Emission Calculations

Emission Calculation

The mining schedule and mine plan designs provided by MCO have been combined with emissions factor equations that relate to the quantity of dust emitted from particular activities based on intensity, the prevailing meteorological conditions, and composition of the material being handled.

Emission factors and associated controls have been sourced from:

- United States (US) EPA AP42 Emission Factors (**US EPA, 1995 and Updates**);
- National Pollutant Inventory document, Emission Estimation Technique Manual for Mining, Version 3.1 (**NPI, 2012**); and,
- NSW EPA document, NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining, prepared by Katestone Environmental (**Katestone Environmental, 2011**).

The emission factor equations used for each dust generating activity are outlined in **Table C-1** below. A detailed dust emission inventory for the assessed Project years is presented in **Table C-2** to **Table C-4**.

Control factors include the following:

- Hauling on unpaved surfaces – 90% control for watering of trafficked areas and road maintenance.
- Drilling overburden and coal material – 70% control for use of dust suppression.
- Dozers operating on coal – 50% control for keeping travel routes moist.
- Unloading ROM to hopper – 50% control for use of water sprays.
- Conveyor and transfer points – 70% control for wind shielding.
- Partial rehabilitation – 70% control for vegetative ground cover.
- Coal stockpiles – 50% control for use of water sprays

Air emissions associated with the operation of the diesel-powered equipment have been estimated based on the number of equipment, power rating, hours of operation and emission factors sourced from the NSW EPA document *NSW Coal Mining Benchmarking Study Best-practice measures for reducing non-road diesel exhaust emissions* (**NSW EPA, 2014**). Emission factors are based on Tier 2 equipment in all three assessed Project years.

Table C-1: Emission factor equations

Activity	Emission factor equation		
	TSP	PM_{10}	$PM_{2.5}$
Drilling (overburden)	$EF = 0.59\ kg/hole$	$0.52 \times TSP$	$0.03 \times TSP$
Drilling (coal)	$EF = 0.1\ kg/hole$	$0.52 \times TSP$	$0.03 \times TSP$
Blasting (overburden/ coal)	$EF = 0.00022 \times A^{1.5}\ kg/blast$	$0.52 \times TSP$	$0.03 \times TSP$
Loading / emplacing overburden & loading product coal to stockpile & conveyor transfer	$EF = 0.74 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right)\ kg/tonne$	$EF = 0.35 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right)\ kg/tonne$	$EF = 0.053 \times 0.0016 \times \left(\frac{U}{2.2}^{1.3} / \frac{M}{2}^{1.4}\right)\ kg/tonne$
Hauling on unsealed surfaces	$EF = \left(\frac{0.4536}{1.6093}\right) \times 4.9 \times (s/12)^{0.7} \times (1.1023 \times M/3)^{0.45}\ kg/VKT$	$EF = \left(\frac{0.4536}{1.6093}\right) \times 1.5 \times (s/12)^{0.9} \times (1.1023 \times M/3)^{0.45}\ kg/VKT$	$EF = \left(\frac{0.4536}{1.6093}\right) \times 0.15 \times (s/12)^{0.9} \times (1.1023 \times M/3)^{0.45}\ kg/VKT$
Dozers on overburden	$EF = 2.6 \times \frac{s^{1.2}}{M^{1.3}}\ kg/hour$	$EF = 0.45 \times \frac{s^{1.5}}{M^{1.4}} \times 0.75\ kg/hour$	$EF = 0.45 \times \frac{s^{1.5}}{M^{1.4}} \times 0.105\ kg/hour$
Dozers on coal	$EF = 35.6 \times \frac{s^{1.2}}{M^{1.4}}\ kg/hour$	$EF = 8.44 \times \frac{s^{1.5}}{M^{1.4}} \times 0.75\ kg/hour$	$EF = 8.44 \times \frac{s^{1.5}}{M^{1.4}} \times 0.022\ kg/hour$
Loading / emplacing coal	$EF = \frac{0.58}{M^{1.2}}\ kg/tonne$	$EF = \frac{0.0596}{M^{0.9}} \times 0.75\ kg/tonne$	$EF = \frac{0.0596}{M^{0.9}} \times 0.019\ kg/tonne$
Sizing coal	$EF = 0.0027\ kg/$tonne	$EF = 0.0012\ kg/$tonne	$0.047 \times TSP$
Wind erosion on exposed areas stockpiles & conveyors	$EF = 850\ kg/ha/year$	$0.5 \times TSP$	$0.075 \times TSP$
Grading roads	$EF = 0.0034 \times sp^{2.5}\ kg/VKT$	$EF = 0.0056 \times sp^{2.0} \times 0.6\ kg/VKT$	$EF = 0.0056 \times sp^{2.0} \times 0.031\ kg/VKT$

EF = emission factor, A = area of blast (m^2), U = wind speed (m/s), M = moisture content (%), s = silt content (%), VKT = vehicle kilometres travelled (km), sp = speed of grader (km/h).

Table C-2: Emissions inventory – Project Year 4

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Overbuden																					
OB - Stripping Topsoil - OC4	3,140	1,228	148	224	hours/year	14.0	5.5	0.7	kg/h												
OB - Stripping Topsoil - OC3 Ext	3,160	1,235	149	226	hours/year	14.0	5.5	0.7	kg/h												
OB - Drilling - OC4	8,771	4,561	263	49,556	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Drilling - OC3 Ext	8,825	4,589	265	49,860	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Blasting - OC4	80,389	41,802	2,412	141	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Blasting - OC3 Ext	80,883	42,059	2,426	141	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Excavator loading OB to haul truck - OC4	91,632	43,339	6,563	66,966,901	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
OB - Excavator loading OB to haul truck - OC3 Ext	92,195	43,606	6,603	67,378,647	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
OB - Excavator rehandle - OC4	2,016	953	144	1,473,272	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %			2.2	% OB rehandle				
OB - Excavator rehandle - OC3 Ext	2,028	959	145	1,482,330	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %			2.2	% OB rehandle				
OB - Hauling to dump - OC4	1,115,524	276,814	27,681	66,966,901	tonnes/year	0.167	0.041	0.004	kg/t	314	tonnes/lo	8.8	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
OB - Hauling to dump - OC3 Ext	325,502	80,772	8,077	67,378,647	tonnes/year	0.048	0.012	0.001	kg/t	314	tonnes/lo	2.5	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
OB - Emplacing at dump - OC4	91,632	43,339	6,563	66,966,901	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
OB - Emplacing at dump - OC3 Ext	92,195	43,606	6,603	67,378,647	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
OB - Dozers on OB (dump and pit) - OC4	775,810	187,479	81,460	46,358	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
OB - Dozers on OB (dump and pit) - OC3 Ext	780,580	188,632	81,961	46,643	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
Quarry																					
QU - Excavator loading material to crusher	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
QU - Crushing	30	14	3	50,000	tonnes/year	0.0006	0.00027	0.00005	kg/t												
QU - Screening	55	19	1	50,000	tonnes/year	0.0011	0.00037	0.00003	kg/t												
QU - Unloading materail to stockpile	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
QU - Excavator loading material to haul truck	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
QU - Excavator rehandle	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %			2.2	% OB rehandle				
QU - Hauling to emplacement	2,611	648	65	50,000	tonnes/year	0.522	0.130	0.013	kg/t	55	tonnes/lo	10.0	km/return	2.9 / 0.7 / 0	kg/VKT	4.2	% silt con	71	Ave GMV	90	% Control
QU - Emplacing material	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)[1]	2	MC in %								
Coal																					
CL - Drilling - OC4	210	109	6	7,000	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Drilling - OC3 Ext	270	140	8	9,000	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Blasting - OC4	17,442	9,070	523	20	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Blasting - OC3 Ext	22,425	11,661	673	26	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Dozers ripping/pushing/clean-up - OC4	43,493	10,260	957	4,778	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Dozers ripping/pushing/clean-up - OC3 Ext	55,920	13,191	1,230	6,143	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Loading ROM coal to haul truck - OC4	367,661	51,653	6,986	7,000,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Loading ROM coal to haul truck - OC3 Ext	472,707	66,411	8,981	9,000,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Hauling ROM to hopper - OC4	105,223	26,111	2,611	7,000,000	tonnes/year	0.150	0.037	0.004	kg/t	314	tonnes/lo	7.9	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CL - Hauling ROM to hopper - OC3 Ext	484,370	120,195	12,019	9,000,000	tonnes/year	0.538	0.134	0.013	kg/t	314	tonnes/lo	28.3	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CL - Unload to hopper or stockpile for washing (OC1, OC2, OC3)	236,354	33,206	4,491	9,000,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Unload to hopper or stockpile (OC4)	183,831	25,827	3,493	7,000,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Rehandling - (OC1 + OC2 + OC3) - at hopper for washing	125,929	17,692	2,393	2,397,600	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Rehandling - OC4 - at hopper	97,945	13,760	1,861	1,864,800	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CHPP - Transfer to Sizing Station (OC4)	1,534	725	110	7,000,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Open Cut																					
CHPP - Conveying to Sizing Station (OC1+OC2+OC3+OC3 Ext)	158	62	7	0.15	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Transfer to Sizing Station (OC4)	1,534	725	110	7,000,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								
CHPP - Sizing Station (OC1+OC2+OC3+OC4+OC3 Ext)	43,200	19,200	2,030	16,000,000	tonnes/year	0.0027	0.00120	0.0	kg/t												
CHPP - Conveying to CHPP (OC)	39	15	2	0.04	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Washing (OC)	-	-	-	16,000,000	tonnes/year																
CHPP - Conveying to CHPP Product Stockpile (OC)	208	81	10	0.2	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Unloading to CHPP Product Stockpile (OC)	1,912	904	137	13,300,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)[1]	10	MC in %								
CHPP - Reclaim and Conveying to TLO (3 transfer points)	5,736	2,713	411	13,300,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)[1]	10	MC in %								
Underground																					
CHPP - Conveyor transfer point at UG portal entrance	310	121	15	0.3	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Conveyor to UG1 pit top	386	151	18	0.4	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Unload to ROM stockpile	1,147	542	82	5,234,110	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								
CHPP - Transfer to sizing station (at product coal stockpile area)	1,147	542	82	5,234,110	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								
CHPP - Unload to product stockpile	1,147	542	82	5,234,110	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								
CHPP - Reclaim and conveyor to TLO (3 transfer points)	3,441	542	82	5,234,110	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)[1]	7.4	MC in %								
Dozers																					
CHPP - Dozer pushing ROM coal at UG1 pit top	36,694	8,656	807	4,031	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CHPP - Dozer pushing ROM coal (bypass) at bypass stockpile	13,712	3,139	302	2,228	hours/year	12.3	2.8	0.3	kg/h	5	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing washed Product coal	51,069	10,933	1,124	10,846	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing bypass (UG + OC) Product coal	48,452	10,372	1,066	10,290	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
Rejects																					
CHPP - Conveying rejects from CHPP to loadout	183	72	9	0.17	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Loading rejects	147	70	11	2,700,000	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)[1]	20	MC in %								
CHPP - Hauling rejects	145,311	36,058	3,606	2,700,000	tonnes/year	0.538	0.134	0.013	kg/t	314	tonnes/lo	28.3	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CHPP - Unloading rejects	147	70	11	2,700,000	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)[1]	20	MC in %								
Wind Erosion																					
OC2 - Active mining area (pit, active dumping area)	70,097	35,048	5,257	82	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC4 - Active mining area (pit, active dumping area)	535,408	267,704	40,156	630	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC4 - Inactive area (no rehabilitation)	14,868	7,434	1,115	35	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
OC4 - Partially rehabilitated (e.g. stable and seeded)	67,075	33,538	5,031	263	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC4 - Hard Stand Areas (Workshops, roads, conveyors etc)	57,215	28,607	4,291	67	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Active mining area (pit, active dumping area)	244,894	122,447	18,367	288	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Partially rehabilitated (e.g. stable and seeded)	40,494	20,247	3,037	159	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC3 Ext - Hard Stand Areas (Workshops, roads, conveyors etc)	177,686	88,843	13,326	209	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
Stockpile - ROM coal stockpile (OC1)	3,107	1,553	233	7	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (UG)	769	385	58	2	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC3)	1,471	735	110	3	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC4)	3,336	1,668	250	8	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Bypass Coal Stockpile	5,143	2,571	386	12	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Product Coal Stockpile	4,526	2,263	339	11	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Other																					
Grading roads	141,796	49,543	4,396	230,388	km	0.62	0.22	0.02	kg/VKT	8	speed of graders in km/h										
Diesel exhuast emissions	38,205	38,205	37,059																		
Total TSP emissions (kg/yr)	**7,534,803**	**2,163,927**	**384,253**																		

Table C-3: Emissions inventory – Project Year 5

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Overbuden																					
OB - Stripping Topsoil - OC2	110	43	5	8	hours/year	14.0	5.5	0.7	kg/h												
OB - Stripping Topsoil - OC4	4,051	1,584	190	289	hours/year	14.0	5.5	0.7	kg/h												
OB - Stripping Topsoil - OC3 Ext	2,139	836	101	153	hours/year	14.0	5.5	0.7	kg/h												
OB - Drilling - OC2	286	149	9	1,615	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Drilling - OC4	10,512	5,466	315	59,388	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Drilling - OC3 Ext	5,551	2,886	167	31,360	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Blasting - OC2	2,620	1,362	79	5	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Blasting - OC4	96,339	50,096	2,890	169	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Blasting - OC3 Ext	50,872	26,453	1,526	89	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Excavator loading OB to haul truck - OC2	2,987	1,413	214	2,182,708	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Excavator loading OB to haul truck - OC4	109,813	51,939	7,865	80,254,426	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Excavator loading OB to haul truck - OC3 Ext	57,986	27,426	4,153	42,378,040	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Excavator rehandle - OC2	75	35	5	54,568	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.5	% OB rehandle				
OB - Excavator rehandle - OC4	2,416	1,143	173	1,765,597	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
OB - Excavator rehandle - OC3 Ext	1,276	603	91	932,317	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
OB - Hauling to dump - OC2	10,402	2,581	258	2,182,708	tonnes/year	0.048	0.012	0.001	kg/t	314	tonnes/lo	2.5	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
OB - Hauling to dump - OC4	1,356,274	336,555	33,656	80,254,426	tonnes/year	0.169	0.042	0.004	kg/t	314	tonnes/lo	8.9	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
OB - Hauling to dump - OC3 Ext	261,073	64,784	6,478	42,378,040	tonnes/year	0.062	0.015	0.002	kg/t	314	tonnes/lo	3.2	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
OB - Emplacing at dump - OC2	2,987	1,413	214	2,182,708	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Emplacing at dump - OC4	109,813	51,939	7,865	80,254,426	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Emplacing at dump - OC3 Ext	57,986	27,426	4,153	42,378,040	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Dozers on OB (dump and pit) - OC2	25,287	6,111	2,655	1,511	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
OB - Dozers on OB (dump and pit) - OC4	929,746	224,679	97,623	55,556	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
OB - Dozers on OB (dump and pit) - OC3 Ext	490,949	118,641	51,550	29,336	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
Quarry																					
QU - Excavator loading material to crusher	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Crushing	30	14	3	50,000	tonnes/year	0.0006	0.00027	0.00005	kg/t												
QU - Screening	55	19	1	50,000	tonnes/year	0.0011	0.00037	0.00003	kg/t												
QU - Unloading materail to stockpile	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Excavator loading material to haul truck	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Excavator rehandle	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
QU - Hauling to emplacement	2,611	648	65	50,000	tonnes/year	0.522	0.130	0.013	kg/t	55	tonnes/lo	10.0	km/return	2.9 / 0.7 / 0	kg/VKT	4.2	% silt con	71	Ave GMV	90	% Control
QU - Emplacing material	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
Coal																					
CL - Drilling - OC2	33	17	1	1,100	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Drilling - OC4	309	161	9	10,300	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Drilling - OC3 Ext	139	72	4	4,617	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Blasting - OC2	2,741	1,425	82	3	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Blasting - OC4	25,665	13,346	770	30	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Blasting - OC3 Ext	11,504	5,982	345	13	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Dozers ripping/pushing/clean-up - OC2	6,835	1,612	150	751	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Dozers ripping/pushing/clean-up - OC4	63,997	15,097	1,408	7,030	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Dozers ripping/pushing/clean-up - OC3 Ext	28,686	6,767	631	3,151	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Loading ROM coal to haul truck - OC2	57,775	8,117	1,098	1,100,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Loading ROM coal to haul truck - OC4	540,987	76,004	10,279	10,300,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Loading ROM coal to haul truck - OC3 Ext	242,496	34,069	4,607	4,616,945	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Hauling ROM to hopper - OC2	38,714	9,607	961	1,100,000	tonnes/year	0.352	0.087	0.009	kg/t	314	tonnes/lo	18.5	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CL - Hauling ROM to hopper - OC4	137,600	34,145	3,415	10,300,000	tonnes/year	0.134	0.033	0.003	kg/t	314	tonnes/lo	7.0	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CL - Hauling ROM to hopper - OC3 Ext	267,133	66,288	6,629	4,616,945	tonnes/year	0.579	0.144	0.014	kg/t	314	tonnes/lo	30.4	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CL - Unload to hopper or stockpile for washing (OC1, OC2, OC3)	150,136	21,093	2,853	5,716,945	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Unload to hopper or stockpile (OC4)	270,494	38,002	5,139	10,300,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Rehandling - (OC1 + OC2 + OC3) - at hopper for washing	79,992	11,238	1,520	1,522,994	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Rehandling - OC4 - at hopper	144,119	20,247	2,738	2,743,920	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CHPP - Transfer to Sizing Station (OC4)	2,257	1,068	162	10,300,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Open Cut																					
CHPP - Conveying to Sizing Station (OC1+OC2+OC3+OC3 Ext)	158	62	7	0.15	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Transfer to Sizing Station (OC4)	2,257	1,068	162	10,300,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
CHPP - Sizing Station (OC1+OC2+OC3+OC4+OC3 Ext)	43,246	19,220	2,033	16,016,945	tonnes/year	0.0027	0.00120	0.0	kg/t												
CHPP - Conveying to CHPP (OC)	39	15	2	0.04	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Washing (OC)	-	-	-	16,016,945	tonnes/year																
CHPP - Conveying to CHPP Product Stockpile (OC)	208	81	10	0.2	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Unloading to CHPP Product Stockpile (OC)	1,926	911	138	13,400,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)1	10	MC in %								
CHPP - Reclaim and Conveying to TLO (3 transfer points)	5,779	2,733	414	13,400,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)1	10	MC in %								
Underground																					
CHPP - Conveyor transfer point at UG portal entrance	310	121	15	0.3	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Conveyor to UG1 pit top	386	151	18	0.4	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Unload to ROM stockpile	1,124	531	80	5,127,522	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
CHPP - Transfer to sizing station (at product coal stockpile area)	1,124	531	80	5,127,522	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
CHPP - Unload to product stockpile	1,124	531	80	5,127,522	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
CHPP - Reclaim and conveyor to TLO (3 transfer points)	3,371	531	80	5,127,522	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
Dozers																					
CHPP - Dozer pushing ROM coal at UG1 pit top	36,694	8,656	807	4,031	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CHPP - Dozer pushing ROM coal (bypass) at bypass stockpile	13,712	3,139	302	2,228	hours/year	12.3	2.8	0.3	kg/h	5	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing washed Product coal	51,069	10,933	1,124	10,846	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing bypass (UG + OC) Product coal	48,452	10,372	1,066	10,290	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
Rejects																					
CHPP - Conveying rejects from CHPP to loadout	183	72	9	0.17	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Loading rejects	143	67	10	2,616,945	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)1	20	MC in %								
CHPP - Hauling rejects	151,414	37,573	3,757	2,616,945	tonnes/year	0.579	0.144	0.014	kg/t	314	tonnes/lo	30.4	km/return	6.0 / 1.5 / 0	kg/VKT	4.2	% silt con	361	Ave GMV	90	% Control
CHPP - Unloading rejects	143	67	10	2,616,945	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)1	20	MC in %								
Wind Erosion																					
OC2 - Active mining area (pit, active dumping area)	190,765	95,382	14,307	224	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC4 - Active mining area (pit, active dumping area)	465,448	232,724	34,909	548	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC4 - Partially rehabilitated (e.g. stable and seeded)	115,706	57,853	8,678	454	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC4 - Hard Stand Areas (Workshops, roads, conveyors etc)	57,178	28,589	4,288	67	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Active mining area (pit, active dumping area)	321,521	160,760	24,114	378	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Partially rehabilitated (e.g. stable and seeded)	40,497	20,249	3,037	159	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC3 Ext - Hard Stand Areas (Workshops, roads, conveyors etc)	265,398	132,699	19,905	312	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
Stockpile - ROM coal stockpile (OC1)	3,107	1,553	233	7	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (UG)	769	385	58	2	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC3)	1,471	735	110	3	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC4)	3,336	1,668	250	8	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Bypass Coal Stockpile	5,143	2,571	386	12	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Product Coal Stockpile	4,526	2,263	339	11	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Other																					
Grading roads	141,796	49,543	4,396	230,388	km	0.62	0.22	0.02	kg/VKT	8	speed of graders in km/h										
Diesel exhaust emissions	38,205	38,205	37,059																		
Total TSP emissions (kg/yr)	**7,683,922**	**2,255,103**	**390,344**																		

Table C-4: Emissions inventory – Project Year 7

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Overbuden																					
OB - Stripping Topsoil - OC4	4,998	1,954	235	357	hours/year	14.0	5.5	0.7	kg/h												
OB - Stripping Topsoil - OC3 Ext	1,302	509	61	93	hours/year	14.0	5.5	0.7	kg/h												
OB - Drilling - OC4	20,678	10,752	620	116,824	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Drilling - OC3 Ext	5,385	2,800	162	30,421	holes/year	0.59	0.31	0.02	kg/hole											70	% Control
OB - Blasting - OC4	189,511	98,545	5,685	332	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Blasting - OC3 Ext	49,349	25,661	1,480	86	blasts/year	572	297.2	17.1	kg/blast	18,900	Area of blast in m2										
OB - Excavator loading OB to haul truck - OC4	216,015	102,169	15,471	157,869,664	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Excavator loading OB to haul truck - OC3 Ext	56,251	26,605	4,029	41,109,511	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Excavator rehandle - OC4	4,752	2,248	340	3,473,133	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
OB - Excavator rehandle - OC3 Ext	1,238	585	89	904,409	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
OB - Hauling to dump - OC4	1,495,338	371,063	37,106	157,869,664	tonnes/year	0.095	0.024	0.002	kg/t	296	tonnes/lo	4.8	km/return	5.9 / 1.5 / 0	kg/VKT	4.2	% silt con	348	Ave GMV	90	% Control
OB - Hauling to dump - OC3 Ext	492,534	122,221	12,222	41,109,511	tonnes/year	0.120	0.030	0.003	kg/t	296	tonnes/lo	6.0	km/return	5.9 / 1.5 / 0	kg/VKT	4.2	% silt con	348	Ave GMV	90	% Control
OB - Emplacing at dump - OC4	216,015	102,169	15,471	157,869,664	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Emplacing at dump - OC3 Ext	56,251	26,605	4,029	41,109,511	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
OB - Dozers on OB (dump and pit) - OC4	1,828,917	441,969	192,036	109,285	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
OB - Dozers on OB (dump and pit) - OC3 Ext	476,253	115,089	50,007	28,458	hours/year	16.7	4.0	1.8	kg/h	10	SC in %	2	MC in %								
Quarry																					
QU - Excavator loading material to crusher	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Crushing	30	14	3	50,000	tonnes/year	0.0006	0.00027	0.00005	kg/t												
QU - Screening	55	19	1	50,000	tonnes/year	0.0011	0.00037	0.00003	kg/t												
QU - Unloading materail to stockpile	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Excavator loading material to haul truck	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
QU - Excavator rehandle	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %			2.2	% OB rehandle				
QU - Hauling to emplacement	2,611	648	65	50,000	tonnes/year	0.522	0.130	0.013	kg/t	55	tonnes/lo	10.0	km/return	2.9 / 0.7 / 0	kg/VKT	4.2	% silt con	71	Ave GMV	90	% Control
QU - Emplacing material	68	32	5	50,000	tonnes/year	0.001	0.00065	0.00010	kg/t	1.156	(WS/2.2)1	2	MC in %								
Coal																					
CL - Drilling - OC4	333	173	10	11,100	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Drilling - OC3 Ext	146	76	4	4,864	holes/year	0.10	0.05	0.00	kg/hole											70	% Control
CL - Blasting - OC4	27,658	14,382	830	32	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Blasting - OC3 Ext	12,119	6,302	364	14	blasts / year	859	446.8	25.8	kg/blast	24,800	Area of blast in m2										
CL - Dozers ripping/pushing/clean-up - OC4	68,967	16,269	1,517	7,576	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Dozers ripping/pushing/clean-up - OC3 Ext	30,220	7,129	665	3,320	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CL - Loading ROM coal to haul truck - OC4	583,006	81,907	11,077	11,100,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Loading ROM coal to haul truck - OC3 Ext	255,456	35,889	4,854	4,863,699	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Hauling ROM to hopper - OC4	190,325	47,228	4,723	11,100,000	tonnes/year	0.171	0.043	0.004	kg/t	296	tonnes/lo	8.6	km/return	5.9 / 1.5 / 0	kg/VKT	4.2	% silt con	348	Ave GMV	90	% Control
CL - Hauling ROM to hopper - OC3 Ext	318,879	79,129	7,913	4,863,699	tonnes/year	0.656	0.163	0.016	kg/t	296	tonnes/lo	33.0	km/return	5.9 / 1.5 / 0	kg/VKT	4.2	% silt con	348	Ave GMV	90	% Control
CL - Unload to hopper or stockpile for washing (OC1, OC2, OC3)	127,728	17,945	2,427	4,863,699	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Unload to hopper or stockpile (OC4)	291,503	40,954	5,539	11,100,000	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %									50	% Control
CL - Rehandling - (OC1 + OC2 + OC3) - at hopper for washing	68,054	9,561	1,293	1,295,689	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CL - Rehandling - OC4 - at hopper	155,313	21,820	2,951	2,957,040	tonnes/year	0.053	0.007	0.001	kg/t	7.4	MC in %										
CHPP - Transfer to Sizing Station (OC4)	2,432	1,150	174	11,100,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								

ACTIVITY	TSP emission	PM10 emission	PM25 emission	Intensity	Units	EF - TSP	EF - PM10	EF - PM25	Units	Var. 1	Units	Var. 2	Units	Var. 3 - TSP / PM10 / PM25	Units	Var. 4	Units	Var. 5	Units	Var. 6	Units
Open Cut																					
CHPP - Conveying to Sizing Station (OC1+OC2+OC3+OC3 Ext)	158	62	7	0.15	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Transfer to Sizing Station (OC4)	2,432	1,150	174	11,100,000	tonnes/year	0.000	0.00010	0.00002	kg/t	1.156	(WS/2.2)1	7.4	MC in %								
CHPP - Sizing Station (OC1+OC2+OC3+OC4+OC3 Ext)	43,102	19,156	2,026	15,963,699	tonnes/year	0.0027	0.00120	0.0	kg/t												
CHPP - Conveying to CHPP (OC)	39	15	2	0.04	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Washing (OC)	-	-	-	15,963,699	tonnes/year																
CHPP - Conveying to CHPP Product Stockpile (OC)	208	81	10	0.2	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Unloading to CHPP Product Stockpile (OC)	1,926	911	138	13,400,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)1	10	MC in %								
CHPP - Reclaim and Conveying to TLO (3 transfer points)	5,779	2,733	414	13,400,000	tonnes/year	0.000	0.00007	0.00001	kg/t	1.156	(WS/2.2)1	10	MC in %								
Underground																					
Dozers																					
CHPP - Dozer pushing ROM coal at UG1 pit top	36,694	8,656	807	4,031	hours/year	18.2	4.3	0.4	kg/h	5	SC in %	7.4	MC in %							50	% Control
CHPP - Dozer pushing ROM coal (bypass) at bypass stockpile	13,712	3,139	302	2,228	hours/year	12.3	2.8	0.3	kg/h	5	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing washed Product coal	51,069	10,933	1,124	10,846	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
CHPP - Dozer pushing bypass (UG + OC) Product coal	48,452	10,372	1,066	10,290	hours/year	9.4	2.0	0.2	kg/h	4	SC in %	10	MC in %							50	% Control
Rejects																					
CHPP - Conveying rejects from CHPP to loadout	183	72	9	0.17	ha	0.40	0.2	0.0	kg/ha/ho	8,760	hours									70	% Control
CHPP - Loading rejects	140	66	10	2,563,699	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)1	20	MC in %								
CHPP - Hauling rejects	168,084	41,710	4,171	2,563,699	tonnes/year	0.656	0.163	0.016	kg/t	296	tonnes/lo	33.0	km/return	5.9 / 1.5 / 0	kg/VKT	4.2	% silt con	348	Ave GMV	90	% Control
CHPP - Unloading rejects	140	66	10	2,563,699	tonnes/year	0.000	0.00003	0.00000	kg/t	1.156	(WS/2.2)1	20	MC in %								
Wind Erosion																					
OC2 - Active mining area (pit, active dumping area)	20,309	10,155	1,523	24	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC2 - Partially rehabilitated (e.g. stable and seeded)	14,932	7,466	1,120	59	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC4 - Active mining area (pit, active dumping area)	366,804	183,402	27,510	432	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC4 - Partially rehabilitated (e.g. stable and seeded)	178,475	89,238	13,386	700	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC4 - Hard Stand Areas (Workshops, roads, conveyors etc)	57,215	28,607	4,291	67	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Active mining area (pit, active dumping area)	290,942	145,471	21,821	342	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
OC3 Ext - Inactive area (no rehabilitation)	52,633	26,317	3,947	124	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
OC3 Ext - Partially rehabilitated (e.g. stable and seeded)	50,902	25,451	3,818	200	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									70	% Control
OC3 Ext - Hard Stand Areas (Workshops, roads, conveyors etc)	264,684	132,342	19,851	311	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours										
Stockpile - ROM coal stockpile (OC1)	3,107	1,553	233	7	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (UG)	769	385	58	2	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC3)	1,471	735	110	3	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - ROM coal stockpile (OC4)	3,336	1,668	250	8	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Bypass Coal Stockpile	5,143	2,571	386	12	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Stockpile - Product Coal Stockpile	4,526	2,263	339	11	ha	0.10	0.05	0.007	kg/ha/ho	8,760	hours									50	% Control
Other																					
Grading roads	141,796	49,543	4,396	230,388	km	0.62	0.22	0.02	kg/VKT	8	speed of graders in km/h										
Diesel exhuast emissions	39,416	39,416	38,234																		
Total TSP emissions (kg/yr)	**9,118,540**	**2,637,992**	**496,785**																		

Appendix D

Modelling Predictions

Table D-1: Incremental modelling predictions – Project Year 4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
Privately-owned						
9	1.3	0.3	7.1	1.8	3.6	0.1
11	0.4	0.1	2.1	0.3	0.5	0.0
11	0.4	0.1	2.3	0.4	0.6	0.0
11	0.4	0.1	2.2	0.3	0.6	0.0
11	0.5	0.1	2.4	0.4	0.7	0.0
26	0.9	0.2	4.8	1.4	2.9	0.1
39	3.2	0.7	12.5	2.7	4.8	0.1
40	3.5	0.7	14.2	3.0	5.3	0.1
53	2.9	0.5	12.1	2.3	4.0	0.1
60	3.1	0.5	12.4	2.3	3.8	0.1
61	2.9	0.5	11.6	2.1	3.5	0.1
66	1.4	0.3	7.8	1.7	4.0	0.1
70	1.9	0.4	7.8	1.5	2.6	0.0
75	2.2	0.4	8.9	1.6	2.7	0.0
79	2.5	0.4	9.8	1.8	3.0	0.1
80	2.5	0.4	10.0	1.8	3.0	0.1
82	2.9	0.5	11.6	2.1	3.5	0.1
83	2.9	0.5	11.5	2.0	3.4	0.1
84	3.0	0.5	12.2	2.2	3.7	0.1
86	3.0	0.5	12.0	2.1	3.6	0.1
87	3.1	0.5	12.3	2.2	3.7	0.1
88	3.3	0.6	13.1	2.4	4.1	0.1
89	3.0	0.5	12.1	2.2	3.7	0.1
90	3.0	0.5	12.1	2.2	3.8	0.1
91	3.3	0.6	13.2	2.6	4.4	0.1
94	2.7	0.5	11.2	2.2	3.8	0.1
95	2.8	0.5	11.4	2.3	3.9	0.1
96	2.9	0.5	11.6	2.3	4.0	0.1
97	3.0	0.6	12.0	2.4	4.1	0.1
98	2.9	0.6	12.0	2.5	4.3	0.1
99	3.0	0.6	12.3	2.6	4.4	0.1
100	3.2	0.6	13.1	2.8	4.8	0.1
101b	3.3	0.7	13.2	2.8	4.8	0.1
102	3.1	0.6	12.6	2.6	4.5	0.1
103	2.8	0.6	11.6	2.4	4.1	0.1
104	2.9	0.6	11.8	2.4	4.2	0.1
105	2.9	0.6	11.6	2.4	4.1	0.1
106	3.2	0.6	12.4	2.7	4.6	0.1
107	3.3	0.7	12.8	2.7	4.8	0.1
108	3.2	0.6	12.3	2.7	4.7	0.1
109	3.0	0.6	11.8	2.6	4.4	0.1
110	2.9	0.6	11.5	2.5	4.4	0.1
111	2.9	0.6	11.5	2.4	4.2	0.1
112	2.9	0.6	11.4	2.4	4.2	0.1
113	3.0	0.6	11.7	2.5	4.3	0.1
114	3.0	0.6	12.0	2.6	4.5	0.1
115	2.9	0.6	12.0	2.4	4.2	0.1
116	2.9	0.5	11.8	2.3	4.0	0.1
117	2.8	0.5	11.6	2.2	3.8	0.1
118	2.7	0.5	11.2	2.1	3.6	0.1
119	2.7	0.5	11.0	2.1	3.5	0.1
120	2.5	0.5	10.4	1.9	3.3	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
121	2.4	0.4	9.9	1.8	3.1	0.1
123	2.5	0.5	10.3	2.0	3.4	0.1
124	2.4	0.5	9.9	1.9	3.2	0.1
125	2.3	0.4	9.6	1.8	3.1	0.1
126	2.2	0.4	8.6	1.6	2.7	0.1
127	2.1	0.4	8.3	1.5	2.6	0.1
149	1.4	0.3	7.5	1.7	4.1	0.1
160	1.4	0.3	7.7	1.7	3.9	0.1
162	1.4	0.3	7.8	1.7	4.1	0.1
168	1.4	0.3	7.8	1.7	4.0	0.1
180	1.9	0.3	7.6	1.4	2.3	0.0
181	1.9	0.3	7.6	1.4	2.3	0.0
182	1.8	0.3	7.8	1.3	2.3	0.0
183	1.8	0.3	7.8	1.3	2.2	0.0
184	2.0	0.3	8.5	1.4	2.4	0.0
185	2.0	0.3	8.4	1.4	2.4	0.0
186	2.0	0.3	8.1	1.4	2.3	0.0
187	2.1	0.3	8.5	1.5	2.5	0.0
188	2.1	0.3	8.5	1.4	2.4	0.0
189	2.3	0.4	9.2	1.5	2.6	0.0
190	2.3	0.3	9.2	1.5	2.5	0.0
191	2.4	0.4	9.6	1.6	2.7	0.1
192	2.5	0.4	10.0	1.7	2.8	0.1
194	2.4	0.4	9.8	1.6	2.7	0.1
195	2.6	0.4	10.5	1.8	3.0	0.1
196	2.5	0.4	10.0	1.7	2.8	0.1
199	2.5	0.4	10.2	1.8	3.0	0.1
200	2.6	0.4	10.4	1.9	3.2	0.1
201b	2.5	0.4	10.4	1.9	3.2	0.1
201a	2.6	0.5	10.5	2.0	3.4	0.1
202	2.5	0.5	10.4	2.0	3.4	0.1
203	2.6	0.5	10.5	2.1	3.6	0.1
204	2.6	0.5	10.5	2.1	3.6	0.1
205	2.5	0.5	10.3	2.1	3.5	0.1
206	2.6	0.5	10.6	2.1	3.6	0.1
207	2.5	0.5	10.1	2.1	3.5	0.1
208	2.5	0.5	9.8	2.0	3.4	0.1
209	2.4	0.5	9.4	2.0	3.4	0.1
210	2.4	0.5	9.3	2.0	3.3	0.1
211	2.3	0.5	9.6	2.0	3.4	0.1
212	2.4	0.5	9.8	2.1	3.5	0.1
213	2.4	0.5	9.8	2.1	3.6	0.1
215	2.5	0.5	10.1	2.2	3.7	0.1
216	2.6	0.5	10.2	2.2	3.8	0.1
217	2.6	0.5	10.3	2.2	3.8	0.1
218	2.5	0.5	10.0	2.2	3.7	0.1
219	2.7	0.5	10.4	2.2	3.7	0.1
220	2.5	0.5	9.9	2.1	3.6	0.1
222	2.8	0.5	11.1	2.3	4.0	0.1
223	2.9	0.6	11.4	2.4	4.1	0.1
224	2.8	0.5	11.5	2.2	3.8	0.1
226	2.8	0.5	11.3	2.1	3.5	0.1
227	2.9	0.5	11.6	2.1	3.5	0.1
228	2.8	0.5	11.5	2.1	3.5	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
229	2.8	0.5	11.5	2.0	3.4	0.1
230	2.9	0.5	11.6	2.0	3.4	0.1
231	2.8	0.5	11.2	1.9	3.3	0.1
232	2.7	0.4	10.9	1.9	3.2	0.1
233	2.7	0.4	10.8	1.8	3.1	0.1
234	2.6	0.4	10.5	1.8	3.0	0.1
235	2.5	0.4	10.0	1.7	2.8	0.1
236	2.4	0.4	9.9	1.7	2.8	0.1
237	2.5	0.4	10.0	1.7	2.9	0.1
238	2.4	0.4	9.7	1.7	2.9	0.1
255	0.8	0.2	3.9	0.9	1.8	0.0
256	0.7	0.2	3.6	0.9	1.7	0.0
258	0.8	0.2	4.2	1.0	2.0	0.0
258	0.8	0.2	3.8	0.9	1.9	0.0
300	1.8	0.3	7.5	1.3	2.3	0.0
303	1.7	0.3	7.0	1.3	2.3	0.0
305	1.8	0.3	7.2	1.3	2.2	0.0
306	1.8	0.3	7.1	1.3	2.2	0.0
307	1.8	0.3	7.0	1.3	2.1	0.0
308	1.7	0.3	6.8	1.2	2.1	0.0
309	1.5	0.2	6.2	1.1	1.9	0.0
310	1.5	0.3	6.2	1.1	1.9	0.0
311	1.5	0.2	6.1	1.1	1.9	0.0
312	1.4	0.2	5.8	1.1	1.8	0.0
313	1.4	0.2	5.6	1.0	1.7	0.0
314	1.3	0.2	5.6	1.0	1.7	0.0
315	1.4	0.2	6.2	1.0	1.8	0.0
316	1.5	0.2	6.3	1.0	1.8	0.0
317	1.7	0.2	7.0	1.1	2.0	0.0
321	0.7	0.0	2.3	0.1	0.2	0.0
322	0.6	0.0	2.2	0.1	0.2	0.0
323	1.3	0.0	4.3	0.2	0.3	0.0
324	0.7	0.0	2.6	0.1	0.2	0.0
328	0.7	0.0	2.4	0.1	0.2	0.0
329	0.6	0.0	1.9	0.1	0.2	0.0
330	0.8	0.0	2.5	0.2	0.2	0.0
331	0.7	0.0	2.6	0.1	0.2	0.0
333	1.3	0.0	4.4	0.2	0.3	0.0
335	0.8	0.0	3.0	0.1	0.2	0.0
336	0.6	0.0	2.1	0.1	0.1	0.0
337	0.7	0.0	2.3	0.1	0.2	0.0
340	0.4	0.0	1.3	0.1	0.1	0.0
341	0.9	0.0	3.3	0.1	0.2	0.0
342	0.7	0.0	2.4	0.1	0.2	0.0
344	0.6	0.0	2.1	0.1	0.1	0.0
346	0.6	0.0	1.8	0.1	0.2	0.0
347	0.5	0.0	1.8	0.1	0.1	0.0
348	1.0	0.0	3.5	0.1	0.2	0.0
350	0.5	0.0	1.9	0.1	0.1	0.0
351	0.5	0.0	1.7	0.1	0.2	0.0
353	0.3	0.0	0.9	0.1	0.1	0.0
353	0.3	0.0	0.8	0.1	0.1	0.0
354	0.2	0.0	0.7	0.0	0.1	0.0
355	0.8	0.0	2.4	0.2	0.2	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
356	0.4	0.0	1.5	0.1	0.1	0.0
358	0.5	0.0	2.0	0.1	0.1	0.0
360	2.2	0.4	9.4	1.9	3.2	0.1
361	0.9	0.0	3.0	0.1	0.2	0.0
362	0.5	0.0	1.8	0.1	0.1	0.0
363	0.4	0.0	1.5	0.1	0.1	0.0
364	0.8	0.1	2.7	0.2	0.4	0.0
364	0.7	0.1	2.3	0.2	0.3	0.0
365	1.1	0.0	3.8	0.1	0.2	0.0
367	0.6	0.0	2.1	0.1	0.2	0.0
368	0.8	0.0	2.8	0.1	0.2	0.0
369	0.7	0.0	2.3	0.2	0.2	0.0
375	0.7	0.0	2.4	0.1	0.2	0.0
377	0.5	0.0	1.8	0.1	0.1	0.0
378	0.6	0.0	2.2	0.1	0.1	0.0
379	2.3	0.1	7.4	0.5	0.7	0.0
380	2.0	0.1	6.4	0.4	0.7	0.0
381	1.6	0.1	5.2	0.3	0.5	0.0
383	1.4	0.1	4.7	0.3	0.4	0.0
384	1.8	0.1	6.0	0.4	0.6	0.0
385	1.6	0.1	5.8	0.3	0.4	0.0
386	1.6	0.1	5.8	0.2	0.4	0.0
387	1.2	0.0	4.3	0.2	0.2	0.0
388	0.7	0.0	2.6	0.1	0.2	0.0
388	0.8	0.0	2.8	0.1	0.2	0.0
389	0.8	0.0	3.0	0.1	0.2	0.0
390	0.9	0.0	3.1	0.1	0.2	0.0
391	0.9	0.0	3.3	0.1	0.2	0.0
392	1.0	0.0	3.5	0.1	0.2	0.0
393	1.0	0.0	3.5	0.2	0.2	0.0
394	1.0	0.0	3.6	0.2	0.2	0.0
395	1.0	0.0	3.4	0.1	0.2	0.0
396	1.1	0.0	3.8	0.1	0.2	0.0
397	0.9	0.0	3.3	0.1	0.2	0.0
398	1.6	0.2	5.4	0.6	1.0	0.0
400	1.1	0.0	3.9	0.1	0.2	0.0
401	2.5	0.5	10.0	2.0	3.4	0.1
410	2.3	0.4	9.4	1.7	3.0	0.1
407	2.0	0.3	8.0	1.4	2.4	0.1
408	2.0	0.3	7.9	1.4	2.3	0.1
411	2.0	0.3	7.7	1.3	2.2	0.1
409	1.9	0.3	7.3	1.2	2.0	0.0
406	1.1	0.1	3.4	0.3	0.5	0.0
404	1.0	0.1	3.3	0.3	0.5	0.0
405	1.0	0.1	3.1	0.3	0.4	0.0
402	1.0	0.1	3.1	0.3	0.4	0.0
413	0.7	0.0	2.5	0.1	0.2	0.0
414	0.7	0.0	2.6	0.1	0.2	0.0
415	1.2	0.0	4.2	0.2	0.3	0.0
412	0.6	0.0	1.9	0.1	0.1	0.0
101A	3.3	0.7	13.5	2.8	4.9	0.1
41B	3.5	0.7	13.6	3.0	5.2	0.1
46B	1.2	0.3	6.7	1.9	4.8	0.1
Mine-owned						

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
6	2.0	0.4	8.6	2.0	3.7	0.1
21	1.8	0.4	7.9	1.7	3.2	0.1
22	1.9	0.4	7.9	1.7	3.0	0.0
23	2.0	0.4	8.0	1.7	2.9	0.0
28	6.0	1.4	23.1	5.7	10.7	0.3
29	16.0	2.6	55.6	10.1	19.9	0.5
29	17.8	3.5	61.7	13.4	26.6	0.6
30	4.7	1.1	18.4	4.5	8.2	0.2
31	8.4	1.9	33.5	7.6	14.3	0.4
35	5.7	1.2	21.0	4.7	8.5	0.2
36	11.2	2.4	40.7	9.4	17.7	0.4
37	3.4	0.7	13.5	2.8	4.8	0.1
46	1.1	0.4	7.9	2.3	6.2	0.2
46	1.7	0.3	8.7	1.7	3.7	0.1
46	0.8	0.2	4.2	1.1	2.2	0.1
46	1.4	0.3	7.4	1.6	3.6	0.1
47	7.2	0.8	24.3	3.3	5.8	0.1
49	1.0	0.3	5.6	1.6	3.2	0.1
52	0.3	0.0	1.4	0.2	0.2	0.0
58	2.3	0.4	9.4	1.9	3.2	0.1
59	2.8	0.5	11.4	2.2	3.6	0.1
63	1.9	0.4	8.1	1.6	2.7	0.0
64	1.9	0.4	8.1	1.6	2.7	0.0
74	2.1	0.4	8.2	1.6	2.6	0.0
76	2.2	0.4	9.2	1.6	2.8	0.0
77	2.4	0.4	9.7	1.8	3.0	0.1
78	2.4	0.4	9.5	1.7	2.9	0.1
81	2.7	0.5	10.9	2.0	3.3	0.1
148	1.4	0.3	7.6	1.7	4.1	0.1
151	1.4	0.3	7.3	1.6	3.6	0.1
152	1.4	0.3	7.5	1.6	3.7	0.1
153	1.4	0.3	7.6	1.6	3.8	0.1
155	1.4	0.3	7.6	1.6	3.8	0.1
157	1.5	0.3	7.9	1.7	4.0	0.1
158	1.3	0.3	7.0	1.5	3.5	0.1
159	1.5	0.3	7.8	1.7	3.9	0.1
165	1.5	0.3	7.9	1.7	4.1	0.1
169	0.8	0.2	4.5	1.2	2.6	0.1
170	1.8	0.3	7.7	1.4	2.4	0.0
172	1.9	0.3	7.8	1.5	2.6	0.0
173	1.0	0.2	5.3	1.3	2.5	0.1
175	1.8	0.3	7.3	1.4	2.4	0.0
176	1.8	0.3	7.4	1.4	2.4	0.0
177	1.9	0.3	7.5	1.4	2.4	0.0
239	2.4	0.4	9.4	1.7	2.8	0.1
240	2.2	0.4	9.1	1.6	2.7	0.0
241	2.1	0.4	8.9	1.5	2.6	0.0
253	0.8	0.1	3.7	0.5	0.8	0.0
254	0.8	0.1	3.8	0.7	1.4	0.0
257	0.9	0.2	4.6	1.0	2.1	0.0
301	1.8	0.3	7.4	1.3	2.3	0.0
302	1.7	0.3	7.2	1.3	2.3	0.0
320	0.8	0.2	3.9	0.9	1.9	0.0
415	1.2	0.2	4.4	0.7	1.1	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
416	1.0	0.2	4.1	0.7	1.1	0.1
417	0.7	0.1	3.2	0.4	0.6	0.0
418	0.7	0.1	2.8	0.4	0.7	0.0
419	1.2	0.1	5.0	0.5	0.8	0.0
420	0.8	0.1	3.4	0.3	0.5	0.0
421	0.7	0.1	3.2	0.4	0.6	0.0
160B	1.4	0.3	7.7	1.7	3.9	0.1
41A	1.9	0.4	8.2	1.6	2.9	0.0
41C	1.5	0.3	7.8	1.7	3.9	0.1

Table D-2: Cumulative modelling predictions – Project Year 4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
Privately-owned										
9	7.3	1.8	33.2	8.5	16.8	0.4	6.9	17.3	37.2	1.9
11	1.9	0.4	7.8	1.7	2.3	0.0	5.4	10.1	22.1	1.5
11	2.0	0.4	8.4	1.8	2.6	0.0	5.4	10.4	22.5	1.5
11	1.9	0.4	8.1	1.7	2.4	0.0	5.4	10.2	22.2	1.5
11	2.3	0.5	9.6	2.1	2.9	0.0	5.5	10.6	22.9	1.5
26	5.0	1.3	23.5	6.3	12.3	0.3	6.4	15.3	33.0	1.8
39	3.6	0.8	13.9	3.3	5.6	0.1	5.8	11.6	25.3	1.6
40	4.2	0.9	16.4	3.8	6.5	0.1	5.9	12.2	26.4	1.6
53	3.2	0.7	12.8	2.7	4.6	0.1	5.6	10.9	24.2	1.5
60	4.0	0.9	15.4	3.9	6.5	0.1	6.0	12.5	26.7	1.6
61	3.9	0.9	15.3	3.8	6.4	0.1	5.9	12.4	26.6	1.6
66	4.8	1.2	24.1	6.0	11.7	0.3	6.7	17.6	36.9	1.8
70	4.5	1.1	20.4	4.8	8.4	0.2	6.1	13.4	28.6	1.6
75	3.8	1.0	15.7	4.0	6.9	0.1	6.0	12.5	27.0	1.6
79	3.7	0.9	14.8	3.8	6.3	0.1	5.9	12.3	26.4	1.6
80	3.6	0.9	14.3	3.6	6.0	0.1	5.8	12.0	26.0	1.6
82	3.8	0.9	14.9	3.7	6.3	0.1	5.9	12.3	26.4	1.6
83	3.7	0.9	14.2	3.6	6.0	0.1	5.9	12.0	26.0	1.6
84	3.8	0.9	14.6	3.6	6.1	0.1	5.9	12.2	26.2	1.6
86	3.6	0.8	14.1	3.4	5.7	0.1	5.8	11.8	25.7	1.5
87	3.7	0.9	14.5	3.6	5.9	0.1	5.9	12.0	26.0	1.6
88	3.8	0.9	15.0	3.6	6.1	0.1	5.9	12.1	26.1	1.6
89	3.5	0.8	13.9	3.4	5.6	0.1	5.8	11.7	25.5	1.5
90	3.5	0.8	13.8	3.3	5.6	0.1	5.8	11.7	25.5	1.5
91	3.7	0.9	14.7	3.6	6.1	0.1	5.9	12.1	26.1	1.6
94	3.4	0.8	13.4	3.1	5.2	0.1	5.7	11.4	25.0	1.5
95	3.5	0.8	13.7	3.2	5.4	0.1	5.7	11.5	25.2	1.5
96	3.5	0.8	13.8	3.2	5.5	0.1	5.8	11.6	25.2	1.5
97	3.5	0.8	13.8	3.3	5.6	0.1	5.8	11.7	25.4	1.6
98	3.6	0.8	14.4	3.4	5.7	0.1	5.8	11.7	25.5	1.6
99	3.7	0.8	14.7	3.4	5.8	0.1	5.8	11.8	25.6	1.6
100	3.9	0.9	15.2	3.6	6.2	0.1	5.9	12.0	26.1	1.6
101b	4.0	0.9	15.4	3.5	6.0	0.1	5.8	11.8	25.8	1.6
102	3.8	0.8	14.8	3.3	5.7	0.1	5.8	11.6	25.4	1.6

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
103	3.6	0.8	14.0	3.1	5.3	0.1	5.7	11.4	25.0	1.5
104	3.6	0.8	14.0	3.1	5.3	0.1	5.7	11.4	25.0	1.5
105	3.6	0.8	13.8	3.1	5.2	0.1	5.7	11.4	24.9	1.5
106	3.8	0.8	14.5	3.3	5.6	0.1	5.8	11.6	25.4	1.6
107	3.9	0.8	14.9	3.4	5.8	0.1	5.8	11.7	25.6	1.6
108	3.7	0.8	14.2	3.3	5.6	0.1	5.8	11.6	25.3	1.6
109	3.6	0.8	13.6	3.1	5.3	0.1	5.7	11.4	25.0	1.5
110	3.5	0.8	13.2	3.1	5.2	0.1	5.7	11.3	24.9	1.5
111	3.5	0.7	13.6	3.1	5.2	0.1	5.7	11.3	24.8	1.5
112	3.5	0.7	13.3	3.0	5.1	0.1	5.7	11.3	24.8	1.5
113	3.6	0.8	13.7	3.1	5.3	0.1	5.7	11.4	25.0	1.5
114	3.4	0.8	13.0	3.1	5.3	0.1	5.7	11.3	24.9	1.5
115	3.2	0.7	12.9	2.9	4.9	0.1	5.7	11.1	24.5	1.5
116	3.2	0.7	12.6	2.7	4.6	0.1	5.6	10.9	24.2	1.5
117	3.1	0.6	12.4	2.6	4.5	0.1	5.6	10.8	24.0	1.5
118	3.0	0.6	11.9	2.5	4.2	0.1	5.6	10.6	23.7	1.5
119	2.9	0.6	11.8	2.4	4.1	0.1	5.5	10.6	23.6	1.5
120	2.9	0.6	11.5	2.3	3.8	0.1	5.5	10.4	23.3	1.5
121	2.9	0.5	11.3	2.2	3.6	0.1	5.5	10.3	23.1	1.5
123	3.1	0.6	12.2	2.3	3.9	0.1	5.5	10.4	23.4	1.5
124	3.1	0.6	12.2	2.2	3.7	0.1	5.5	10.3	23.2	1.5
125	3.0	0.5	11.9	2.1	3.6	0.1	5.5	10.2	23.0	1.5
126	2.9	0.5	11.5	1.9	3.2	0.1	5.4	10.0	22.6	1.5
127	2.8	0.5	11.2	1.8	3.1	0.1	5.4	9.9	22.4	1.5
149	4.8	1.2	24.0	6.0	11.9	0.3	6.7	17.8	37.3	1.8
160	4.8	1.2	23.8	6.0	11.8	0.3	6.6	16.9	35.7	1.8
162	4.8	1.2	24.3	5.9	11.7	0.3	6.7	18.1	37.7	1.8
168	4.8	1.2	24.1	6.0	11.7	0.3	6.6	17.5	36.7	1.8
180	4.1	0.9	18.6	4.0	6.9	0.1	5.9	12.4	26.9	1.6
181	4.1	0.9	18.6	3.9	6.8	0.1	5.9	12.3	26.7	1.6
182	4.0	0.9	18.2	3.8	6.6	0.1	5.9	12.2	26.5	1.6
183	4.0	0.9	18.1	3.7	6.4	0.1	5.8	12.1	26.3	1.6
184	3.6	0.8	15.3	3.6	6.2	0.1	5.8	12.0	26.1	1.6
185	3.6	0.8	15.3	3.5	6.1	0.1	5.8	11.9	26.0	1.6
186	3.5	0.8	15.5	3.4	5.9	0.1	5.8	11.8	25.7	1.6
187	3.5	0.8	13.8	3.4	5.7	0.1	5.8	11.7	25.6	1.6
188	3.4	0.8	13.7	3.3	5.6	0.1	5.7	11.6	25.4	1.5
189	3.4	0.8	13.4	3.3	5.6	0.1	5.7	11.6	25.4	1.5
190	3.3	0.7	13.0	3.2	5.4	0.1	5.7	11.5	25.2	1.5
191	3.3	0.7	12.8	3.2	5.3	0.1	5.7	11.5	25.2	1.5
192	3.3	0.7	12.8	3.2	5.3	0.1	5.7	11.5	25.1	1.5
194	3.1	0.7	12.4	3.0	5.0	0.1	5.7	11.3	24.8	1.5
195	3.2	0.7	12.9	3.1	5.2	0.1	5.7	11.4	25.0	1.5
196	3.1	0.7	12.3	2.9	4.9	0.1	5.7	11.2	24.7	1.5
199	3.0	0.7	12.1	2.9	4.8	0.1	5.6	11.1	24.5	1.5
200	3.0	0.7	12.2	2.9	4.9	0.1	5.7	11.2	24.6	1.5
201b	3.0	0.7	12.1	2.9	4.8	0.1	5.6	11.2	24.5	1.5
201a	3.1	0.7	12.3	2.9	4.9	0.1	5.7	11.2	24.6	1.5
202	3.1	0.7	12.4	2.9	4.9	0.1	5.7	11.2	24.6	1.5
203	3.3	0.7	12.9	3.0	4.9	0.1	5.7	11.2	24.6	1.5
204	3.3	0.7	13.1	3.0	5.0	0.1	5.7	11.2	24.7	1.5
205	3.3	0.7	12.7	2.9	4.8	0.1	5.6	11.1	24.4	1.5
206	3.3	0.7	12.9	2.9	4.8	0.1	5.6	11.1	24.4	1.5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
207	3.1	0.6	12.1	2.7	4.5	0.1	5.6	10.9	24.1	1.5
208	3.0	0.6	11.7	2.6	4.4	0.1	5.6	10.8	23.9	1.5
209	2.9	0.6	11.2	2.5	4.2	0.1	5.6	10.7	23.8	1.5
210	2.8	0.6	10.9	2.5	4.2	0.1	5.5	10.6	23.7	1.5
211	2.7	0.6	10.4	2.5	4.1	0.1	5.5	10.6	23.6	1.5
212	2.8	0.6	10.7	2.5	4.3	0.1	5.6	10.7	23.8	1.5
213	2.8	0.6	10.7	2.5	4.3	0.1	5.6	10.7	23.8	1.5
215	2.9	0.6	11.2	2.7	4.5	0.1	5.6	10.8	24.0	1.5
216	3.0	0.7	11.5	2.7	4.6	0.1	5.6	10.9	24.2	1.5
217	3.2	0.7	12.0	2.8	4.7	0.1	5.6	11.0	24.3	1.5
218	3.0	0.7	11.5	2.7	4.5	0.1	5.6	10.8	24.1	1.5
219	3.2	0.7	12.3	2.8	4.7	0.1	5.6	11.0	24.3	1.5
220	3.0	0.6	11.7	2.7	4.5	0.1	5.6	10.8	24.0	1.5
222	3.4	0.7	13.1	3.0	5.0	0.1	5.7	11.2	24.6	1.5
223	3.5	0.7	13.6	3.0	5.1	0.1	5.7	11.3	24.8	1.5
224	3.3	0.8	13.1	3.2	5.4	0.1	5.7	11.5	25.2	1.5
226	3.3	0.8	13.0	3.1	5.3	0.1	5.7	11.5	25.1	1.5
227	3.4	0.8	13.4	3.2	5.4	0.1	5.7	11.6	25.2	1.5
228	3.4	0.8	13.4	3.2	5.4	0.1	5.7	11.6	25.2	1.5
229	3.4	0.8	13.6	3.3	5.4	0.1	5.8	11.6	25.3	1.5
230	3.4	0.8	13.7	3.3	5.5	0.1	5.8	11.7	25.4	1.5
231	3.4	0.8	13.5	3.3	5.5	0.1	5.8	11.7	25.4	1.5
232	3.4	0.8	13.4	3.3	5.5	0.1	5.8	11.7	25.4	1.5
233	3.4	0.8	13.4	3.3	5.6	0.1	5.8	11.7	25.5	1.5
234	3.4	0.8	13.3	3.3	5.6	0.1	5.8	11.7	25.5	1.5
235	3.4	0.8	13.5	3.3	5.6	0.1	5.8	11.7	25.5	1.5
236	3.5	0.8	13.6	3.4	5.7	0.1	5.8	11.8	25.6	1.5
237	3.6	0.8	14.1	3.5	5.9	0.1	5.8	11.9	25.9	1.6
238	3.6	0.8	14.2	3.5	6.0	0.1	5.8	12.0	25.9	1.6
255	3.4	0.7	16.0	3.0	5.4	0.1	5.8	12.4	26.8	1.6
256	3.4	0.7	16.3	3.1	5.6	0.1	5.8	12.4	26.8	1.6
258	3.8	0.8	18.2	3.5	6.4	0.1	5.9	13.0	27.9	1.6
258	3.8	0.7	18.0	3.5	6.4	0.1	5.9	12.8	27.6	1.6
300	4.5	1.1	19.9	4.7	8.5	0.2	6.1	13.2	28.4	1.6
303	4.4	1.0	20.4	4.5	7.9	0.2	6.0	12.9	27.8	1.6
305	4.3	1.0	19.9	4.2	7.3	0.2	5.9	12.6	27.2	1.6
306	4.2	0.9	19.4	4.0	7.0	0.2	5.9	12.4	26.9	1.6
307	4.2	0.9	19.1	3.9	6.8	0.1	5.9	12.3	26.7	1.6
308	4.0	0.9	18.5	3.8	6.7	0.1	5.8	12.2	26.5	1.6
309	3.8	0.8	16.2	3.7	6.6	0.1	5.8	12.0	26.3	1.6
310	4.0	0.9	16.7	3.9	7.0	0.2	5.9	12.3	26.8	1.6
311	3.9	0.9	16.6	3.9	7.0	0.2	5.8	12.2	26.7	1.6
312	3.9	0.9	16.6	3.9	6.9	0.2	5.8	12.2	26.7	1.6
313	3.7	0.8	15.9	3.7	6.6	0.1	5.8	12.0	26.2	1.6
314	3.8	0.8	16.5	3.8	6.7	0.2	5.8	12.0	26.4	1.6
315	3.9	0.9	17.4	3.9	7.1	0.2	5.8	12.3	26.8	1.6
316	4.0	0.9	17.5	3.9	7.1	0.2	5.8	12.3	26.9	1.6
317	4.4	1.0	19.3	4.4	7.9	0.2	5.9	12.7	27.7	1.6
321	1.0	0.1	3.8	0.2	0.3	0.0	4.9	7.8	19.0	1.4
322	1.2	0.0	4.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
323	2.1	0.1	7.3	0.3	0.4	0.0	4.9	7.8	19.0	1.4
324	1.4	0.0	4.8	0.2	0.2	0.0	4.9	7.6	18.8	1.4
328	1.3	0.0	4.3	0.2	0.3	0.0	4.9	7.6	18.7	1.4

Receptor ID	$PM_{2.5}$ ($\mu g/m^3$)		PM_{10} ($\mu g/m^3$)		TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
329	1.1	0.0	4.0	0.2	0.3	0.0	4.9	7.6	18.8	1.4
330	1.1	0.1	3.9	0.2	0.4	0.0	4.9	7.8	19.0	1.4
331	1.4	0.1	5.1	0.2	0.3	0.0	4.9	7.7	18.9	1.4
333	2.1	0.1	7.3	0.3	0.4	0.0	4.9	7.8	19.0	1.4
335	1.5	0.0	5.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
336	1.2	0.0	4.2	0.2	0.2	0.0	4.9	7.6	18.7	1.4
337	1.3	0.1	4.7	0.2	0.3	0.0	4.9	7.7	18.9	1.4
340	0.8	0.0	2.7	0.1	0.2	0.0	4.8	7.5	18.6	1.4
341	1.6	0.1	5.8	0.2	0.3	0.0	4.9	7.7	18.8	1.4
342	1.3	0.0	4.7	0.2	0.3	0.0	4.9	7.6	18.8	1.4
344	1.2	0.0	4.2	0.2	0.2	0.0	4.9	7.6	18.7	1.4
346	1.0	0.0	3.8	0.2	0.3	0.0	4.9	7.6	18.8	1.4
347	1.0	0.0	3.6	0.1	0.2	0.0	4.9	7.6	18.7	1.4
348	1.8	0.1	6.3	0.2	0.3	0.0	4.9	7.7	18.9	1.4
350	1.1	0.0	3.9	0.1	0.2	0.0	4.9	7.6	18.7	1.4
351	0.9	0.0	3.4	0.2	0.2	0.0	4.9	7.6	18.8	1.4
353	0.6	0.0	2.0	0.1	0.1	0.0	4.8	7.5	18.6	1.4
353	0.5	0.0	1.8	0.1	0.1	0.0	4.8	7.5	18.6	1.4
354	0.4	0.0	1.6	0.1	0.1	0.0	4.8	7.4	18.5	1.4
355	1.1	0.1	4.2	0.2	0.3	0.0	4.9	7.8	19.0	1.4
356	0.9	0.0	3.2	0.1	0.2	0.0	4.9	7.5	18.6	1.4
358	0.9	0.0	3.1	0.1	0.2	0.0	4.9	7.5	18.7	1.4
360	2.7	0.6	10.2	2.4	4.0	0.1	5.5	10.5	23.5	1.5
361	1.5	0.1	5.2	0.2	0.3	0.0	4.9	7.6	18.8	1.4
362	0.9	0.0	3.2	0.1	0.2	0.0	4.9	7.5	18.6	1.4
363	0.9	0.0	3.2	0.1	0.2	0.0	4.8	7.5	18.6	1.4
364	1.1	0.1	3.9	0.3	0.5	0.0	4.9	8.0	19.3	1.4
364	1.0	0.1	3.6	0.3	0.4	0.0	4.9	7.9	19.2	1.4
365	1.9	0.1	6.6	0.2	0.3	0.0	4.9	7.7	18.9	1.4
367	1.2	0.0	4.3	0.2	0.3	0.0	4.9	7.6	18.8	1.4
368	1.4	0.0	5.0	0.2	0.3	0.0	4.9	7.6	18.8	1.4
369	1.0	0.1	3.7	0.2	0.3	0.0	4.9	7.8	19.0	1.4
375	1.3	0.0	4.6	0.2	0.3	0.0	4.9	7.6	18.8	1.4
377	1.0	0.0	3.3	0.1	0.2	0.0	4.9	7.5	18.6	1.4
378	1.0	0.0	3.5	0.2	0.2	0.0	4.9	7.6	18.7	1.4
379	2.7	0.2	9.8	0.7	1.0	0.0	5.1	8.5	20.1	1.4
380	3.0	0.2	10.8	0.6	0.9	0.0	5.1	8.4	20.0	1.4
381	2.4	0.1	8.8	0.5	0.7	0.0	5.0	8.2	19.6	1.4
383	2.4	0.1	8.7	0.4	0.6	0.0	5.0	8.1	19.5	1.4
384	2.9	0.2	10.6	0.6	0.8	0.0	5.0	8.4	19.9	1.4
385	2.7	0.1	9.9	0.4	0.6	0.0	5.0	8.1	19.5	1.4
386	2.7	0.1	9.6	0.4	0.5	0.0	5.0	8.0	19.3	1.4
387	2.1	0.1	7.2	0.2	0.4	0.0	4.9	7.8	19.0	1.4
388	1.4	0.0	5.0	0.2	0.3	0.0	4.9	7.7	18.8	1.4
388	1.5	0.1	5.4	0.2	0.3	0.0	4.9	7.7	18.9	1.4
389	1.6	0.1	5.6	0.2	0.3	0.0	4.9	7.7	18.9	1.4
390	1.6	0.1	5.8	0.2	0.3	0.0	4.9	7.7	18.9	1.4
391	1.7	0.1	6.0	0.2	0.3	0.0	4.9	7.7	18.9	1.4
392	1.8	0.1	6.3	0.2	0.3	0.0	4.9	7.7	19.0	1.4
393	1.8	0.1	6.5	0.2	0.4	0.0	4.9	7.8	19.0	1.4
394	1.8	0.1	6.6	0.2	0.4	0.0	4.9	7.8	19.0	1.4
395	1.7	0.1	6.0	0.2	0.3	0.0	4.9	7.7	18.9	1.4
396	1.9	0.1	6.6	0.2	0.3	0.0	4.9	7.7	18.9	1.4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
397	1.6	0.1	5.9	0.2	0.3	0.0	4.9	7.7	18.8	1.4
398	2.1	0.2	6.9	0.8	1.3	0.0	5.1	8.7	20.4	1.4
400	1.9	0.1	6.7	0.2	0.3	0.0	4.9	7.7	18.9	1.4
401	3.1	0.6	12.2	2.7	4.5	0.1	5.6	10.9	24.1	1.5
410	2.9	0.5	11.6	2.1	3.5	0.1	5.4	10.2	22.9	1.5
407	2.7	0.4	10.8	1.7	2.8	0.1	5.3	9.7	22.1	1.5
408	2.7	0.4	10.6	1.6	2.7	0.1	5.3	9.7	22.1	1.5
411	2.6	0.4	10.2	1.5	2.5	0.1	5.3	9.5	21.8	1.5
409	2.5	0.4	9.8	1.4	2.4	0.1	5.3	9.4	21.6	1.5
406	1.4	0.1	4.7	0.4	0.7	0.0	5.0	8.2	19.6	1.4
404	1.4	0.1	4.5	0.4	0.6	0.0	5.0	8.1	19.5	1.4
405	1.3	0.1	4.3	0.4	0.6	0.0	5.0	8.1	19.4	1.4
402	1.3	0.1	4.3	0.4	0.6	0.0	5.0	8.1	19.4	1.4
413	1.3	0.0	4.8	0.2	0.3	0.0	4.9	7.6	18.8	1.4
414	1.4	0.0	5.0	0.2	0.3	0.0	4.9	7.6	18.8	1.4
415	2.0	0.1	7.0	0.3	0.4	0.0	4.9	7.8	19.0	1.4
412	1.0	0.0	3.5	0.1	0.2	0.0	4.9	7.5	18.6	1.4
101A	4.0	0.9	15.7	3.6	6.1	0.1	5.9	12.0	26.0	1.6
41B	4.1	0.9	15.6	3.6	6.2	0.1	5.9	12.0	26.0	1.6
46B	4.7	1.3	24.1	6.2	12.4	0.3	7.4	22.5	45.8	2.1
Mine-owned										
6	6.9	1.6	29.9	6.8	12.2	0.3	6.7	15.9	33.1	1.7
21	6.0	1.4	25.9	6.3	11.2	0.2	6.5	15.2	31.9	1.7
22	5.4	1.4	23.2	5.9	10.6	0.2	6.4	14.7	31.1	1.7
23	5.0	1.3	21.6	5.5	9.9	0.2	6.3	14.3	30.3	1.6
28	6.8	1.7	24.9	6.7	12.2	0.3	6.7	15.5	32.6	1.7
29	18.5	2.9	63.0	11.1	21.3	0.5	8.0	20.0	41.9	1.9
29	20.9	4.0	71.0	14.8	28.6	0.7	9.0	23.8	49.3	2.1
30	5.3	1.3	20.6	5.4	9.4	0.2	6.4	13.9	29.5	1.6
31	9.1	2.2	35.5	8.6	15.8	0.4	7.2	17.4	36.3	1.8
35	7.2	1.4	24.7	5.2	9.4	0.2	6.4	13.7	29.4	1.7
36	12.7	2.8	44.9	11.0	20.0	0.5	7.9	19.9	40.7	1.9
37	3.8	0.9	14.9	3.8	6.4	0.1	5.9	12.2	26.3	1.6
46	4.7	1.4	23.7	6.9	14.4	0.3	7.7	25.1	51.6	2.2
46	4.9	1.2	24.6	5.5	10.3	0.2	6.6	17.2	35.5	1.8
46	4.2	0.9	20.0	4.0	7.4	0.2	6.0	13.5	28.9	1.6
46	4.7	1.2	23.6	5.6	10.9	0.3	6.5	16.8	35.2	1.8
47	8.4	1.0	27.7	3.7	6.4	0.1	6.0	12.1	26.3	1.6
49	5.7	1.5	26.6	7.3	14.3	0.4	6.6	16.1	34.8	1.8
52	1.1	0.2	4.5	0.6	0.9	0.0	5.0	8.3	19.6	1.4
58	4.7	1.1	18.3	4.5	7.7	0.1	6.1	13.2	28.0	1.6
59	4.5	1.0	17.4	4.3	7.1	0.1	6.1	12.9	27.5	1.6
63	4.6	1.2	20.8	5.1	9.1	0.2	6.2	13.8	29.3	1.6
64	4.7	1.2	21.4	5.0	8.9	0.2	6.2	13.6	29.1	1.6
74	3.9	1.0	16.8	4.2	7.3	0.1	6.0	12.7	27.3	1.6
76	3.7	0.9	15.3	3.9	6.6	0.1	5.9	12.4	26.6	1.6
77	3.9	1.0	15.7	4.0	6.7	0.1	6.0	12.5	26.9	1.6
78	3.7	0.9	14.5	3.7	6.2	0.1	5.9	12.1	26.2	1.6
81	3.8	0.9	14.9	3.8	6.3	0.1	5.9	12.3	26.4	1.6
148	4.8	1.2	24.0	6.0	11.9	0.3	6.7	17.7	37.2	1.8
151	4.7	1.2	23.3	5.6	11.0	0.3	6.5	16.6	35.0	1.8
152	4.7	1.2	23.7	5.7	11.1	0.3	6.6	16.9	35.5	1.8
153	4.8	1.2	24.0	5.7	11.1	0.3	6.6	17.2	35.9	1.8

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
155	4.8	1.2	23.9	5.8	11.2	0.3	6.6	17.1	35.9	1.8
157	4.8	1.2	24.4	5.9	11.5	0.3	6.7	17.9	37.2	1.8
158	4.6	1.2	22.9	5.7	11.0	0.3	6.5	16.2	34.3	1.8
159	4.8	1.2	24.1	5.9	11.5	0.3	6.6	17.5	36.6	1.8
165	4.8	1.2	24.5	5.9	11.6	0.3	6.8	18.4	38.2	1.9
169	4.7	1.1	22.3	5.4	10.3	0.3	6.2	14.4	31.2	1.7
170	4.6	1.1	21.1	4.8	8.6	0.2	6.1	13.3	28.6	1.6
172	4.6	1.1	21.0	4.8	8.5	0.2	6.1	13.4	28.6	1.6
173	5.3	1.2	24.7	5.6	10.7	0.3	6.2	14.4	31.1	1.7
175	4.6	1.1	21.2	4.6	8.2	0.2	6.1	13.1	28.2	1.6
176	4.5	1.0	20.6	4.4	7.8	0.2	6.0	12.9	27.8	1.6
177	4.4	1.0	20.2	4.3	7.6	0.2	6.0	12.8	27.6	1.6
239	3.6	0.9	14.4	3.6	6.1	0.1	5.8	12.1	26.1	1.6
240	3.7	0.9	14.8	3.7	6.4	0.1	5.9	12.2	26.4	1.6
241	3.7	0.9	15.1	3.8	6.6	0.1	5.9	12.3	26.6	1.6
253	2.5	0.4	10.8	1.6	2.5	0.0	5.5	11.1	23.8	1.5
254	2.9	0.6	13.6	2.5	4.3	0.1	5.7	11.8	25.4	1.5
257	3.9	0.8	18.7	3.6	6.6	0.1	5.9	13.2	28.3	1.6
301	4.5	1.1	20.4	4.6	8.3	0.2	6.0	13.1	28.3	1.6
302	4.5	1.0	20.7	4.6	8.1	0.2	6.0	13.0	28.1	1.6
320	4.0	0.8	19.0	3.6	6.6	0.1	5.9	12.7	27.6	1.6
415	2.3	0.3	7.8	1.0	1.6	0.1	5.7	12.2	25.6	1.6
416	2.1	0.3	7.2	1.0	1.7	0.1	5.9	13.1	26.9	1.7
417	1.3	0.2	4.7	0.6	0.9	0.0	5.3	9.9	21.8	1.5
418	1.3	0.2	4.8	0.8	1.2	0.0	7.3	22.3	42.7	1.9
419	2.0	0.2	6.4	0.7	1.1	0.0	5.3	9.8	21.9	1.5
420	1.1	0.1	4.6	0.5	0.8	0.0	5.2	9.2	20.9	1.4
421	1.3	0.2	4.7	0.6	0.9	0.0	5.3	9.9	21.8	1.5
160B	4.8	1.2	23.9	5.9	11.6	0.3	6.6	17.1	36.1	1.8
41A	4.9	1.3	22.1	5.6	10.1	0.2	6.3	14.3	30.4	1.7
41C	4.8	1.2	24.2	5.9	11.5	0.3	6.7	17.6	36.8	1.8

Table D-3: Incremental modelling predictions – Project Year 5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
Privately-owned						
9	0.8	0.2	3.9	1.1	2.1	0.0
11	0.3	0.0	1.4	0.2	0.3	0.0
11	0.3	0.0	1.4	0.2	0.4	0.0
11	0.3	0.0	1.4	0.2	0.3	0.0
11	0.3	0.0	1.6	0.3	0.4	0.0
26	0.6	0.1	3.3	0.8	1.7	0.0
39	2.3	0.5	11.2	2.3	3.7	0.1
40	2.6	0.5	11.3	2.2	3.6	0.1
53	2.1	0.4	9.7	2.0	3.3	0.1
60	1.8	0.3	7.8	1.4	2.3	0.0
61	1.7	0.3	7.5	1.3	2.1	0.0
66	1.0	0.2	5.8	1.0	2.4	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
70	1.5	0.2	6.8	1.0	1.6	0.0
75	1.3	0.2	6.0	1.0	1.6	0.0
79	1.5	0.3	6.7	1.1	1.8	0.0
80	1.5	0.3	6.6	1.1	1.8	0.0
82	1.7	0.3	7.4	1.3	2.1	0.0
83	1.6	0.3	7.6	1.3	2.1	0.0
84	1.8	0.3	8.2	1.4	2.3	0.0
86	2.0	0.3	8.6	1.4	2.3	0.0
87	1.9	0.3	8.5	1.5	2.3	0.0
88	2.1	0.4	9.2	1.6	2.6	0.1
89	2.0	0.3	8.7	1.5	2.3	0.0
90	2.1	0.3	8.9	1.5	2.4	0.0
91	2.3	0.4	9.9	1.8	2.8	0.1
94	2.1	0.4	9.3	1.7	2.6	0.1
95	2.2	0.4	9.4	1.7	2.7	0.1
96	2.2	0.4	9.4	1.7	2.7	0.1
97	2.2	0.4	9.5	1.7	2.7	0.1
98	2.3	0.4	9.8	1.8	2.9	0.1
99	2.3	0.4	10.0	1.9	3.0	0.1
100	2.5	0.4	10.6	2.0	3.2	0.1
101b	2.4	0.5	10.5	2.1	3.4	0.1
102	2.2	0.4	10.3	2.0	3.2	0.1
103	2.1	0.4	9.5	1.8	2.9	0.1
104	2.1	0.4	10.1	1.9	3.0	0.1
105	2.0	0.4	10.2	1.9	3.0	0.1
106	2.2	0.5	10.9	2.1	3.4	0.1
107	2.2	0.5	11.0	2.2	3.5	0.1
108	2.2	0.5	11.1	2.1	3.5	0.1
109	2.2	0.4	10.9	2.1	3.3	0.1
110	2.1	0.4	10.8	2.1	3.3	0.1
111	2.0	0.4	10.6	1.9	3.1	0.1
112	2.1	0.4	10.7	2.0	3.1	0.1
113	2.1	0.4	10.8	2.0	3.2	0.1
114	2.2	0.5	10.6	2.1	3.5	0.1
115	2.1	0.5	9.6	2.1	3.4	0.1
116	2.1	0.4	9.4	2.0	3.2	0.1
117	2.0	0.4	9.5	1.9	3.1	0.1
118	2.0	0.4	9.4	1.8	3.0	0.1
119	2.0	0.4	9.3	1.8	3.0	0.1
120	1.9	0.4	9.0	1.7	2.8	0.1
121	1.9	0.4	8.9	1.6	2.6	0.1
123	2.0	0.4	9.4	1.7	2.9	0.1
124	2.0	0.4	9.3	1.7	2.8	0.1
125	1.9	0.4	9.1	1.6	2.7	0.1
126	1.9	0.3	8.8	1.5	2.4	0.1
127	1.8	0.3	8.6	1.4	2.3	0.1
149	1.0	0.2	5.5	1.0	2.4	0.1
160	1.0	0.2	5.8	1.0	2.3	0.1
162	1.0	0.2	5.8	1.0	2.4	0.1
168	1.0	0.2	5.8	1.0	2.4	0.1
180	1.2	0.2	5.5	0.9	1.4	0.0
181	1.2	0.2	5.3	0.9	1.4	0.0
182	1.1	0.2	5.0	0.8	1.4	0.0
183	1.1	0.2	5.1	0.8	1.3	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
184	1.3	0.2	5.8	0.9	1.5	0.0
185	1.2	0.2	5.8	0.9	1.4	0.0
186	1.2	0.2	5.7	0.9	1.4	0.0
187	1.3	0.2	6.0	0.9	1.5	0.0
188	1.3	0.2	5.9	0.9	1.5	0.0
189	1.3	0.2	6.1	1.0	1.6	0.0
190	1.3	0.2	6.4	1.0	1.6	0.0
191	1.4	0.2	7.0	1.1	1.7	0.0
192	1.5	0.2	7.4	1.1	1.7	0.0
194	1.6	0.2	7.7	1.1	1.7	0.0
195	1.7	0.3	8.0	1.2	1.9	0.0
196	1.6	0.2	7.8	1.1	1.8	0.0
199	1.8	0.3	7.7	1.3	2.0	0.0
200	1.8	0.3	8.2	1.3	2.1	0.0
201b	1.9	0.3	8.4	1.4	2.1	0.0
201a	1.9	0.3	8.8	1.4	2.3	0.0
202	1.9	0.3	8.9	1.5	2.3	0.1
203	2.0	0.3	9.0	1.6	2.5	0.1
204	2.0	0.3	9.1	1.6	2.5	0.1
205	1.9	0.3	8.9	1.6	2.5	0.1
206	1.9	0.4	9.4	1.7	2.6	0.1
207	1.9	0.4	9.8	1.6	2.6	0.1
208	1.9	0.3	9.8	1.6	2.6	0.1
209	1.9	0.3	9.7	1.6	2.6	0.1
210	1.8	0.3	9.4	1.6	2.6	0.1
211	1.7	0.4	8.7	1.7	2.7	0.1
212	1.8	0.4	8.9	1.7	2.8	0.1
213	1.8	0.4	8.7	1.8	2.8	0.1
215	1.9	0.4	9.3	1.8	2.9	0.1
216	1.9	0.4	9.5	1.9	3.0	0.1
217	2.0	0.4	10.1	1.8	2.9	0.1
218	1.9	0.4	9.7	1.8	2.9	0.1
219	2.0	0.4	10.2	1.8	2.8	0.1
220	1.9	0.4	9.9	1.7	2.7	0.1
222	2.0	0.4	10.4	1.8	3.0	0.1
223	2.0	0.4	10.3	1.9	3.0	0.1
224	2.1	0.3	9.0	1.6	2.5	0.1
226	2.0	0.3	8.6	1.5	2.3	0.0
227	2.0	0.3	8.6	1.5	2.3	0.0
228	2.0	0.3	8.4	1.4	2.2	0.0
229	1.9	0.3	8.4	1.4	2.2	0.0
230	1.9	0.3	8.4	1.4	2.2	0.0
231	1.8	0.3	8.2	1.3	2.1	0.0
232	1.7	0.3	8.0	1.2	2.0	0.0
233	1.6	0.3	7.8	1.2	1.9	0.0
234	1.6	0.3	7.5	1.2	1.9	0.0
235	1.4	0.2	6.8	1.1	1.7	0.0
236	1.4	0.2	6.4	1.1	1.7	0.0
237	1.5	0.3	6.5	1.1	1.8	0.0
238	1.5	0.2	6.4	1.1	1.7	0.0
255	0.5	0.1	2.6	0.5	1.0	0.0
256	0.5	0.1	2.4	0.5	1.0	0.0
258	0.5	0.1	2.8	0.6	1.2	0.0
258	0.5	0.1	2.5	0.6	1.1	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
300	1.4	0.2	6.4	0.8	1.4	0.0
303	1.4	0.2	6.2	0.8	1.4	0.0
305	1.3	0.2	5.7	0.8	1.3	0.0
306	1.2	0.2	5.4	0.8	1.3	0.0
307	1.1	0.2	5.1	0.8	1.3	0.0
308	1.1	0.2	4.9	0.8	1.2	0.0
309	1.0	0.2	4.7	0.7	1.1	0.0
310	1.1	0.2	5.1	0.7	1.2	0.0
311	1.1	0.2	5.1	0.7	1.1	0.0
312	1.1	0.1	5.1	0.7	1.1	0.0
313	1.0	0.1	4.6	0.6	1.1	0.0
314	1.1	0.1	4.9	0.6	1.1	0.0
315	1.2	0.1	5.3	0.7	1.1	0.0
316	1.2	0.1	5.3	0.6	1.1	0.0
317	1.3	0.2	5.8	0.7	1.2	0.0
321	0.5	0.0	1.7	0.1	0.2	0.0
322	0.4	0.0	1.4	0.1	0.1	0.0
323	0.9	0.0	3.2	0.1	0.2	0.0
324	0.5	0.0	1.8	0.1	0.1	0.0
328	0.5	0.0	1.7	0.1	0.1	0.0
329	0.4	0.0	1.3	0.1	0.1	0.0
330	0.5	0.0	1.8	0.1	0.2	0.0
331	0.5	0.0	1.7	0.1	0.1	0.0
333	0.9	0.0	3.2	0.1	0.2	0.0
335	0.6	0.0	2.0	0.1	0.1	0.0
336	0.4	0.0	1.4	0.1	0.1	0.0
337	0.5	0.0	1.6	0.1	0.1	0.0
340	0.2	0.0	0.9	0.0	0.1	0.0
341	0.6	0.0	2.3	0.1	0.1	0.0
342	0.4	0.0	1.6	0.1	0.1	0.0
344	0.4	0.0	1.4	0.1	0.1	0.0
346	0.4	0.0	1.3	0.1	0.1	0.0
347	0.3	0.0	1.2	0.1	0.1	0.0
348	0.7	0.0	2.4	0.1	0.2	0.0
350	0.4	0.0	1.3	0.1	0.1	0.0
351	0.4	0.0	1.2	0.1	0.1	0.0
353	0.2	0.0	0.6	0.0	0.1	0.0
353	0.2	0.0	0.6	0.0	0.1	0.0
354	0.2	0.0	0.5	0.0	0.0	0.0
355	0.6	0.0	1.8	0.1	0.2	0.0
356	0.3	0.0	1.0	0.1	0.1	0.0
358	0.4	0.0	1.6	0.1	0.1	0.0
360	1.7	0.3	8.6	1.6	2.5	0.1
361	0.6	0.0	2.3	0.1	0.1	0.0
362	0.4	0.0	1.4	0.1	0.1	0.0
363	0.3	0.0	1.0	0.1	0.1	0.0
364	0.6	0.1	2.0	0.2	0.3	0.0
364	0.5	0.0	1.8	0.2	0.3	0.0
365	0.8	0.0	2.7	0.1	0.2	0.0
367	0.4	0.0	1.4	0.1	0.1	0.0
368	0.5	0.0	1.9	0.1	0.1	0.0
369	0.5	0.0	1.7	0.1	0.2	0.0
375	0.4	0.0	1.6	0.1	0.1	0.0
377	0.4	0.0	1.3	0.1	0.1	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
378	0.4	0.0	1.8	0.1	0.1	0.0
379	1.8	0.1	5.9	0.4	0.6	0.0
380	1.6	0.1	5.4	0.4	0.6	0.0
381	1.3	0.1	4.2	0.3	0.4	0.0
383	1.1	0.1	3.6	0.2	0.4	0.0
384	1.5	0.1	4.9	0.3	0.5	0.0
385	1.1	0.1	4.0	0.2	0.3	0.0
386	1.1	0.1	4.1	0.2	0.3	0.0
387	0.8	0.0	3.0	0.1	0.2	0.0
388	0.5	0.0	1.8	0.1	0.1	0.0
388	0.5	0.0	1.9	0.1	0.1	0.0
389	0.6	0.0	2.0	0.1	0.1	0.0
390	0.6	0.0	2.1	0.1	0.2	0.0
391	0.6	0.0	2.2	0.1	0.2	0.0
392	0.6	0.0	2.4	0.1	0.2	0.0
393	0.6	0.0	2.4	0.1	0.2	0.0
394	0.7	0.0	2.5	0.1	0.2	0.0
395	0.6	0.0	2.4	0.1	0.1	0.0
396	0.7	0.0	2.6	0.1	0.2	0.0
397	0.6	0.0	2.3	0.1	0.1	0.0
398	1.1	0.1	4.6	0.6	0.9	0.0
400	0.8	0.0	2.8	0.1	0.2	0.0
401	1.8	0.3	9.2	1.5	2.4	0.1
410	1.9	0.3	8.9	1.6	2.6	0.1
407	1.7	0.3	8.2	1.3	2.1	0.1
408	1.7	0.3	8.1	1.3	2.1	0.1
411	1.7	0.3	7.8	1.2	1.9	0.0
409	1.6	0.3	7.5	1.1	1.8	0.0
406	0.7	0.1	2.6	0.3	0.4	0.0
404	0.7	0.1	2.4	0.3	0.4	0.0
405	0.6	0.1	2.3	0.2	0.4	0.0
402	0.7	0.1	2.3	0.2	0.4	0.0
413	0.5	0.0	1.7	0.1	0.1	0.0
414	0.5	0.0	1.8	0.1	0.1	0.0
415	0.9	0.0	3.0	0.1	0.2	0.0
412	0.4	0.0	1.3	0.1	0.1	0.0
101A	2.5	0.5	10.7	2.1	3.4	0.1
41B	2.4	0.5	11.5	2.4	3.9	0.1
46B	0.8	0.2	4.4	1.1	2.8	0.1
Mine-owned						
6	1.1	0.2	4.8	1.2	2.1	0.0
21	1.0	0.2	4.4	1.0	1.8	0.0
22	1.1	0.2	5.3	1.0	1.7	0.0
23	1.2	0.2	5.8	1.0	1.7	0.0
28	3.3	0.9	14.7	3.9	6.7	0.2
29	8.7	2.0	33.9	8.5	15.9	0.4
29	10.2	2.4	39.0	10.1	18.4	0.4
30	3.5	0.7	15.3	3.3	5.6	0.1
31	4.5	1.2	19.6	5.4	9.4	0.2
35	4.4	1.0	18.2	4.2	7.4	0.2
36	5.8	1.4	22.0	5.8	10.0	0.2
37	2.5	0.4	10.6	1.9	3.1	0.1
46	0.7	0.2	4.9	1.3	3.7	0.1
46	1.2	0.2	6.7	1.0	2.2	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
46	0.5	0.1	2.7	0.6	1.3	0.0
46	1.0	0.2	5.8	0.9	2.2	0.1
47	4.8	0.8	17.7	3.1	5.7	0.1
49	0.7	0.2	3.7	0.9	1.9	0.0
52	0.2	0.0	0.9	0.1	0.1	0.0
58	1.7	0.3	7.6	1.2	1.9	0.0
59	1.7	0.3	7.6	1.3	2.1	0.0
63	1.4	0.2	6.7	1.0	1.6	0.0
64	1.5	0.2	6.8	1.0	1.6	0.0
74	1.4	0.2	6.4	1.0	1.6	0.0
76	1.4	0.2	6.1	1.0	1.7	0.0
77	1.5	0.3	6.6	1.1	1.8	0.0
78	1.5	0.2	6.4	1.1	1.7	0.0
81	1.6	0.3	7.2	1.2	2.0	0.0
148	1.0	0.2	5.6	1.0	2.4	0.1
151	1.0	0.2	5.7	0.9	2.1	0.1
152	1.0	0.2	5.8	0.9	2.2	0.1
153	1.1	0.2	5.9	1.0	2.2	0.1
155	1.1	0.2	5.9	1.0	2.2	0.1
157	1.1	0.2	6.0	1.0	2.4	0.1
158	1.0	0.2	5.6	0.9	2.1	0.1
159	1.0	0.2	5.9	1.0	2.3	0.1
165	1.0	0.2	5.9	1.0	2.5	0.1
169	0.5	0.1	2.8	0.7	1.5	0.0
170	1.4	0.2	6.5	0.9	1.4	0.0
172	1.5	0.2	6.8	0.9	1.6	0.0
173	0.6	0.1	2.9	0.7	1.5	0.0
175	1.4	0.2	6.4	0.9	1.4	0.0
176	1.4	0.2	6.3	0.9	1.4	0.0
177	1.4	0.2	6.1	0.9	1.4	0.0
239	1.4	0.2	6.3	1.1	1.7	0.0
240	1.4	0.2	6.1	1.0	1.6	0.0
241	1.3	0.2	5.8	1.0	1.6	0.0
253	0.6	0.1	2.9	0.3	0.5	0.0
254	0.5	0.1	2.7	0.5	0.9	0.0
257	0.6	0.1	3.2	0.6	1.3	0.0
301	1.4	0.2	6.4	0.8	1.4	0.0
302	1.4	0.2	6.3	0.8	1.4	0.0
320	0.5	0.1	2.4	0.6	1.1	0.0
415	0.9	0.1	4.1	0.6	1.0	0.1
416	0.9	0.1	4.2	0.6	1.0	0.1
417	0.6	0.1	2.6	0.3	0.5	0.0
418	0.6	0.1	2.7	0.4	0.6	0.0
419	0.9	0.1	4.1	0.4	0.7	0.0
420	0.6	0.1	2.7	0.3	0.4	0.0
421	0.6	0.1	2.6	0.3	0.5	0.0
160B	1.0	0.2	5.8	1.0	2.3	0.1
41A	1.3	0.2	6.0	1.0	1.7	0.0
41C	1.0	0.2	5.9	1.0	2.3	0.1

Table D-4: Cumulative modelling predictions – Project Year 5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
Privately-owned										
9	8.1	2.0	36.4	9.1	18.3	0.5	7.0	17.8	38.6	1.9
11	1.8	0.4	7.6	1.6	2.3	0.0	5.3	10.0	22.0	1.5
11	2.0	0.4	8.5	1.8	2.5	0.0	5.4	10.3	22.4	1.5
11	1.9	0.4	7.8	1.7	2.4	0.0	5.4	10.1	22.1	1.5
11	2.2	0.5	9.1	2.0	2.8	0.0	5.5	10.6	22.8	1.5
26	5.9	1.4	29.9	6.7	13.1	0.4	6.5	15.5	33.6	1.8
39	2.8	0.7	11.6	2.9	4.7	0.1	5.6	11.1	24.3	1.5
40	3.0	0.7	12.3	3.2	5.1	0.1	5.7	11.5	24.9	1.5
53	2.5	0.6	10.5	2.5	4.1	0.1	5.5	10.6	23.6	1.5
60	3.7	0.8	14.9	3.3	5.6	0.1	5.8	11.8	25.6	1.5
61	3.7	0.8	15.4	3.4	5.7	0.1	5.8	11.8	25.7	1.5
66	5.1	1.2	25.0	5.7	10.9	0.3	6.6	17.3	36.0	1.8
70	5.2	1.1	24.1	5.0	9.3	0.2	6.1	13.5	29.2	1.6
75	3.8	0.9	17.5	4.0	7.1	0.2	5.9	12.4	27.0	1.6
79	3.6	0.8	16.5	3.5	6.1	0.1	5.8	11.9	26.0	1.6
80	3.4	0.8	15.6	3.3	5.7	0.1	5.7	11.7	25.6	1.5
82	3.6	0.8	15.1	3.3	5.6	0.1	5.8	11.7	25.5	1.5
83	3.3	0.7	14.5	3.1	5.3	0.1	5.7	11.5	25.1	1.5
84	3.4	0.7	13.9	3.1	5.2	0.1	5.7	11.5	25.1	1.5
86	3.0	0.7	13.1	2.9	4.8	0.1	5.6	11.2	24.6	1.5
87	3.2	0.7	13.5	3.0	5.0	0.1	5.7	11.4	24.9	1.5
88	3.2	0.7	12.9	3.0	5.0	0.1	5.7	11.4	24.8	1.5
89	2.9	0.7	12.6	2.8	4.7	0.1	5.6	11.1	24.4	1.5
90	2.8	0.7	12.2	2.8	4.6	0.1	5.6	11.1	24.4	1.5
91	3.1	0.7	12.3	3.0	4.9	0.1	5.7	11.3	24.7	1.5
94	2.5	0.6	10.8	2.7	4.3	0.1	5.6	10.9	23.9	1.5
95	2.6	0.6	10.8	2.7	4.4	0.1	5.6	10.9	24.0	1.5
96	2.6	0.6	10.7	2.7	4.4	0.1	5.6	11.0	24.1	1.5
97	2.7	0.6	10.9	2.8	4.5	0.1	5.6	11.0	24.2	1.5
98	2.7	0.7	10.9	2.8	4.6	0.1	5.6	11.1	24.3	1.5
99	2.8	0.7	11.1	2.9	4.6	0.1	5.6	11.1	24.4	1.5
100	3.0	0.7	11.7	3.0	4.9	0.1	5.7	11.3	24.6	1.5
101b	2.7	0.7	11.1	3.0	4.8	0.1	5.6	11.2	24.5	1.5
102	2.6	0.7	10.7	2.8	4.6	0.1	5.6	11.1	24.2	1.5
103	2.4	0.6	10.0	2.7	4.3	0.1	5.6	10.9	23.9	1.5
104	2.5	0.6	10.5	2.7	4.3	0.1	5.6	10.9	23.9	1.5
105	2.4	0.6	10.6	2.7	4.3	0.1	5.6	10.8	23.9	1.5
106	2.6	0.7	11.3	2.8	4.6	0.1	5.6	11.0	24.2	1.5
107	2.7	0.7	11.4	2.9	4.7	0.1	5.6	11.1	24.4	1.5
108	2.7	0.7	11.5	2.8	4.6	0.1	5.6	11.0	24.2	1.5
109	2.6	0.6	11.3	2.7	4.4	0.1	5.6	10.9	24.0	1.5
110	2.6	0.6	11.2	2.7	4.4	0.1	5.6	10.9	23.9	1.5
111	2.5	0.6	11.0	2.7	4.3	0.1	5.6	10.8	23.8	1.5
112	2.5	0.6	11.1	2.6	4.3	0.1	5.6	10.8	23.8	1.5
113	2.5	0.6	11.2	2.7	4.4	0.1	5.6	10.9	23.9	1.5
114	2.7	0.6	10.9	2.7	4.5	0.1	5.6	10.9	24.0	1.5
115	2.6	0.6	10.3	2.6	4.2	0.1	5.5	10.7	23.7	1.5
116	2.5	0.6	9.9	2.5	4.1	0.1	5.5	10.6	23.5	1.5
117	2.4	0.6	9.9	2.4	3.9	0.1	5.5	10.5	23.4	1.5
118	2.3	0.5	10.1	2.3	3.8	0.1	5.5	10.4	23.2	1.5
119	2.3	0.5	10.0	2.3	3.7	0.1	5.5	10.3	23.1	1.5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
120	2.2	0.5	9.9	2.1	3.4	0.1	5.4	10.2	22.8	1.5
121	2.2	0.5	9.7	2.0	3.3	0.1	5.4	10.1	22.6	1.5
123	2.3	0.5	10.2	2.2	3.5	0.1	5.4	10.2	22.9	1.5
124	2.3	0.5	10.1	2.1	3.4	0.1	5.4	10.2	22.8	1.5
125	2.2	0.5	9.9	2.0	3.3	0.1	5.4	10.1	22.6	1.5
126	2.1	0.4	9.4	1.8	3.0	0.1	5.3	9.8	22.3	1.5
127	2.1	0.4	9.2	1.8	2.9	0.1	5.3	9.7	22.1	1.5
149	5.0	1.2	24.5	5.7	11.0	0.3	6.6	17.4	36.3	1.8
160	5.2	1.2	25.4	5.8	11.1	0.3	6.5	16.6	34.9	1.8
162	5.0	1.2	24.6	5.7	10.8	0.2	6.7	17.7	36.8	1.8
168	5.1	1.2	25.0	5.7	10.9	0.3	6.6	17.1	35.8	1.8
180	4.6	0.9	21.4	4.1	7.4	0.2	5.9	12.4	27.2	1.6
181	4.6	0.9	21.4	4.0	7.3	0.2	5.9	12.4	27.1	1.6
182	4.5	0.9	21.0	3.9	7.1	0.2	5.8	12.2	26.8	1.6
183	4.5	0.9	20.8	3.8	6.8	0.2	5.8	12.1	26.6	1.6
184	3.8	0.8	17.3	3.6	6.3	0.1	5.8	11.9	26.1	1.6
185	3.8	0.8	17.3	3.5	6.3	0.1	5.8	11.8	26.0	1.6
186	3.8	0.8	17.6	3.4	6.1	0.1	5.7	11.7	25.8	1.6
187	3.3	0.7	15.1	3.3	5.8	0.1	5.7	11.6	25.5	1.6
188	3.3	0.7	15.1	3.2	5.6	0.1	5.7	11.5	25.3	1.6
189	3.0	0.7	13.9	3.1	5.4	0.1	5.7	11.4	25.1	1.5
190	2.9	0.7	13.1	3.0	5.2	0.1	5.6	11.2	24.9	1.5
191	2.9	0.7	13.5	2.9	5.0	0.1	5.6	11.2	24.7	1.5
192	2.9	0.7	13.5	2.9	4.9	0.1	5.6	11.1	24.6	1.5
194	2.7	0.6	12.6	2.7	4.6	0.1	5.6	10.9	24.3	1.5
195	2.8	0.6	13.0	2.8	4.7	0.1	5.6	11.0	24.3	1.5
196	2.7	0.6	12.3	2.6	4.5	0.1	5.5	10.8	24.1	1.5
199	2.6	0.6	11.7	2.5	4.2	0.1	5.5	10.7	23.8	1.5
200	2.5	0.6	11.6	2.5	4.2	0.1	5.5	10.7	23.8	1.5
201b	2.5	0.6	11.5	2.5	4.1	0.1	5.5	10.7	23.7	1.5
201a	2.5	0.6	11.2	2.5	4.1	0.1	5.5	10.7	23.7	1.5
202	2.4	0.6	11.0	2.5	4.1	0.1	5.5	10.7	23.7	1.5
203	2.4	0.6	10.7	2.5	4.1	0.1	5.5	10.7	23.7	1.5
204	2.4	0.6	10.5	2.5	4.1	0.1	5.5	10.7	23.7	1.5
205	2.3	0.6	10.2	2.5	4.0	0.1	5.5	10.6	23.5	1.5
206	2.3	0.6	9.9	2.5	4.0	0.1	5.5	10.6	23.5	1.5
207	2.2	0.5	10.2	2.4	3.8	0.1	5.5	10.5	23.3	1.5
208	2.2	0.5	10.2	2.3	3.7	0.1	5.5	10.4	23.2	1.5
209	2.2	0.5	10.0	2.3	3.6	0.1	5.4	10.3	23.0	1.5
210	2.2	0.5	9.8	2.2	3.6	0.1	5.4	10.3	23.0	1.5
211	2.2	0.5	9.0	2.2	3.6	0.1	5.4	10.3	22.9	1.5
212	2.2	0.5	9.2	2.3	3.7	0.1	5.5	10.3	23.1	1.5
213	2.3	0.5	9.2	2.3	3.7	0.1	5.5	10.4	23.1	1.5
215	2.3	0.6	9.6	2.4	3.8	0.1	5.5	10.5	23.3	1.5
216	2.4	0.6	9.9	2.4	3.9	0.1	5.5	10.5	23.4	1.5
217	2.4	0.6	10.5	2.5	4.0	0.1	5.5	10.6	23.4	1.5
218	2.3	0.5	10.0	2.4	3.8	0.1	5.5	10.5	23.3	1.5
219	2.3	0.6	10.6	2.4	3.9	0.1	5.5	10.6	23.4	1.5
220	2.3	0.5	10.3	2.4	3.8	0.1	5.5	10.5	23.2	1.5
222	2.4	0.6	10.8	2.6	4.1	0.1	5.5	10.7	23.7	1.5
223	2.4	0.6	10.7	2.6	4.2	0.1	5.6	10.8	23.8	1.5
224	2.6	0.6	11.4	2.7	4.4	0.1	5.6	10.9	24.1	1.5
226	2.6	0.6	11.9	2.7	4.4	0.1	5.6	10.9	24.1	1.5

Receptor ID	$PM_{2.5}$ ($\mu g/m^3$)		PM_{10} ($\mu g/m^3$)		TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
227	2.7	0.6	12.3	2.7	4.5	0.1	5.6	11.0	24.2	1.5
228	2.7	0.6	12.5	2.7	4.5	0.1	5.6	11.0	24.3	1.5
229	2.8	0.6	13.0	2.8	4.7	0.1	5.6	11.1	24.4	1.5
230	2.9	0.7	13.1	2.8	4.7	0.1	5.6	11.1	24.5	1.5
231	2.9	0.7	13.5	2.9	4.8	0.1	5.6	11.2	24.6	1.5
232	3.0	0.7	13.7	2.9	4.9	0.1	5.6	11.2	24.7	1.5
233	3.0	0.7	14.0	2.9	5.0	0.1	5.6	11.3	24.8	1.5
234	3.1	0.7	14.2	3.0	5.1	0.1	5.7	11.3	24.9	1.5
235	3.1	0.7	14.5	3.1	5.3	0.1	5.7	11.4	25.0	1.5
236	3.2	0.7	14.7	3.1	5.4	0.1	5.7	11.4	25.2	1.5
237	3.3	0.7	15.3	3.2	5.6	0.1	5.7	11.6	25.4	1.5
238	3.4	0.8	15.5	3.3	5.7	0.1	5.7	11.6	25.5	1.6
255	3.8	0.7	18.0	3.0	5.4	0.1	5.8	12.4	26.7	1.6
256	4.0	0.7	19.0	3.1	5.6	0.1	5.8	12.4	26.8	1.6
258	4.6	0.8	21.5	3.6	6.5	0.1	5.9	13.0	27.9	1.6
258	4.6	0.8	21.6	3.5	6.5	0.1	5.9	12.8	27.7	1.6
300	5.0	1.1	23.0	5.1	9.4	0.2	6.1	13.4	29.2	1.6
303	5.1	1.1	23.5	4.7	8.7	0.2	6.0	13.1	28.5	1.6
305	4.9	1.0	22.9	4.4	8.0	0.2	5.9	12.7	27.8	1.6
306	4.8	0.9	22.3	4.2	7.6	0.2	5.9	12.5	27.4	1.6
307	4.7	0.9	21.9	4.1	7.4	0.2	5.9	12.4	27.1	1.6
308	4.6	0.9	21.2	4.0	7.2	0.2	5.9	12.3	27.0	1.6
309	4.0	0.9	18.3	4.0	7.2	0.2	5.8	12.2	26.8	1.6
310	4.1	0.9	18.8	4.2	7.6	0.2	5.9	12.4	27.3	1.6
311	4.1	0.9	18.3	4.2	7.7	0.2	5.9	12.4	27.3	1.6
312	4.2	0.9	18.7	4.2	7.6	0.2	5.9	12.4	27.2	1.6
313	4.0	0.9	17.8	3.9	7.2	0.2	5.8	12.1	26.8	1.6
314	4.3	0.9	18.9	4.1	7.4	0.2	5.8	12.3	27.0	1.6
315	4.6	0.9	20.2	4.3	7.9	0.2	5.9	12.5	27.5	1.6
316	4.6	0.9	20.4	4.3	7.9	0.2	5.9	12.5	27.5	1.6
317	5.1	1.0	22.5	4.7	8.8	0.2	6.0	13.0	28.5	1.6
321	1.0	0.1	3.7	0.2	0.3	0.0	4.9	7.7	18.9	1.4
322	1.1	0.0	4.1	0.2	0.2	0.0	4.9	7.6	18.7	1.4
323	1.9	0.1	6.8	0.3	0.4	0.0	4.9	7.8	19.0	1.4
324	1.2	0.0	4.5	0.2	0.2	0.0	4.9	7.6	18.7	1.4
328	1.1	0.0	3.9	0.2	0.2	0.0	4.9	7.6	18.7	1.4
329	1.0	0.0	3.8	0.2	0.2	0.0	4.9	7.6	18.7	1.4
330	1.0	0.1	3.8	0.2	0.3	0.0	4.9	7.8	19.0	1.4
331	1.3	0.1	4.7	0.2	0.3	0.0	4.9	7.7	18.8	1.4
333	1.9	0.1	6.7	0.3	0.4	0.0	4.9	7.8	19.0	1.4
335	1.4	0.0	5.0	0.2	0.3	0.0	4.9	7.6	18.8	1.4
336	1.1	0.0	3.9	0.1	0.2	0.0	4.9	7.6	18.7	1.4
337	1.2	0.0	4.4	0.2	0.3	0.0	4.9	7.7	18.8	1.4
340	0.7	0.0	2.6	0.1	0.1	0.0	4.8	7.5	18.6	1.4
341	1.5	0.0	5.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
342	1.2	0.0	4.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
344	1.1	0.0	3.9	0.1	0.2	0.0	4.9	7.6	18.7	1.4
346	1.0	0.0	3.6	0.2	0.2	0.0	4.9	7.6	18.8	1.4
347	0.9	0.0	3.4	0.1	0.2	0.0	4.9	7.6	18.7	1.4
348	1.6	0.1	5.8	0.2	0.3	0.0	4.9	7.7	18.9	1.4
350	1.0	0.0	3.6	0.1	0.2	0.0	4.9	7.6	18.7	1.4
351	0.9	0.0	3.3	0.2	0.2	0.0	4.9	7.6	18.7	1.4
353	0.5	0.0	2.0	0.1	0.1	0.0	4.8	7.5	18.5	1.4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
353	0.5	0.0	1.8	0.1	0.1	0.0	4.8	7.5	18.5	1.4
354	0.4	0.0	1.6	0.1	0.1	0.0	4.8	7.4	18.5	1.4
355	1.1	0.1	4.0	0.2	0.3	0.0	4.9	7.7	18.9	1.4
356	0.8	0.0	3.0	0.1	0.2	0.0	4.8	7.5	18.6	1.4
358	0.8	0.0	2.8	0.1	0.2	0.0	4.9	7.5	18.6	1.4
360	2.1	0.5	8.9	2.1	3.4	0.1	5.4	10.2	22.8	1.5
361	1.4	0.0	4.9	0.2	0.3	0.0	4.9	7.6	18.8	1.4
362	0.8	0.0	2.9	0.1	0.2	0.0	4.9	7.5	18.6	1.4
363	0.8	0.0	3.0	0.1	0.2	0.0	4.8	7.5	18.6	1.4
364	0.9	0.1	3.7	0.3	0.5	0.0	4.9	7.9	19.2	1.4
364	0.8	0.1	3.4	0.3	0.4	0.0	4.9	7.9	19.1	1.4
365	1.7	0.1	6.2	0.2	0.3	0.0	4.9	7.7	18.9	1.4
367	1.1	0.0	4.0	0.2	0.2	0.0	4.9	7.6	18.7	1.4
368	1.3	0.0	4.7	0.2	0.2	0.0	4.9	7.6	18.7	1.4
369	1.0	0.1	3.7	0.2	0.3	0.0	4.9	7.7	18.9	1.4
375	1.2	0.0	4.2	0.2	0.2	0.0	4.9	7.6	18.7	1.4
377	0.9	0.0	3.0	0.1	0.2	0.0	4.9	7.5	18.6	1.4
378	0.9	0.0	3.1	0.2	0.2	0.0	4.9	7.6	18.7	1.4
379	2.4	0.2	9.0	0.6	1.0	0.0	5.1	8.5	20.0	1.4
380	2.6	0.2	9.7	0.6	0.9	0.0	5.0	8.4	19.9	1.4
381	2.2	0.1	8.0	0.5	0.7	0.0	5.0	8.2	19.6	1.4
383	2.1	0.1	7.9	0.4	0.6	0.0	5.0	8.1	19.4	1.4
384	2.6	0.1	9.5	0.5	0.8	0.0	5.0	8.3	19.8	1.4
385	2.4	0.1	9.0	0.4	0.6	0.0	5.0	8.1	19.4	1.4
386	2.4	0.1	8.8	0.3	0.5	0.0	4.9	7.9	19.2	1.4
387	1.9	0.1	6.8	0.2	0.4	0.0	4.9	7.7	18.9	1.4
388	1.3	0.0	4.7	0.2	0.3	0.0	4.9	7.6	18.8	1.4
388	1.3	0.1	5.0	0.2	0.3	0.0	4.9	7.7	18.8	1.4
389	1.4	0.1	5.2	0.2	0.3	0.0	4.9	7.7	18.8	1.4
390	1.5	0.1	5.3	0.2	0.3	0.0	4.9	7.7	18.9	1.4
391	1.5	0.1	5.5	0.2	0.3	0.0	4.9	7.7	18.9	1.4
392	1.6	0.1	5.8	0.2	0.3	0.0	4.9	7.7	18.9	1.4
393	1.6	0.1	5.9	0.2	0.3	0.0	4.9	7.7	18.9	1.4
394	1.6	0.1	6.1	0.2	0.4	0.0	4.9	7.7	19.0	1.4
395	1.5	0.1	5.6	0.2	0.3	0.0	4.9	7.7	18.8	1.4
396	1.7	0.1	6.1	0.2	0.3	0.0	4.9	7.7	18.9	1.4
397	1.5	0.0	5.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
398	1.7	0.2	5.7	0.8	1.2	0.0	5.1	8.6	20.3	1.4
400	1.8	0.1	6.3	0.2	0.3	0.0	4.9	7.7	18.9	1.4
401	2.2	0.5	9.8	2.4	3.8	0.1	5.5	10.5	23.3	1.5
410	2.2	0.5	9.7	2.0	3.2	0.1	5.4	10.0	22.5	1.5
407	2.0	0.4	8.8	1.6	2.6	0.1	5.3	9.6	21.9	1.5
408	2.0	0.4	8.7	1.6	2.6	0.1	5.3	9.6	21.8	1.5
411	1.9	0.4	8.4	1.5	2.4	0.1	5.3	9.4	21.6	1.5
409	1.9	0.3	8.0	1.4	2.3	0.1	5.2	9.3	21.5	1.5
406	1.1	0.1	4.3	0.4	0.7	0.0	5.0	8.1	19.5	1.4
404	1.1	0.1	4.2	0.4	0.6	0.0	5.0	8.1	19.4	1.4
405	1.0	0.1	4.0	0.4	0.6	0.0	5.0	8.0	19.4	1.4
402	1.0	0.1	4.0	0.4	0.6	0.0	5.0	8.0	19.4	1.4
413	1.2	0.0	4.5	0.2	0.2	0.0	4.9	7.6	18.8	1.4
414	1.3	0.0	4.6	0.2	0.3	0.0	4.9	7.6	18.8	1.4
415	1.9	0.1	6.6	0.3	0.4	0.0	4.9	7.7	18.9	1.4
412	0.9	0.0	3.2	0.1	0.2	0.0	4.9	7.5	18.6	1.4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
101A	2.9	0.7	11.6	3.0	4.9	0.1	5.7	11.3	24.6	1.5
41B	2.8	0.7	12.0	3.1	5.0	0.1	5.7	11.3	24.7	1.5
46B	4.7	1.2	22.4	5.8	11.1	0.2	7.3	22.0	44.4	2.0
Mine-owned										
6	7.4	1.6	31.1	7.0	13.0	0.3	6.7	15.9	33.7	1.7
21	6.4	1.5	28.4	6.5	12.2	0.3	6.5	15.3	32.7	1.7
22	6.3	1.4	28.2	6.2	11.6	0.3	6.4	14.9	32.0	1.7
23	5.9	1.3	26.6	5.8	10.9	0.3	6.3	14.5	31.1	1.7
28	4.8	1.2	18.2	5.1	8.5	0.2	6.2	13.7	28.7	1.6
29	11.4	2.4	39.9	9.8	17.7	0.4	7.5	18.5	38.1	1.9
29	12.1	3.0	42.7	11.7	20.8	0.5	8.0	20.5	41.3	1.9
30	4.1	1.0	16.4	4.3	7.1	0.2	6.0	12.8	27.1	1.6
31	6.0	1.6	22.3	6.6	11.3	0.3	6.6	15.3	31.6	1.7
35	5.1	1.2	19.9	4.9	8.4	0.2	6.2	13.3	28.3	1.6
36	7.5	1.9	27.9	7.6	12.8	0.3	7.0	16.4	33.3	1.7
37	3.2	0.7	12.4	3.1	5.0	0.1	5.7	11.4	24.8	1.5
46	4.8	1.3	23.6	6.3	12.4	0.3	7.6	24.4	49.5	2.1
46	5.0	1.1	24.1	5.2	9.7	0.2	6.6	17.0	34.8	1.8
46	5.2	0.9	24.3	4.1	7.6	0.2	6.0	13.5	29.0	1.6
46	5.2	1.2	25.6	5.5	10.4	0.2	6.5	16.5	34.6	1.8
47	6.2	0.9	20.9	3.6	6.4	0.1	5.9	12.0	26.2	1.6
49	6.5	1.6	31.2	7.7	15.4	0.4	6.7	16.5	35.8	1.9
52	1.1	0.2	4.7	0.7	0.9	0.0	5.0	8.3	19.7	1.4
58	4.6	1.0	19.5	4.4	7.8	0.2	6.0	13.0	28.0	1.6
59	4.3	0.9	17.4	3.9	6.7	0.1	5.9	12.4	26.8	1.6
63	5.3	1.2	24.5	5.4	10.0	0.2	6.2	13.9	30.1	1.7
64	5.4	1.2	25.2	5.3	9.9	0.2	6.2	13.8	29.9	1.7
74	4.2	1.0	19.2	4.3	7.7	0.2	6.0	12.7	27.6	1.6
76	3.7	0.9	17.1	3.8	6.6	0.1	5.8	12.2	26.6	1.6
77	3.9	0.9	17.4	3.8	6.6	0.1	5.9	12.2	26.6	1.6
78	3.5	0.8	16.2	3.4	6.0	0.1	5.8	11.8	25.9	1.6
81	3.6	0.8	15.8	3.4	5.8	0.1	5.8	11.8	25.8	1.5
148	5.0	1.2	24.6	5.7	11.0	0.3	6.6	17.3	36.2	1.8
151	5.2	1.2	25.4	5.5	10.4	0.2	6.5	16.4	34.4	1.8
152	5.2	1.2	25.5	5.5	10.5	0.2	6.5	16.7	34.8	1.8
153	5.2	1.2	25.5	5.5	10.5	0.2	6.6	16.9	35.2	1.8
155	5.1	1.2	25.4	5.6	10.6	0.2	6.6	16.8	35.2	1.8
157	5.1	1.2	25.1	5.6	10.7	0.2	6.7	17.5	36.3	1.8
158	5.3	1.2	25.8	5.5	10.6	0.3	6.4	16.0	33.8	1.7
159	5.1	1.2	25.2	5.6	10.8	0.2	6.6	17.1	35.7	1.8
165	5.0	1.2	24.6	5.6	10.7	0.2	6.7	18.0	37.2	1.8
169	5.6	1.2	26.7	5.6	10.9	0.3	6.3	14.6	31.6	1.7
170	5.3	1.2	24.4	5.2	9.6	0.2	6.1	13.5	29.4	1.7
172	5.3	1.1	24.7	5.1	9.3	0.2	6.1	13.5	29.3	1.6
173	5.9	1.3	27.6	6.0	11.5	0.3	6.3	14.7	31.9	1.7
175	5.3	1.1	24.4	4.9	9.0	0.2	6.1	13.3	28.9	1.6
176	5.1	1.0	23.9	4.7	8.5	0.2	6.0	13.1	28.4	1.6
177	5.0	1.0	23.4	4.5	8.3	0.2	6.0	12.9	28.1	1.6
239	3.4	0.8	15.9	3.4	5.9	0.1	5.8	11.8	25.8	1.6
240	3.5	0.8	16.5	3.6	6.4	0.1	5.8	12.0	26.3	1.6
241	3.7	0.9	16.9	3.8	6.8	0.2	5.9	12.2	26.7	1.6
253	2.8	0.4	12.6	1.6	2.6	0.0	5.5	11.0	23.8	1.5
254	3.2	0.6	14.7	2.5	4.2	0.1	5.7	11.7	25.3	1.5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
257	4.6	0.8	21.6	3.7	6.6	0.1	5.9	13.2	28.2	1.6
301	5.2	1.1	23.6	5.0	9.2	0.2	6.1	13.3	29.0	1.6
302	5.2	1.1	23.8	4.9	9.0	0.2	6.1	13.2	28.8	1.6
320	4.9	0.8	22.8	3.7	6.8	0.2	5.9	12.8	27.7	1.6
415	2.1	0.3	7.3	1.0	1.7	0.1	5.7	11.9	25.1	1.6
416	2.0	0.3	7.2	1.1	1.7	0.1	5.8	12.7	26.3	1.6
417	1.3	0.2	4.9	0.6	0.9	0.0	5.3	9.7	21.6	1.5
418	1.5	0.2	6.3	0.8	1.3	0.0	7.1	21.1	40.7	1.9
419	1.7	0.2	5.9	0.7	1.1	0.0	5.3	9.6	21.6	1.5
420	1.1	0.1	4.9	0.5	0.8	0.0	5.1	9.0	20.7	1.4
421	1.3	0.2	4.9	0.6	0.9	0.0	5.3	9.7	21.6	1.5
160B	5.1	1.2	25.3	5.7	10.9	0.3	6.6	16.8	35.2	1.8
41A	5.9	1.3	26.7	6.0	11.2	0.3	6.4	14.6	31.4	1.7
41C	5.1	1.2	25.2	5.6	10.7	0.2	6.6	17.3	35.9	1.8

Table D-5: Incremental modelling predictions – Project Year 7

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
Privately-owned						
9	0.9	0.2	4.6	1.2	2.3	0.0
11	0.3	0.0	1.4	0.2	0.3	0.0
11	0.3	0.0	1.4	0.2	0.4	0.0
11	0.3	0.0	1.5	0.2	0.3	0.0
11	0.3	0.0	1.6	0.2	0.4	0.0
26	0.6	0.1	3.7	0.9	1.8	0.0
39	1.9	0.4	8.9	2.2	3.5	0.1
40	2.2	0.4	10.1	2.1	3.4	0.1
53	1.8	0.4	7.9	2.0	3.3	0.1
60	1.6	0.3	7.7	1.5	2.4	0.0
61	1.6	0.3	7.4	1.4	2.2	0.0
66	1.0	0.2	5.8	1.0	2.4	0.1
70	1.2	0.2	5.8	1.0	1.7	0.0
75	1.3	0.2	6.0	1.1	1.8	0.0
79	1.4	0.3	6.7	1.2	1.9	0.0
80	1.4	0.2	6.6	1.2	1.9	0.0
82	1.5	0.3	7.3	1.4	2.2	0.0
83	1.5	0.3	7.1	1.4	2.1	0.0
84	1.6	0.3	7.3	1.5	2.3	0.0
86	1.5	0.3	7.1	1.5	2.3	0.0
87	1.6	0.3	7.3	1.5	2.3	0.0
88	1.7	0.3	7.8	1.6	2.6	0.0
89	1.6	0.3	7.2	1.5	2.3	0.0
90	1.6	0.3	7.4	1.5	2.4	0.0
91	1.7	0.4	8.0	1.7	2.8	0.1
94	1.8	0.3	8.1	1.6	2.5	0.1
95	1.8	0.3	8.2	1.6	2.6	0.1
96	1.8	0.3	8.3	1.7	2.6	0.1
97	1.8	0.3	8.2	1.7	2.6	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
98	1.9	0.4	8.7	1.8	2.8	0.1
99	1.9	0.4	8.9	1.8	2.9	0.1
100	2.0	0.4	9.2	1.9	3.0	0.1
101b	2.1	0.4	9.6	2.0	3.2	0.1
102	2.0	0.4	9.2	1.9	3.0	0.1
103	1.9	0.4	8.6	1.7	2.7	0.1
104	1.9	0.4	8.8	1.8	2.8	0.1
105	1.9	0.4	8.7	1.8	2.8	0.1
106	2.0	0.4	9.1	2.0	3.1	0.1
107	2.0	0.4	9.4	2.0	3.2	0.1
108	1.9	0.4	9.0	2.0	3.3	0.1
109	1.8	0.4	8.6	2.0	3.1	0.1
110	1.8	0.4	8.4	2.0	3.1	0.1
111	1.8	0.4	8.6	1.8	2.9	0.1
112	1.8	0.4	8.4	1.9	2.9	0.1
113	1.8	0.4	8.6	1.9	3.0	0.1
114	1.8	0.4	8.5	2.1	3.3	0.1
115	1.7	0.4	8.3	2.0	3.3	0.1
116	1.7	0.4	8.0	2.0	3.2	0.1
117	1.7	0.4	7.7	1.9	3.1	0.1
118	1.7	0.4	7.5	1.9	3.1	0.1
119	1.7	0.4	7.4	1.9	3.0	0.1
120	1.6	0.4	7.3	1.8	2.9	0.1
121	1.5	0.4	7.2	1.7	2.8	0.1
123	1.6	0.4	7.6	1.8	3.0	0.1
124	1.6	0.4	7.6	1.8	2.9	0.1
125	1.5	0.4	7.4	1.7	2.8	0.1
126	1.5	0.3	7.3	1.6	2.7	0.1
127	1.5	0.3	7.1	1.6	2.6	0.1
149	0.9	0.2	5.6	1.1	2.4	0.1
160	1.0	0.2	5.8	1.0	2.3	0.1
162	1.0	0.2	5.8	1.1	2.4	0.1
168	1.0	0.2	5.8	1.0	2.4	0.1
180	1.2	0.2	5.5	0.9	1.5	0.0
181	1.1	0.2	5.4	0.9	1.5	0.0
182	1.1	0.2	5.3	0.9	1.5	0.0
183	1.1	0.2	5.1	0.9	1.4	0.0
184	1.2	0.2	5.7	1.0	1.6	0.0
185	1.2	0.2	5.6	1.0	1.6	0.0
186	1.2	0.2	5.5	0.9	1.5	0.0
187	1.2	0.2	5.8	1.0	1.6	0.0
188	1.2	0.2	5.7	1.0	1.6	0.0
189	1.2	0.2	6.0	1.0	1.7	0.0
190	1.2	0.2	5.8	1.0	1.6	0.0
191	1.3	0.2	6.0	1.1	1.7	0.0
192	1.3	0.2	6.1	1.1	1.8	0.0
194	1.2	0.2	5.9	1.1	1.8	0.0
195	1.3	0.2	6.2	1.2	1.9	0.0
196	1.3	0.2	6.1	1.2	1.8	0.0
199	1.4	0.3	6.6	1.2	1.9	0.0
200	1.5	0.3	6.9	1.3	2.1	0.0
201b	1.5	0.3	7.0	1.3	2.1	0.0
201a	1.6	0.3	7.4	1.4	2.2	0.0
202	1.6	0.3	7.5	1.4	2.2	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
203	1.7	0.3	7.8	1.5	2.4	0.0
204	1.7	0.3	8.0	1.5	2.4	0.1
205	1.7	0.3	7.9	1.5	2.4	0.1
206	1.7	0.3	8.0	1.6	2.5	0.1
207	1.6	0.3	7.6	1.6	2.4	0.1
208	1.6	0.3	7.4	1.5	2.4	0.1
209	1.5	0.3	7.5	1.6	2.4	0.1
210	1.5	0.3	7.6	1.6	2.5	0.1
211	1.5	0.3	7.5	1.6	2.6	0.1
212	1.5	0.3	7.7	1.7	2.7	0.1
213	1.5	0.4	7.7	1.7	2.8	0.1
215	1.6	0.4	7.9	1.8	2.9	0.1
216	1.6	0.4	8.0	1.8	2.9	0.1
217	1.6	0.4	7.9	1.8	2.8	0.1
218	1.5	0.4	7.9	1.7	2.8	0.1
219	1.7	0.3	7.8	1.7	2.7	0.1
220	1.6	0.3	7.7	1.7	2.6	0.1
222	1.8	0.4	8.3	1.8	2.8	0.1
223	1.8	0.4	8.5	1.8	2.8	0.1
224	1.7	0.3	7.8	1.5	2.4	0.0
226	1.6	0.3	7.3	1.4	2.3	0.0
227	1.6	0.3	7.2	1.4	2.3	0.0
228	1.5	0.3	7.1	1.4	2.2	0.0
229	1.5	0.3	6.8	1.4	2.2	0.0
230	1.5	0.3	6.8	1.4	2.2	0.0
231	1.4	0.3	6.7	1.3	2.1	0.0
232	1.4	0.3	6.6	1.3	2.0	0.0
233	1.4	0.3	6.6	1.3	2.0	0.0
234	1.4	0.3	6.5	1.2	1.9	0.0
235	1.3	0.2	6.3	1.2	1.8	0.0
236	1.3	0.2	6.3	1.1	1.8	0.0
237	1.4	0.2	6.6	1.2	1.9	0.0
238	1.4	0.2	6.5	1.2	1.8	0.0
255	0.5	0.1	3.0	0.5	1.1	0.0
256	0.5	0.1	2.8	0.5	1.1	0.0
258	0.6	0.1	3.2	0.6	1.2	0.0
258	0.5	0.1	2.9	0.6	1.2	0.0
300	1.2	0.2	5.7	0.9	1.5	0.0
303	1.2	0.2	5.6	0.9	1.5	0.0
305	1.1	0.2	5.5	0.9	1.5	0.0
306	1.1	0.2	5.4	0.9	1.4	0.0
307	1.1	0.2	5.3	0.9	1.4	0.0
308	1.1	0.2	5.2	0.8	1.4	0.0
309	1.0	0.2	5.0	0.7	1.2	0.0
310	1.1	0.2	5.1	0.8	1.3	0.0
311	1.1	0.2	5.1	0.8	1.2	0.0
312	1.0	0.1	5.0	0.7	1.2	0.0
313	1.0	0.1	4.8	0.7	1.2	0.0
314	1.0	0.1	4.8	0.7	1.1	0.0
315	1.0	0.1	4.9	0.7	1.2	0.0
316	1.0	0.1	4.9	0.7	1.2	0.0
317	1.1	0.2	5.2	0.8	1.3	0.0
321	0.5	0.0	1.9	0.2	0.3	0.0
322	0.5	0.0	1.7	0.1	0.2	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
323	1.1	0.0	4.4	0.2	0.3	0.0
324	0.5	0.0	2.1	0.1	0.2	0.0
328	0.6	0.0	2.4	0.1	0.2	0.0
329	0.4	0.0	1.6	0.1	0.2	0.0
330	0.6	0.0	2.0	0.2	0.3	0.0
331	0.6	0.0	2.2	0.1	0.2	0.0
333	1.1	0.1	4.5	0.2	0.3	0.0
335	0.6	0.0	2.5	0.1	0.2	0.0
336	0.4	0.0	1.7	0.1	0.2	0.0
337	0.6	0.0	2.0	0.1	0.2	0.0
340	0.3	0.0	1.0	0.1	0.1	0.0
341	0.7	0.0	2.9	0.1	0.2	0.0
342	0.5	0.0	1.9	0.1	0.2	0.0
344	0.4	0.0	1.6	0.1	0.2	0.0
346	0.4	0.0	1.6	0.1	0.2	0.0
347	0.4	0.0	1.4	0.1	0.1	0.0
348	0.7	0.0	2.9	0.2	0.2	0.0
350	0.4	0.0	1.5	0.1	0.1	0.0
351	0.4	0.0	1.4	0.1	0.2	0.0
353	0.2	0.0	0.8	0.1	0.1	0.0
353	0.2	0.0	0.8	0.1	0.1	0.0
354	0.1	0.0	0.5	0.0	0.1	0.0
355	0.6	0.0	2.1	0.2	0.3	0.0
356	0.3	0.0	1.2	0.1	0.1	0.0
358	0.4	0.0	2.0	0.1	0.1	0.0
360	1.4	0.3	7.4	1.6	2.5	0.1
361	0.7	0.0	2.9	0.1	0.2	0.0
362	0.4	0.0	1.8	0.1	0.1	0.0
363	0.3	0.0	1.2	0.1	0.1	0.0
364	0.6	0.1	2.4	0.4	0.6	0.0
364	0.5	0.1	2.2	0.3	0.5	0.0
365	0.9	0.0	3.8	0.2	0.2	0.0
367	0.5	0.0	1.7	0.1	0.2	0.0
368	0.6	0.0	2.3	0.1	0.2	0.0
369	0.5	0.0	1.9	0.2	0.3	0.0
375	0.5	0.0	1.9	0.1	0.2	0.0
377	0.4	0.0	1.7	0.1	0.1	0.0
378	0.5	0.0	2.3	0.1	0.2	0.0
379	2.1	0.2	8.1	0.9	1.6	0.0
380	2.1	0.2	8.1	0.8	1.3	0.0
381	1.5	0.1	5.9	0.5	0.8	0.0
383	1.4	0.1	5.3	0.4	0.7	0.0
384	1.9	0.2	7.5	0.7	1.1	0.0
385	1.4	0.1	5.6	0.4	0.6	0.0
386	1.2	0.1	5.0	0.3	0.5	0.0
387	1.0	0.0	4.0	0.2	0.3	0.0
388	0.5	0.0	2.1	0.1	0.2	0.0
388	0.6	0.0	2.2	0.1	0.2	0.0
389	0.6	0.0	2.4	0.2	0.2	0.0
390	0.6	0.0	2.5	0.2	0.2	0.0
391	0.6	0.0	2.6	0.2	0.2	0.0
392	0.7	0.0	2.8	0.2	0.3	0.0
393	0.7	0.0	2.8	0.2	0.3	0.0
394	0.8	0.0	2.9	0.2	0.3	0.0

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
395	0.7	0.0	2.9	0.1	0.2	0.0
396	0.8	0.0	3.3	0.2	0.2	0.0
397	0.7	0.0	2.8	0.1	0.2	0.0
398	1.2	0.2	5.1	1.0	1.6	0.0
400	0.9	0.0	3.8	0.2	0.2	0.0
401	1.6	0.3	7.6	1.5	2.3	0.1
410	1.5	0.4	7.3	1.7	2.7	0.1
407	1.4	0.3	6.9	1.5	2.4	0.1
408	1.4	0.3	6.9	1.5	2.4	0.1
411	1.4	0.3	6.8	1.4	2.3	0.1
409	1.3	0.3	6.5	1.3	2.2	0.1
406	0.7	0.1	3.1	0.5	0.8	0.0
404	0.7	0.1	2.9	0.5	0.7	0.0
405	0.7	0.1	2.7	0.4	0.7	0.0
402	0.7	0.1	2.7	0.4	0.7	0.0
413	0.5	0.0	2.0	0.1	0.2	0.0
414	0.5	0.0	2.1	0.1	0.2	0.0
415	1.0	0.0	4.1	0.2	0.3	0.0
412	0.5	0.0	1.8	0.1	0.1	0.0
101A	2.1	0.4	9.7	2.0	3.2	0.1
41B	2.1	0.5	9.9	2.2	3.6	0.1
46B	0.7	0.2	4.4	1.2	2.8	0.1
Mine-owned						
6	1.1	0.2	5.9	1.3	2.3	0.0
21	1.0	0.2	4.9	1.1	2.0	0.0
22	1.1	0.2	5.5	1.1	1.9	0.0
23	1.1	0.2	5.7	1.1	1.8	0.0
28	2.4	0.7	11.3	3.5	6.0	0.1
29	6.2	1.5	25.6	7.0	12.4	0.3
29	7.8	1.8	33.0	8.3	14.7	0.3
30	2.7	0.6	12.4	3.0	4.9	0.1
31	3.4	1.0	16.0	4.7	8.0	0.2
35	3.4	0.9	14.6	3.9	6.8	0.2
36	4.6	1.2	19.6	5.4	9.3	0.2
37	1.9	0.4	8.7	1.9	3.0	0.1
46	0.6	0.2	4.4	1.3	3.6	0.1
46	1.1	0.2	6.4	1.0	2.3	0.1
46	0.6	0.1	3.2	0.7	1.3	0.0
46	0.9	0.2	5.5	1.0	2.2	0.1
47	4.1	0.9	17.1	4.0	7.2	0.2
49	0.7	0.2	4.1	1.0	2.0	0.0
52	0.2	0.0	0.9	0.1	0.1	0.0
58	1.4	0.3	6.3	1.2	2.0	0.0
59	1.7	0.3	7.8	1.5	2.3	0.0
63	1.2	0.2	5.8	1.0	1.7	0.0
64	1.2	0.2	5.9	1.0	1.7	0.0
74	1.2	0.2	5.7	1.1	1.7	0.0
76	1.3	0.2	6.2	1.1	1.8	0.0
77	1.4	0.3	6.6	1.2	1.9	0.0
78	1.4	0.2	6.5	1.2	1.8	0.0
81	1.5	0.3	7.1	1.3	2.1	0.0
148	0.9	0.2	5.6	1.1	2.4	0.1
151	0.9	0.2	5.5	1.0	2.2	0.1
152	1.0	0.2	5.6	1.0	2.2	0.1

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)
	Incremental					
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria					
	-	-	-	-	-	2
153	1.0	0.2	5.7	1.0	2.3	0.1
155	1.0	0.2	5.7	1.0	2.3	0.1
157	1.0	0.2	5.9	1.0	2.4	0.1
158	0.9	0.1	5.3	0.9	2.1	0.1
159	1.0	0.2	5.8	1.0	2.4	0.1
165	1.0	0.2	5.9	1.1	2.5	0.1
169	0.6	0.1	3.2	0.8	1.6	0.0
170	1.2	0.2	5.8	0.9	1.6	0.0
172	1.2	0.2	5.9	1.0	1.7	0.0
173	0.6	0.1	3.2	0.8	1.6	0.0
175	1.2	0.2	5.7	1.0	1.6	0.0
176	1.2	0.2	5.7	1.0	1.6	0.0
177	1.2	0.2	5.7	1.0	1.6	0.0
239	1.4	0.2	6.4	1.1	1.8	0.0
240	1.3	0.2	6.3	1.1	1.8	0.0
241	1.3	0.2	6.0	1.1	1.7	0.0
253	0.6	0.1	3.2	0.3	0.5	0.0
254	0.6	0.1	3.1	0.5	0.9	0.0
257	0.6	0.1	3.6	0.7	1.3	0.0
301	1.2	0.2	5.7	0.9	1.5	0.0
302	1.2	0.2	5.7	0.9	1.5	0.0
320	0.5	0.1	2.8	0.6	1.2	0.0
415	0.9	0.2	4.1	0.7	1.2	0.1
416	0.8	0.1	3.8	0.7	1.2	0.1
417	0.6	0.1	3.0	0.4	0.7	0.0
418	0.5	0.1	2.4	0.4	0.7	0.0
419	0.9	0.1	4.3	0.5	0.9	0.0
420	0.6	0.1	3.0	0.4	0.6	0.0
421	0.6	0.1	3.0	0.4	0.7	0.0
160B	1.0	0.2	5.8	1.0	2.3	0.1
41A	1.2	0.2	5.8	1.1	1.8	0.0
41C	1.0	0.2	5.8	1.0	2.4	0.1

Table D-6: Cumulative modelling predictions – Project Year 7

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
Privately-owned										
9	10.7	2.4	43.8	10.3	20.7	0.5	7.4	18.7	40.6	2.0
11	3.0	0.6	10.6	2.1	2.9	0.0	5.5	10.4	22.5	1.5
11	3.3	0.6	11.8	2.3	3.2	0.0	5.6	10.7	23.0	1.5
11	3.1	0.6	10.9	2.2	3.0	0.0	5.5	10.5	22.7	1.5
11	3.5	0.7	12.3	2.6	3.6	0.0	5.7	11.1	23.4	1.5
26	8.4	1.8	38.4	7.9	15.7	0.4	6.8	16.6	36.0	1.9
39	2.7	0.7	10.8	2.9	4.7	0.1	5.6	11.0	24.1	1.5
40	3.3	0.8	12.3	3.2	5.1	0.1	5.7	11.3	24.6	1.5
53	2.6	0.6	10.6	2.6	4.2	0.1	5.5	10.6	23.6	1.5
60	4.1	0.9	15.5	3.5	5.8	0.1	5.8	11.7	25.3	1.5
61	4.1	0.9	16.1	3.6	5.9	0.1	5.8	11.7	25.4	1.5

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
66	7.9	1.5	33.7	6.7	12.5	0.3	6.9	18.1	37.4	1.8
70	6.0	1.3	25.1	5.2	9.3	0.2	6.2	13.4	28.9	1.6
75	4.6	1.0	18.1	4.1	7.1	0.2	6.0	12.3	26.6	1.6
79	4.1	0.9	17.2	3.7	6.2	0.1	5.8	11.8	25.7	1.5
80	3.9	0.9	16.4	3.5	5.8	0.1	5.8	11.6	25.3	1.5
82	3.9	0.9	15.9	3.5	5.7	0.1	5.8	11.6	25.2	1.5
83	3.8	0.8	15.5	3.3	5.4	0.1	5.7	11.4	24.9	1.5
84	3.7	0.8	14.9	3.3	5.4	0.1	5.7	11.4	24.9	1.5
86	3.5	0.7	14.2	3.1	5.0	0.1	5.7	11.1	24.4	1.5
87	3.6	0.8	14.5	3.2	5.2	0.1	5.7	11.3	24.7	1.5
88	3.5	0.8	13.6	3.2	5.2	0.1	5.7	11.3	24.6	1.5
89	3.4	0.7	13.7	3.0	4.8	0.1	5.6	11.0	24.2	1.5
90	3.3	0.7	13.5	3.0	4.8	0.1	5.6	11.0	24.2	1.5
91	3.4	0.7	12.9	3.1	5.0	0.1	5.7	11.2	24.5	1.5
94	3.0	0.6	12.2	2.8	4.4	0.1	5.6	10.8	23.8	1.5
95	3.0	0.7	12.2	2.8	4.5	0.1	5.6	10.8	23.9	1.5
96	3.0	0.7	12.3	2.8	4.6	0.1	5.6	10.9	23.9	1.5
97	3.1	0.7	12.5	2.9	4.7	0.1	5.6	11.0	24.1	1.5
98	3.0	0.7	12.0	2.9	4.7	0.1	5.6	11.0	24.1	1.5
99	3.0	0.7	12.0	3.0	4.7	0.1	5.6	11.0	24.2	1.5
100	3.2	0.7	12.2	3.1	5.0	0.1	5.7	11.2	24.4	1.5
101b	3.0	0.7	11.6	3.0	4.8	0.1	5.6	11.1	24.2	1.5
102	2.8	0.7	11.3	2.9	4.6	0.1	5.6	10.9	24.0	1.5
103	2.9	0.6	11.5	2.7	4.4	0.1	5.6	10.8	23.7	1.5
104	2.8	0.6	11.2	2.7	4.4	0.1	5.6	10.8	23.7	1.5
105	2.7	0.6	11.0	2.7	4.3	0.1	5.5	10.7	23.7	1.5
106	2.8	0.7	11.1	2.9	4.6	0.1	5.6	10.9	24.0	1.5
107	2.9	0.7	11.3	2.9	4.7	0.1	5.6	11.0	24.1	1.5
108	2.7	0.7	10.9	2.9	4.6	0.1	5.6	10.9	24.0	1.5
109	2.7	0.6	10.7	2.8	4.4	0.1	5.6	10.8	23.8	1.5
110	2.6	0.6	10.5	2.7	4.4	0.1	5.6	10.8	23.7	1.5
111	2.7	0.6	10.8	2.7	4.3	0.1	5.5	10.7	23.6	1.5
112	2.6	0.6	10.6	2.7	4.3	0.1	5.5	10.7	23.6	1.5
113	2.7	0.6	10.7	2.7	4.4	0.1	5.6	10.8	23.7	1.5
114	2.6	0.6	10.5	2.8	4.5	0.1	5.6	10.8	23.8	1.5
115	2.6	0.6	10.4	2.7	4.3	0.1	5.5	10.7	23.7	1.5
116	2.6	0.6	10.3	2.6	4.2	0.1	5.5	10.6	23.5	1.5
117	2.6	0.6	10.3	2.5	4.1	0.1	5.5	10.5	23.4	1.5
118	2.6	0.6	10.3	2.5	3.9	0.1	5.5	10.5	23.3	1.5
119	2.5	0.6	10.3	2.4	3.9	0.1	5.5	10.4	23.2	1.5
120	2.5	0.5	10.0	2.3	3.7	0.1	5.4	10.3	23.0	1.5
121	2.4	0.5	9.9	2.2	3.6	0.1	5.4	10.2	22.8	1.5
123	2.5	0.5	10.3	2.4	3.8	0.1	5.5	10.4	23.1	1.5
124	2.5	0.5	10.2	2.3	3.7	0.1	5.4	10.3	23.0	1.5
125	2.5	0.5	10.0	2.2	3.6	0.1	5.4	10.2	22.9	1.5
126	2.4	0.5	9.6	2.1	3.4	0.1	5.4	10.0	22.6	1.5
127	2.3	0.5	9.4	2.0	3.3	0.1	5.4	10.0	22.5	1.5
149	7.8	1.6	33.3	6.7	12.6	0.3	7.0	18.2	37.7	1.8
160	8.1	1.6	34.5	6.8	12.9	0.3	6.9	17.4	36.4	1.8
162	7.7	1.5	33.0	6.6	12.4	0.3	7.0	18.5	38.1	1.8
168	7.9	1.6	33.8	6.7	12.6	0.3	6.9	17.9	37.2	1.8
180	5.4	1.0	22.8	4.3	7.6	0.2	6.0	12.4	27.0	1.6
181	5.4	1.0	22.7	4.3	7.5	0.2	6.0	12.3	26.9	1.6

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
182	5.3	1.0	22.3	4.1	7.3	0.2	5.9	12.2	26.7	1.6
183	5.3	1.0	22.1	4.0	7.1	0.2	5.9	12.1	26.5	1.6
184	4.7	0.9	18.8	3.8	6.5	0.1	5.8	11.8	25.9	1.6
185	4.7	0.9	18.8	3.7	6.4	0.1	5.8	11.8	25.8	1.6
186	4.7	0.9	19.1	3.6	6.2	0.1	5.8	11.6	25.6	1.6
187	4.2	0.8	16.7	3.5	5.9	0.1	5.8	11.5	25.3	1.5
188	4.2	0.8	16.7	3.4	5.8	0.1	5.7	11.4	25.1	1.5
189	3.8	0.8	14.9	3.3	5.6	0.1	5.7	11.3	24.9	1.5
190	3.7	0.8	14.5	3.2	5.4	0.1	5.7	11.2	24.7	1.5
191	3.5	0.7	14.3	3.1	5.2	0.1	5.7	11.1	24.6	1.5
192	3.4	0.7	14.4	3.0	5.1	0.1	5.6	11.1	24.4	1.5
194	3.2	0.7	13.5	2.9	4.8	0.1	5.6	10.9	24.1	1.5
195	3.4	0.7	14.0	2.9	4.8	0.1	5.6	10.9	24.1	1.5
196	3.2	0.7	13.2	2.8	4.6	0.1	5.6	10.8	23.9	1.5
199	3.1	0.6	12.7	2.7	4.4	0.1	5.5	10.6	23.6	1.5
200	3.1	0.6	12.7	2.7	4.3	0.1	5.5	10.6	23.6	1.5
201b	3.0	0.6	12.6	2.6	4.3	0.1	5.5	10.6	23.6	1.5
201a	3.0	0.6	12.5	2.6	4.3	0.1	5.5	10.6	23.6	1.5
202	3.0	0.6	12.2	2.6	4.2	0.1	5.5	10.6	23.5	1.5
203	3.0	0.6	12.1	2.6	4.2	0.1	5.5	10.6	23.5	1.5
204	2.9	0.6	11.9	2.6	4.2	0.1	5.5	10.6	23.5	1.5
205	2.8	0.6	11.6	2.5	4.1	0.1	5.5	10.5	23.4	1.5
206	2.8	0.6	11.3	2.6	4.1	0.1	5.5	10.5	23.4	1.5
207	2.6	0.6	10.6	2.4	3.9	0.1	5.5	10.4	23.1	1.5
208	2.6	0.5	10.4	2.4	3.8	0.1	5.5	10.3	23.0	1.5
209	2.5	0.5	10.1	2.3	3.7	0.1	5.4	10.3	22.9	1.5
210	2.4	0.5	9.9	2.3	3.7	0.1	5.4	10.2	22.9	1.5
211	2.4	0.5	9.5	2.3	3.7	0.1	5.4	10.3	22.9	1.5
212	2.4	0.5	9.6	2.4	3.8	0.1	5.5	10.3	23.0	1.5
213	2.4	0.5	9.6	2.4	3.8	0.1	5.5	10.3	23.1	1.5
215	2.4	0.6	9.8	2.5	3.9	0.1	5.5	10.4	23.2	1.5
216	2.5	0.6	9.9	2.5	4.0	0.1	5.5	10.5	23.3	1.5
217	2.5	0.6	10.1	2.5	4.0	0.1	5.5	10.5	23.3	1.5
218	2.5	0.6	9.9	2.5	3.9	0.1	5.5	10.4	23.2	1.5
219	2.6	0.6	10.4	2.5	4.0	0.1	5.5	10.5	23.3	1.5
220	2.5	0.6	10.1	2.4	3.9	0.1	5.5	10.4	23.1	1.5
222	2.7	0.6	10.7	2.6	4.2	0.1	5.5	10.6	23.5	1.5
223	2.7	0.6	10.9	2.7	4.3	0.1	5.5	10.7	23.6	1.5
224	3.1	0.7	12.8	2.8	4.5	0.1	5.6	10.8	23.9	1.5
226	3.2	0.7	13.1	2.8	4.5	0.1	5.6	10.8	23.9	1.5
227	3.3	0.7	13.5	2.9	4.7	0.1	5.6	10.9	24.0	1.5
228	3.3	0.7	13.7	2.9	4.7	0.1	5.6	10.9	24.1	1.5
229	3.4	0.7	14.1	3.0	4.8	0.1	5.6	11.0	24.2	1.5
230	3.5	0.7	14.2	3.0	4.9	0.1	5.6	11.0	24.3	1.5
231	3.5	0.7	14.5	3.0	5.0	0.1	5.7	11.1	24.4	1.5
232	3.6	0.7	14.7	3.1	5.1	0.1	5.7	11.1	24.4	1.5
233	3.6	0.8	14.9	3.1	5.1	0.1	5.7	11.2	24.5	1.5
234	3.6	0.8	15.1	3.1	5.2	0.1	5.7	11.2	24.6	1.5
235	3.6	0.8	15.3	3.2	5.4	0.1	5.7	11.3	24.8	1.5
236	3.7	0.8	15.5	3.3	5.5	0.1	5.7	11.4	24.9	1.5
237	3.8	0.8	16.1	3.4	5.7	0.1	5.8	11.5	25.2	1.5
238	3.9	0.8	16.2	3.5	5.9	0.1	5.8	11.6	25.3	1.5
255	5.6	0.8	23.5	3.5	6.2	0.1	5.9	12.8	27.4	1.6

Receptor ID	$PM_{2.5}$ ($\mu g/m^3$)		PM_{10} ($\mu g/m^3$)		TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
256	5.9	0.9	24.9	3.6	6.5	0.1	5.9	12.8	27.5	1.6
258	6.7	1.0	28.2	4.2	7.5	0.2	6.1	13.5	28.8	1.6
258	6.8	1.0	28.3	4.1	7.5	0.2	6.1	13.3	28.5	1.6
300	5.9	1.3	23.8	5.4	9.9	0.2	6.2	13.6	29.4	1.7
303	5.4	1.2	23.4	5.0	9.1	0.2	6.2	13.2	28.6	1.6
305	5.5	1.1	23.5	4.6	8.3	0.2	6.1	12.7	27.7	1.6
306	5.4	1.1	23.0	4.5	7.9	0.2	6.0	12.5	27.4	1.6
307	5.3	1.0	22.7	4.3	7.7	0.2	6.0	12.4	27.1	1.6
308	5.1	1.0	21.9	4.3	7.6	0.2	6.0	12.3	27.0	1.6
309	4.9	1.0	19.7	4.3	7.6	0.2	5.9	12.3	27.0	1.6
310	5.1	1.1	20.7	4.5	8.1	0.2	6.0	12.6	27.5	1.6
311	5.2	1.1	20.9	4.5	8.1	0.2	6.0	12.6	27.5	1.6
312	5.2	1.1	20.9	4.5	8.1	0.2	6.0	12.5	27.5	1.6
313	4.9	1.0	20.0	4.3	7.7	0.2	5.9	12.3	27.0	1.6
314	5.3	1.0	21.3	4.4	8.0	0.2	6.0	12.4	27.3	1.6
315	5.7	1.1	22.8	4.7	8.4	0.2	6.0	12.7	27.8	1.6
316	5.9	1.1	23.4	4.7	8.5	0.2	6.0	12.8	27.9	1.6
317	6.3	1.2	25.2	5.1	9.4	0.2	6.2	13.2	28.9	1.6
321	1.2	0.1	4.3	0.3	0.5	0.0	4.9	7.8	19.1	1.4
322	1.4	0.1	4.8	0.2	0.3	0.0	4.9	7.7	18.8	1.4
323	2.5	0.1	8.8	0.4	0.5	0.0	4.9	7.8	19.1	1.4
324	1.5	0.1	5.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
328	1.5	0.1	5.2	0.2	0.3	0.0	4.9	7.6	18.8	1.4
329	1.3	0.1	4.4	0.2	0.3	0.0	4.9	7.6	18.8	1.4
330	1.3	0.1	4.4	0.3	0.5	0.0	4.9	7.9	19.1	1.4
331	1.6	0.1	5.6	0.3	0.4	0.0	4.9	7.7	18.9	1.4
333	2.6	0.1	9.0	0.4	0.6	0.0	4.9	7.9	19.1	1.4
335	1.7	0.1	6.1	0.2	0.3	0.0	4.9	7.7	18.8	1.4
336	1.3	0.1	4.7	0.2	0.3	0.0	4.9	7.6	18.8	1.4
337	1.5	0.1	5.2	0.3	0.4	0.0	4.9	7.7	18.9	1.4
340	0.9	0.0	3.1	0.1	0.2	0.0	4.8	7.5	18.6	1.4
341	1.9	0.1	6.7	0.2	0.4	0.0	4.9	7.7	18.9	1.4
342	1.5	0.1	5.2	0.2	0.3	0.0	4.9	7.7	18.8	1.4
344	1.3	0.1	4.6	0.2	0.3	0.0	4.9	7.6	18.8	1.4
346	1.2	0.1	4.2	0.2	0.3	0.0	4.9	7.7	18.8	1.4
347	1.2	0.0	4.1	0.2	0.3	0.0	4.9	7.6	18.7	1.4
348	2.0	0.1	7.0	0.3	0.4	0.0	4.9	7.8	19.0	1.4
350	1.2	0.0	4.3	0.2	0.3	0.0	4.9	7.6	18.7	1.4
351	1.1	0.1	3.8	0.2	0.3	0.0	4.9	7.6	18.8	1.4
353	0.7	0.0	2.3	0.1	0.2	0.0	4.8	7.5	18.6	1.4
353	0.6	0.0	2.1	0.1	0.2	0.0	4.8	7.5	18.6	1.4
354	0.5	0.0	1.8	0.1	0.1	0.0	4.8	7.4	18.5	1.4
355	1.3	0.1	4.7	0.3	0.5	0.0	4.9	7.8	19.1	1.4
356	1.0	0.0	3.6	0.2	0.2	0.0	4.9	7.5	18.7	1.4
358	1.1	0.0	3.8	0.2	0.3	0.0	4.9	7.6	18.7	1.4
360	2.3	0.5	9.5	2.2	3.6	0.1	5.4	10.2	22.8	1.5
361	1.8	0.1	6.3	0.2	0.4	0.0	4.9	7.7	18.8	1.4
362	1.1	0.0	3.8	0.2	0.3	0.0	4.9	7.6	18.7	1.4
363	1.0	0.0	3.5	0.1	0.2	0.0	4.9	7.5	18.6	1.4
364	1.1	0.1	4.3	0.5	0.8	0.0	5.0	8.1	19.5	1.4
364	1.0	0.1	3.9	0.4	0.7	0.0	5.0	8.0	19.4	1.4
365	2.3	0.1	8.1	0.3	0.4	0.0	4.9	7.7	19.0	1.4
367	1.4	0.1	4.7	0.2	0.3	0.0	4.9	7.6	18.8	1.4

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
368	1.6	0.1	5.7	0.2	0.3	0.0	4.9	7.6	18.8	1.4
369	1.2	0.1	4.3	0.3	0.5	0.0	4.9	7.8	19.1	1.4
375	1.4	0.1	5.0	0.2	0.3	0.0	4.9	7.6	18.8	1.4
377	1.2	0.0	4.0	0.2	0.3	0.0	4.9	7.6	18.7	1.4
378	1.2	0.1	4.2	0.2	0.3	0.0	4.9	7.6	18.7	1.4
379	2.9	0.3	10.4	1.2	2.0	0.1	5.2	9.0	21.0	1.5
380	3.1	0.3	11.3	1.0	1.7	0.0	5.1	8.8	20.7	1.5
381	2.6	0.2	9.3	0.7	1.1	0.0	5.1	8.4	20.0	1.4
383	2.6	0.2	9.2	0.6	1.0	0.0	5.0	8.3	19.8	1.4
384	3.1	0.2	11.1	0.9	1.5	0.0	5.1	8.7	20.4	1.5
385	2.9	0.2	10.6	0.6	0.9	0.0	5.0	8.3	19.7	1.4
386	3.0	0.1	10.6	0.5	0.7	0.0	5.0	8.1	19.4	1.4
387	2.4	0.1	8.6	0.3	0.5	0.0	4.9	7.8	19.0	1.4
388	1.6	0.1	5.5	0.2	0.3	0.0	4.9	7.7	18.9	1.4
388	1.7	0.1	5.9	0.3	0.4	0.0	4.9	7.7	18.9	1.4
389	1.8	0.1	6.2	0.3	0.4	0.0	4.9	7.7	18.9	1.4
390	1.8	0.1	6.3	0.3	0.4	0.0	4.9	7.7	18.9	1.4
391	1.9	0.1	6.6	0.3	0.4	0.0	4.9	7.7	19.0	1.4
392	2.0	0.1	6.9	0.3	0.4	0.0	4.9	7.8	19.0	1.4
393	2.0	0.1	7.0	0.3	0.5	0.0	4.9	7.8	19.0	1.4
394	2.0	0.1	7.2	0.3	0.5	0.0	4.9	7.8	19.1	1.4
395	1.9	0.1	6.8	0.3	0.4	0.0	4.9	7.7	18.9	1.4
396	2.1	0.1	7.5	0.3	0.4	0.0	4.9	7.8	19.0	1.4
397	1.9	0.1	6.6	0.3	0.4	0.0	4.9	7.7	18.9	1.4
398	1.7	0.3	6.9	1.2	2.0	0.0	5.2	9.0	21.1	1.5
400	2.3	0.1	8.2	0.3	0.4	0.0	4.9	7.8	19.0	1.4
401	2.7	0.6	11.2	2.4	3.9	0.1	5.5	10.4	23.2	1.5
410	2.4	0.5	9.8	2.2	3.5	0.1	5.4	10.1	22.8	1.5
407	2.2	0.4	9.1	1.9	3.1	0.1	5.3	9.8	22.3	1.5
408	2.2	0.4	9.0	1.9	3.0	0.1	5.3	9.8	22.2	1.5
411	2.1	0.4	8.7	1.8	2.9	0.1	5.3	9.7	22.1	1.5
409	2.1	0.4	8.4	1.7	2.7	0.1	5.3	9.6	21.9	1.5
406	1.3	0.2	4.9	0.7	1.1	0.0	5.0	8.3	19.9	1.4
404	1.3	0.2	4.8	0.6	1.0	0.0	5.0	8.3	19.8	1.4
405	1.2	0.1	4.6	0.6	0.9	0.0	5.0	8.2	19.7	1.4
402	1.3	0.1	4.6	0.6	0.9	0.0	5.0	8.2	19.7	1.4
413	1.5	0.1	5.3	0.2	0.3	0.0	4.9	7.7	18.8	1.4
414	1.6	0.1	5.5	0.2	0.3	0.0	4.9	7.7	18.8	1.4
415	2.4	0.1	8.5	0.3	0.5	0.0	4.9	7.8	19.0	1.4
412	1.2	0.0	4.1	0.2	0.3	0.0	4.9	7.6	18.7	1.4
101A	3.1	0.7	11.8	3.1	4.9	0.1	5.6	11.1	24.4	1.5
41B	3.0	0.7	11.4	3.1	5.0	0.1	5.7	11.2	24.4	1.5
46B	7.0	1.6	29.9	6.7	12.6	0.3	7.6	22.7	45.6	2.1
Mine-owned										
6	7.9	1.8	31.2	7.3	13.3	0.3	6.8	15.9	33.4	1.7
21	7.0	1.7	28.6	6.9	12.7	0.3	6.7	15.4	32.6	1.7
22	7.3	1.6	29.8	6.6	12.0	0.3	6.6	14.9	31.8	1.7
23	6.9	1.5	28.3	6.1	11.1	0.2	6.5	14.4	30.9	1.7
28	5.0	1.1	18.8	4.8	7.9	0.2	6.1	13.2	27.9	1.6
29	9.3	2.0	34.6	8.2	14.2	0.3	7.0	16.8	34.5	1.7
29	10.1	2.3	37.4	9.9	16.9	0.4	7.4	18.6	37.3	1.8
30	4.2	1.0	15.8	4.1	6.6	0.1	5.9	12.4	26.4	1.6
31	5.8	1.4	21.9	6.0	10.0	0.2	6.4	14.5	30.1	1.7

Receptor ID	$PM_{2.5}$ (µg/m³)		PM_{10} (µg/m³)		TSP (µg/m³)	DD (g/m²/mth)	$PM_{2.5}$ (µg/m³)	PM_{10} (µg/m³)	TSP (µg/m³)	DD (g/m²/mth)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
35	5.1	1.1	18.6	4.8	8.0	0.2	6.1	13.1	27.8	1.6
36	7.3	1.7	28.3	7.2	12.1	0.2	6.7	15.8	32.3	1.7
37	3.4	0.8	12.9	3.2	5.1	0.1	5.7	11.3	24.6	1.5
46	7.5	1.7	31.1	7.3	13.9	0.3	7.9	25.2	50.8	2.2
46	7.3	1.4	31.1	6.0	11.0	0.2	6.8	17.6	36.0	1.8
46	7.6	1.1	31.8	4.8	8.8	0.2	6.2	14.0	30.0	1.7
46	8.0	1.5	34.1	6.4	12.0	0.3	6.8	17.3	36.0	1.8
47	5.8	1.1	21.4	4.7	8.1	0.2	6.1	13.0	27.9	1.6
49	8.8	2.1	39.1	9.2	18.5	0.5	7.1	17.8	38.6	2.0
52	1.6	0.2	6.0	0.8	1.1	0.0	5.1	8.4	19.8	1.4
58	5.1	1.1	20.0	4.5	7.7	0.2	6.1	12.8	27.4	1.6
59	4.7	1.0	18.1	4.0	6.7	0.1	6.0	12.2	26.3	1.5
63	6.2	1.4	25.7	5.6	10.1	0.2	6.3	13.9	29.8	1.6
64	6.1	1.4	25.9	5.6	10.0	0.2	6.3	13.8	29.6	1.6
74	5.1	1.1	20.7	4.4	7.7	0.2	6.0	12.6	27.3	1.6
76	4.3	1.0	17.5	3.9	6.7	0.1	5.9	12.1	26.2	1.6
77	4.3	1.0	18.0	3.9	6.6	0.1	5.9	12.1	26.2	1.6
78	4.0	0.9	16.8	3.6	6.1	0.1	5.8	11.7	25.6	1.5
81	4.0	0.9	16.6	3.6	5.9	0.1	5.8	11.7	25.4	1.5
148	7.8	1.6	33.4	6.7	12.6	0.3	6.9	18.1	37.6	1.8
151	8.0	1.5	34.0	6.5	12.1	0.3	6.8	17.2	35.8	1.8
152	7.9	1.5	34.0	6.5	12.1	0.3	6.8	17.5	36.3	1.8
153	7.9	1.5	33.9	6.5	12.1	0.3	6.9	17.7	36.6	1.8
155	7.9	1.5	34.0	6.5	12.2	0.3	6.9	17.6	36.6	1.8
157	7.8	1.5	33.4	6.6	12.2	0.3	7.0	18.3	37.7	1.8
158	8.2	1.5	34.5	6.6	12.4	0.3	6.7	16.8	35.3	1.8
159	7.9	1.5	33.8	6.6	12.4	0.3	6.9	17.9	37.1	1.8
165	7.6	1.5	32.7	6.6	12.2	0.3	7.0	18.8	38.5	1.8
169	8.0	1.5	34.3	6.7	12.9	0.3	6.6	15.5	33.4	1.8
170	5.9	1.3	24.0	5.5	10.0	0.2	6.3	13.6	29.5	1.7
172	6.0	1.3	25.4	5.3	9.5	0.2	6.2	13.5	29.1	1.6
173	7.9	1.6	33.2	7.0	13.6	0.4	6.6	15.5	33.7	1.8
175	5.7	1.3	24.5	5.2	9.3	0.2	6.2	13.3	28.8	1.6
176	5.7	1.2	24.5	4.9	8.8	0.2	6.1	13.1	28.3	1.6
177	5.7	1.2	24.2	4.8	8.5	0.2	6.1	12.9	28.0	1.6
239	3.9	0.9	16.5	3.6	6.1	0.1	5.8	11.7	25.5	1.5
240	4.3	0.9	17.0	3.8	6.5	0.1	5.9	11.9	26.0	1.6
241	4.6	1.0	18.4	4.0	6.9	0.1	5.9	12.1	26.4	1.6
253	3.6	0.5	15.0	1.9	2.9	0.0	5.6	11.2	24.1	1.5
254	4.6	0.7	18.5	2.9	4.8	0.1	5.8	12.0	25.8	1.5
257	6.7	1.0	28.3	4.3	7.6	0.2	6.1	13.7	29.1	1.6
301	5.7	1.3	23.4	5.3	9.6	0.2	6.2	13.4	29.1	1.6
302	5.5	1.3	23.7	5.2	9.4	0.2	6.2	13.3	28.9	1.6
320	7.2	1.0	29.8	4.3	7.9	0.2	6.1	13.3	28.6	1.6
415	3.0	0.3	9.7	1.3	2.1	0.1	5.9	13.0	27.1	1.6
416	3.0	0.3	9.9	1.3	2.1	0.1	6.0	13.9	28.5	1.7
417	1.9	0.2	6.9	0.8	1.3	0.0	5.4	10.4	22.9	1.5
418	2.4	0.3	8.1	1.1	1.6	0.0	7.0	20.5	41.1	1.9
419	2.2	0.2	7.6	1.0	1.5	0.0	5.4	10.3	22.7	1.5
420	1.5	0.2	6.6	0.7	1.1	0.0	5.2	9.4	21.4	1.5
421	1.9	0.2	6.9	0.8	1.3	0.0	5.4	10.4	22.9	1.5
160B	8.0	1.6	34.2	6.7	12.6	0.3	6.9	17.6	36.7	1.8
41A	7.2	1.5	29.8	6.3	11.5	0.3	6.5	14.6	31.2	1.7

Receptor ID	$PM_{2.5}$ ($\mu g/m^3$)		PM_{10} ($\mu g/m^3$)		TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)	$PM_{2.5}$ ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	TSP ($\mu g/m^3$)	DD ($g/m^2/mth$)
	Project + approved MCC						Cumulative			
	24-hr ave.	Ann. ave.	24-hr ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.	Ann. ave.
	Air quality impact criteria									
	-	-	-	-	-	2	8	25	90	4
41C	7.9	1.5	33.7	6.6	12.4	0.3	6.9	18.0	37.3	1.8

Appendix E

Isopleth Diagrams

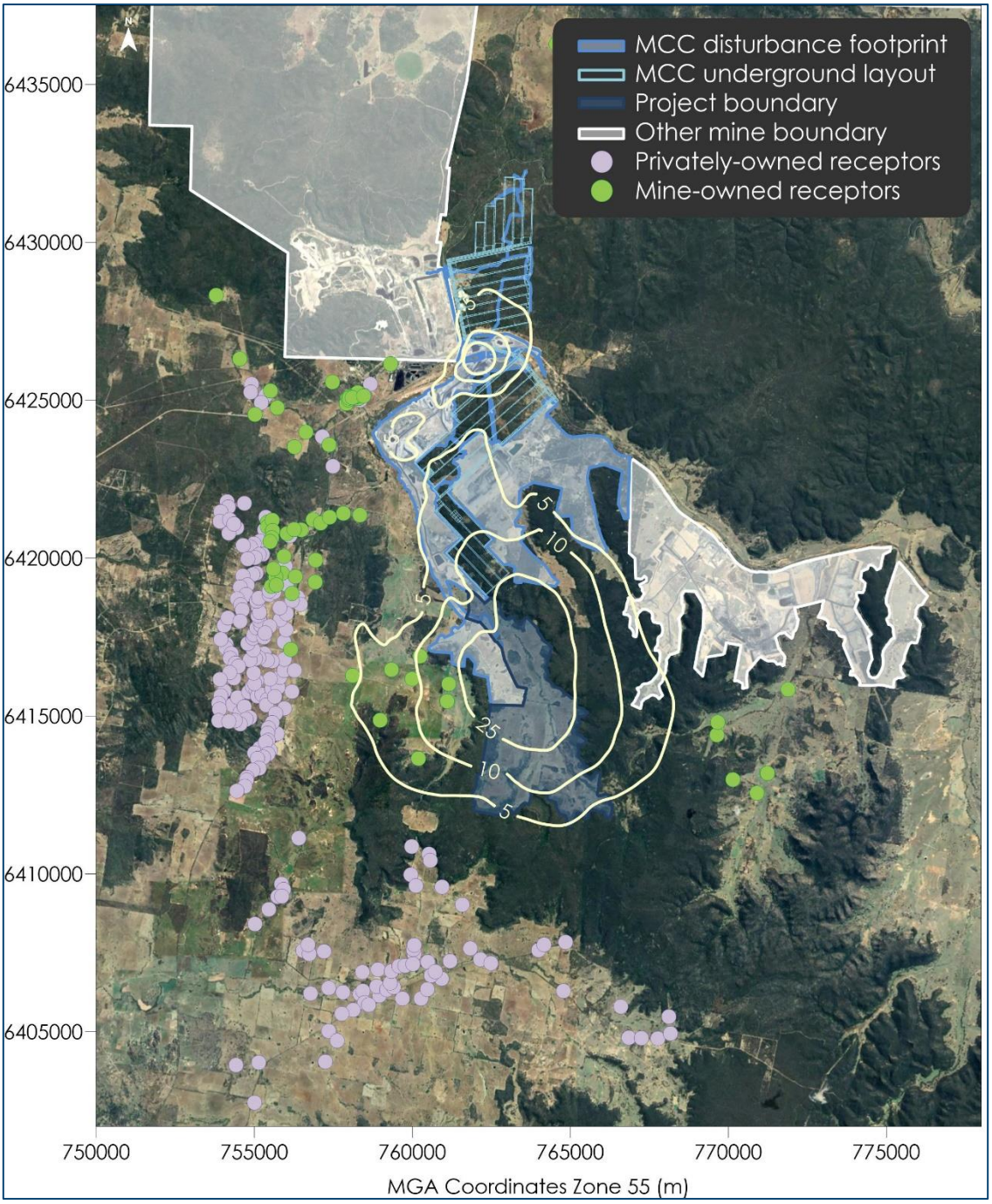


Figure E-1: Predicted maximum 24-hour average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 4 (µg/m³)

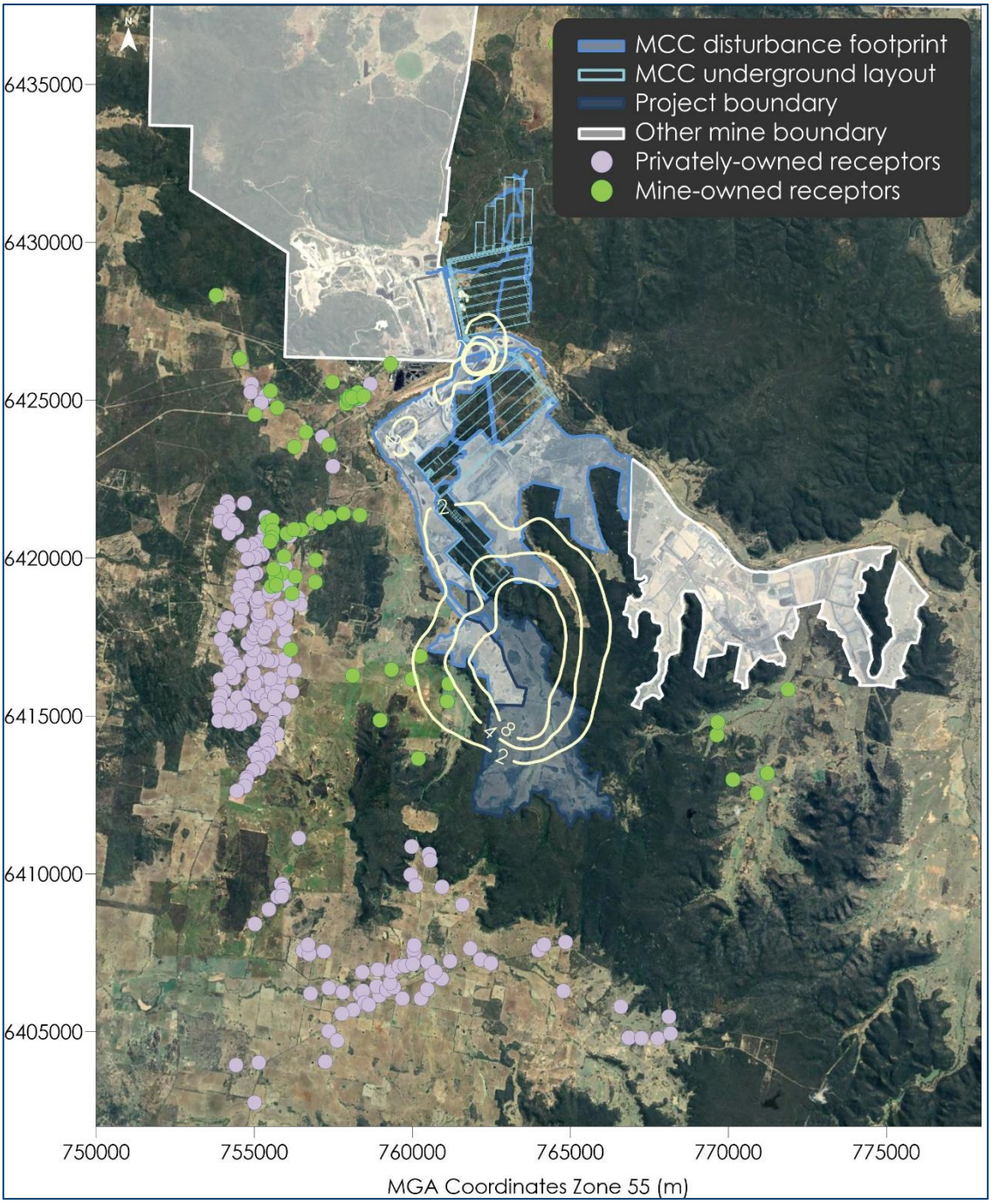


Figure E-2: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 4 (µg/m³)

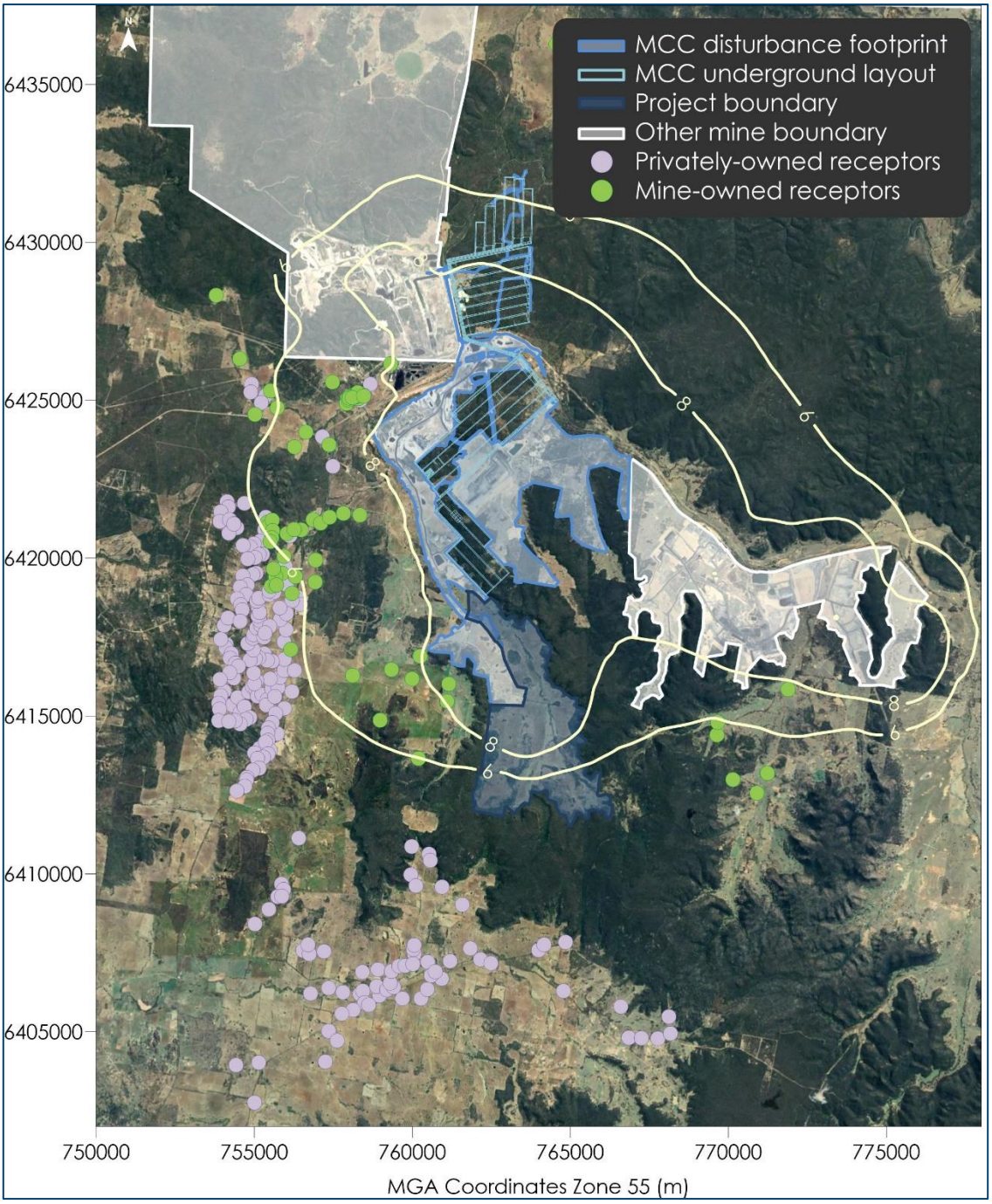


Figure E-3: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project and other sources – Project Year 4 (µg/m³)

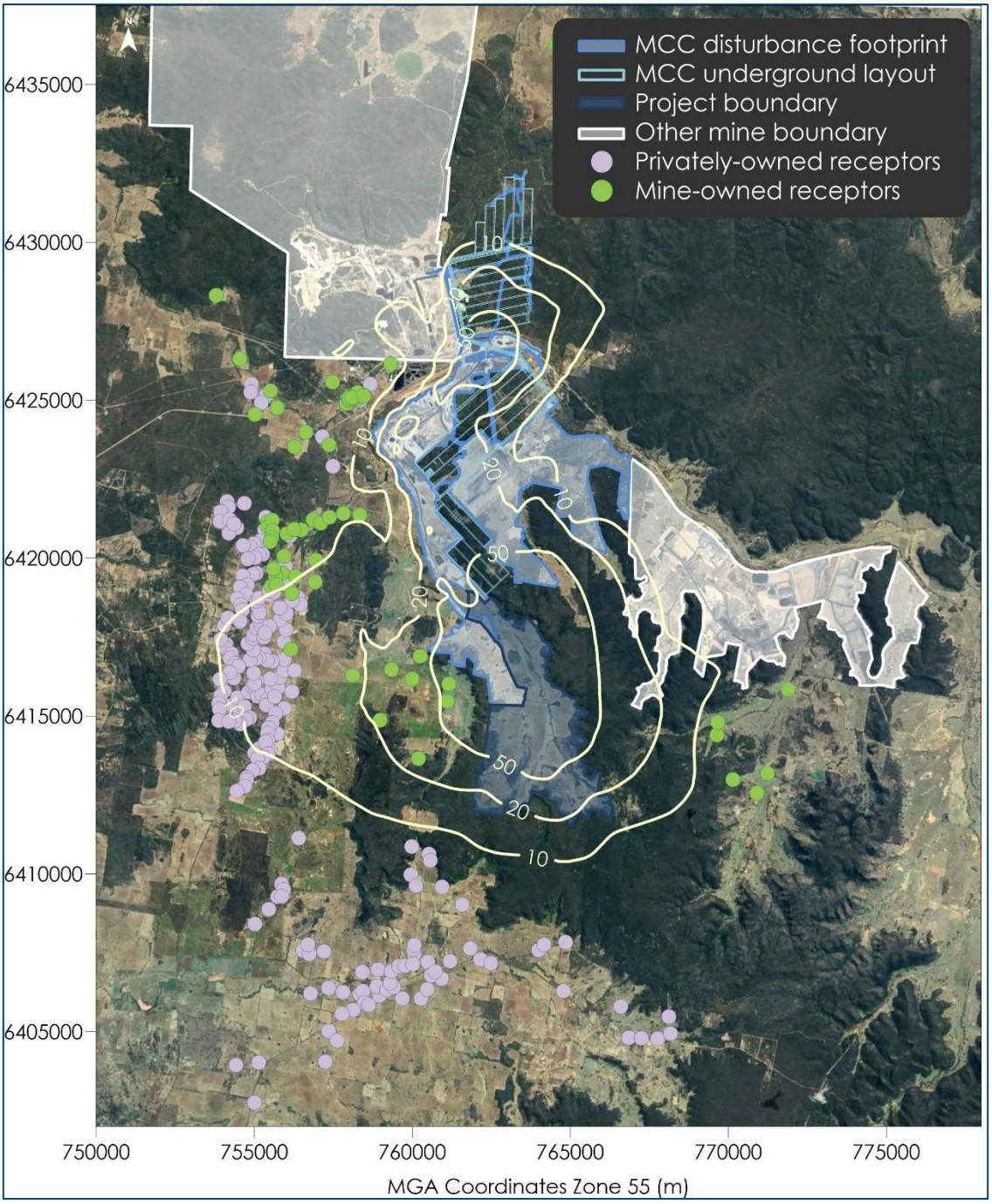


Figure E-4: Predicted maximum 24-hour average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 4 (µg/m³)

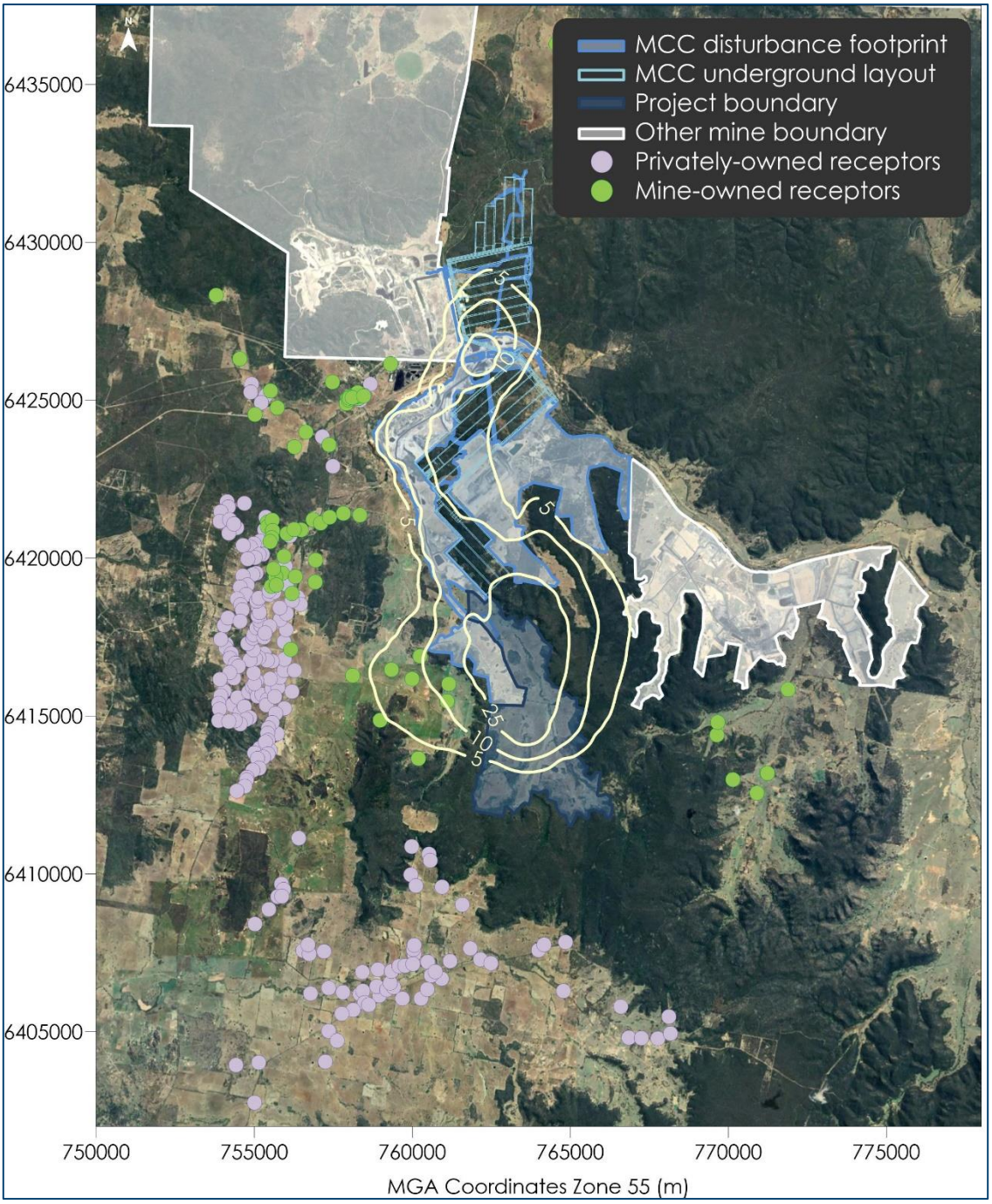


Figure E-5: Predicted annual average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 4 (µg/m³)

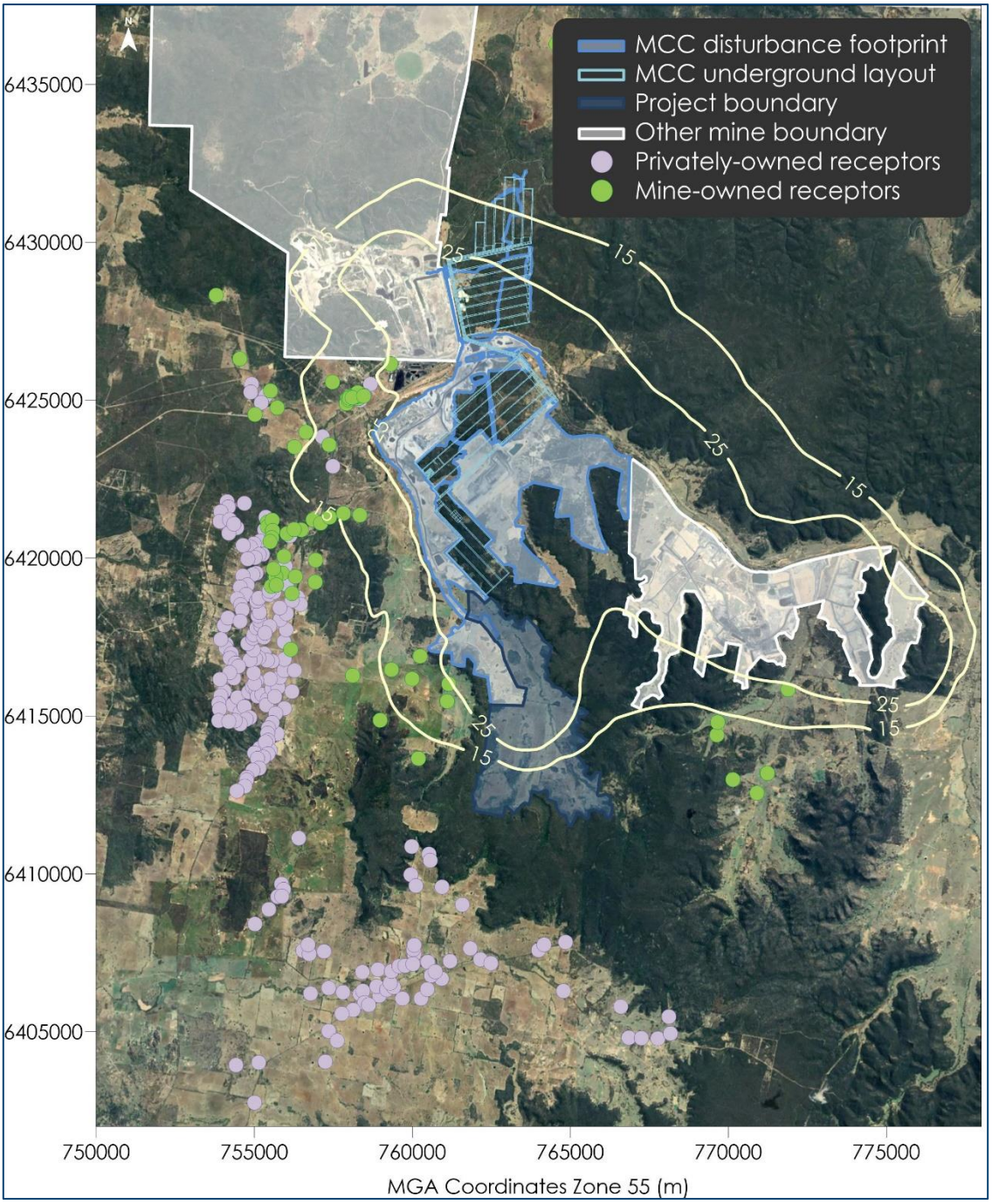


Figure E-6: Predicted annual average PM_{10} concentrations due to emissions from the Project and other sources – Project Year 4 (µg/m³)

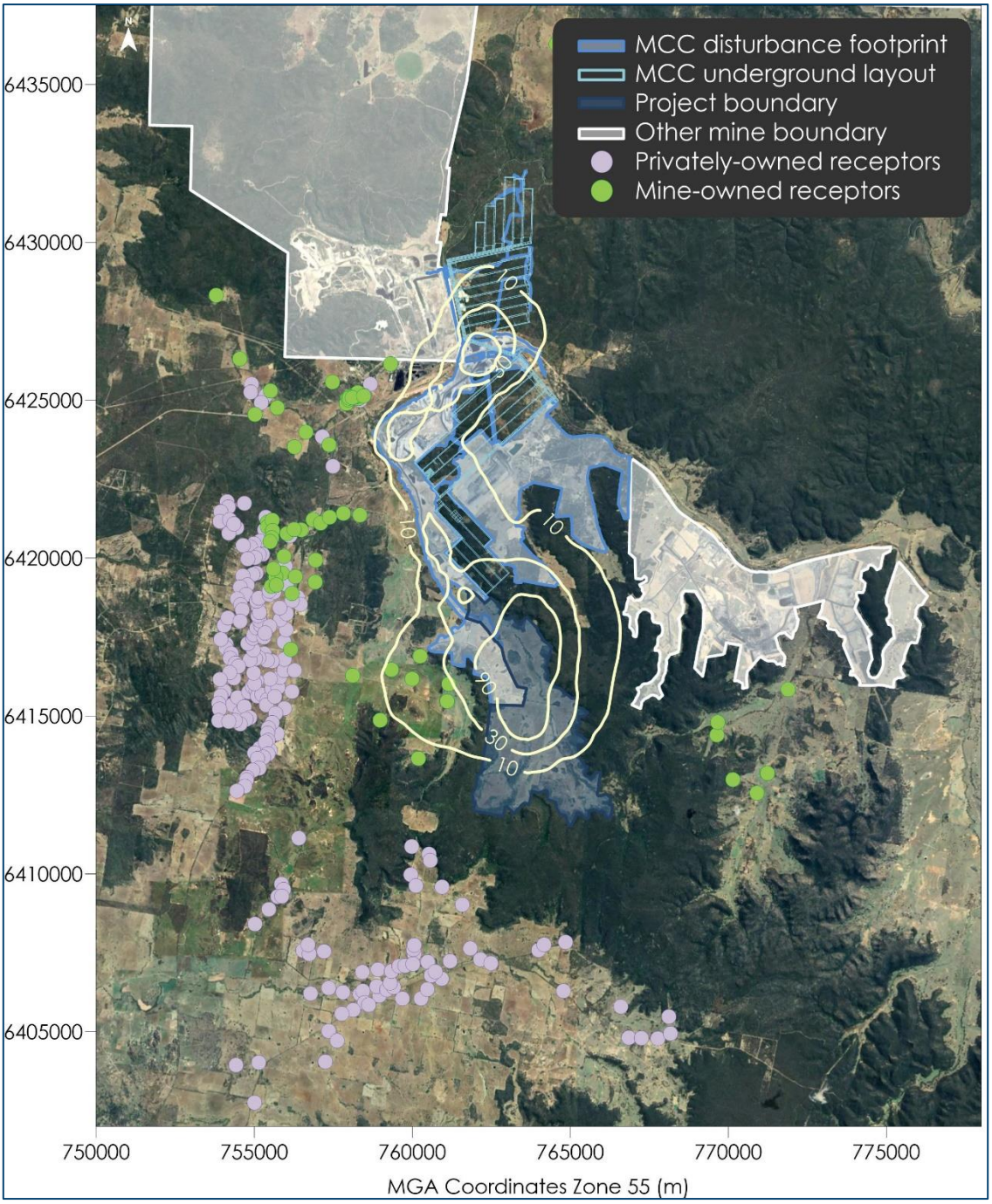


Figure E-7: Predicted annual average TSP concentrations due to emissions from the Project in isolation – Project Year 4 (µg/m³)

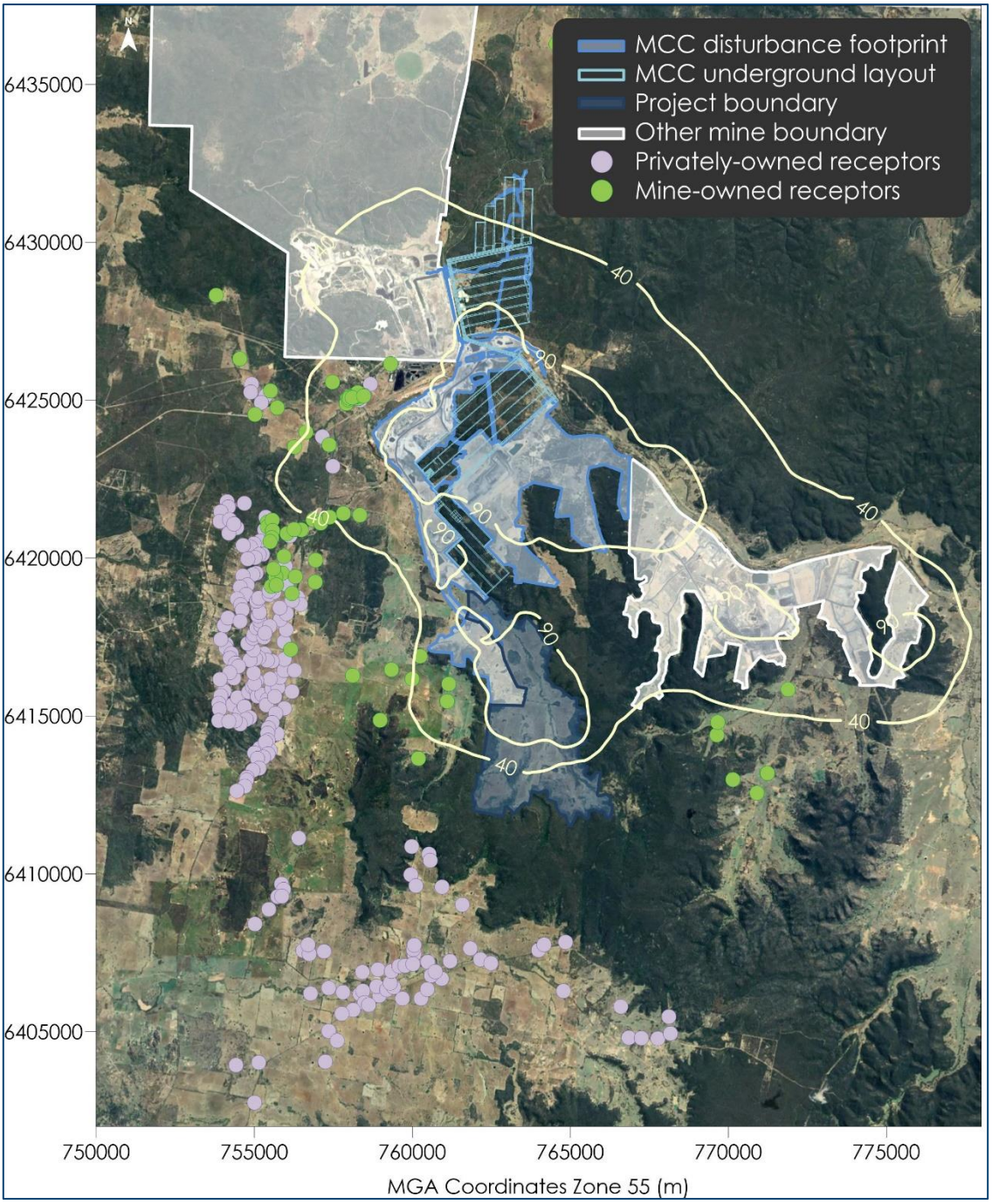


Figure E-8: Predicted annual average TSP concentrations due to emissions from the Project and other sources – Project Year 4 (µg/m³)

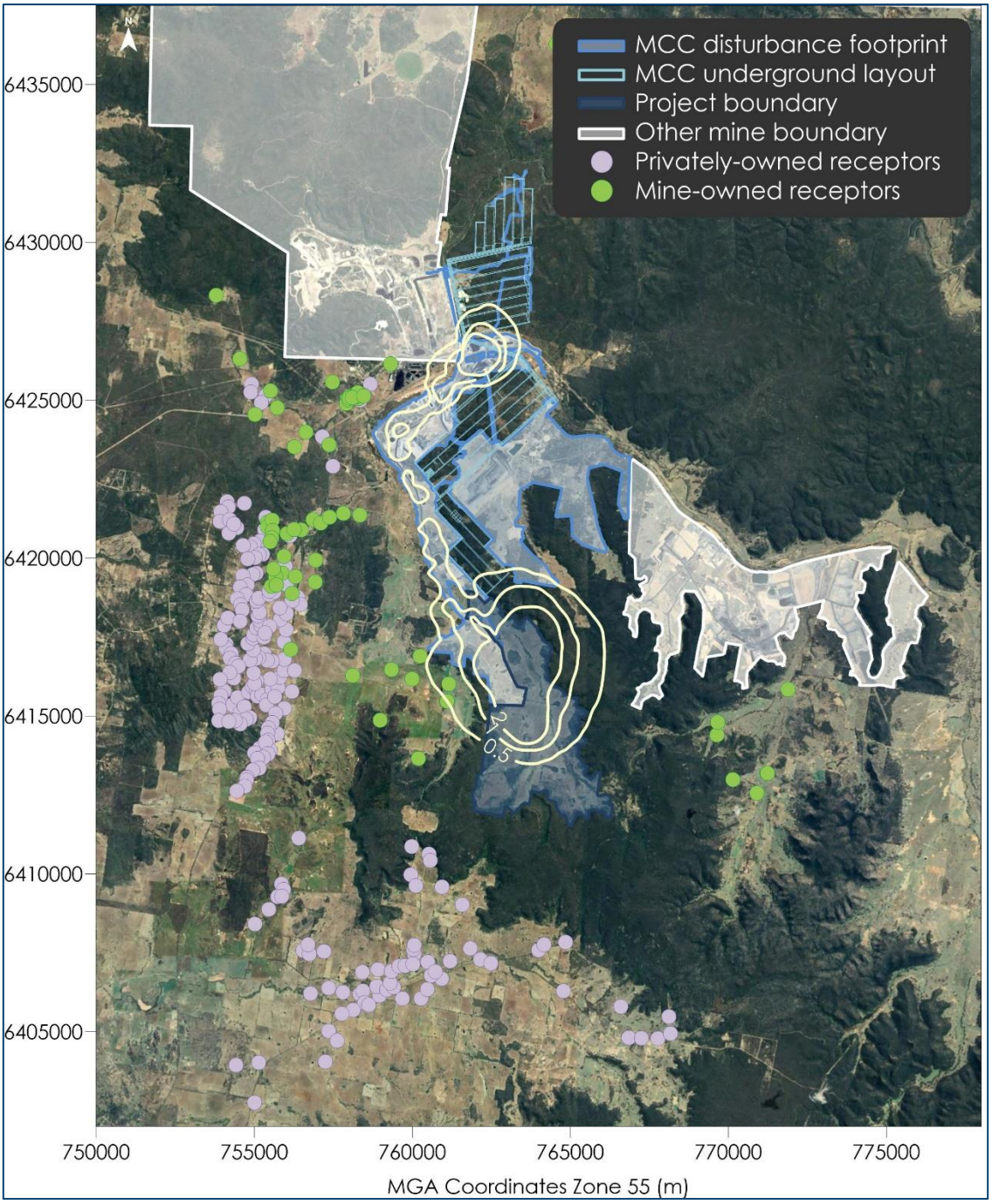


Figure E-9: Predicted annual average dust deposition levels due to emissions from the Project in isolation – Project Year 4 (g/m²/month)

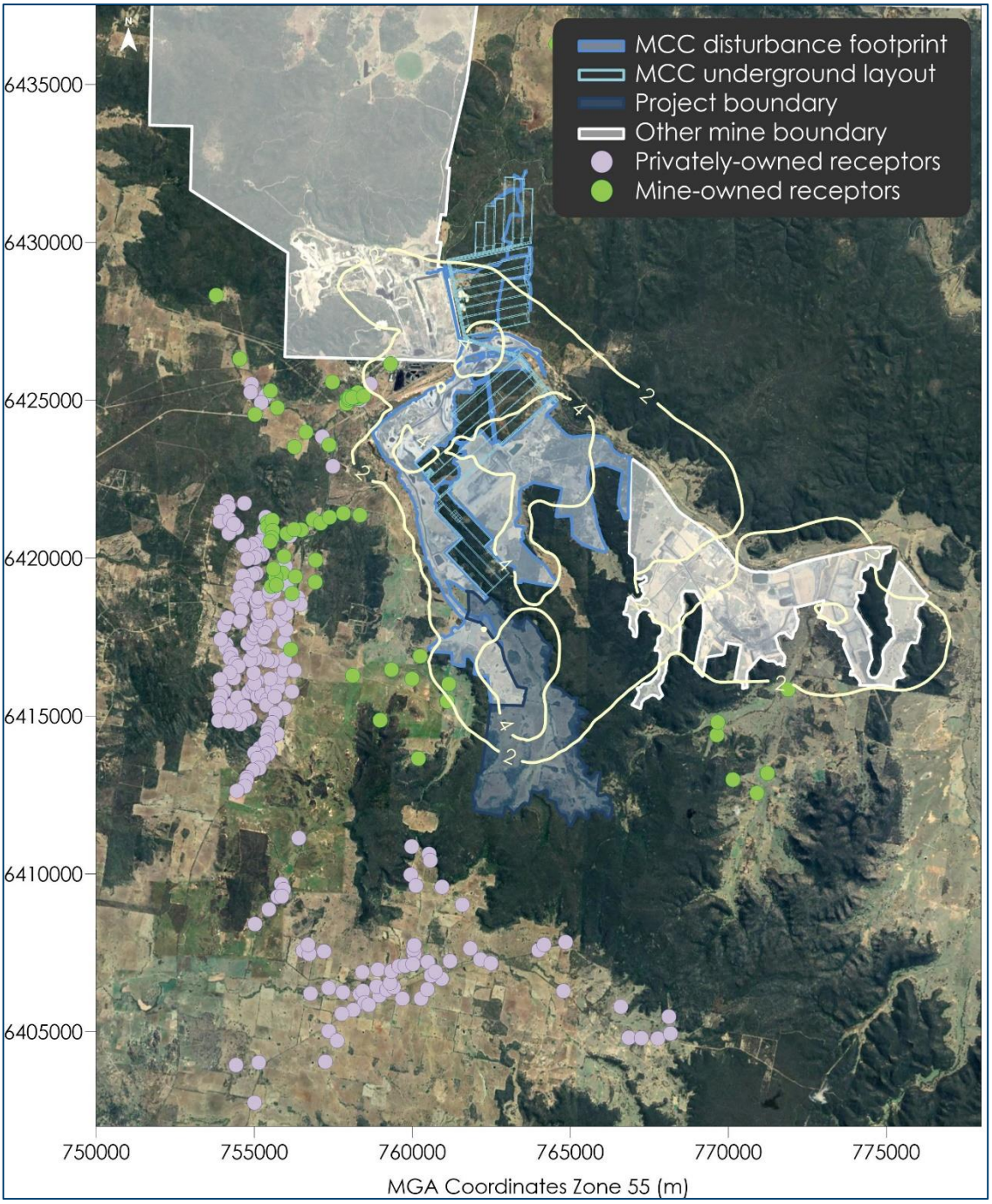


Figure E-10: Predicted annual average dust deposition levels due to emissions from the Project and other sources – Project Year 4 (g/m²/month)

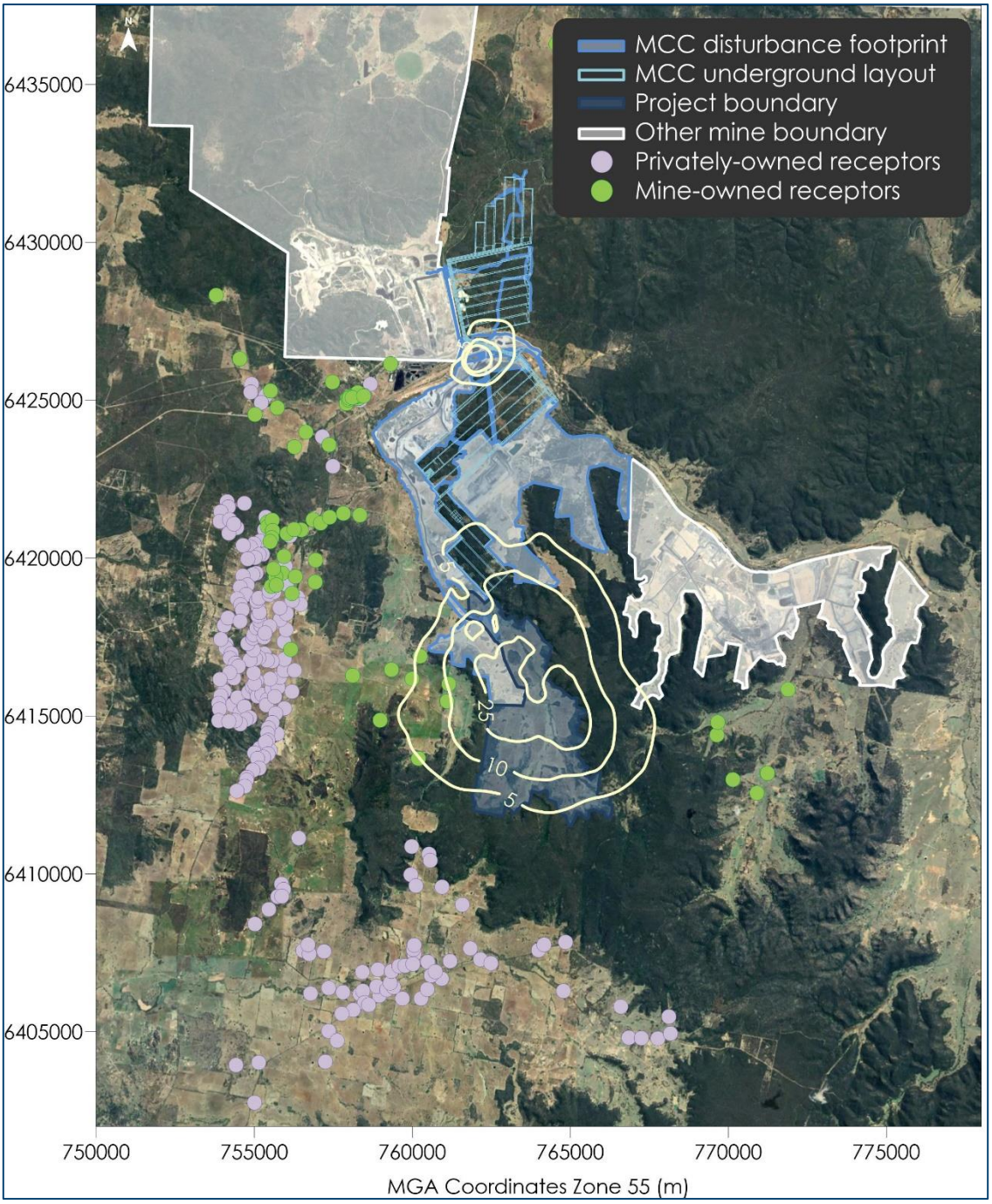


Figure E-11: Predicted maximum 24-hour average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 5 (µg/m³)

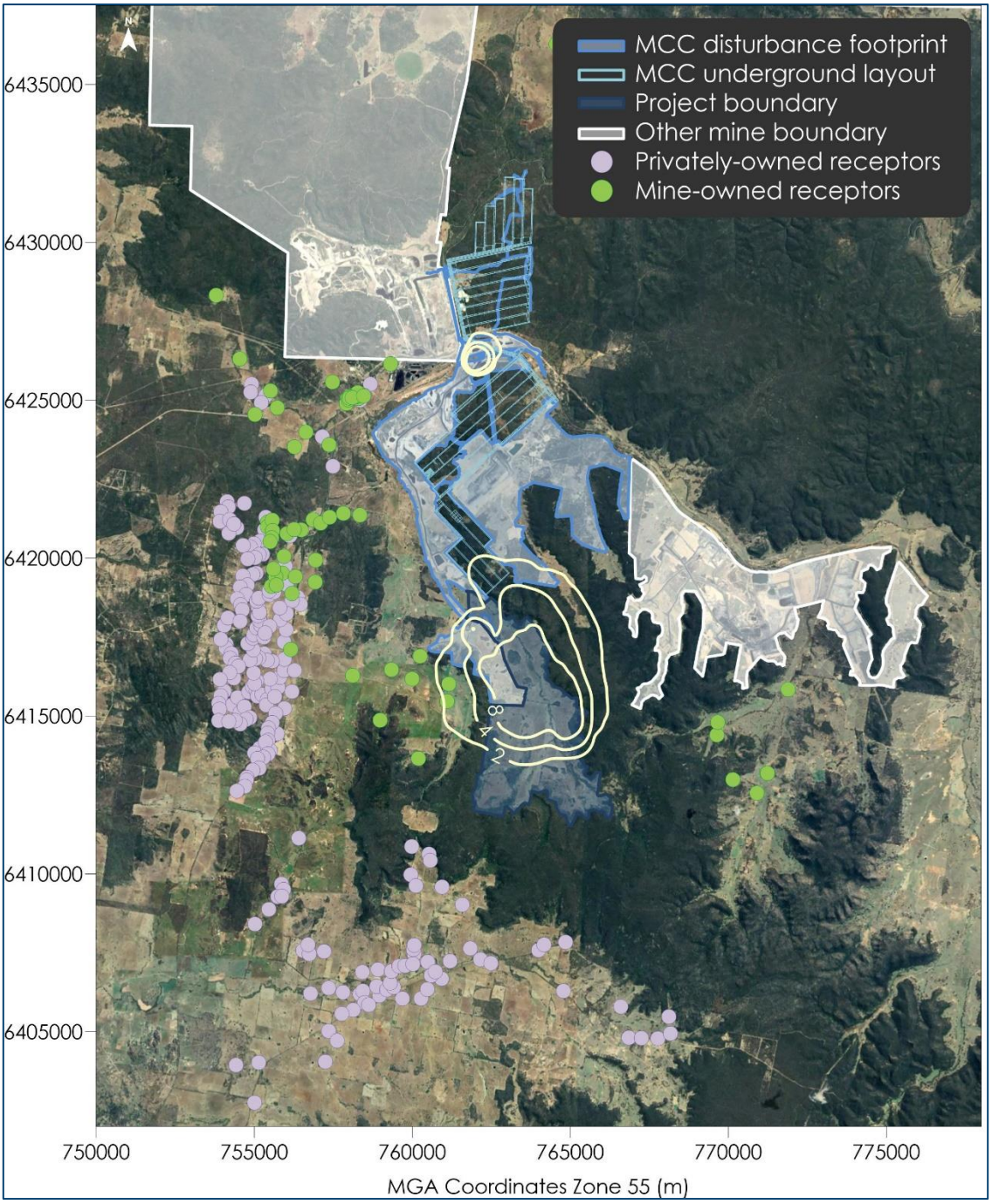


Figure E-12: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 5 (µg/m³)

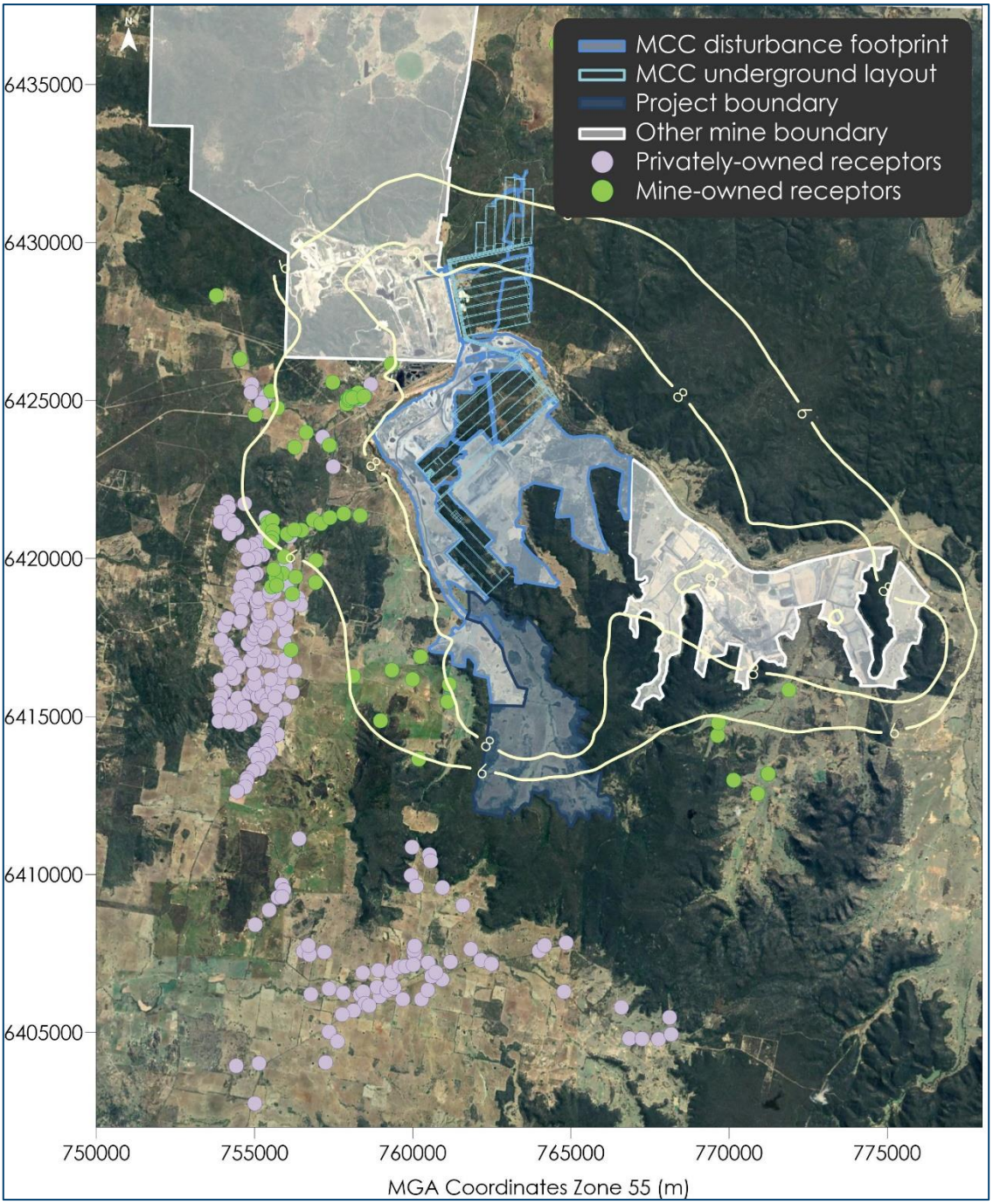


Figure E-13: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project and other sources – Project Year 5 (µg/m³)

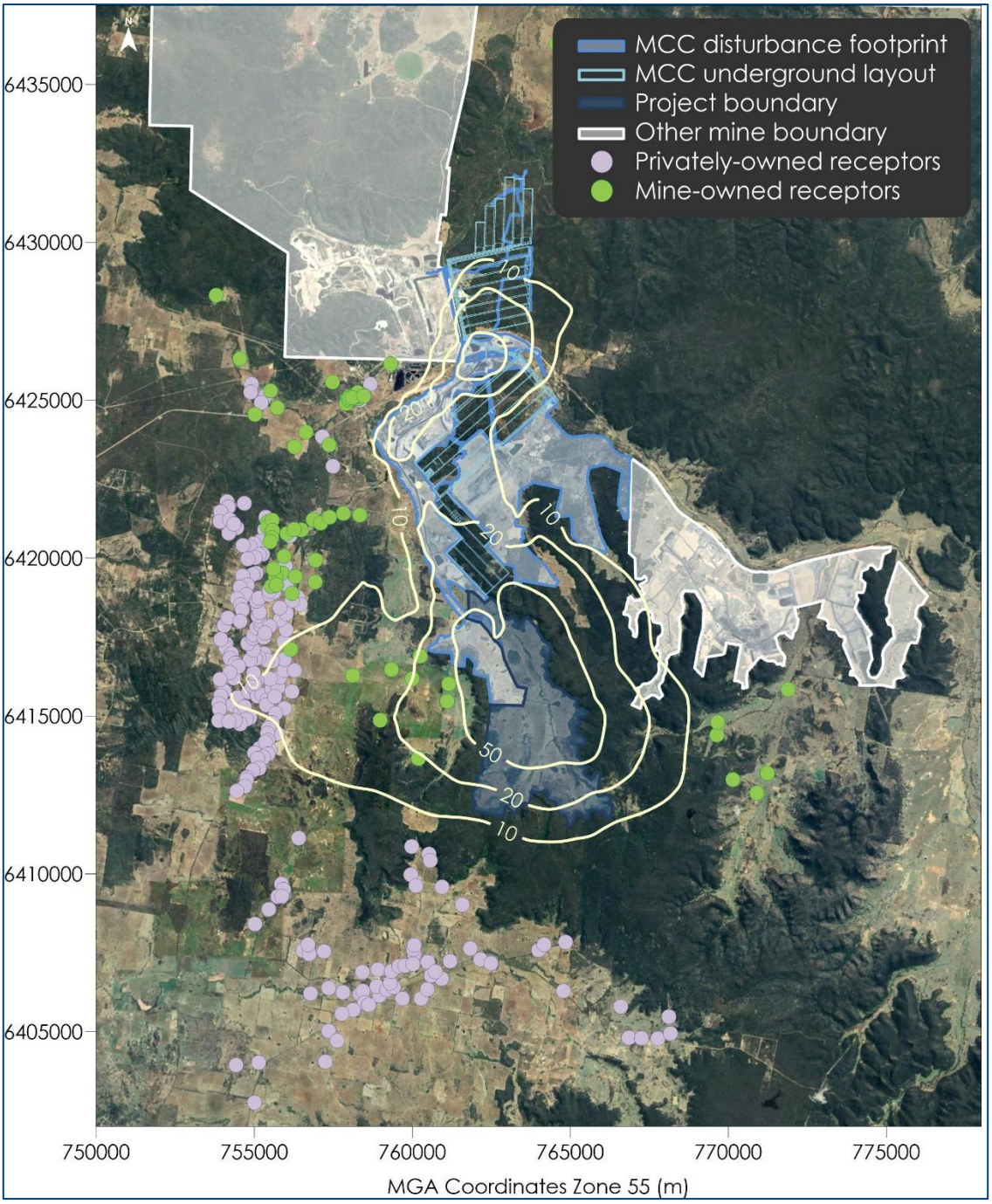


Figure E-14: Predicted maximum 24-hour average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 5 (µg/m³)

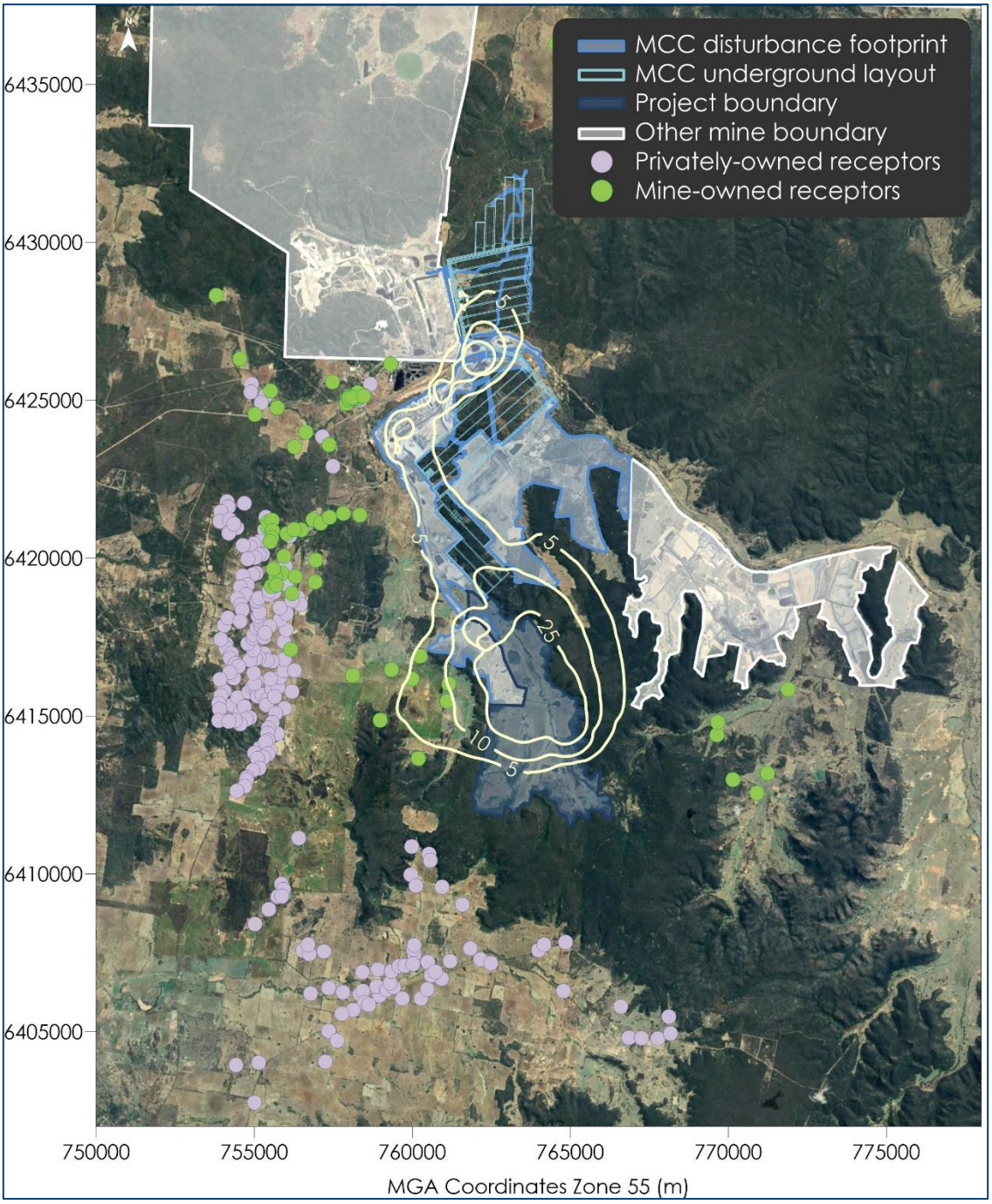


Figure E-15: Predicted annual average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 5 (µg/m³)

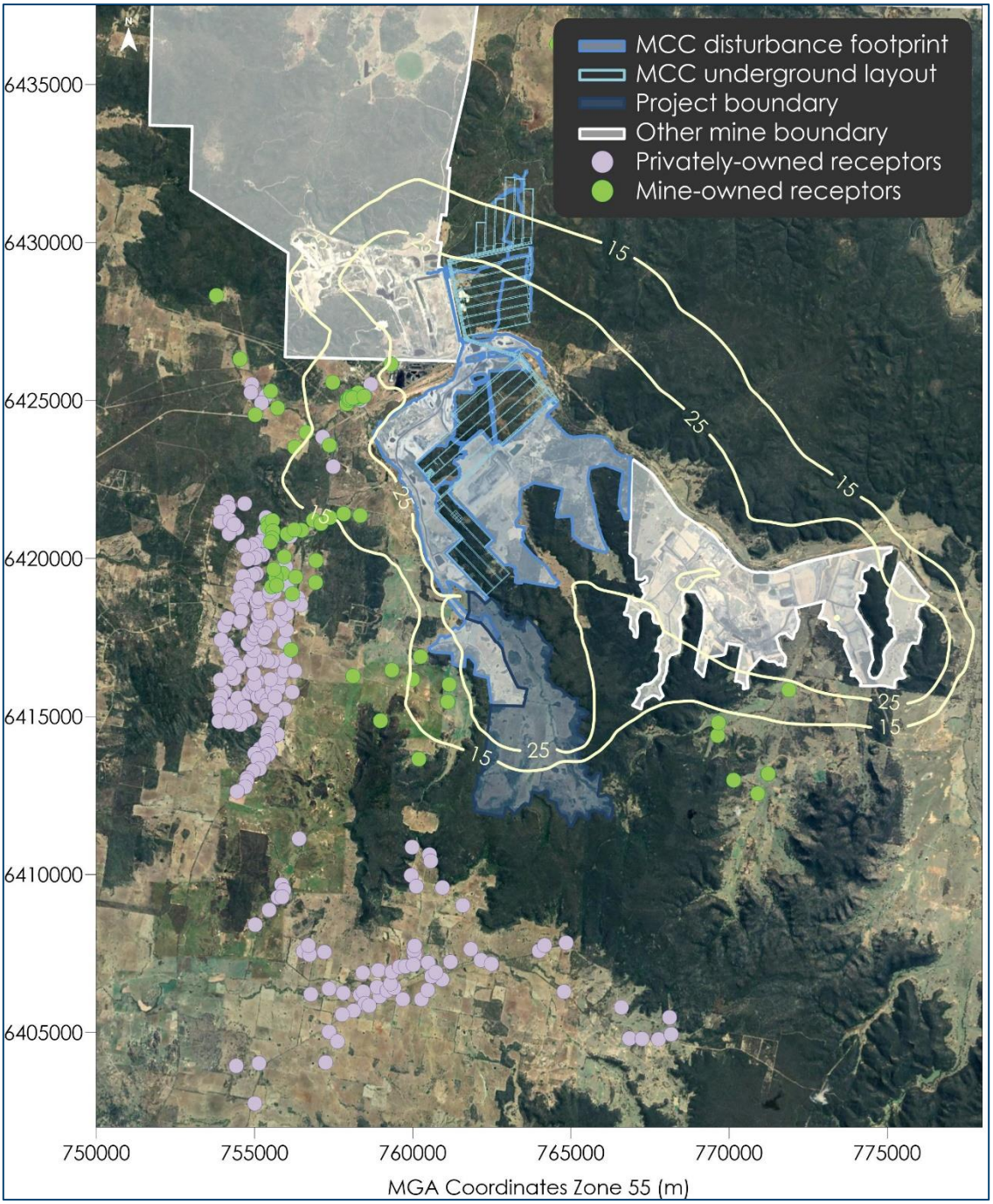


Figure E-16: Predicted annual average PM_{10} concentrations due to emissions from the Project and other sources – Project Year 5 (µg/m³)

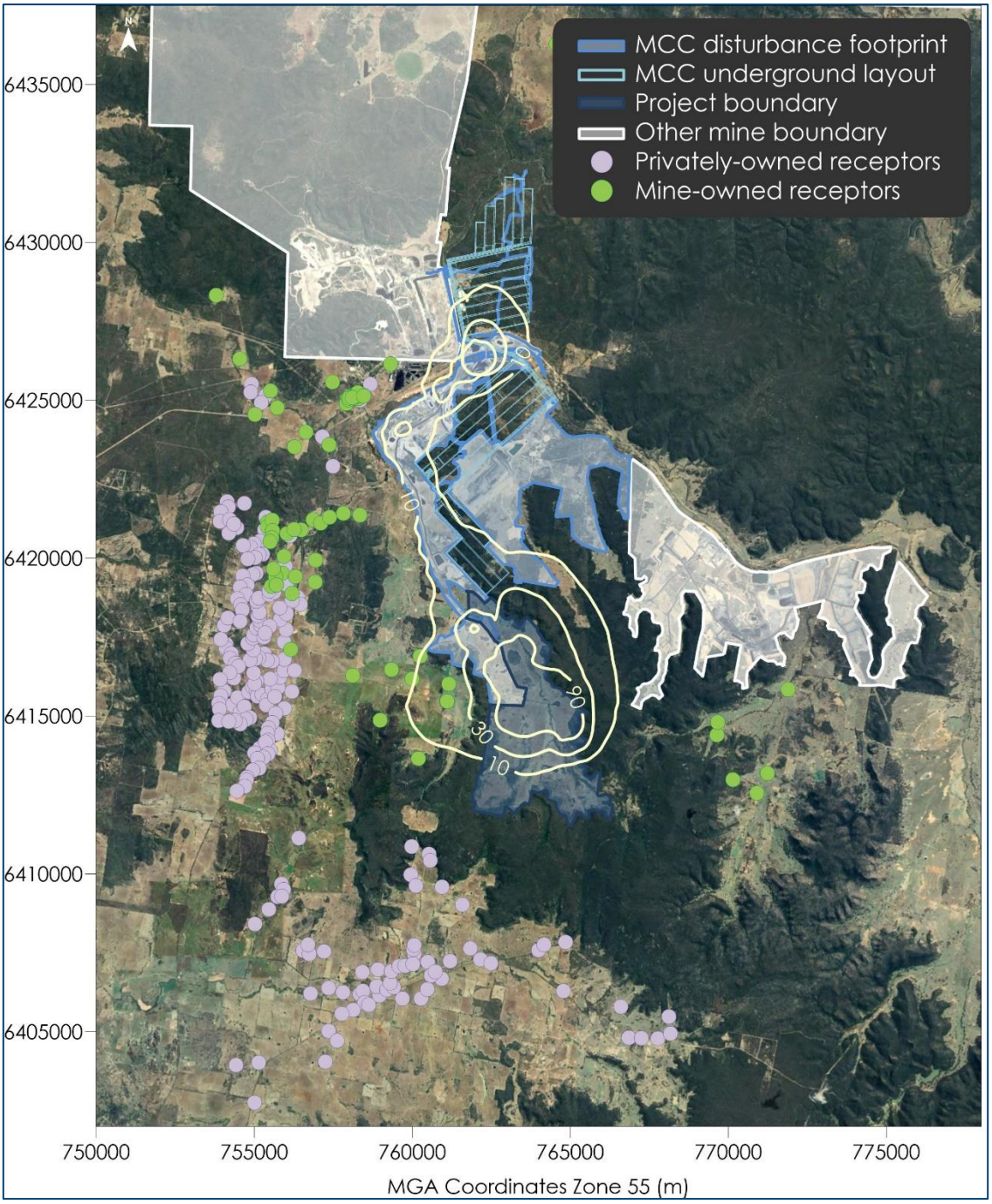


Figure E-17: Predicted annual average TSP concentrations due to emissions from the Project in isolation – Project Year 5 (µg/m³)

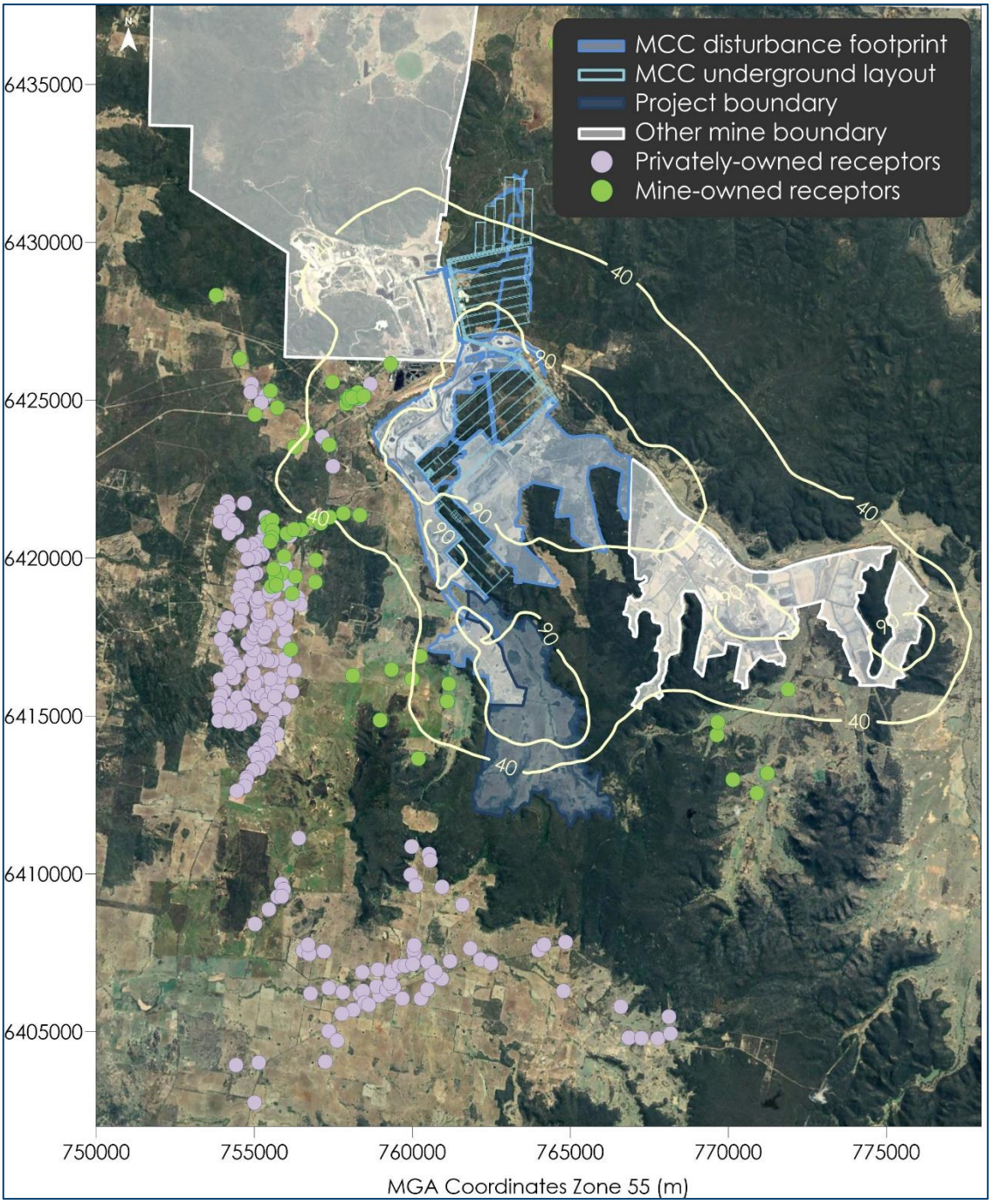


Figure E-18: Predicted annual average TSP concentrations due to emissions from the Project and other sources – Project Year 5 (µg/m³)

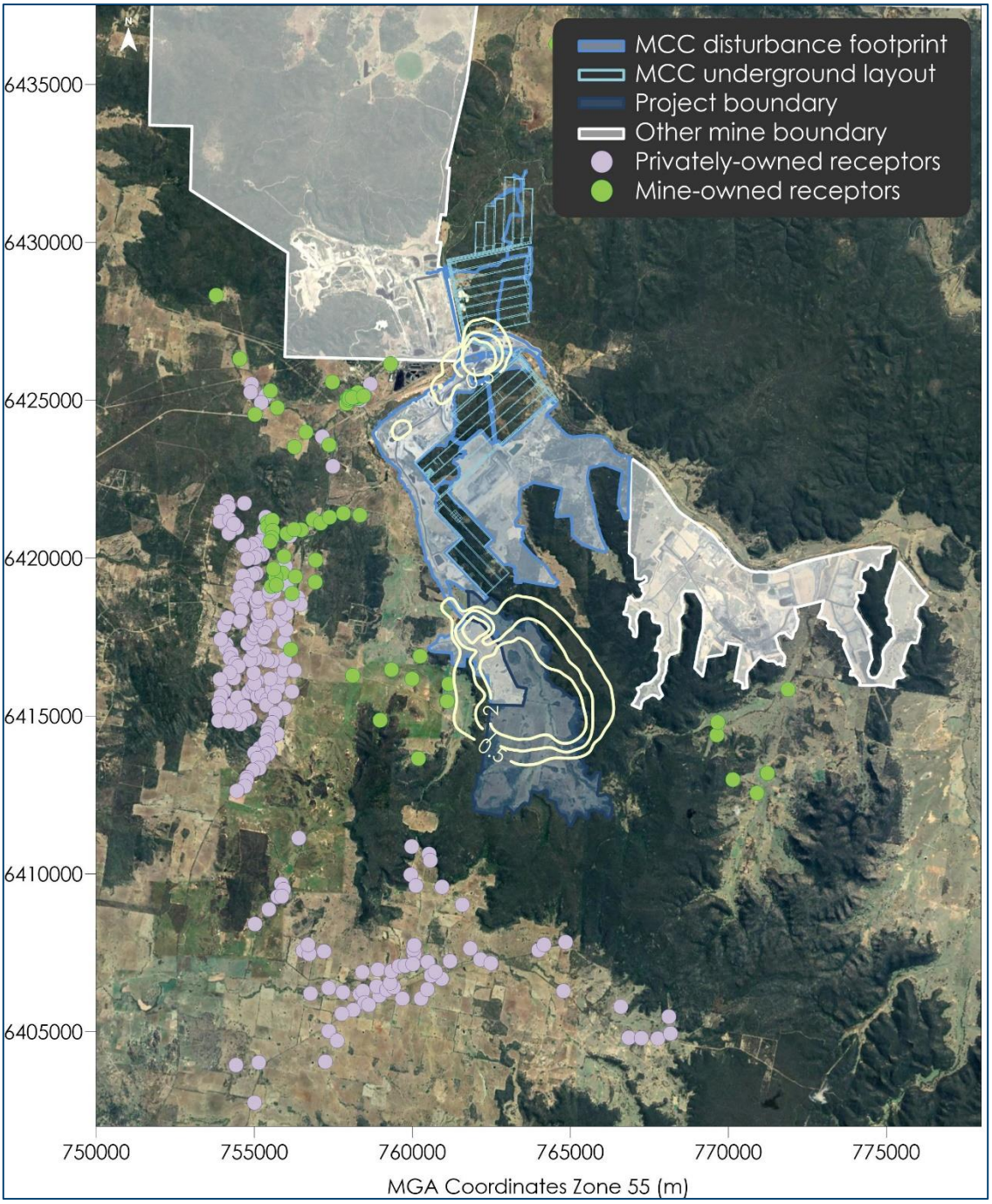


Figure E-19: Predicted annual average dust deposition levels due to emissions from the Project in isolation – Project Year 5 (g/m²/month)

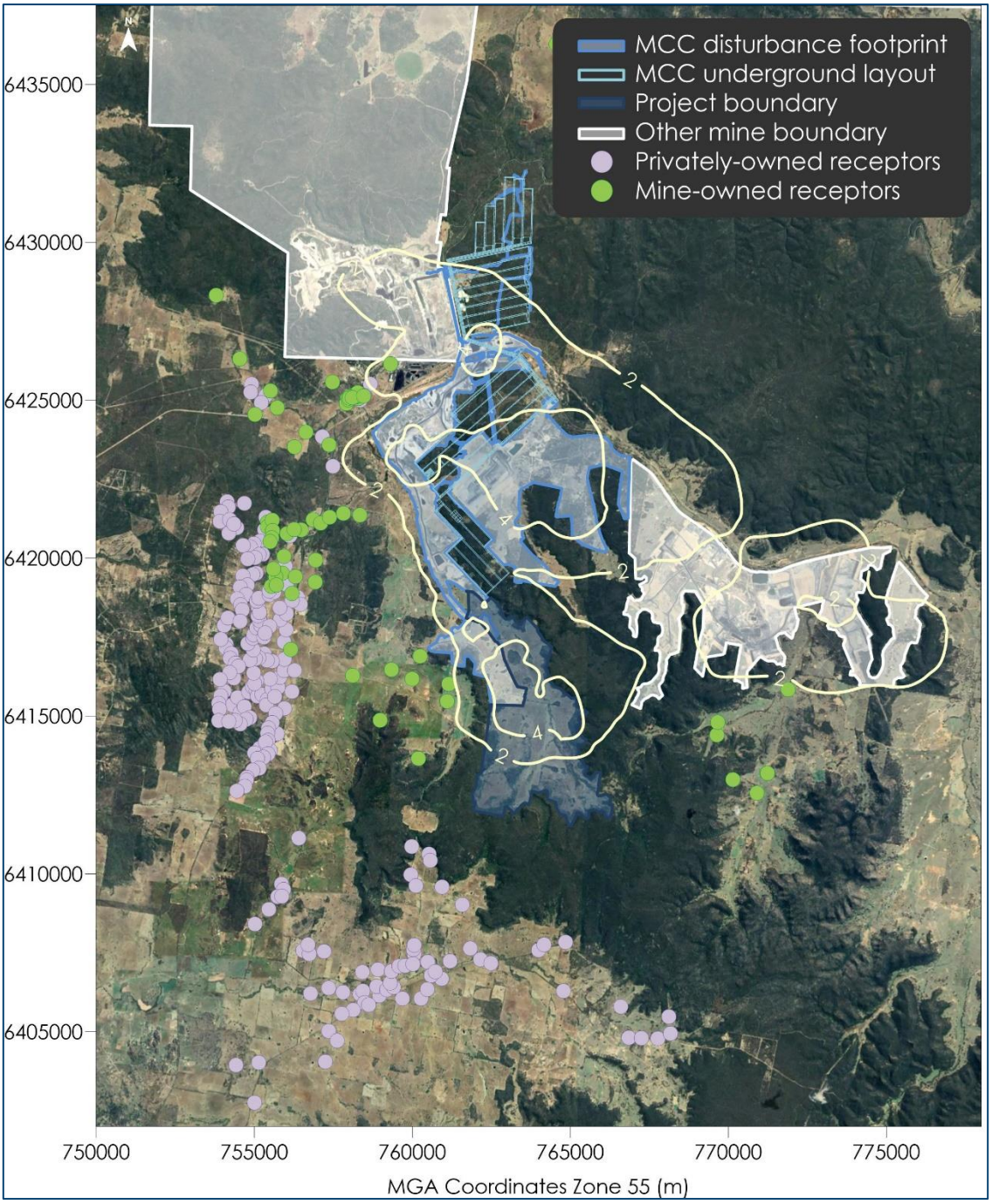


Figure E-20: Predicted annual average dust deposition levels due to emissions from the Project and other sources – Project Year 5 (g/m²/month)

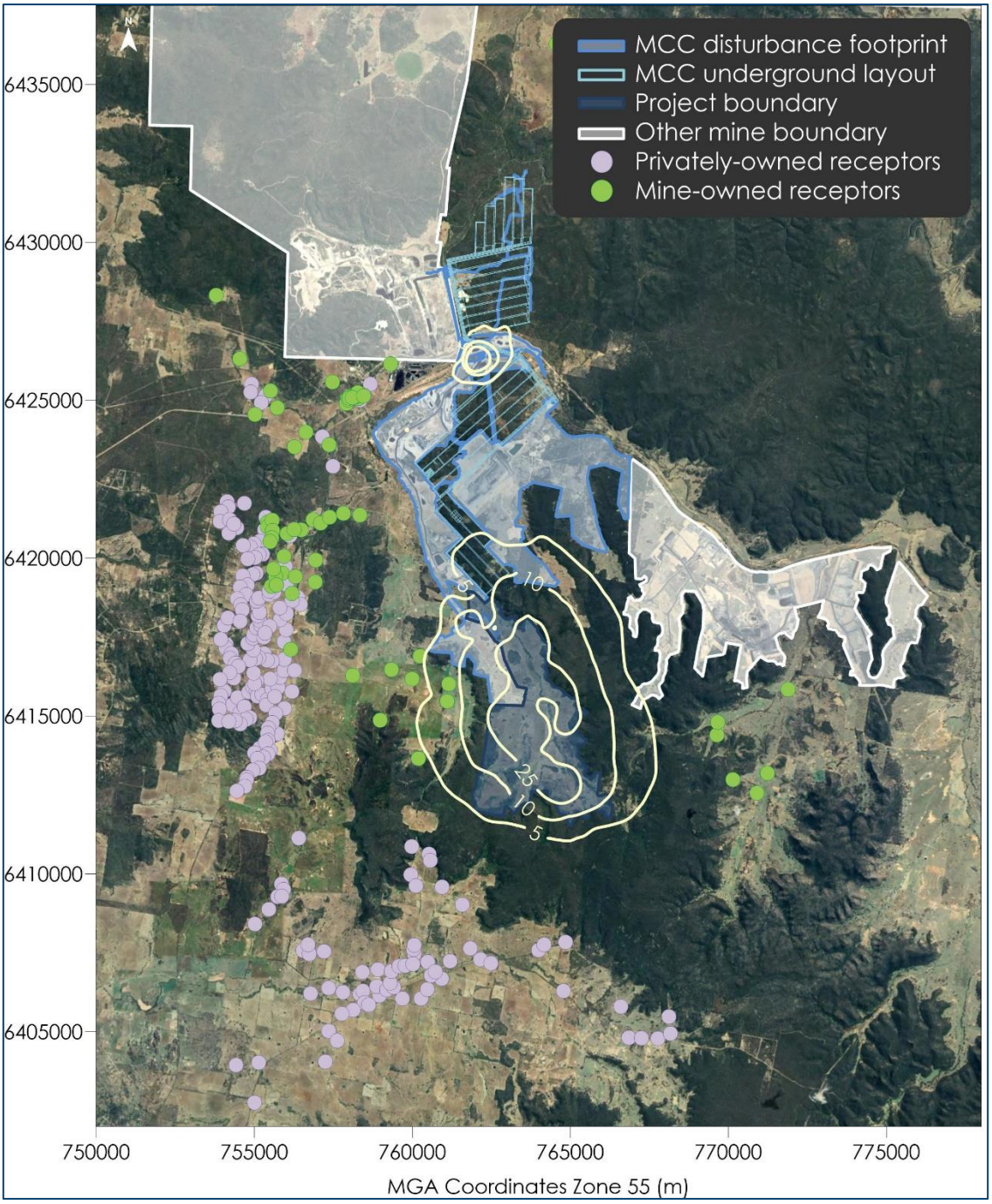


Figure E-21: Predicted maximum 24-hour average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 7 (µg/m³)

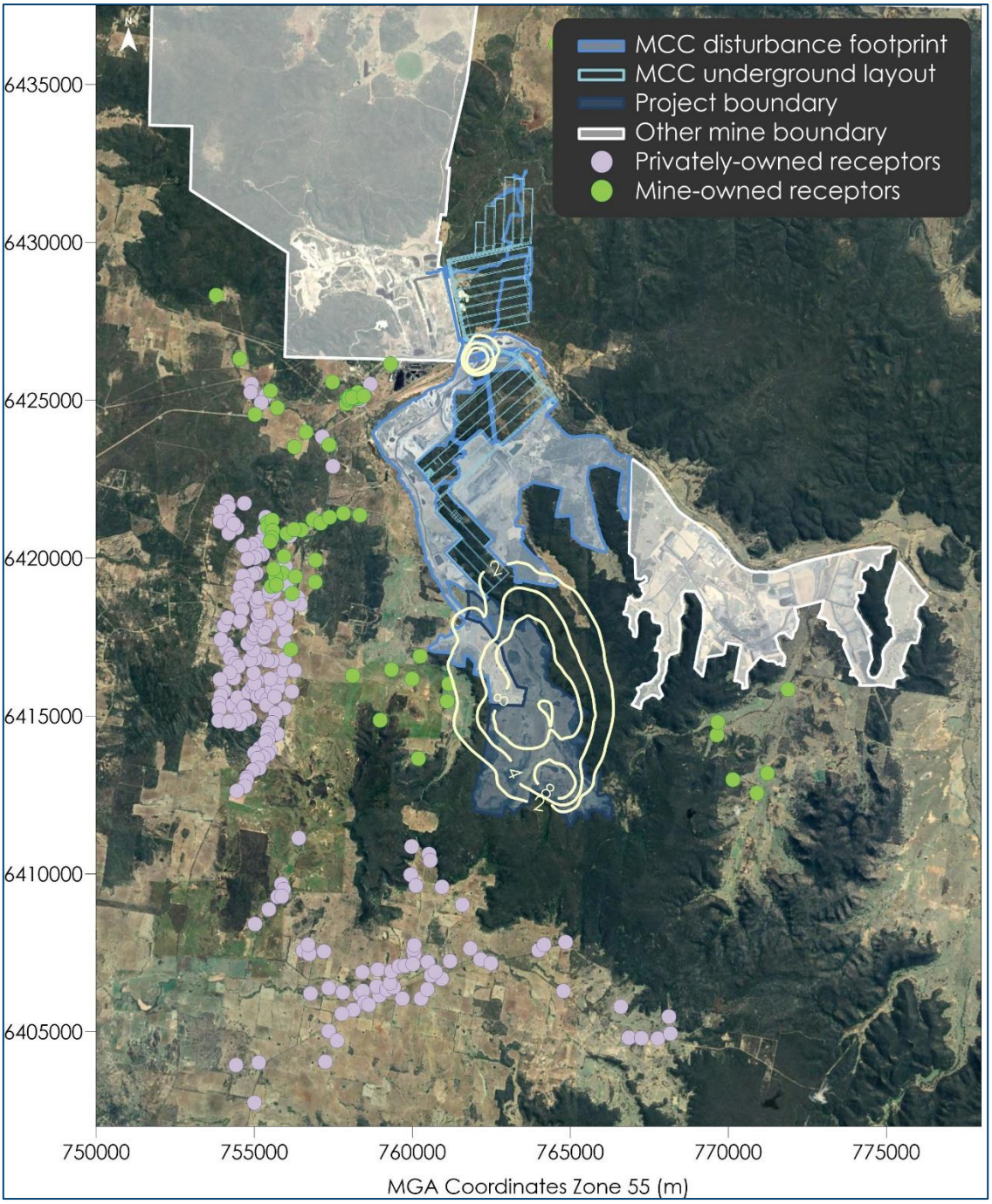


Figure E-22: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project in isolation – Project Year 7 (µg/m³)

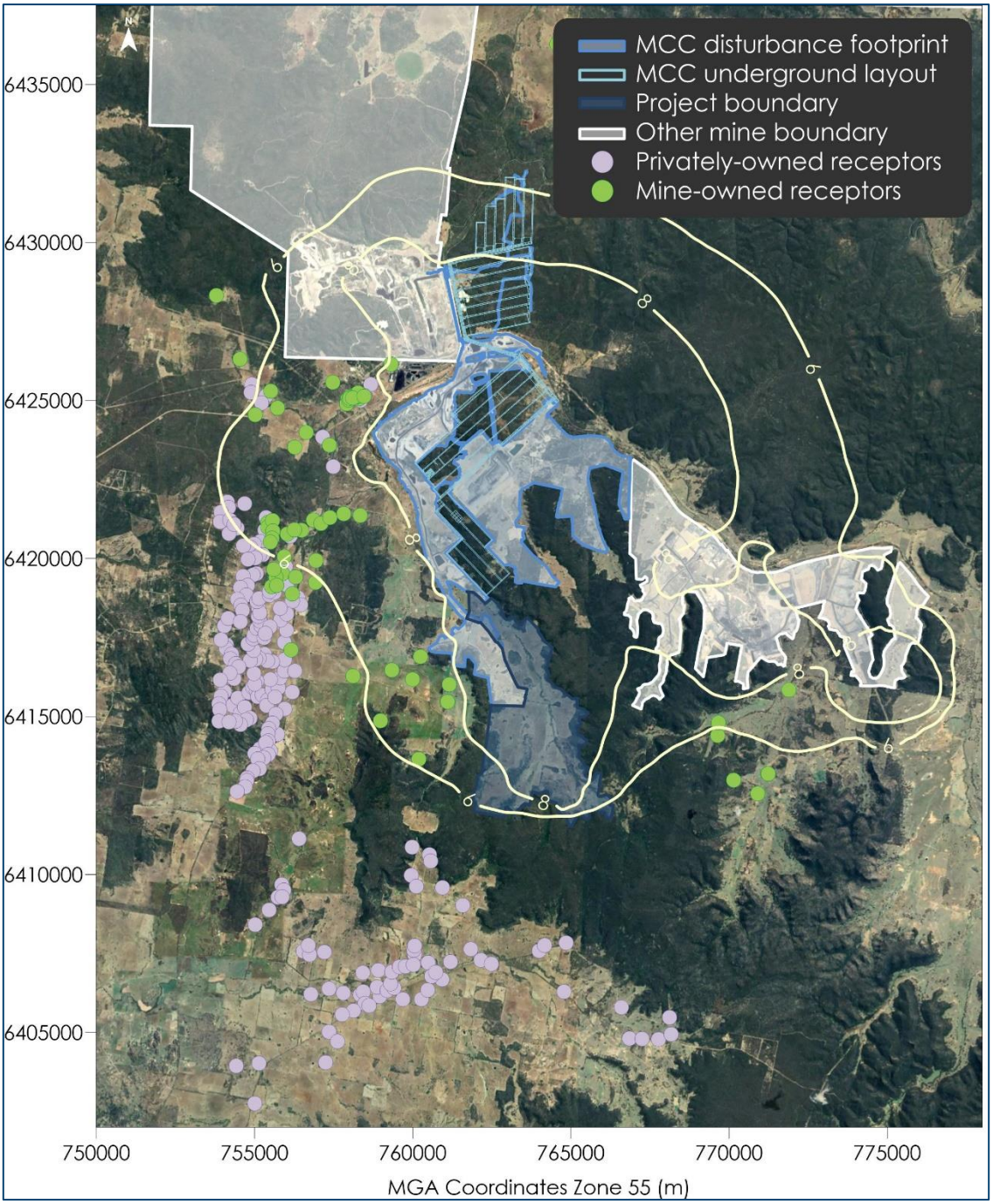


Figure E-23: Predicted annual average $PM_{2.5}$ concentrations due to emissions from the Project and other sources – Project Year 7(µg/m³)

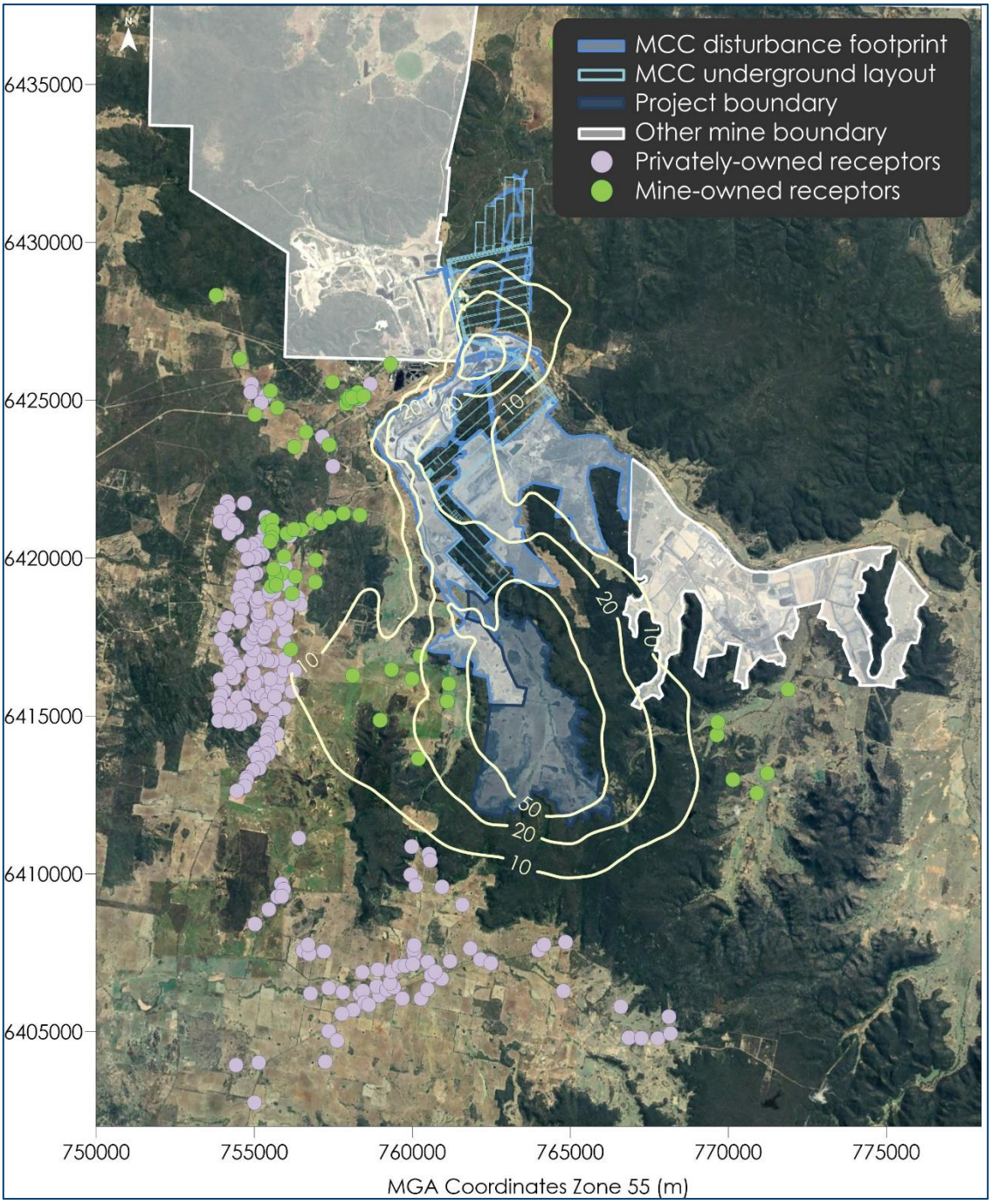


Figure E-24: Predicted maximum 24-hour average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 7 (µg/m³)

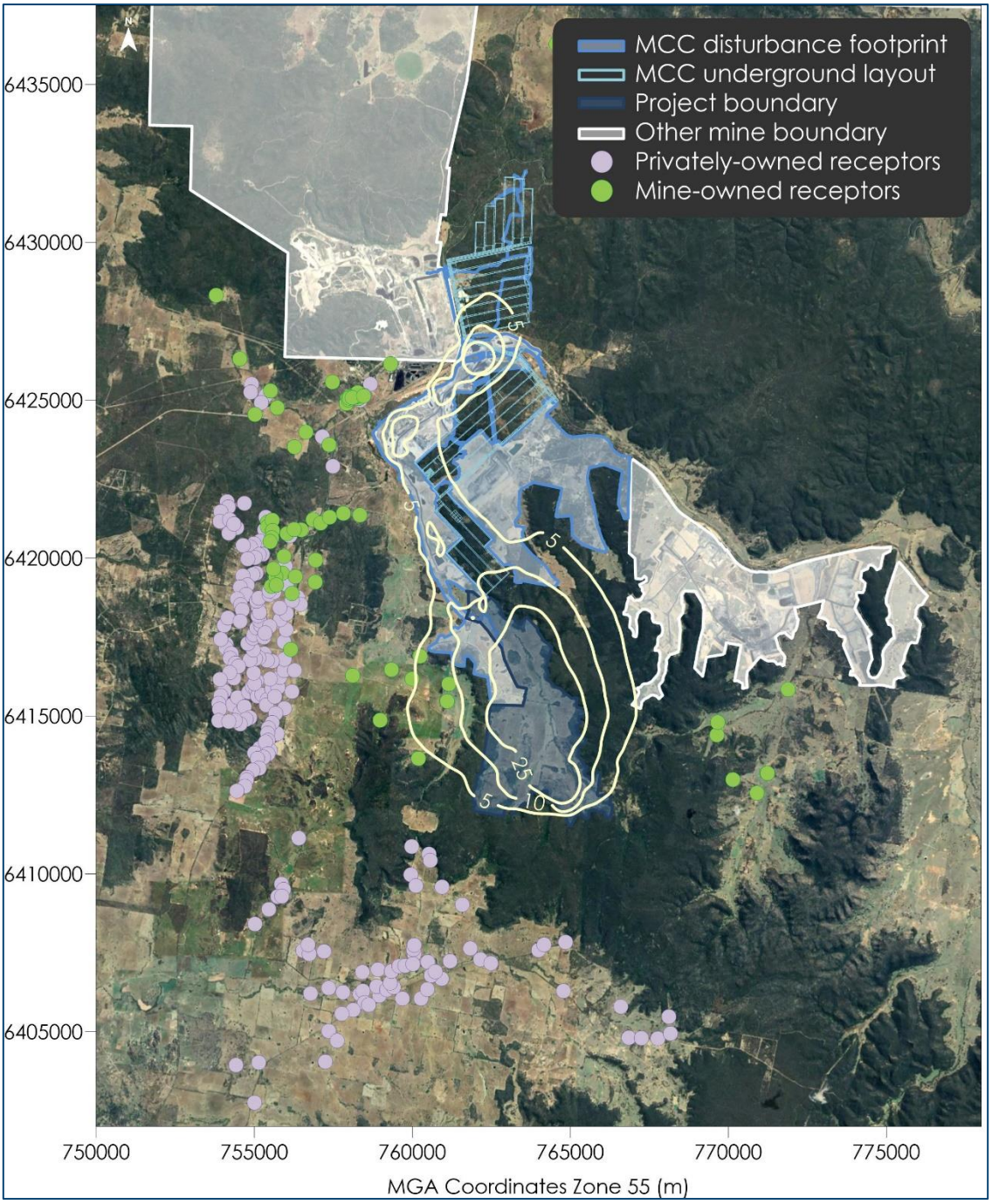


Figure E-25: Predicted annual average PM_{10} concentrations due to emissions from the Project in isolation – Project Year 7 (µg/m³)

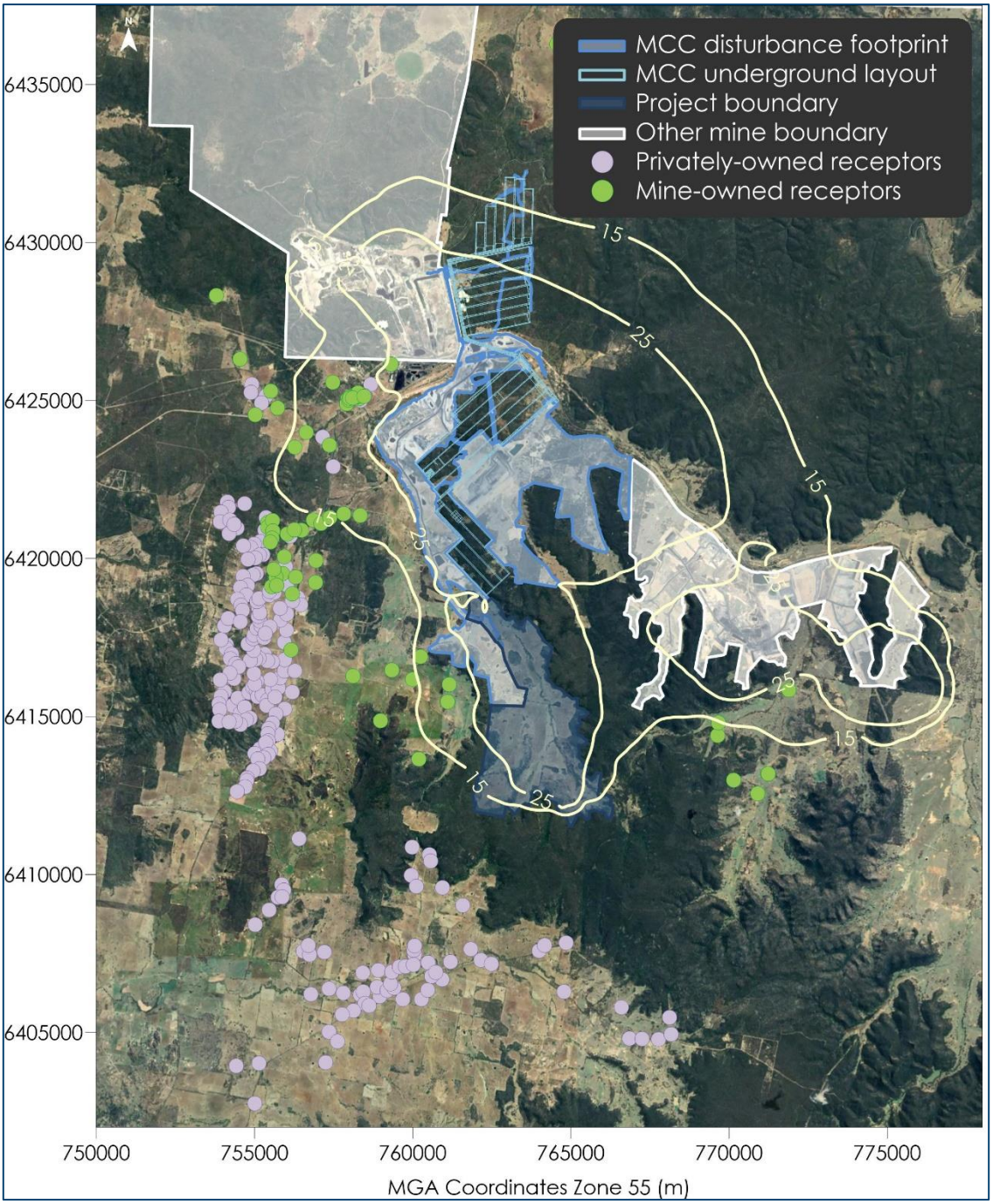


Figure E-26: Predicted annual average PM_{10} concentrations due to emissions from the Project and other sources – Project Year 7 (µg/m³)

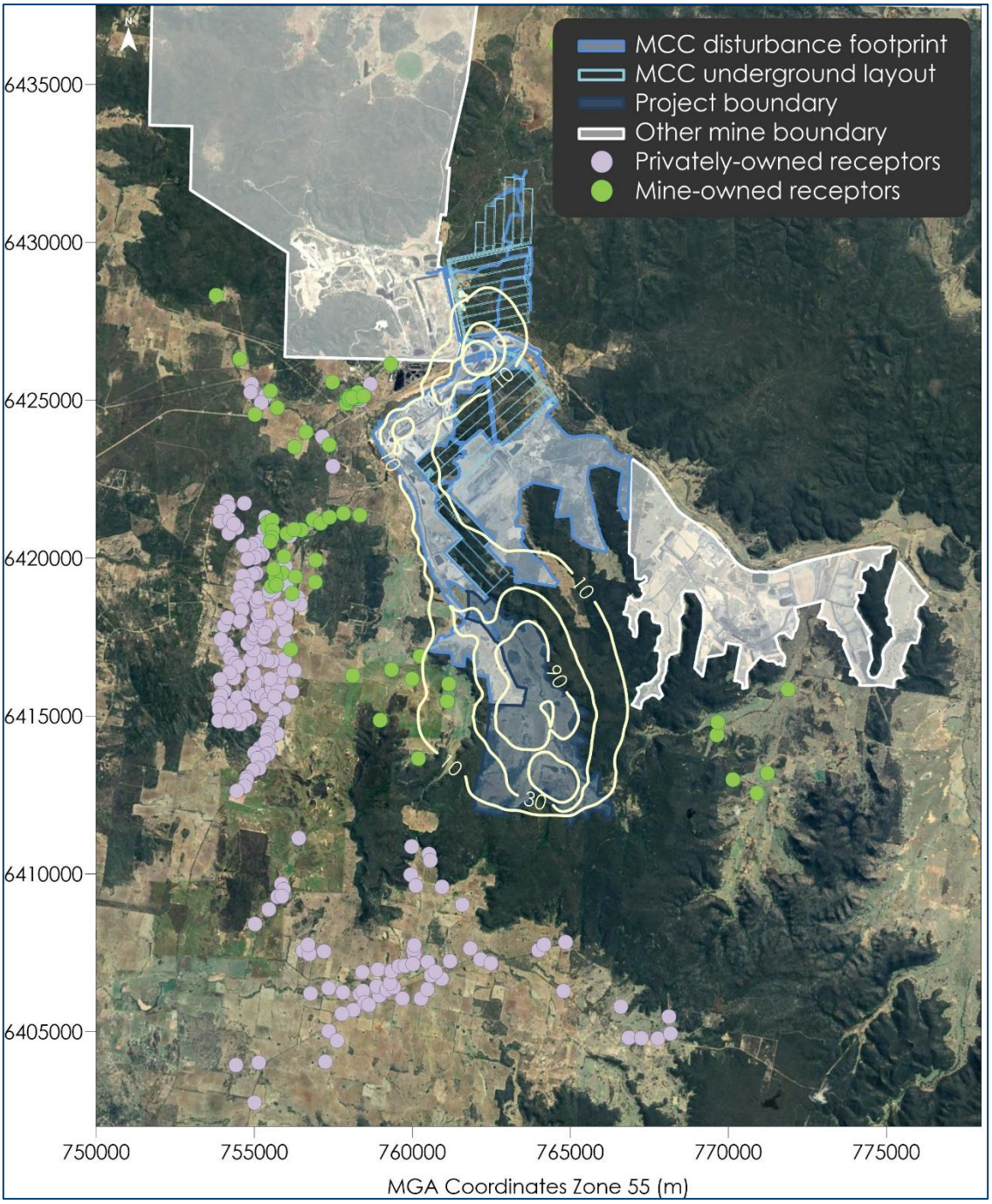


Figure E-27: Predicted annual average TSP concentrations due to emissions from the Project in isolation – Project Year 7 (µg/m³)

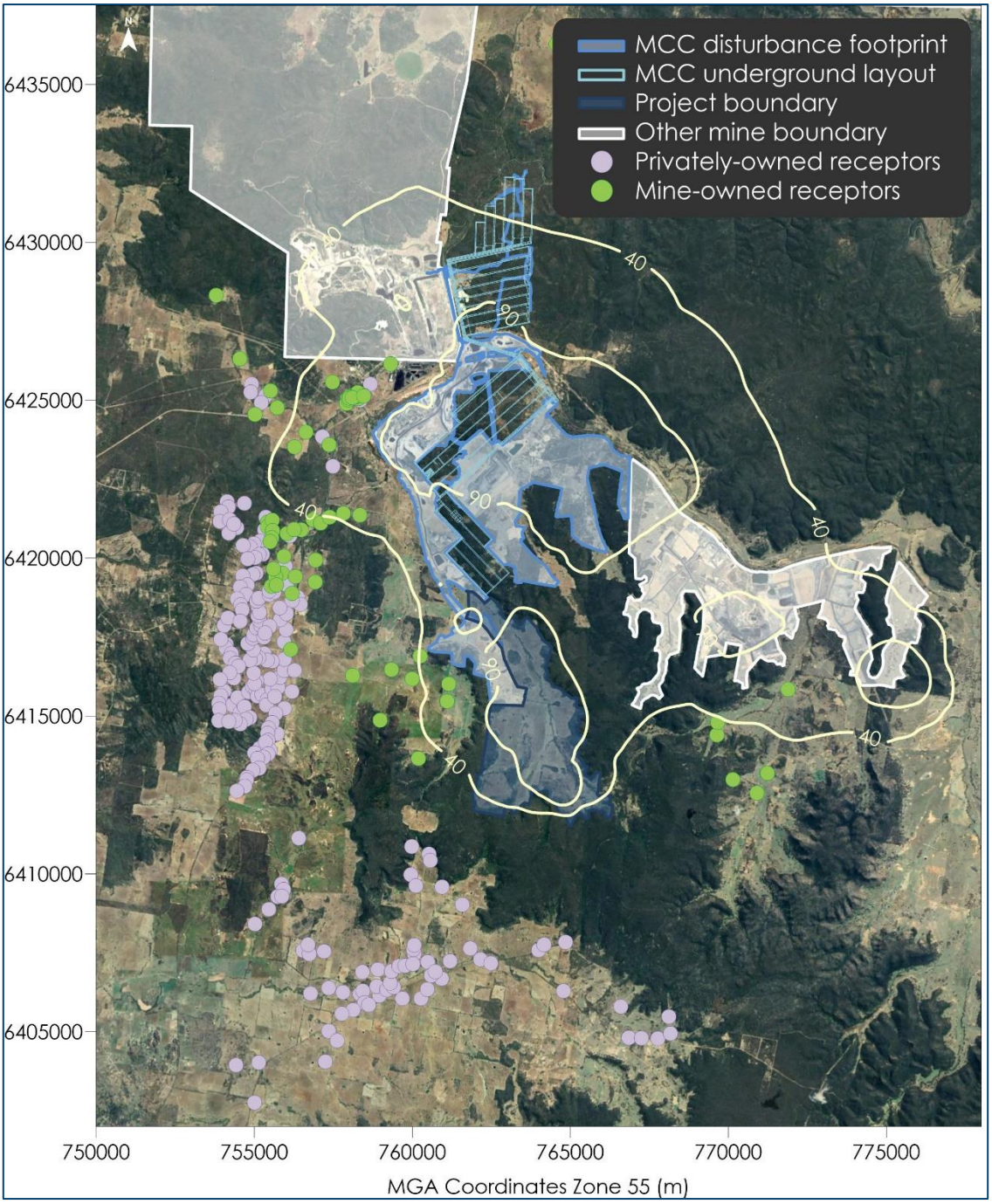


Figure E-28: Predicted annual average TSP concentrations due to emissions from the Project and other sources – Project Year 7 (µg/m³)

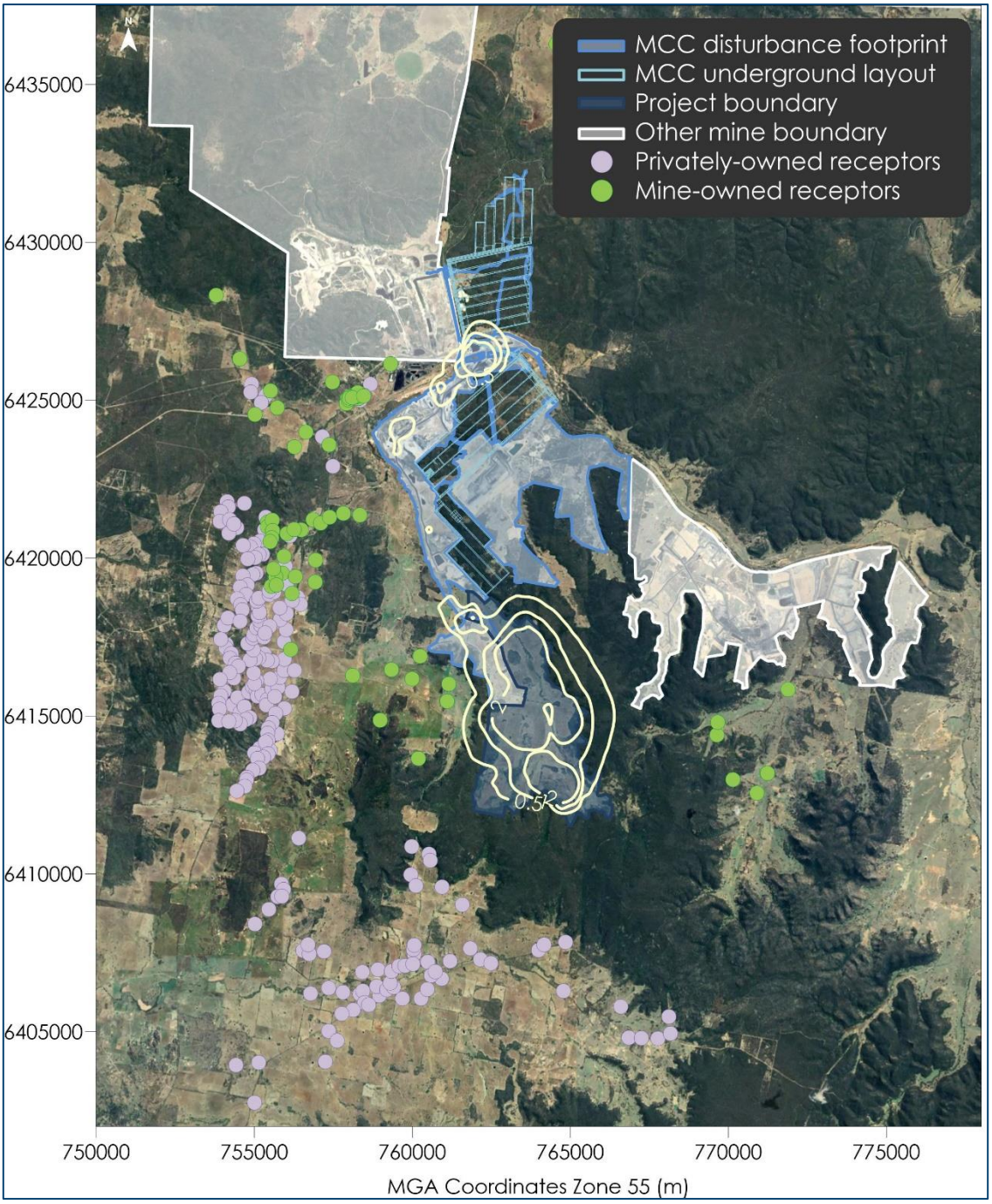


Figure E-29: Predicted annual average dust deposition levels due to emissions from the Project in isolation – Project Year 7 (g/m²/month)

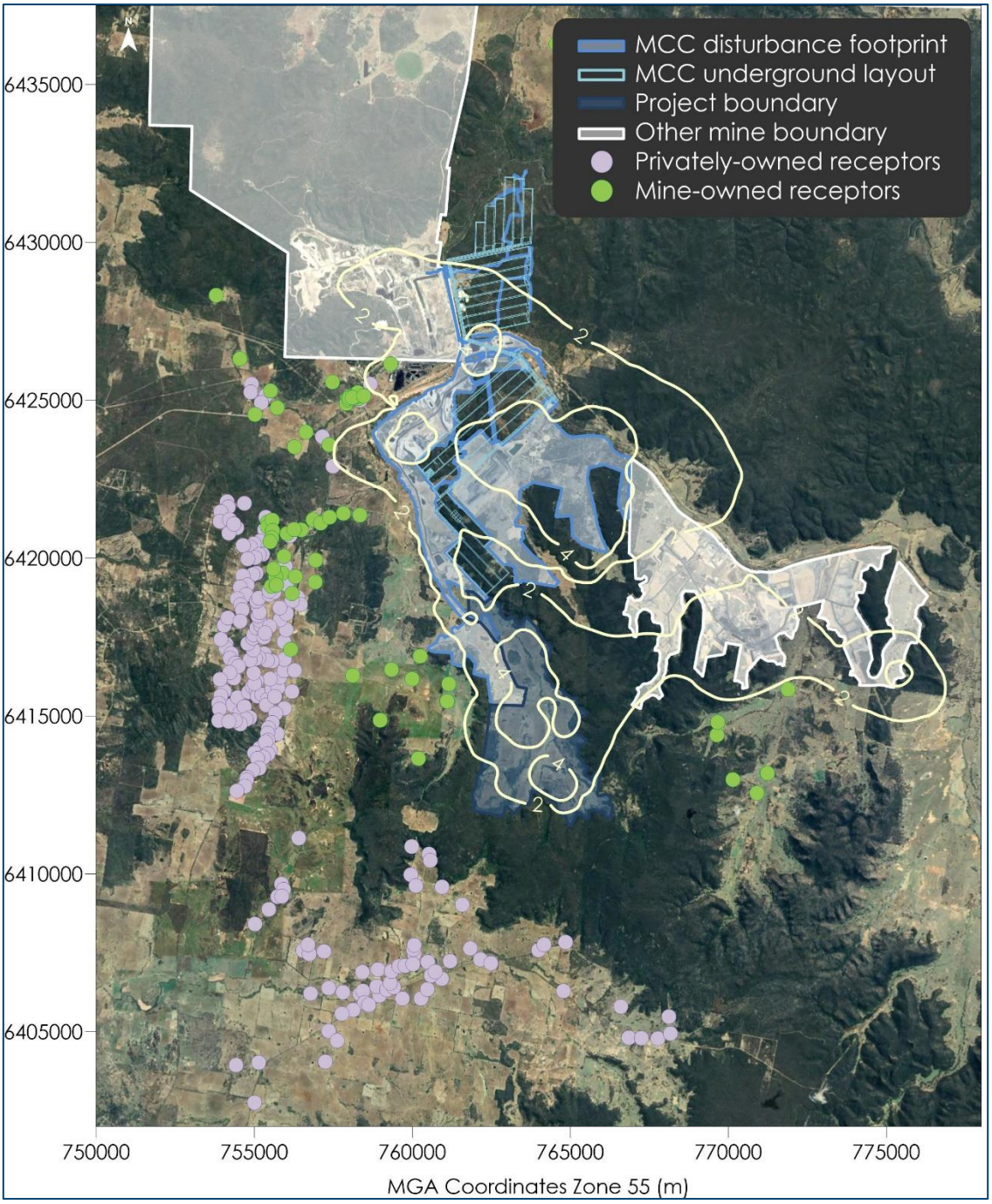


Figure E-30: Predicted annual average dust deposition levels due to emissions from the Project and other sources – Project Year 7 (g/m²/month)

Appendix F

Further Detail Regarding 24-hour $PM_{2.5}$ and PM_{10} Analysis

Further detail regarding 24-hour average $PM_{2.5}$ and PM_{10} analysis

The analysis below provides a cumulative 24-hour PM_{10} impact assessment in accordance with the NSW EPA Approved Methods; refer to the worked example on Page 46 to 47 of the Approved Methods.

The background level is the ambient level at the relevant TEOM monitoring station.

The predicted increment is the predicted level to occur at the receptor due to the Project and the approved MCC.

The total is the sum of the background level and the predicted level. The totals may have minor discrepancies due to rounding.

Table F-1 to **Table F-42** assesses the selected receptors and shows the predicted maximum cumulative levels at the selected receptors. The left half of the table examines the cumulative impact during the periods of highest background levels and the right half of the table examines the cumulative impact during the periods of highest contribution from the Project and approved MCC.

Any value above the 24-hour average $PM_{2.5}$ criterion of 25µg/m³ or above the 24-hour average PM_{10} criterion of 50µg/m³ is in **bold red.**

Table F-1: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 46B for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	0.1	**119.7**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	0.0	**57.0**	-	-	-	-
16/12/2018	**47.9**	-0.4	**47.6**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-
21/11/2018	**30.5**	0.0	**30.5**	-	-	-	-
4/08/2018	**27.2**	-0.1	**27.1**	-	-	-	-
18/07/2018	**25.9**	-0.2	**25.7**	-	-	-	-
15/04/2018	24.1	0.0	24.1	4/04/2018	10.6	2.2	12.8
20/03/2018	23.8	0.2	24.0	4/09/2018	2.1	1.7	3.8
19/09/2018	20.5	0.0	20.5	28/01/2018	4.6	1.6	6.2
20/12/2018	20.2	0.0	20.2	29/01/2018	9.6	1.5	11.2
4/05/2018	19.6	-0.1	19.6	2/02/2018	3.8	1.5	5.3
24/01/2018	19.4	0.2	19.7	22/03/2018	3.3	1.5	4.8
19/07/2018	19.3	-0.4	18.8	19/02/2018	18.8	1.4	20.2
19/02/2018	18.8	1.4	20.2	21/03/2018	6.4	1.3	7.7
3/08/2018	18.6	-0.5	18.1	7/03/2018	9.1	1.3	10.4
16/03/2018	18.2	0.5	18.7	5/09/2018	9.9	1.3	11.2

Table F-2: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 9 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	-0.8	**118.8**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	-0.6	**56.3**	-	-	-	-
16/12/2018	**47.9**	-0.2	**47.8**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-
21/11/2018	**30.5**	-0.1	**30.4**	-	-	-	-
4/08/2018	**27.2**	0.0	**27.2**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
15/04/2018	24.1	0.0	24.1	5/10/2018	0.7	0.7	1.4
20/03/2018	23.8	-0.2	23.5	7/10/2018	3.8	0.6	4.4
19/09/2018	20.5	0.0	20.5	3/09/2018	5.6	0.6	6.2
20/12/2018	20.2	-0.6	19.6	21/06/2018	6.8	0.5	7.3
4/05/2018	19.6	0.0	19.6	28/04/2018	6.8	0.5	7.2
24/01/2018	19.4	-0.2	19.3	24/04/2018	7.2	0.4	7.6
19/07/2018	19.3	-0.2	19.1	23/04/2018	7.8	0.4	8.2
19/02/2018	18.8	-2.1	16.7	9/04/2018	10.4	0.4	10.7
3/08/2018	18.6	-0.2	18.4	24/06/2018	5.5	0.4	5.8
16/03/2018	18.2	-1.8	16.4	1/04/2018	7.7	0.3	8.0

Table F-3: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 70 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	-0.4	**124.7**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.3	**58.2**	-	-	-	-
16/12/2018	**49.4**	0.8	**50.2**	-	-	-	-
19/03/2018	**34.7**	0.3	**35.0**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.0	**27.7**	-	-	-	-
19/02/2018	**26.2**	-0.4	**25.8**	-	-	-	-
15/04/2018	24.9	0.0	24.9	5/06/2018	4.8	1.9	6.7
18/07/2018	24.7	0.0	24.7	3/09/2018	5.3	1.9	7.2
20/12/2018	23.7	-0.9	22.8	23/04/2018	8.4	1.8	10.1
30/10/2018	23.3	-0.2	23.0	27/02/2018	7.5	1.6	9.1
24/01/2018	22.2	0.5	22.7	5/10/2018	1.3	1.5	2.8
31/10/2018	21.7	0.0	21.7	25/05/2018	14.3	1.3	15.6
16/03/2018	21.3	-0.8	20.6	27/04/2018	11.6	1.2	12.8
9/02/2018	21.2	0.1	21.3	23/12/2018	6.6	1.0	7.6
15/02/2018	20.2	0.0	20.2	26/05/2018	15.2	1.0	16.2
19/07/2018	19.7	-0.1	19.6	11/11/2018	12.0	0.9	12.9

Table F-4: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 60 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	0.3	**125.4**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.8	**58.8**	-	-	-	-
16/12/2018	**49.4**	0.5	**49.9**	-	-	-	-
19/03/2018	**34.7**	0.3	**35.0**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.2	**27.9**	-	-	-	-
19/02/2018	**26.2**	1.5	**27.7**	-	-	-	-
15/04/2018	24.9	0.0	24.9	22/04/2018	10.0	3.3	13.3
18/07/2018	24.7	0.0	24.8	4/04/2018	11.4	3.3	14.8
20/12/2018	23.7	2.0	**25.7**	6/06/2018	5.5	2.9	8.4
30/10/2018	23.3	0.6	23.9	7/12/2018	11.5	2.3	13.8
24/01/2018	22.2	0.7	22.9	24/08/2018	12.0	2.3	14.3
31/10/2018	21.7	0.1	21.8	3/09/2018	5.3	2.2	7.5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
16/03/2018	21.3	0.9	22.2	21/04/2018	11.4	2.2	13.6
9/02/2018	21.2	0.4	21.6	2/02/2018	5.2	2.2	7.3
15/02/2018	20.2	0.0	20.3	1/10/2018	9.9	2.2	12.1
19/07/2018	19.7	0.0	19.7	21/01/2018	15.2	2.1	17.4

Table F-5: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 41B for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	1.0	**138.0**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	0.8	**61.4**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.1	**36.5**	-	-	-	-
16/12/2018	**36.3**	0.2	**36.4**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.5**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.5	**26.3**	-	-	-	-
18/03/2018	**25.0**	0.1	**25.1**	-	-	-	-
15/02/2018	23.2	0.1	23.3	23/02/2018	10.6	3.8	14.5
19/07/2018	22.7	0.0	22.7	10/04/2018	16.3	3.6	20.0
20/12/2018	22.6	3.0	**25.6**	24/12/2018	6.2	3.4	9.6
19/02/2018	21.7	2.4	24.1	29/10/2018	11.0	3.3	14.3
4/05/2018	21.5	0.0	21.5	26/09/2018	4.4	3.1	7.5
16/03/2018	21.2	2.6	23.7	22/04/2018	8.4	3.1	11.5
2/12/2018	19.6	0.0	19.6	28/06/2018	2.6	3.0	5.6
31/10/2018	19.5	0.3	19.9	18/04/2018	10.1	3.0	13.1
17/03/2018	19.4	1.1	20.5	20/12/2018	22.6	3.0	**25.6**
12/04/2018	18.8	0.0	18.8	4/04/2018	9.0	2.8	11.8

Table F-6: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 333 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	0.4	**137.4**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
14/12/2018	**60.6**	1.1	**61.7**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.0	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.2	**36.5**	-	-	-	-
21/11/2018	**34.4**	0.5	**34.9**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.0	**25.9**	-	-	-	-
18/03/2018	**25.0**	0.1	**25.2**	-	-	-	-
15/02/2018	23.2	0.2	23.3	14/12/2018	**60.6**	1.1	**61.7**
19/07/2018	22.7	0.0	22.7	3/05/2018	13.9	0.8	14.7
20/12/2018	22.6	0.0	22.6	20/11/2018	8.1	0.5	8.6
19/02/2018	21.7	0.0	21.7	21/11/2018	**34.4**	0.5	**34.9**
4/05/2018	21.5	0.0	21.5	3/08/2018	16.5	0.5	17.0
16/03/2018	21.2	0.0	21.2	4/07/2018	6.2	0.4	6.7
2/12/2018	19.6	0.0	19.6	20/05/2018	6.3	0.4	6.7
31/10/2018	19.5	0.0	19.5	15/12/2018	**137.0**	0.4	**137.4**
17/03/2018	19.4	0.1	19.4	9/06/2018	2.9	0.4	3.2
12/04/2018	18.8	0.0	18.9	5/08/2018	10.8	0.3	11.1

Table F-7: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 380 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	1.2	**138.2**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	1.3	**62.0**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.0	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.2	**36.5**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.4**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.0	**25.9**	-	-	-	-
18/03/2018	**25.0**	0.2	**25.2**	-	-	-	-
15/02/2018	23.2	0.3	23.5	5/03/2018	7.4	2.1	9.5
19/07/2018	22.7	0.0	22.7	14/12/2018	**60.6**	1.3	**62.0**
20/12/2018	22.6	0.2	22.8	4/07/2018	6.2	1.2	7.5
19/02/2018	21.7	0.4	22.1	27/01/2018	13.6	1.2	14.8
4/05/2018	21.5	0.0	21.5	15/12/2018	**137.0**	1.2	**138.2**

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
16/03/2018	21.2	0.2	21.3	31/08/2018	13.7	1.1	14.7
2/12/2018	19.6	0.0	19.6	8/02/2018	7.4	1.0	8.4
31/10/2018	19.5	0.0	19.5	13/12/2018	7.5	1.0	8.5
17/03/2018	19.4	0.4	19.7	29/03/2018	11.4	1.0	12.3
12/04/2018	18.8	0.0	18.8	14/03/2018	10.5	0.9	11.4

Table F-8: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 46B for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	0.1	**119.7**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	0.0	**57.0**	-	-	-	-
16/12/2018	**47.9**	-0.2	**47.8**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-
21/11/2018	**30.5**	0.0	**30.5**	-	-	-	-
4/08/2018	**27.2**	-0.1	**27.1**	-	-	-	-
18/07/2018	**25.9**	-0.2	**25.7**	-	-	-	-
15/04/2018	24.1	0.0	24.1	4/04/2018	10.6	1.9	12.5
20/03/2018	23.8	0.1	23.9	2/02/2018	3.8	1.5	5.3
19/09/2018	20.5	0.0	20.5	22/03/2018	3.3	1.5	4.8
20/12/2018	20.2	0.0	20.2	28/01/2018	4.6	1.4	6.0
4/05/2018	19.6	-0.1	19.6	24/08/2018	12.4	1.4	13.8
24/01/2018	19.4	0.2	19.7	29/01/2018	9.6	1.3	11.0
19/07/2018	19.3	-0.5	18.8	7/03/2018	9.1	1.3	10.5
19/02/2018	18.8	1.0	19.8	21/03/2018	6.4	1.3	7.7
3/08/2018	18.6	-0.5	18.1	4/09/2018	2.1	1.3	3.4
16/03/2018	18.2	0.2	18.4	23/12/2018	5.6	1.2	6.8

Table F-9: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 9 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	-0.6	**119.0**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	-0.6	**56.4**	-	-	-	-
16/12/2018	**47.9**	-0.3	**47.7**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
21/11/2018	**30.5**	-0.1	**30.4**	-	-	-	-
4/08/2018	**27.2**	0.0	**27.2**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
15/04/2018	24.1	0.0	24.1	5/10/2018	0.7	0.4	1.1
20/03/2018	23.8	0.0	23.8	7/10/2018	3.8	0.4	4.2
19/09/2018	20.5	0.0	20.5	17/04/2018	6.5	0.4	6.9
20/12/2018	20.2	-0.4	19.8	21/06/2018	6.8	0.3	7.1
4/05/2018	19.6	0.0	19.6	1/02/2018	5.8	0.3	6.1
24/01/2018	19.4	-0.1	19.4	9/03/2018	4.5	0.3	4.8
19/07/2018	19.3	-0.2	19.1	22/10/2018	7.5	0.3	7.8
19/02/2018	18.8	-1.4	17.4	25/10/2018	5.7	0.3	5.9
3/08/2018	18.6	-0.3	18.3	24/04/2018	7.2	0.3	7.5
16/03/2018	18.2	-1.4	16.9	9/04/2018	10.4	0.3	10.6

Table F-10: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 70 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	-0.2	**124.9**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.1	**58.1**	-	-	-	-
16/12/2018	**49.4**	0.7	**50.0**	-	-	-	-
19/03/2018	**34.7**	0.3	**34.9**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.1	**27.8**	-	-	-	-
19/02/2018	**26.2**	-0.5	**25.7**	-	-	-	-
15/04/2018	24.9	0.0	24.9	5/06/2018	4.8	1.6	6.4
18/07/2018	24.7	0.0	24.7	3/09/2018	5.3	1.4	6.7
20/12/2018	23.7	-0.9	22.8	23/04/2018	8.4	1.3	9.6
30/10/2018	23.3	-0.1	23.2	5/10/2018	1.3	1.2	2.5
24/01/2018	22.2	0.5	22.7	27/02/2018	7.5	1.2	8.7
31/10/2018	21.7	0.1	21.8	25/05/2018	14.3	1.0	15.3
16/03/2018	21.3	-0.5	20.8	27/04/2018	11.6	0.9	12.6
9/02/2018	21.2	0.1	21.3	23/12/2018	6.6	0.9	7.5
15/02/2018	20.2	-0.1	20.2	26/05/2018	15.2	0.7	15.9
19/07/2018	19.7	-0.1	19.6	16/12/2018	**49.4**	0.7	**50.0**

Table F-11: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 60 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	0.1	**125.2**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.5	**58.4**	-	-	-	-
16/12/2018	**49.4**	0.5	**49.8**	-	-	-	-
19/03/2018	**34.7**	0.2	**34.9**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.2	**27.9**	-	-	-	-
19/02/2018	**26.2**	0.7	**26.9**	-	-	-	-
15/04/2018	24.9	0.0	24.9	6/06/2018	5.5	2.0	7.5
18/07/2018	24.7	0.0	24.7	22/04/2018	10.0	2.0	12.0
20/12/2018	23.7	1.3	25.0	4/04/2018	11.4	1.9	13.3
30/10/2018	23.3	0.4	23.6	3/09/2018	5.3	1.9	7.2
24/01/2018	22.2	0.6	22.8	24/08/2018	12.0	1.6	13.7
31/10/2018	21.7	0.1	21.8	7/12/2018	11.5	1.5	13.0
16/03/2018	21.3	0.4	21.7	2/02/2018	5.2	1.4	6.6
9/02/2018	21.2	0.2	21.5	1/10/2018	9.9	1.4	11.4
15/02/2018	20.2	0.0	20.2	22/03/2018	3.0	1.4	4.3
19/07/2018	19.7	0.0	19.7	11/11/2018	12.0	1.3	13.4

Table F-12: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 41B for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	0.7	**137.8**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	0.6	**61.2**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.1	**36.5**	-	-	-	-
16/12/2018	**36.3**	0.1	**36.4**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.4**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.5	**26.3**	-	-	-	-
18/03/2018	**25.0**	0.0	**25.1**	-	-	-	-
15/02/2018	23.2	0.1	23.2	24/12/2018	6.2	2.7	8.9
19/07/2018	22.7	0.0	22.7	23/02/2018	10.6	2.6	13.2
20/12/2018	22.6	2.0	24.6	10/04/2018	16.3	2.6	18.9
19/02/2018	21.7	2.1	23.7	4/04/2018	9.0	2.5	11.5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
4/05/2018	21.5	0.0	21.5	24/09/2018	5.4	2.4	7.8
16/03/2018	21.2	1.7	22.9	22/04/2018	8.4	2.4	10.8
2/12/2018	19.6	0.0	19.6	26/09/2018	4.4	2.2	6.5
31/10/2018	19.5	0.3	19.8	21/04/2018	10.8	2.1	12.9
17/03/2018	19.4	0.4	19.8	28/06/2018	2.6	2.1	4.7
12/04/2018	18.8	0.0	18.8	21/01/2018	8.0	2.1	10.1

Table F-13: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 333 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	0.4	**137.5**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	0.8	**61.5**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.0	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.2	**36.4**	-	-	-	-
21/11/2018	**34.4**	0.4	**34.8**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.0	**25.9**	-	-	-	-
18/03/2018	**25.0**	0.1	**25.2**	-	-	-	-
15/02/2018	23.2	0.1	23.3	14/12/2018	**60.6**	0.8	**61.5**
19/07/2018	22.7	0.0	22.7	3/05/2018	13.9	0.8	14.7
20/12/2018	22.6	0.0	22.6	3/08/2018	16.5	0.6	17.0
19/02/2018	21.7	0.0	21.7	20/11/2018	8.1	0.5	8.6
4/05/2018	21.5	0.0	21.5	15/12/2018	**137.0**	0.4	**137.5**
16/03/2018	21.2	0.0	21.2	21/11/2018	**34.4**	0.4	**34.8**
2/12/2018	19.6	0.0	19.6	4/07/2018	6.2	0.4	6.6
31/10/2018	19.5	0.0	19.5	10/08/2018	6.9	0.4	7.3
17/03/2018	19.4	0.0	19.4	20/05/2018	6.3	0.3	6.7
12/04/2018	18.8	0.0	18.9	5/08/2018	10.8	0.3	11.0

Table F-14: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 380 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	1.0	**138.0**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	1.0	**61.6**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.0	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.2	**36.4**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.4**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.0	**25.9**	-	-	-	-
18/03/2018	**25.0**	0.1	**25.2**	-	-	-	-
15/02/2018	23.2	0.3	23.4	5/03/2018	7.4	1.9	9.3
19/07/2018	22.7	0.0	22.7	15/12/2018	**137.0**	1.0	**138.0**
20/12/2018	22.6	0.2	22.8	27/01/2018	13.6	1.0	14.6
19/02/2018	21.7	0.4	22.0	4/07/2018	6.2	1.0	7.2
4/05/2018	21.5	0.0	21.5	14/12/2018	**60.6**	1.0	**61.6**
16/03/2018	21.2	0.2	21.3	13/12/2018	7.5	0.9	8.4
2/12/2018	19.6	0.0	19.6	29/03/2018	11.4	0.8	12.2
31/10/2018	19.5	0.0	19.5	8/02/2018	7.4	0.8	8.2
17/03/2018	19.4	0.4	19.8	31/08/2018	13.7	0.8	14.5
12/04/2018	18.8	0.0	18.8	14/02/2018	16.5	0.7	17.3

Table F-15: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 46B for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	0.7	**120.3**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	0.3	**57.3**	-	-	-	-
16/12/2018	**47.9**	0.4	**48.4**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-
21/11/2018	**30.5**	0.0	**30.5**	-	-	-	-
4/08/2018	**27.2**	-0.1	**27.1**	-	-	-	-
18/07/2018	**25.9**	-0.2	**25.8**	-	-	-	-
15/04/2018	24.1	0.0	24.1	4/04/2018	10.6	4.1	14.7
20/03/2018	23.8	0.3	24.0	6/06/2018	5.4	3.6	9.0
19/09/2018	20.5	0.0	20.5	24/08/2018	12.4	3.5	15.9
20/12/2018	20.2	0.2	20.4	2/02/2018	3.8	2.8	6.6
4/05/2018	19.6	0.0	19.6	3/07/2018	5.3	2.8	8.1
24/01/2018	19.4	0.8	20.2	28/01/2018	4.6	2.7	7.4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
19/07/2018	19.3	-0.5	18.8	3/09/2018	5.6	2.4	8.0
19/02/2018	18.8	1.4	20.3	23/12/2018	5.6	2.4	8.0
3/08/2018	18.6	-0.2	18.4	22/03/2018	3.3	2.3	5.6
16/03/2018	18.2	1.0	19.2	29/01/2018	9.6	2.3	11.9

Table F-16: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 9 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**119.6**	0.5	**120.1**	-	-	-	-
22/11/2018	**75.1**	0.0	**75.1**	-	-	-	-
14/12/2018	**57.0**	0.0	**57.0**	-	-	-	-
16/12/2018	**47.9**	-0.2	**47.7**	-	-	-	-
23/11/2018	**39.4**	0.0	**39.4**	-	-	-	-
21/11/2018	**30.5**	0.0	**30.5**	-	-	-	-
4/08/2018	**27.2**	0.0	**27.2**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
15/04/2018	24.1	0.0	24.1	28/06/2018	1.9	2.0	4.0
20/03/2018	23.8	0.2	24.0	26/09/2018	3.7	1.8	5.5
19/09/2018	20.5	0.0	20.5	24/03/2018	4.4	1.6	6.0
20/12/2018	20.2	1.0	21.2	7/02/2018	7.8	1.6	9.4
4/05/2018	19.6	0.0	19.6	23/02/2018	11.6	1.5	13.2
24/01/2018	19.4	1.0	20.4	31/03/2018	13.0	1.5	14.5
19/07/2018	19.3	-0.2	19.0	11/03/2018	6.2	1.5	7.7
19/02/2018	18.8	0.2	19.1	27/06/2018	7.8	1.4	9.2
3/08/2018	18.6	-0.1	18.5	27/10/2018	9.6	1.3	11.0
16/03/2018	18.2	0.4	18.7	17/02/2018	8.7	1.3	10.0

Table F-17: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 70 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	0.2	**125.3**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.3	**58.3**	-	-	-	-
16/12/2018	**49.4**	0.6	**49.9**	-	-	-	-
19/03/2018	**34.7**	0.3	**35.0**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.0	**27.7**	-	-	-	-
19/02/2018	**26.2**	-0.3	**25.9**	-	-	-	-
15/04/2018	24.9	0.0	24.9	5/06/2018	4.8	1.4	6.2
18/07/2018	24.7	0.0	24.7	23/04/2018	8.4	1.4	9.7
20/12/2018	23.7	-0.3	23.4	5/10/2018	1.3	1.2	2.5
30/10/2018	23.3	-0.2	23.1	26/05/2018	15.2	1.2	16.4
24/01/2018	22.2	1.1	23.3	27/02/2018	7.5	1.1	8.6
31/10/2018	21.7	0.1	21.8	3/09/2018	5.3	1.1	6.4
16/03/2018	21.3	0.0	21.3	24/01/2018	22.2	1.1	23.3
9/02/2018	21.2	0.2	21.4	25/05/2018	14.3	1.1	15.4
15/02/2018	20.2	0.0	20.3	31/03/2018	18.0	0.9	18.9
19/07/2018	19.7	-0.1	19.6	23/12/2018	6.6	0.9	7.5

Table F-18: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 60 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**125.1**	0.3	**125.4**	-	-	-	-
22/11/2018	**81.0**	0.0	**81.0**	-	-	-	-
14/12/2018	**58.0**	0.6	**58.6**	-	-	-	-
16/12/2018	**49.4**	0.7	**50.0**	-	-	-	-
19/03/2018	**34.7**	0.3	**35.0**	-	-	-	-
23/11/2018	**34.5**	0.0	**34.5**	-	-	-	-
21/11/2018	**32.9**	0.0	**32.9**	-	-	-	-
4/08/2018	**31.6**	0.0	**31.6**	-	-	-	-
20/03/2018	**27.7**	0.3	**28.0**	-	-	-	-
19/02/2018	**26.2**	0.7	**26.9**	-	-	-	-
15/04/2018	24.9	0.0	24.9	29/10/2018	13.2	1.9	15.1
18/07/2018	24.7	0.0	24.8	22/04/2018	10.0	1.9	11.9
20/12/2018	23.7	1.8	**25.5**	3/09/2018	5.3	1.8	7.2
30/10/2018	23.3	0.7	24.0	20/12/2018	23.7	1.8	**25.5**
24/01/2018	22.2	1.0	23.2	6/06/2018	5.5	1.8	7.3
31/10/2018	21.7	0.1	21.8	4/04/2018	11.4	1.7	13.1
16/03/2018	21.3	0.6	21.9	27/10/2018	10.9	1.6	12.5
9/02/2018	21.2	0.3	21.5	7/12/2018	11.5	1.5	13.1
15/02/2018	20.2	0.1	20.3	18/10/2018	4.5	1.5	6.0
19/07/2018	19.7	0.0	19.7	27/02/2018	7.5	1.4	8.9

Table F-19: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 41B for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	0.8	**137.9**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	0.8	**61.4**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.1	**36.5**	-	-	-	-
16/12/2018	**36.3**	0.3	**36.5**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.4**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.5	**26.3**	-	-	-	-
18/03/2018	**25.0**	0.0	**25.1**	-	-	-	-
15/02/2018	23.2	0.2	23.3	4/04/2018	9.0	2.5	11.4
19/07/2018	22.7	0.0	22.7	22/04/2018	8.4	2.3	10.7
20/12/2018	22.6	1.8	24.4	10/04/2018	16.3	2.2	18.5
19/02/2018	21.7	1.8	23.5	24/12/2018	6.2	2.2	8.3
4/05/2018	21.5	0.0	21.5	23/02/2018	10.6	2.1	12.8
16/03/2018	21.2	1.8	23.0	26/09/2018	4.4	2.0	6.4
2/12/2018	19.6	0.0	19.6	6/06/2018	3.6	2.0	5.5
31/10/2018	19.5	0.2	19.8	25/05/2018	9.1	2.0	11.0
17/03/2018	19.4	0.3	19.7	21/04/2018	10.8	2.0	12.7
12/04/2018	18.8	0.0	18.8	21/01/2018	8.0	1.9	9.9

Table F-20: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 333 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	0.6	**137.6**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	1.5	**62.1**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.0	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.3	**36.6**	-	-	-	-
21/11/2018	**34.4**	0.6	**35.1**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.0	**25.9**	-	-	-	-
18/03/2018	**25.0**	0.2	**25.2**	-	-	-	-
15/02/2018	23.2	0.2	23.4	14/12/2018	**60.6**	1.5	**62.1**
19/07/2018	22.7	0.0	22.7	3/05/2018	13.9	1.3	15.1

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
20/12/2018	22.6	0.0	22.6	20/11/2018	8.1	0.7	8.8
19/02/2018	21.7	0.0	21.7	3/08/2018	16.5	0.7	17.2
4/05/2018	21.5	0.0	21.6	21/11/2018	**34.4**	0.6	**35.1**
16/03/2018	21.2	0.1	21.2	10/08/2018	6.9	0.6	7.6
2/12/2018	19.6	0.0	19.6	15/12/2018	**137.0**	0.6	**137.6**
31/10/2018	19.5	0.0	19.5	4/07/2018	6.2	0.6	6.8
17/03/2018	19.4	0.1	19.5	20/05/2018	6.3	0.5	6.9
12/04/2018	18.8	0.1	18.9	5/08/2018	10.8	0.5	11.3

Table F-21: Cumulative 24-hour average $PM_{2.5}$ concentration (µg/m³) – Receptor 380 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**137.0**	1.4	**138.5**	-	-	-	-
22/11/2018	**81.6**	0.0	**81.6**	-	-	-	-
14/12/2018	**60.6**	1.5	**62.1**	-	-	-	-
23/11/2018	**45.9**	0.0	**45.9**	-	-	-	-
19/03/2018	**36.4**	0.1	**36.4**	-	-	-	-
16/12/2018	**36.3**	0.3	**36.6**	-	-	-	-
21/11/2018	**34.4**	0.0	**34.5**	-	-	-	-
15/04/2018	**27.0**	0.0	**27.0**	-	-	-	-
4/08/2018	**26.5**	0.0	**26.5**	-	-	-	-
18/07/2018	**25.9**	0.0	**25.9**	-	-	-	-
20/03/2018	**25.9**	0.1	**26.0**	-	-	-	-
18/03/2018	**25.0**	0.1	**25.2**	-	-	-	-
15/02/2018	23.2	0.4	23.5	5/03/2018	7.4	2.6	10.0
19/07/2018	22.7	0.0	22.7	4/07/2018	6.2	1.6	7.8
20/12/2018	22.6	0.4	23.0	13/12/2018	7.5	1.6	9.1
19/02/2018	21.7	0.6	22.3	14/12/2018	**60.6**	1.5	**62.1**
4/05/2018	21.5	0.0	21.5	15/12/2018	**137.0**	1.4	**138.5**
16/03/2018	21.2	0.5	21.6	27/01/2018	13.6	1.4	15.0
2/12/2018	19.6	0.0	19.6	29/03/2018	11.4	1.4	12.7
31/10/2018	19.5	0.0	19.5	12/11/2018	9.5	1.4	10.8
17/03/2018	19.4	1.3	20.7	17/03/2018	19.4	1.3	20.7
12/04/2018	18.8	0.0	18.9	9/01/2018	7.0	1.1	8.1

Table F-22: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 46B for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	1.8	**236.3**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	0.7	**112.4**	-	-	-	-
16/12/2018	**94.0**	-0.7	**93.3**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	0.1	**59.9**	-	-	-	-
4/08/2018	**53.3**	-0.2	**53.1**	-	-	-	-
18/07/2018	**50.8**	-0.4	**50.4**	-	-	-	-
15/04/2018	47.2	0.0	47.2	4/04/2018	20.8	12.4	33.2
20/03/2018	46.6	1.6	48.2	4/09/2018	4.1	9.0	13.1
19/09/2018	40.2	0.0	40.2	28/01/2018	9.1	8.7	17.8
20/12/2018	39.6	1.5	41.1	22/03/2018	6.5	8.3	14.8
4/05/2018	38.5	-0.1	38.4	29/01/2018	18.9	8.2	27.1
24/01/2018	38.1	2.1	40.2	2/02/2018	7.4	8.1	15.5
19/07/2018	37.8	-1.1	36.7	24/08/2018	24.4	8.0	32.4
19/02/2018	36.9	7.8	44.7	19/02/2018	36.9	7.8	44.7
3/08/2018	36.5	-0.9	35.6	6/06/2018	10.5	7.6	18.1
16/03/2018	35.7	4.6	40.3	23/12/2018	11.0	7.4	18.4

Table F-23: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 9 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	-0.9	**233.6**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	-1.4	**110.3**	-	-	-	-
16/12/2018	**94.0**	-0.3	**93.7**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	-0.1	**59.7**	-	-	-	-
4/08/2018	**53.3**	0.0	**53.3**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
15/04/2018	47.2	0.0	47.2	5/10/2018	1.3	3.6	4.9
20/03/2018	46.6	-0.5	46.1	3/09/2018	11.0	3.0	14.0
19/09/2018	40.2	0.0	40.2	7/10/2018	7.5	2.5	10.0
20/12/2018	39.6	0.9	40.5	17/04/2018	12.8	2.5	15.3
4/05/2018	38.5	-0.1	38.4	13/12/2018	17.5	2.5	20.0
24/01/2018	38.1	0.5	38.6	31/03/2018	25.5	2.4	27.9
19/07/2018	37.8	-0.5	37.3	23/04/2018	15.3	2.4	17.7
19/02/2018	36.9	-5.6	31.3	28/04/2018	13.3	2.1	15.4
3/08/2018	36.5	-0.2	36.3	27/11/2018	21.3	2.1	23.4
16/03/2018	35.7	-3.3	32.4	20/11/2018	13.9	2.1	16.0

Table F-24: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 70 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	0.0	**245.3**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	1.1	**114.8**	-	-	-	-
16/12/2018	**96.8**	3.3	**100.1**	-	-	-	-
19/03/2018	**68.0**	1.2	**69.2**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	0.0	**64.5**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	0.5	**54.8**	-	-	-	-
19/02/2018	**51.4**	-0.6	**50.8**	-	-	-	-
15/04/2018	48.9	0.0	48.9	5/06/2018	9.4	7.8	17.2
18/07/2018	48.5	0.0	48.5	3/09/2018	10.4	7.1	17.5
20/12/2018	46.5	-2.0	44.5	27/02/2018	14.7	6.6	21.3
30/10/2018	45.6	0.0	45.6	23/04/2018	16.4	6.5	22.9
24/01/2018	43.5	2.5	46.0	25/05/2018	28.0	5.6	33.6
31/10/2018	42.6	0.2	42.8	5/10/2018	2.6	5.4	8.0
16/03/2018	41.8	-1.8	40.0	27/04/2018	22.8	4.7	27.5
9/02/2018	41.6	0.3	41.9	18/10/2018	8.9	4.2	13.1
15/02/2018	39.7	0.1	39.8	24/08/2018	23.6	4.0	27.6
19/07/2018	38.6	-0.1	38.5	23/12/2018	12.9	4.0	16.9

Table F-25: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 60 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	2.1	**247.4**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	2.9	**116.6**	-	-	-	-
16/12/2018	**96.8**	2.1	**98.9**	-	-	-	-
19/03/2018	**68.0**	0.9	**68.9**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	0.1	**64.6**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	1.5	**55.8**	-	-	-	-
19/02/2018	**51.4**	6.6	**58.0**	-	-	-	-
15/04/2018	48.9	0.0	48.9	4/04/2018	22.4	13.1	35.5
18/07/2018	48.5	0.1	48.6	22/04/2018	19.6	12.8	32.4
20/12/2018	46.5	7.5	**54.0**	6/06/2018	10.8	11.3	22.1
30/10/2018	45.6	2.8	48.4	24/08/2018	23.6	9.5	33.1
24/01/2018	43.5	3.0	46.5	2/02/2018	10.1	9.4	19.5
31/10/2018	42.6	0.5	43.1	3/09/2018	10.4	9.3	19.7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
16/03/2018	41.8	3.4	45.2	7/12/2018	22.6	9.1	31.7
9/02/2018	41.6	1.4	43.0	4/09/2018	6.7	8.9	15.6
15/02/2018	39.7	0.2	39.9	22/03/2018	5.8	8.9	14.7
19/07/2018	38.6	-0.1	38.5	5/09/2018	11.4	8.6	20.0

Table F-26: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 41B for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	3.7	**272.4**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	2.7	**121.6**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.3	**71.6**	-	-	-	-
16/12/2018	**71.1**	0.7	**71.8**	-	-	-	-
21/11/2018	**67.5**	0.1	**67.6**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	2.4	**53.1**	-	-	-	-
18/03/2018	49.1	0.3	49.4	23/02/2018	20.8	14.7	35.5
15/02/2018	45.4	0.5	45.9	24/12/2018	12.1	13.8	25.9
19/07/2018	44.5	0.0	44.5	10/04/2018	32.0	13.7	45.7
20/12/2018	44.3	10.7	**55.0**	29/10/2018	21.6	12.8	34.4
19/02/2018	42.5	9.4	**51.9**	18/04/2018	19.9	12.6	32.5
4/05/2018	42.2	0.0	42.2	22/04/2018	16.5	11.7	28.2
16/03/2018	41.5	9.6	**51.1**	26/09/2018	8.6	11.6	20.2
2/12/2018	38.4	0.0	38.4	4/04/2018	17.6	11.6	29.2
31/10/2018	38.3	1.6	39.9	28/06/2018	5.1	11.5	16.6
17/03/2018	38.0	3.9	41.9	25/09/2018	12.9	11.3	24.2

Table F-27: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 333 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	2.1	**270.8**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	3.8	**122.7**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.1	**71.4**	-	-	-	-
16/12/2018	**71.1**	0.8	**71.9**	-	-	-	-
21/11/2018	**67.5**	2.0	**69.5**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	0.0	**50.7**	-	-	-	-
18/03/2018	49.1	0.4	49.5	14/12/2018	**118.9**	3.8	**122.7**
15/02/2018	45.4	0.4	45.8	3/05/2018	27.2	3.5	30.7
19/07/2018	44.5	0.0	44.5	20/11/2018	15.8	2.9	18.7
20/12/2018	44.3	0.1	44.4	3/08/2018	32.3	2.8	35.1
19/02/2018	42.5	0.0	42.5	15/12/2018	**268.7**	2.1	**270.8**
4/05/2018	42.2	0.1	42.3	21/11/2018	**67.5**	2.0	**69.5**
16/03/2018	41.5	0.1	41.6	10/08/2018	13.6	1.3	14.9
2/12/2018	38.4	0.0	38.4	5/08/2018	21.1	1.3	22.4
31/10/2018	38.3	0.0	38.3	20/05/2018	12.4	1.2	13.6
17/03/2018	38.0	0.2	38.2	4/07/2018	12.2	1.2	13.4

Table F-28: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 380 for Project Year 4

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	4.0	**272.7**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	5.1	**124.0**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.2	**71.5**	-	-	-	-
16/12/2018	**71.1**	0.9	**72.0**	-	-	-	-
21/11/2018	**67.5**	0.1	**67.6**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	0.2	**50.9**	-	-	-	-
18/03/2018	49.1	0.5	49.6	5/03/2018	14.5	6.7	21.2
15/02/2018	45.4	1.0	46.4	14/12/2018	**118.9**	5.1	**124.0**
19/07/2018	44.5	0.0	44.5	15/12/2018	**268.7**	4.0	**272.7**
20/12/2018	44.3	0.6	44.9	29/03/2018	22.3	3.9	26.2
19/02/2018	42.5	1.4	43.9	27/01/2018	26.7	3.8	30.5
4/05/2018	42.2	0.0	42.2	13/12/2018	14.7	3.7	18.4
16/03/2018	41.5	0.5	42.0	4/07/2018	12.2	3.5	15.7
2/12/2018	38.4	0.1	38.5	31/08/2018	26.8	3.4	30.2

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
31/10/2018	38.3	0.0	38.3	8/02/2018	14.5	3.4	17.9
17/03/2018	38.0	1.2	39.2	14/03/2018	20.6	3.4	24.0

Table F-29: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 46B for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	1.5	**236.0**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	0.5	**112.2**	-	-	-	-
16/12/2018	**94.0**	0.2	**94.2**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	0.0	**59.8**	-	-	-	-
4/08/2018	**53.3**	-0.3	**53.0**	-	-	-	-
18/07/2018	**50.8**	-0.5	**50.3**	-	-	-	-
15/04/2018	47.2	0.0	47.2	4/04/2018	20.8	10.3	31.1
20/03/2018	46.6	1.1	47.7	24/08/2018	24.4	8.6	33.0
19/09/2018	40.2	0.0	40.2	22/03/2018	6.5	8.5	15.0
20/12/2018	39.6	0.9	40.5	2/02/2018	7.4	7.9	15.3
4/05/2018	38.5	-0.1	38.4	6/06/2018	10.5	7.7	18.2
24/01/2018	38.1	1.9	40.0	28/01/2018	9.1	7.4	16.5
19/07/2018	37.8	-1.4	36.4	7/03/2018	17.9	7.4	25.3
19/02/2018	36.9	5.3	42.2	29/01/2018	18.9	6.8	25.7
3/08/2018	36.5	-1.0	35.5	21/03/2018	12.6	6.8	19.4
16/03/2018	35.7	2.5	38.2	23/12/2018	11.0	6.6	17.6

Table F-30: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 9 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	-0.2	**234.3**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	-1.3	**110.4**	-	-	-	-
16/12/2018	**94.0**	-0.7	**93.3**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	-0.2	**59.6**	-	-	-	-
4/08/2018	**53.3**	0.0	**53.3**	-	-	-	-
18/07/2018	**50.8**	-0.1	**50.7**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/04/2018	47.2	0.0	47.2	1/02/2018	11.4	4.1	15.5
20/03/2018	46.6	0.6	47.2	17/04/2018	12.8	3.1	15.9
19/09/2018	40.2	0.0	40.2	12/10/2018	8.1	2.9	11.0
20/12/2018	39.6	1.2	40.8	5/12/2018	30.5	2.9	33.4
4/05/2018	38.5	-0.1	38.4	9/03/2018	8.9	2.9	11.8
24/01/2018	38.1	1.1	39.2	12/12/2018	11.2	2.7	13.9
19/07/2018	37.8	-0.6	37.2	5/10/2018	1.3	2.6	3.9
19/02/2018	36.9	-2.4	34.5	25/10/2018	11.1	2.6	13.7
3/08/2018	36.5	-0.5	36.0	6/02/2018	8.6	2.3	10.9
16/03/2018	35.7	-1.7	34.0	8/03/2018	11.0	2.3	13.3

Table F-31: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 70 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	0.4	**245.7**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	0.6	**114.3**	-	-	-	-
16/12/2018	**96.8**	2.9	**99.7**	-	-	-	-
19/03/2018	**68.0**	0.9	**68.9**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	0.0	**64.5**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	0.6	**54.9**	-	-	-	-
19/02/2018	**51.4**	-1.0	**50.4**	-	-	-	-
15/04/2018	48.9	0.0	48.9	5/06/2018	9.4	7.1	16.5
18/07/2018	48.5	0.0	48.5	27/02/2018	14.7	5.6	20.3
20/12/2018	46.5	-1.6	44.9	3/09/2018	10.4	5.3	15.7
30/10/2018	45.6	0.6	46.2	23/04/2018	16.4	4.9	21.3
24/01/2018	43.5	2.5	46.0	25/05/2018	28.0	4.8	32.8
31/10/2018	42.6	0.5	43.1	5/10/2018	2.6	4.5	7.1
16/03/2018	41.8	-0.2	41.6	23/12/2018	12.9	4.1	17.0
9/02/2018	41.6	0.5	42.1	27/04/2018	22.8	4.0	26.8
15/02/2018	39.7	0.0	39.7	18/10/2018	8.9	3.3	12.2
19/07/2018	38.6	-0.1	38.5	16/12/2018	**96.8**	2.9	**99.7**

Table F-32: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 60 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	1.5	**246.8**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	1.8	**115.5**	-	-	-	-
16/12/2018	**96.8**	2.0	**98.8**	-	-	-	-
19/03/2018	**68.0**	0.7	**68.7**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	0.0	**64.5**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	1.6	**55.9**	-	-	-	-
19/02/2018	**51.4**	3.8	**55.2**	-	-	-	-
15/04/2018	48.9	0.0	48.9	3/09/2018	10.4	8.3	18.7
18/07/2018	48.5	0.0	48.5	6/06/2018	10.8	8.2	19.0
20/12/2018	46.5	5.3	**51.8**	22/04/2018	19.6	8.0	27.6
30/10/2018	45.6	2.0	47.6	4/04/2018	22.4	8.0	30.4
24/01/2018	43.5	2.6	46.1	22/03/2018	5.8	7.8	13.6
31/10/2018	42.6	0.2	42.8	24/08/2018	23.6	7.4	31.0
16/03/2018	41.8	1.8	43.6	21/03/2018	20.9	6.8	27.7
9/02/2018	41.6	0.9	42.5	7/03/2018	19.3	6.7	26.0
15/02/2018	39.7	0.2	39.9	2/02/2018	10.1	6.6	16.7
19/07/2018	38.6	-0.1	38.5	7/12/2018	22.6	6.3	28.9

Table F-33: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 41B for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	2.9	**271.6**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	2.1	**121.0**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.3	**71.6**	-	-	-	-
16/12/2018	**71.1**	0.6	**71.7**	-	-	-	-
21/11/2018	**67.5**	0.1	**67.6**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	2.6	**53.3**	-	-	-	-
18/03/2018	49.1	0.1	49.2	24/09/2018	10.5	12.0	22.5
15/02/2018	45.4	0.4	45.8	24/12/2018	12.1	11.6	23.7
19/07/2018	44.5	0.0	44.5	23/02/2018	20.8	10.5	31.3
20/12/2018	44.3	7.6	**51.9**	4/04/2018	17.6	10.5	28.1
19/02/2018	42.5	8.7	**51.2**	10/04/2018	32.0	10.2	42.2

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
4/05/2018	42.2	0.0	42.2	13/10/2018	7.2	10.1	17.3
16/03/2018	41.5	6.7	48.2	23/03/2018	8.1	10.0	18.1
2/12/2018	38.4	0.0	38.4	15/10/2018	9.7	9.8	19.5
31/10/2018	38.3	1.3	39.6	25/09/2018	12.9	9.6	22.5
17/03/2018	38.0	1.6	39.6	16/10/2018	18.9	9.4	28.4

Table F-34: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 333 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	2.4	**271.1**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	3.2	**122.1**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.1	**71.4**	-	-	-	-
16/12/2018	**71.1**	0.7	**71.8**	-	-	-	-
21/11/2018	**67.5**	1.6	**69.1**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	0.0	**50.7**	-	-	-	-
18/03/2018	49.1	0.4	49.5	3/05/2018	27.2	3.6	30.8
15/02/2018	45.4	0.4	45.8	14/12/2018	**118.9**	3.2	**122.1**
19/07/2018	44.5	0.0	44.5	3/08/2018	32.3	3.1	35.4
20/12/2018	44.3	0.1	44.4	20/11/2018	15.8	3.1	18.9
19/02/2018	42.5	0.0	42.5	15/12/2018	**268.7**	2.4	**271.1**
4/05/2018	42.2	0.1	42.3	10/08/2018	13.6	1.8	15.4
16/03/2018	41.5	0.1	41.6	21/11/2018	**67.5**	1.6	**69.1**
2/12/2018	38.4	0.1	38.5	5/08/2018	21.1	1.1	22.2
31/10/2018	38.3	0.0	38.3	1/11/2018	33.6	1.1	34.7
17/03/2018	38.0	0.2	38.2	20/05/2018	12.4	1.0	13.4

Table F-35: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 380 for Project Year 5

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	3.6	**272.3**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
14/12/2018	**118.9**	4.0	**122.9**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.2	**71.5**	-	-	-	-
16/12/2018	**71.1**	0.8	**71.9**	-	-	-	-
21/11/2018	**67.5**	0.0	**67.5**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	0.2	**50.9**	-	-	-	-
18/03/2018	49.1	0.4	49.5	5/03/2018	14.5	6.0	20.5
15/02/2018	45.4	0.8	46.2	14/12/2018	**118.9**	4.0	**122.9**
19/07/2018	44.5	0.0	44.5	15/12/2018	**268.7**	3.6	**272.3**
20/12/2018	44.3	0.6	44.9	13/12/2018	14.7	3.5	18.2
19/02/2018	42.5	1.2	43.7	29/03/2018	22.3	3.5	25.8
4/05/2018	42.2	0.0	42.2	27/01/2018	26.7	3.2	29.9
16/03/2018	41.5	0.6	42.1	4/07/2018	12.2	2.9	15.1
2/12/2018	38.4	0.1	38.5	8/02/2018	14.5	2.8	17.3
31/10/2018	38.3	0.0	38.3	9/01/2018	13.7	2.7	16.4
17/03/2018	38.0	1.5	39.5	31/08/2018	26.8	2.6	29.4

Table F-36: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 46B for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	3.0	**237.5**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	1.2	**112.9**	-	-	-	-
16/12/2018	**94.0**	2.1	**96.1**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	0.0	**59.8**	-	-	-	-
4/08/2018	**53.3**	-0.3	**53.0**	-	-	-	-
18/07/2018	**50.8**	-0.5	**50.3**	-	-	-	-
15/04/2018	47.2	0.0	47.2	4/04/2018	20.8	17.1	37.9
20/03/2018	46.6	1.5	48.1	6/06/2018	10.5	15.1	25.6
19/09/2018	40.2	0.0	40.2	24/08/2018	24.4	15.1	39.5
20/12/2018	39.6	1.4	41.0	2/02/2018	7.4	12.3	19.7
4/05/2018	38.5	0.0	38.5	22/03/2018	6.5	11.6	18.1
24/01/2018	38.1	3.3	41.4	3/09/2018	11.0	11.5	22.5
19/07/2018	37.8	-1.4	36.4	3/07/2018	10.4	11.5	21.9
19/02/2018	36.9	6.5	43.4	28/01/2018	9.1	11.3	20.4
3/08/2018	36.5	-0.3	36.2	23/12/2018	11.0	10.3	21.3
16/03/2018	35.7	4.4	40.1	7/03/2018	17.9	10.1	28.0

Table F-37: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 9 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**234.5**	2.5	**237.0**	-	-	-	-
22/11/2018	**147.2**	0.0	**147.2**	-	-	-	-
14/12/2018	**111.7**	0.2	**111.9**	-	-	-	-
16/12/2018	**94.0**	-0.8	**93.2**	-	-	-	-
23/11/2018	**77.3**	0.0	**77.3**	-	-	-	-
21/11/2018	**59.8**	0.1	**59.9**	-	-	-	-
4/08/2018	**53.3**	0.0	**53.3**	-	-	-	-
18/07/2018	**50.8**	-0.1	**50.7**	-	-	-	-
15/04/2018	47.2	0.0	47.2	28/06/2018	3.8	9.0	12.8
20/03/2018	46.6	1.1	47.7	26/09/2018	7.3	8.4	15.7
19/09/2018	40.2	0.0	40.2	7/02/2018	15.3	7.8	23.1
20/12/2018	39.6	5.7	45.3	23/02/2018	22.8	7.7	30.5
4/05/2018	38.5	0.0	38.5	24/03/2018	8.6	7.5	16.1
24/01/2018	38.1	3.8	41.9	11/03/2018	12.2	7.1	19.3
19/07/2018	37.8	-0.6	37.2	31/03/2018	25.5	7.1	32.6
19/02/2018	36.9	1.8	38.7	27/06/2018	15.3	6.5	21.8
3/08/2018	36.5	-0.1	36.4	12/12/2018	11.2	6.4	17.6
16/03/2018	35.7	3.6	39.3	17/02/2018	17.0	6.2	23.2

Table F-38: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 70 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	1.3	**246.6**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	1.0	**114.7**	-	-	-	-
16/12/2018	**96.8**	2.5	**99.3**	-	-	-	-
19/03/2018	**68.0**	1.1	**69.1**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	-0.1	**64.4**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	0.0	**54.3**	-	-	-	-
19/02/2018	**51.4**	-0.9	**50.5**	-	-	-	-
15/04/2018	48.9	0.0	48.9	5/06/2018	9.4	6.2	15.6
18/07/2018	48.5	0.0	48.5	23/04/2018	16.4	5.6	22.0
20/12/2018	46.5	-0.9	45.6	27/02/2018	14.7	5.2	19.9
30/10/2018	45.6	-0.2	45.4	5/10/2018	2.6	5.1	7.7
24/01/2018	43.5	4.0	47.5	25/05/2018	28.0	4.5	32.5
31/10/2018	42.6	0.5	43.1	26/05/2018	29.8	4.4	34.2

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
16/03/2018	41.8	0.5	42.3	3/09/2018	10.4	4.4	14.8
9/02/2018	41.6	0.5	42.1	24/01/2018	43.5	4.0	47.5
15/02/2018	39.7	0.2	39.9	18/10/2018	8.9	3.8	12.7
19/07/2018	38.6	-0.2	38.4	23/12/2018	12.9	3.7	16.6

Table F-39: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 60 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**245.3**	1.8	**247.1**	-	-	-	-
22/11/2018	**158.8**	0.0	**158.8**	-	-	-	-
14/12/2018	**113.7**	2.2	**115.9**	-	-	-	-
16/12/2018	**96.8**	2.8	**99.6**	-	-	-	-
19/03/2018	**68.0**	1.0	**69.0**	-	-	-	-
23/11/2018	**67.6**	0.0	**67.6**	-	-	-	-
21/11/2018	**64.5**	0.0	**64.5**	-	-	-	-
4/08/2018	**62.0**	0.0	**62.0**	-	-	-	-
20/03/2018	**54.3**	1.5	**55.8**	-	-	-	-
19/02/2018	**51.4**	3.7	**55.1**	-	-	-	-
15/04/2018	48.9	0.0	48.9	3/09/2018	10.4	8.2	18.6
18/07/2018	48.5	0.1	48.6	22/04/2018	19.6	8.1	27.7
20/12/2018	46.5	7.2	**53.7**	6/06/2018	10.8	7.7	18.5
30/10/2018	45.6	2.7	48.3	29/10/2018	25.9	7.4	33.3
24/01/2018	43.5	3.9	47.4	4/04/2018	22.4	7.3	29.7
31/10/2018	42.6	0.3	42.9	20/12/2018	46.5	7.2	**53.7**
16/03/2018	41.8	2.2	44.0	24/08/2018	23.6	6.8	30.4
9/02/2018	41.6	1.0	42.6	7/12/2018	22.6	6.5	29.1
15/02/2018	39.7	0.4	40.1	22/03/2018	5.8	6.5	12.3
19/07/2018	38.6	-0.1	38.5	27/10/2018	21.4	6.1	27.5

Table F-40: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 41B for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	3.2	**271.9**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	2.7	**121.6**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
19/03/2018	**71.3**	0.5	**71.8**	-	-	-	-
16/12/2018	**71.1**	1.1	**72.2**	-	-	-	-
21/11/2018	**67.5**	0.0	**67.5**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	2.5	**53.2**	-	-	-	-
18/03/2018	49.1	0.1	49.2	4/04/2018	17.6	10.7	28.3
15/02/2018	45.4	0.7	46.1	24/12/2018	12.1	9.7	21.8
19/07/2018	44.5	0.0	44.5	22/04/2018	16.5	9.4	25.9
20/12/2018	44.3	7.1	**51.4**	10/04/2018	32.0	9.2	41.2
19/02/2018	42.5	8.0	**50.5**	23/02/2018	20.8	9.1	29.9
4/05/2018	42.2	0.0	42.2	6/06/2018	7.0	9.0	16.0
16/03/2018	41.5	7.1	48.6	24/09/2018	10.5	8.4	18.9
2/12/2018	38.4	0.1	38.5	21/04/2018	21.1	8.3	29.4
31/10/2018	38.3	1.2	39.5	16/10/2018	18.9	8.2	27.2
17/03/2018	38.0	1.3	39.3	26/09/2018	8.6	8.1	16.7

Table F-41: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 333 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	3.2	**271.9**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	5.4	**124.3**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.1	**71.4**	-	-	-	-
16/12/2018	**71.1**	1.2	**72.3**	-	-	-	-
21/11/2018	**67.5**	2.5	**70.0**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.0	**50.8**	-	-	-	-
20/03/2018	**50.7**	0.0	**50.7**	-	-	-	-
18/03/2018	49.1	0.6	49.7	3/05/2018	27.2	5.6	32.8
15/02/2018	45.4	0.7	46.1	14/12/2018	**118.9**	5.4	**124.3**
19/07/2018	44.5	0.0	44.5	20/11/2018	15.8	4.0	19.8
20/12/2018	44.3	0.2	44.5	3/08/2018	32.3	3.8	36.1
19/02/2018	42.5	0.0	42.5	15/12/2018	**268.7**	3.2	**271.9**
4/05/2018	42.2	0.2	42.4	10/08/2018	13.6	3.0	16.6
16/03/2018	41.5	0.2	41.7	21/11/2018	**67.5**	2.5	**70.0**
2/12/2018	38.4	0.1	38.5	5/08/2018	21.1	2.1	23.2
31/10/2018	38.3	0.0	38.3	1/11/2018	33.6	2.0	35.6

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
17/03/2018	38.0	0.3	38.3	20/05/2018	12.4	1.8	14.2

Table F-42: Cumulative 24-hour average PM_{10} concentration (µg/m³) – Receptor 380 for Project Year 7

Ranked by Highest to Lowest Background Concentrations				Ranked by Highest to Lowest Predicted Incremental Concentration			
Date	Measured background level	Predicted increment	Total cumulative 24-hr average level	Date	Measured background level	Predicted increment	Total cumulative 24-hr average level
15/12/2018	**268.7**	5.4	**274.1**	-	-	-	-
22/11/2018	**160.0**	0.0	**160.0**	-	-	-	-
14/12/2018	**118.9**	5.5	**124.4**	-	-	-	-
23/11/2018	**90.0**	0.0	**90.0**	-	-	-	-
19/03/2018	**71.3**	0.3	**71.6**	-	-	-	-
16/12/2018	**71.1**	1.3	**72.4**	-	-	-	-
21/11/2018	**67.5**	0.2	**67.7**	-	-	-	-
15/04/2018	**52.9**	0.0	**52.9**	-	-	-	-
4/08/2018	**51.9**	0.0	**51.9**	-	-	-	-
18/07/2018	**50.8**	0.1	**50.9**	-	-	-	-
20/03/2018	**50.7**	0.6	**51.3**	-	-	-	-
18/03/2018	49.1	0.5	49.6	5/03/2018	14.5	9.3	23.8
15/02/2018	45.4	1.3	46.7	13/12/2018	14.7	6.5	21.2
19/07/2018	44.5	0.0	44.5	29/03/2018	22.3	5.8	28.1
20/12/2018	44.3	1.5	45.8	4/07/2018	12.2	5.7	17.9
19/02/2018	42.5	2.3	44.8	14/12/2018	**118.9**	5.5	**124.4**
4/05/2018	42.2	0.1	42.3	12/11/2018	18.6	5.5	24.1
16/03/2018	41.5	1.8	43.3	15/12/2018	**268.7**	5.4	**274.1**
2/12/2018	38.4	0.1	38.5	17/03/2018	38.0	5.1	43.1
31/10/2018	38.3	0.0	38.3	27/01/2018	26.7	5.0	31.7
17/03/2018	38.0	5.1	43.1	9/01/2018	13.7	4.6	18.3