Appendix S Air Quality Assessment

Taharoa Ironsands - Central and Southern Block Fast-track Mining Project - AQ Assessment

Prepared for

Taharoa Ironsands Limited

October 2025

PATTLE DELAMORE PARTNERS LTD
Level 2, 109 Fanshawe Street,
Auckland Central 1010
PO Box 9528, Auckland 1149, New Zealand

Tel +64 9 523 6900
Web www.pdp.co.nz

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DOCUMENT CONTRIBUTORS

Prepared by

SIGNATURE pp [redacted]

Cameron Brown

Reviewed by

SIGNATURE [redacted]

Andrew Curtis

Approved by

[redacted]

Andrew Curtis

Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Taharoa Ironsands Limited. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Taharoa Ironsands Limited for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

This report has been prepared for Taharoa Ironsands Limited in respect of its application for all approvals under the Fast track Approvals Act 2024 for the Central and Southern Blocks of the Taharoa Ironsand Mine. The Panel appointed to consider the application for the Central and Southern Blocks Mining Project may rely on this report for the purpose of making its decision under the Fast track Approvals Act 2024.

This report has been prepared in accordance with the Environment Court's Code of Conduct for expert witnesses, contained in the Environment Court's Practice Note 2023. The authors of this report agree to comply with the Code of Conduct, and confirm that unless otherwise stated, the issues addressed in this report are within the area of expertise of the authors. No material facts have been omitted that might alter or detracted from the opinions expressed in this report.

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1.0 Introduction

Taharoa Ironsands Limited (TIL) owns and operates the Taharoa Ironsand Mine (the Site) on the west coast of the North Island approximately 8 km south of the Kawhia Harbour. The Site is exposed and is situated adjacent to the Tasman Sea. Consequently, the Site is subjected to high wind speeds, especially when the winds are blowing from the west off the sea.

Pattle Delamore Partners Limited (PDP) has previously prepared technical air quality assessments for the reconsenting of the Central and Southern Blocks (CSB) of the Site as part of a Waikato Regional Council consenting process. TIL is now applying for new consents under the Fast-track Approvals Act 2024 (FAA). This report sets out PDP's technical air quality assessment of the CSB, which is required for the FAA application.

On 17 March 2025, PDP undertook a site visit at the CSB which covers approximately 900 hectares (ha) of the Site. The indicative boundaries of the CSB are outlined in Figure 1.

It is noted that there are other areas of the Site known as the Eastern Block, Te Mania Block, and Pit 1 of the Northern Block. TIL holds separate consents for the Eastern and Te Mania Blocks and Pit 1 of the Northern Block and is also applying under the FAA for consents for the entire Northern Block (separate to this application). These blocks have not been addressed further in this assessment except where discussing any potential cumulative effects.

This assessment considers the air discharge effects of the proposed activities within the CSB, informed by an assessment of effects of TIL's current activities within these blocks.

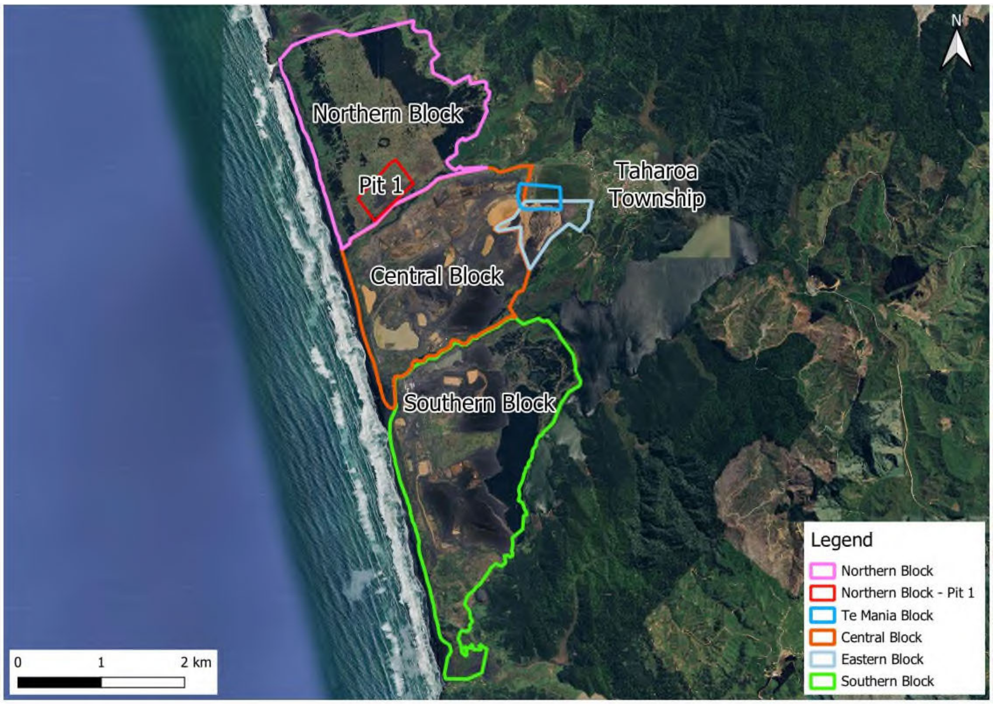

Figure 1: Northern, Central, Southern, Eastern and Te Mania Blocks at the Site

2.0 Background Information

2.1 Process Description

Mining occurs at a rate of approximately 45,000 tonnes per day and continues 24 hours per day, 7 days a week. The overall production rates are currently approximately 3 million tonnes (export volume) per annum, with an intention to increase this to an export volume of 5 million tonnes per annum within the next 5 years.

TIL extracts ironsand using different techniques and equipment depending on whether it is above or below the water table. PDP has provided a brief process description of the proposed activities which is as follows.

- Vegetation and topsoil are removed from underlying material. This typically involves:
  - Harvesting of large trees with commercial value; and,
  - Removing other vegetation with earthworks machinery.
- Overburden removal:

  Some areas of the Site have silts and clays, or sands with low concentrations of titanomagnetite covering the higher value material. To access this material, the overburden needs to be removed using heavy earthworks machinery. This material is the stockpiled for later use.

- Extraction of ironsand:

  Various methods are used to extract ironsand dependant on whether the resource is above or below the water table.

  Material above the water table is extracted using standard earthmoving machinery such as excavators, and bulldozers. Trucks then transport the material to a Dry Mining Unit (DMU) where ironsand is mixed with water to form a slurry. The slurry is then pumped to a processing plant for titanomagnetite extraction. This process is hereafter referred to as mining activities undertaken above the water table, or similar words.

  As extraction progresses, it can become impractical to maintain a dry mining pit due to the intrusion of groundwater. In such cases, a cutter section dredge is used to extract material in a water-filled pond. PDP notes that that this form of mining provides an opportunity for TIL to reduce its dust discharges in the future. This process is hereafter referred to as mining activities undertaken below the water table, or similar words.

- Processing:

  To meet export specifications, the ironsand must be refined. This process will continue to change as technology develops, however the current process involves:

  - Initial screening to remove oversize particles;
  - Gravity separation; and,
  - Magnetic separation.

  The material is in a slurry state throughout the processing, and the separated tailings (mostly non-ferrous sand with some silt and clays) are pumped from the processing plant(s) to a tailings storage area for dewatering or directly to an area undergoing rehabilitation for land contouring.

  After refined, the concentrated titanomagnetite pumped as a slurry to a stockpile.

- Ship loading:

  Export ready material is pumped approximately 3.5 km offshore to a single buoy mooring (legally defined as the Port of Taharoa). Here, ships can rotate freely around the buoy as the material is loaded.

- Progressive Rehabilitation

  TIL progressively stabilises and/or rehabilitates the site as mining works progress.

  PDP understands that TIL is preparing to plant more than 25,000 plants during winter 2025 (equating to 2.5 ha of planting) and rehabilitating a portion of the Eastern Block (outside of the Project area) which will be planted in pines and handed back to the landowner. An eco-sourced nursey has been set up on Site to provide plants for use in the rehabilitation of previously mined areas. Where vegetation removal is required as part of preparatory work for mining activity, native species will be transplanted and used in the ongoing development of native stock at the nursery.

The proposed activity is more specifically described in Section 4 of the Assessment of Environmental Effects report prepared by Tonkin and Taylor Ltd, dated July 2025.

2.2 Meteorological Data

Wind can have a significant effect on dust generation and transportation. PDP has used the data from the Port Taharoa meteorological monitoring station, which is owned and operated by MetService in this assessment. The location of this monitoring station is presented in Figure 2. Given this monitor is on the Site, PDP considers it is appropriate to use the data to assess the potential dust effects. Figure 3 presents a windrose using the data collected by this meteorological monitor between 2022 and 2024 inclusive and presents the wind distribution frequency. This date range includes both El Nino and La Nina weather patterns[1].

This analysis shows that the prevailing winds are from the east northeast direction, with frequent winds from the southeast, representing the off-shore and on-shore winds expected of an exposed coastal environment. The data from this weather station did not contain wind speed values less than 0.5 m/s and as such there are no calms to report.

The data also indicates that the majority of strong winds (greater than 7.5 m/s) are from the southwest quarter with winds from the northeastern quarter more likely to be less than 5 m/s.

[1] NIWA Southern Oscillation Index. https://niwa.co.nz/el-nino-and-la-nina

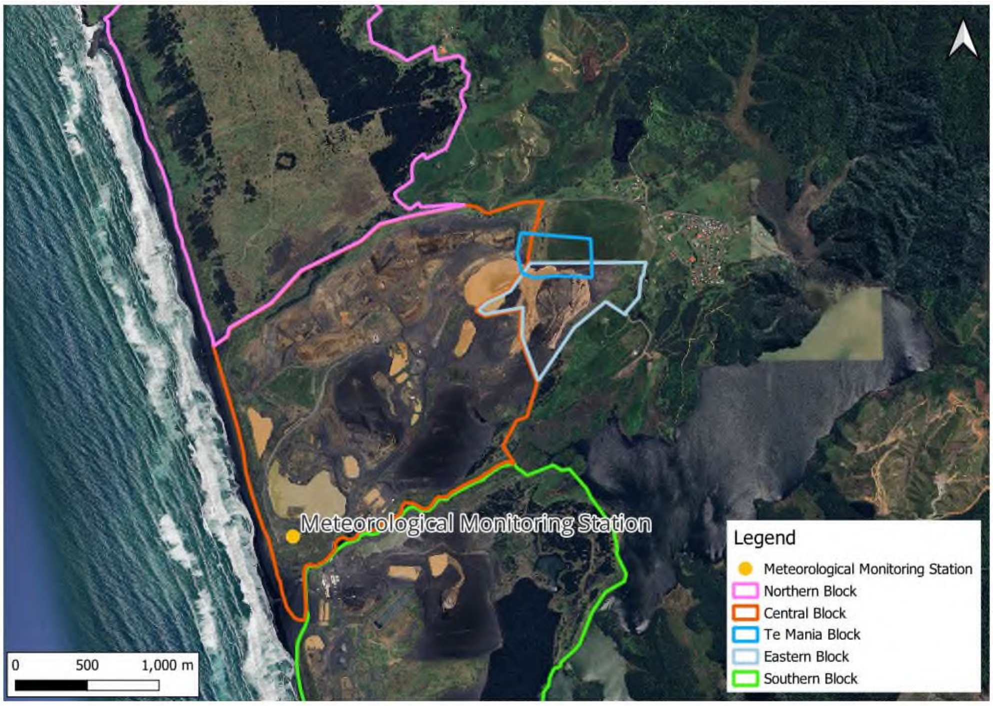

Figure 2: Location of Port Taharoa Meteorological Monitoring Station

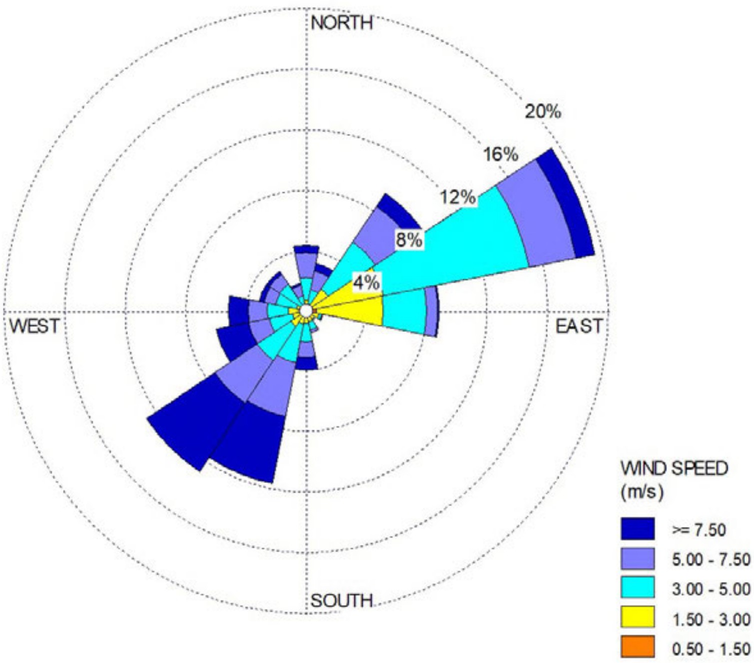

Figure 3: Windrose from Port Taharoa – 2022 to 2024

Table 1: Wind Speed Frequency Distribution from Port Taharoa Data

Direction	Frequency (%)					Total (%)
	0.5 – 1.5 m/s	1.5 – 3 m/s	3 – 5 m/s	5 – 7.5 m/s	> 7.5 m/s	
North	0.2	0.6	1.5	1.6	0.5	4.4
North Northeast	0.1	0.4	1.0	1.2	0.5	3.2
Northeast	0.3	1.5	3.7	2.8	1.1	9.4
East Northeast	0.3	5.0	9.8	3.1	1.3	19.5
East	0.8	4.4	2.8	0.7	0.1	8.8
East Southeast	0.3	0.6	0.2	0.1	0.0	1.2
Southeast	0.3	0.4	0.1	0.0	0.0	0.8
South Southeast	0.2	0.6	0.6	0.2	0.0	1.6
South	0.1	0.7	1.2	1.0	0.9	3.9
South Southwest	0.1	0.8	2.6	3.6	4.5	11.6
Southwest	0.1	1.2	2.7	3.4	5.4	12.8
West Southwest	0.1	0.9	1.5	1.4	2.2	6.1
West	0.1	1.1	1.4	1.3	1.3	5.2
West Northwest	0.0	0.7	1.4	0.8	0.3	3.2
Northwest	0.1	0.4	1.7	0.8	0.2	3.2
North Northwest	0.1	0.3	0.7	0.7	0.1	1.9
Calms (< 0.5 m/s)						0
Missing or Incomplete						3.2

2.3 Natural Sources of Particulate

As discussed in Section 2.2 the Site is located in an exposed location and subject to strong winds, which can result in Total Suspended Particulate (TSP) also referred to as dust, which are particles with a diameter of less than approximately 50 microns (µm), being generated which can result in nuisance effects.

In particular in coastal locations there is the potential for significant quantities of marine aerosols (e.g. sea salt) to be generated in strong winds. For example a 2010 study at Awatoto[2], which did not consider wind directions or speed, determined that on average 31% of measured PM_{10} (a subfraction to TSP) was marine aerosols, and 2017 study[3] at Awatoto found that over a year that 58% it total PM_{10} was marine aerosols, and on days with the highest PM_{10}, the contribution from marine aerosols was 80%.

This significant contribution of marine aerosols to ambient particulate concentrations is likely to be a factor in TSP measurements at Taharoa, particularly as wind speeds increase. International research[4] shows a direct correlation between increases in wind speed and increases in marine aerosols. For example as shown in Figure 4, at 15 m/s there could be an up to 200 µg/m^3 to TSP.

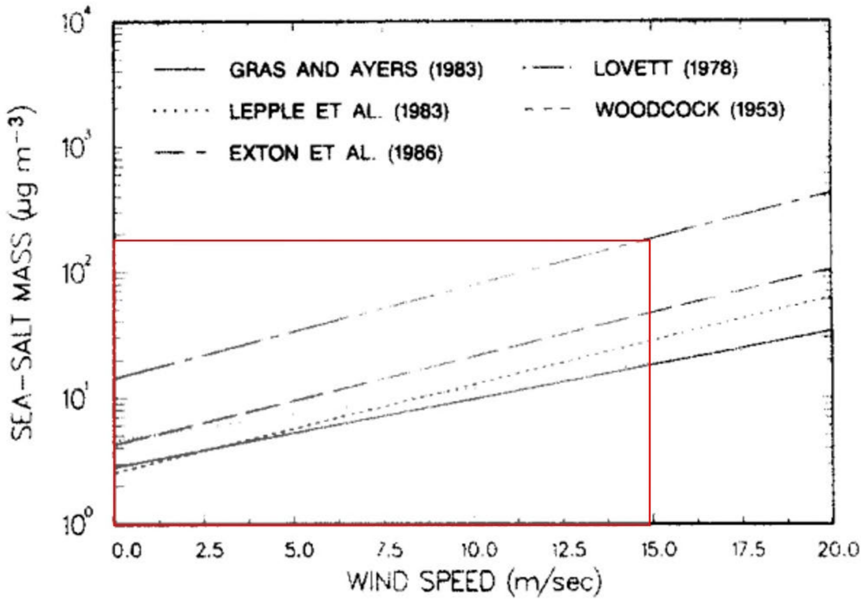

Figure 4: Estimates of sea salt verses wind speed

[2] Environet Limited, Natural Source Contribution to background PM_{10} in Awatoto, 2010

[3] Davy, P.K. and Trompetter, W.J, 2017. Analysis and of PM10 composition and sources at Awatoto Hawke's Bay Region. HBRC Report No. RM18-06-4986 prepared by GNS Science.

[4] Fitzgerald, JW, Marine aerosols: a review, Atmospheric Environment Part A General Topics 25(3) 533-545, 1991

In addition at Taharoa, there are naturally existing areas of sand dunes which have the potential to generate dust when strong winds are present. As with the marine aerosols the potential for dust from these sources increases with increasing wind speed.

By way of example PDP has presented in Figure 5, a generic example[5] of the change in TSP generating potential for erodible surfaces with wind speed.

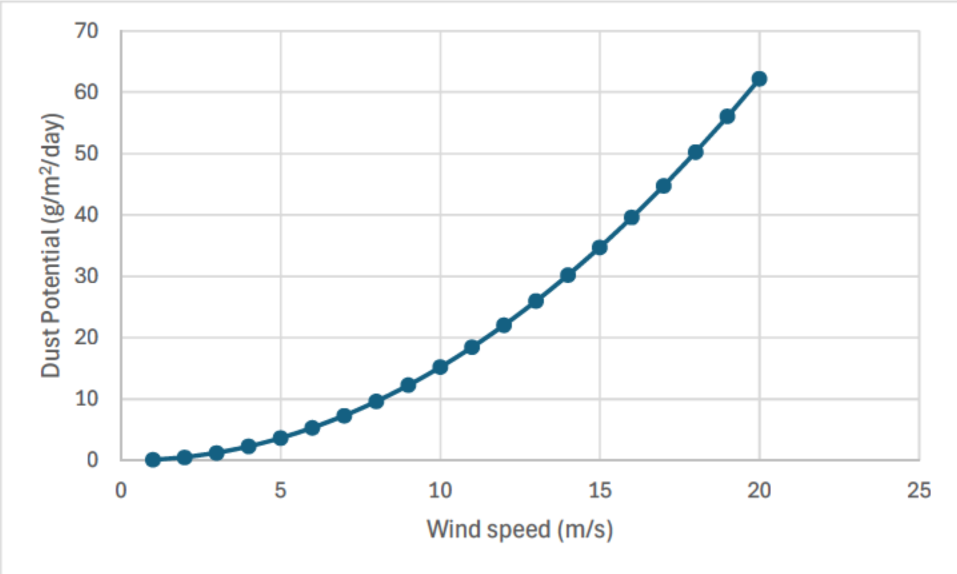

Figure 5: Generic example of the increases in TSP with Wind Speed

Consequently regardless of the presence of the mine, there is the potential, particularly when it is windy, for there to be windblown TSP at this location.

2.4 Potential Sources of Discharges to Air at Taharoa Mine

The majority of discharges to air from the operations on the Site are TSP. These particles can cause nuisance dust effects if not controlled.

This material is often referred to as "nuisance dust". Nuisance dust is not necessarily offensive or objectionable, and the term is rather used to define dust that may cause annoyance or nuisance as opposed to dust which has no effect.

PDP considers the following are the main potential dust sources from the CSB:

- Site roads;
- Active mining areas;
- Active tailing disposal;

[5] Calculated using equations taken from the US EPA publication AP42 Compilation of Emission Factors Chapter 13.2.5 (Industrial Wind Erosion)

- Inactive mining areas;
- Processing; and,
- Overburden/claypan removal.

Each of these potential sources are detailed in the following subsections.

2.4.1 Site Roads

The main Site road is formed and metalled and is approximately 12 metres (m) wide. This road has the potential to generate dust when vehicles travel on it during dry conditions and when the winds are strong (greater than 10 metres per second (m/s)). During these winds, there is the potential dust can be picked up from the road surface and transported. Section 5.2 discusses the potential distances dust particles can be transported in different wind conditions.

There are also other Site roads that service extraction or tailings areas. These roads are all unformed and have either ironsand or clay surfaces. Depending on the nature of the surface, these roads have the potential to generate dust, with those having more fine materials (such as clays and silts) having a greater potential than those primarily consisting of larger particles.

2.4.2 Active Mining Areas

In recent years, mining activities undertaken above the water table have been primarily used in the CSB, although activities below the water table have recently begun again. A brief description of this process is presented in Section 2.1 above, however in terms of dust discharges, the sources for mining process above the water table are:

- dozers moving material along the surface into the DMU, especially if the material is dry and contains a high percentage of silts and fine material; and,
- dust being picked up and transported from exposed surfaces by strong winds.

PDP considers the potential for dust discharges associated with mining activities undertaken below the water table are negligible as all material is saturated, and in this condition cannot give rise to dust.

2.4.3 Active Tailing Disposal

Tailings are generally defined as leftover material that has no commercial value (such as silts and clays) which have been separated from the iron rich fraction. However, the tailings also contain some more dense titanomagnetite particles.

Following the processing of the ironsand, the tailings are returned to the mine for disposal. This material is wet when it is placed and therefore has an extremely low potential for dust generation. However, as the material dries out, there is potential for the silts to separate out from the remaining material. Once dry these silts can become airborne and be a source of windblown dust.

2.4.4 Inactive Mining Areas

There will be parts of the CSB where mining has been completed, and tailings have been placed but they have not yet been stabilised or vegetated/planted as part of rehabilitation efforts. These areas have the potential to generate dust when strong winds occur if finer materials are present on the surface. Once this finer material has gone, the potential for dust emissions reduces unless the surface is disturbed exposing more fine material.

2.4.5 Processing

There is a very low potential for dust emissions from processing as the extracted material is wet during the processing stage. The processing methodology and subsequent potential for nuisance dust effects is the same regardless of how the material has been extracted.

2.4.6 Overburden/claypan removal

The removal of what is commonly referred to as overburden (soils and clays that overlay the material that is to be extracted) can cause dust emissions from the disturbance of the material. There are some locations in the CSB where there is overburden which needs to be removed, although there is not a very thick overburden layer at the Site. Following this removal, the material will either be stockpiled for reuse later in rehabilitation activities or disposed of in tailings disposal areas. The largest potential for dust emissions during this process is from the removal and stockpiling of the clay layer that is present in some locations generally overlaying rich ironsand deposits. When these clay layers are damp, they have a relatively low potential to generate dust, however as they dry, the potential for dust generation increases significantly, especially when these surfaces are disturbed by vehicles. As clays consist of almost entirely fine particles, the potential for dust from the handling of this material is significant.

2.4.7 Cumulative effects

The overall Taharoa lease area also includes the following mining areas: Eastern Block, Te Mania Block, and Pit 1 of the Northern Block, (all of which are located adjacent to the Central Block). There is some potential for cumulative off-site effects in some locations, in specific wind conditions when activities in the CSB occur simultaneously with works in other mining areas. This is discussed in Section 8.0 of this report.

2.5 Sensitivity of the Receiving Environment

The sensitivity of a receiving environment as categorised in the Ministry for the Environment (MfE) Good Practice Guide for Assessing and Managing Dust[6] (GPG Dust) is as follows:

- Industrial: Low to Moderate;
- Rural: Low to High (depending on the activity);
- Residential: High;
- Marae: High; and,
- Public Roads: Low.

Based on the above definitions, the sensitivity receiving environment around the CSB is considered to range from low to high. Nearby marae and residential properties considered to be highly sensitive and the other rural properties (without dwellings) and public roads being of low sensitivity.

2.5.1 Discrete Receptors

A combination of a desktop and field studies was undertaken to identify discrete receptors near the CSB. These receptors are deemed to be sensitive to changes in air quality as a result of the potential discharges to air from the operations undertaken in the CSB. For practicality not all individual receptors have been identified and instead where there are multiple receptors within close proximity of each other (such as the Taharoa Village) PDP has presented representative receptors. The locations of the receptors are all towards the northern end of the Site by the Central Block and are presented in Figure 6 with the details of each contained in Table 2.

[6] Ministry for the Environment, 2016. *Good Practice Guide for Assessing and Managing Dust*

Figure 6: Nearby Sensitive Receptors

Table 2: Sensitive Receptors Near the CSB

Receptor Name	Address	Receptor Type	Approx Distance from CSB Boundary (m)	Direction(s) Relative to CSB
R1	Taharoa Rd	Marae	1,050	NW to NNE
R2	Unknown	Residential	300	WNW to NE
R3	1891A Taharoa Rd	Residential	275	WNW to NE
R4	1891 Taharoa Rd	Residential	40	WNW to NE
R5	Te Kura o Tahaaroa	School	560	NNE to ENE
R6	1 Rotopuhoe Rd	Residential	700	NNE to E
R7	Te Matangi St	Residential	810	NE to E
R8	20 Aroka Marae Rd	Residential	975	NE to ESE
R9	53 Pohutukawa Pl	Residential	1,140	NE to ESE
R10	Unknown	Residential	575	NE to SE

As shown in Table 2, the closest receptor is R4 which is defined as 'close' by the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Mineral Dust Impacts for Planning[7] distance classifications. The location of the site and the nearby receptors are further discussed in Section 7.5 of this report, however the IAQM classifications are set out below:

- Close: Receptor is less than 100 m from the dust source.
- Intermediate: Receptor is between 100 m and 200 m from the dust source.
- Distant: Receptor is between 200 m and 400 m from the dust source.

The IAQM does not have a classification for receptors located further than 400 m from a dust source.

2.6 Total Suspended Particulates (TSP) Alert and Recommended Trigger Levels

The MfE GPG Dust contains recommended TSP trigger levels for 1-hour average concentrations. These vary depending on the sensitivity of the receiving environment and are presented in Table 3.

Table 3: MfE GPG Dust Suggested Trigger Levels for TSP

Averaging Period	Sensitivity of Receiving Environment		
	High	Moderate	Low
1-hour	200 µg/m³	250 µg/m³	n/a

The Site has four levels of alerts which considers measured meteorological conditions and the rolling 24-hour average TSP concentration. Dust control measures are increased as the alert levels rise to a point where work is ceased at Level 4. Table 4 presents the Site's alert level framework which PDP considers is appropriate for controlling dust emissions.

[7] Institute of Air Quality Management, May 2016. *Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1*

Table 4: Alert Level Framework

Alert Level	Wind	Rainfall (last 24 h)	Temperature (°C)	TSP /Averaging Time	Operations
1	<5 m/s <10 m/s >10 m/s	No Yes Raining	>20 °C >20 °C >20 °C	<80 µg/m³ Rolling 24 hour average	Normal
2	<10 m/s	No	>20 °C	<160 µg/m³ 1 hour average	Alerted
3	>10 m/s	No	>20 °C	<240 µg/m³ 1 hour average	Modified
4	>20 m/s	No	>20 °C	>240 µg/m³ 1 hour average	Cease work that has the potential to generate dust or application of water for dust control. Recommence works when the TSP is less than 160 µg/m³ and monitor continually.

3.0 Relevant Waikato Regional Council Requirements

Quarrying and mining such as that undertaken in the CSB is a Permitted Activity under Rule 6.1.16.1 of the Waikato Regional Plan (WRP), provided the quarrying and mining can meet the requirements of this rule. Of most relevance is Rule 6.1.16.1 b) which refers to Section 6.1.8 of the WRP. Section 6.1.8 sets out standard conditions for permitted activity rules and states:

a. There shall be no discharge of contaminants beyond the boundary of the subject property that has adverse effects on human health, or the health of flora and fauna.

b. The discharge shall not result in odour that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

c. There shall be no discharge of particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

d. The discharge shall not significantly impair visibility beyond the boundary of the subject property.

e. The discharge shall not cause accelerated corrosion or accelerated deterioration to structures beyond the boundary of the subject property.

PDP has assessed the discharges from the CSB against these rules in Section 9.0 of this report.

4.0 Assessment Methodology

PDP has used the commonly adopted FIDOL methodology which is recommended for an assessment of potential adverse effects from dust in the MfE GPG Dust and in Chapter 6 of the WRP. The FIDOL factors are explained below:

- Frequency (F): Relates to how often an individual is exposed to dust. Factors determining this include the frequency that the source releases dust (including its source type, characteristics and the rate of emission of the compound or compounds); prevailing meteorological conditions; and topography.
- Intensity (I): Is the concentration of dust at the receptor location.
- Duration (D): Is the amount of time that a receptor is exposed to dust. Combined with frequency, this indicates the exposure to dust. The duration of dust emissions, like the frequency of emissions, is related to the source type and discharge characteristics, meteorology, and location.

The longer the dust detection persists in an individual location, the greater the level of complaints that may be expected.

- Offensiveness (O): Is a subjective rating of unpleasantness of the effects of nuisance dust. Offensiveness is related to the sensitivity of the receptors to the dust emission, i.e. industrial premises may be more tolerant to dust concentrations than residential premises.
- Location: Is the type of land use and the nature of human activities in the vicinity of a dust source. The same process in a different location may produce more or less depending on local topography and meteorological conditions. It is also important to note that in some locations certain higher dust concentrations may be more acceptable than others.

5.0 Data Analysis

5.1 Dust Monitoring

TIL currently operates eight dust monitors in the locations presented in Figure 7. These dust monitors are ES-642 nephelometers measuring real time concentrations of TSP. PDP notes that monitor MP5 was moved on 27 July 2024 to the current MP5 dust monitor location shown in yellow in Figure 7. This change of location has been considered when analysing the data. MP7 and MP8 were both installed in October 2024.

One disadvantage of most of the real time particulate monitors is that they are not able to distinguish between different types of particles, and in fact monitors of the type employed at Taharoa, while representing industry best practice, are unable to distinguish between particles and fine water droplets.

This means that in the analysis set out in the following section, the measured concentrations are inclusive of all particulate in the local environment, including those that occur from the natural sources discussed in 2.2.

In December 2020, Mote Limited undertook a co-location study between one of the ES-642's and a Thermo FH62 Beta-attenuation monitor (BAM),for the purpose of assessing the level of performance of the ES-642 dust monitors against a higher quality reference grade monitor. The BAM was operated in accordance with AS/NZS 3580.9.11:2016 except that a TSP inlet was used instead of a PM_{10} inlet. The conclusion of this study showed the ES-642 monitors under-reported concentrations of TSP and a K-factor of 1.4 should be applied to the ES-642 readings to better represent the TSP concentrations. TIL has confirmed this K-factor has been applied to all data reported in this assessment.

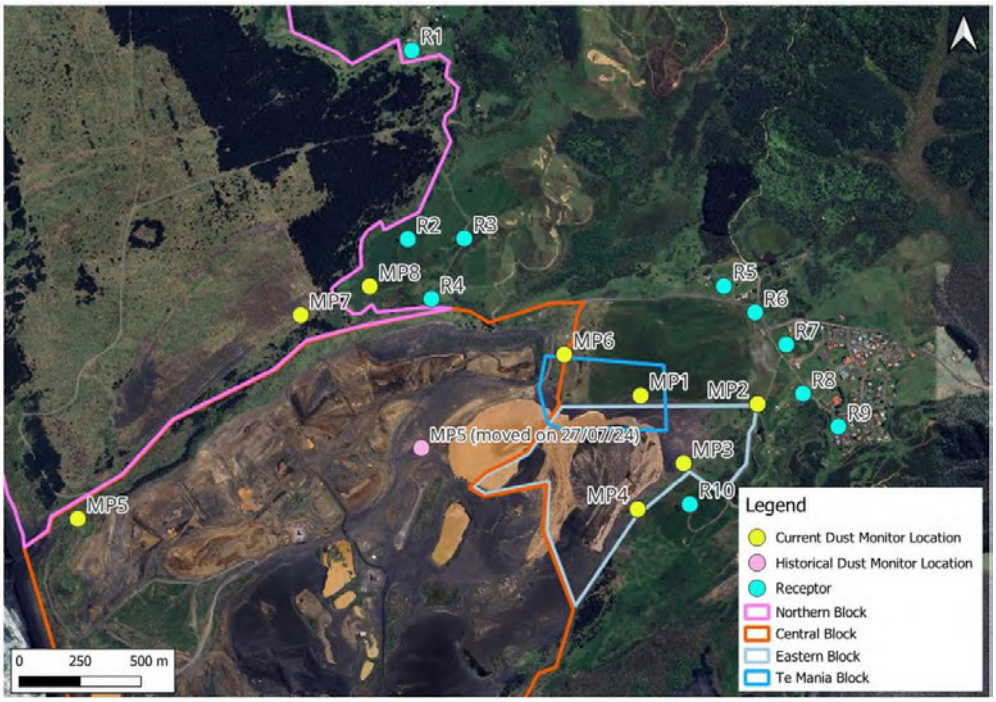

Figure 7: Taharoa Dust Monitors and Nearby Receptor Locations

PDP has reviewed and analysed the dust monitoring data from 1 July 2023 to 31 January 2025. Table 5 presents a summary of the 1-hour average and daily average results with Figure 8 to Figure 10 presenting time series of daily average concentrations for each monitor. PDP only calculated the daily averages from days where there were at least 75% valid data[8] in line with the MfE Good Practice Guide for Air Quality Monitoring and Data Management (GPG Data)[9].

[8] Valid data is defined in GPG Data as data that has passed quality assurance checks. Generally, these include checking the operating status and calibration of the monitor, comparison of data to other data collected by the same monitoring network, and comparison of data to national, international, and other accepted standards.

[9] Ministry for the Environment. 2009. *Good Practice Guide for Air Quality Monitoring and Data Management.*

Table 5: Summary of TSP Monitoring Data

Monitor	1-hr Average (µg/m³)			24-hr Average (µg/m³)		
	Mean	75th Percentile	99th Percentile	Mean	75th Percentile	99th Percentile
MP1	15	8.4	323	14.3	10.6	179
MP2	12	7.9	170	10.8	10.1	84
MP3	9.6	8.5	103	9.1	10.0	59
MP4	13	9.6	173	12.2	12.6	92
MP5 (Location 1)	10	9.4	94	9.4	10.1	39
MP5[10] (Location 2)	1.9	2.6	84	2.0	2.9	8
MP6	8.5	7.9	92	8.4	8.8	55
MP7	12	14	70	12.4	14.6	52
MP8	9.3	11	44	9.4	11.2	39

Table 6: MfE Suggested 1 hr TSP Trigger Level Compliance – Jul 2023 to Jan 2025

Monitor	Percentage of Time < 200 µg/m³
MP1 (On the edge of a mining pit)	98.6%
MP2 (Located closest to the Village)	99.2%
MP3 (Close to R10)	99.7%
MP4 (Close to R10)	99.3%
MP5 (Located on the Western side of the Site)	99.8%
MP6	99.7%
MP7[2]	99.8%
MP8[2] (Closest to Northern neighbours)	99.8%

Notes:

1. *200 µg/m³ refers to MfE's suggested trigger level for receptors in a high sensitivity location.*
2. *Monitors MP7 and MP8 were installed in October 2024.*

[10] There have been communication issues with this monitor since it was moved. Consequently PDP has some concerns about the representativeness of the data presented, particularly the 24 hour average which is significantly lower than would be expected in this type of environment.

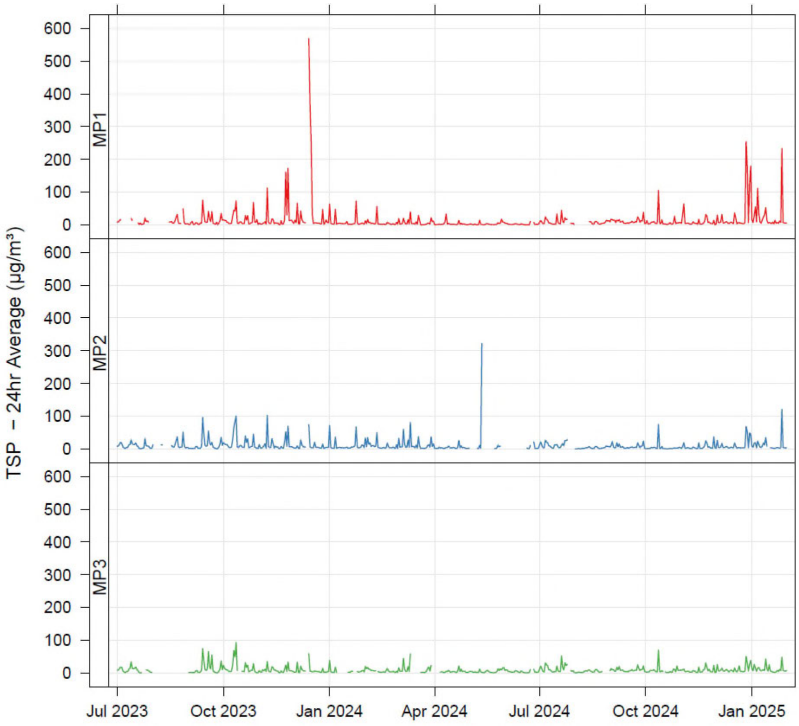

Figure 8: MP1 to MP3 Average Daily TSP Concentrations

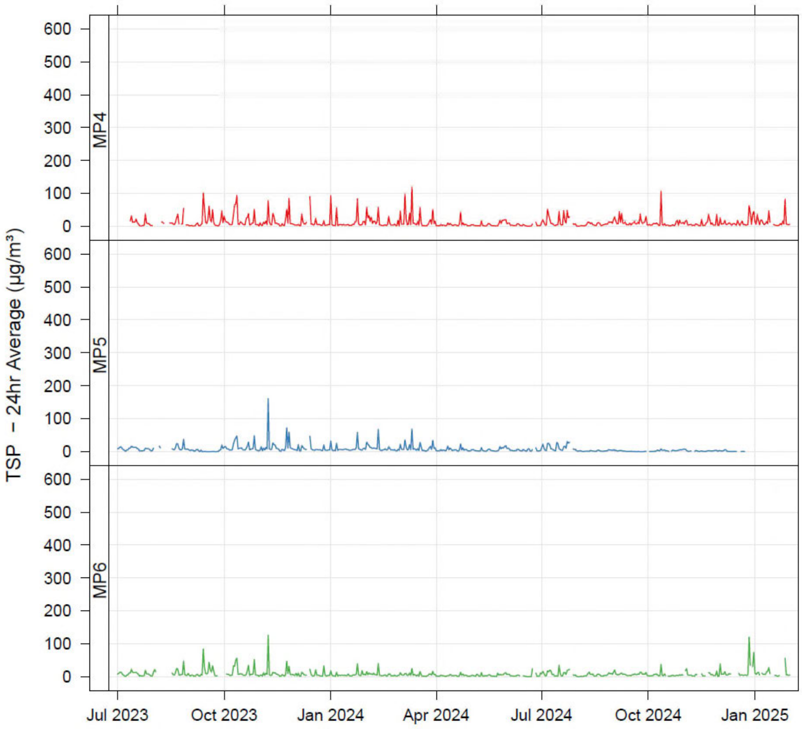

Figure 9: MP4 to MP6 Average Daily TSP Concentrations

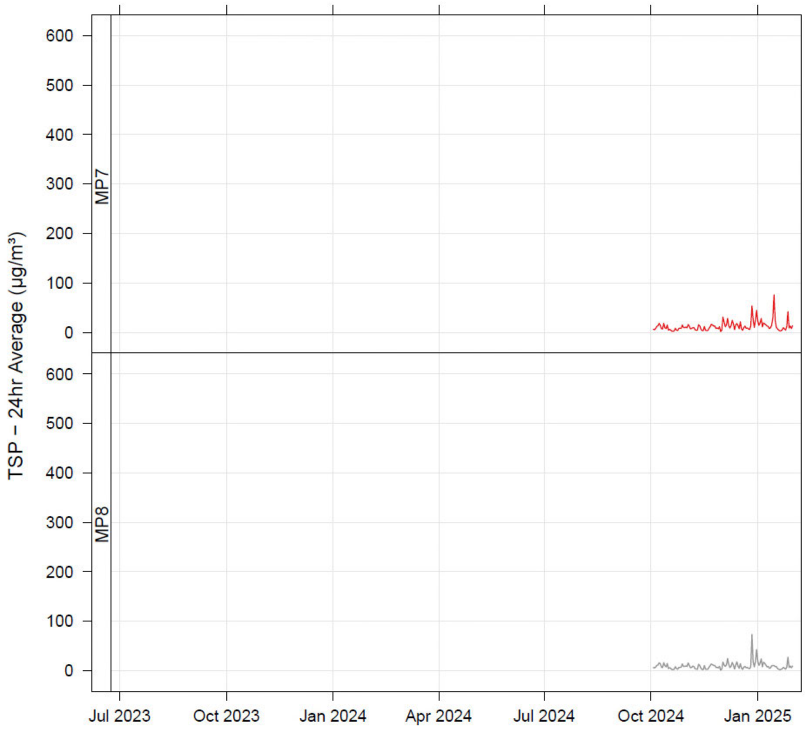

Figure 10: MP7 and MP8 Average Daily TSP Concentrations

To better understand this data, PDP has presented polar plots showing the 1-hour average concentrations per wind direction for each dust monitor. These are presented in Figure 11 to Figure 13. Polar plots using the maximum concentrations per wind direction are presented in Appendix A.

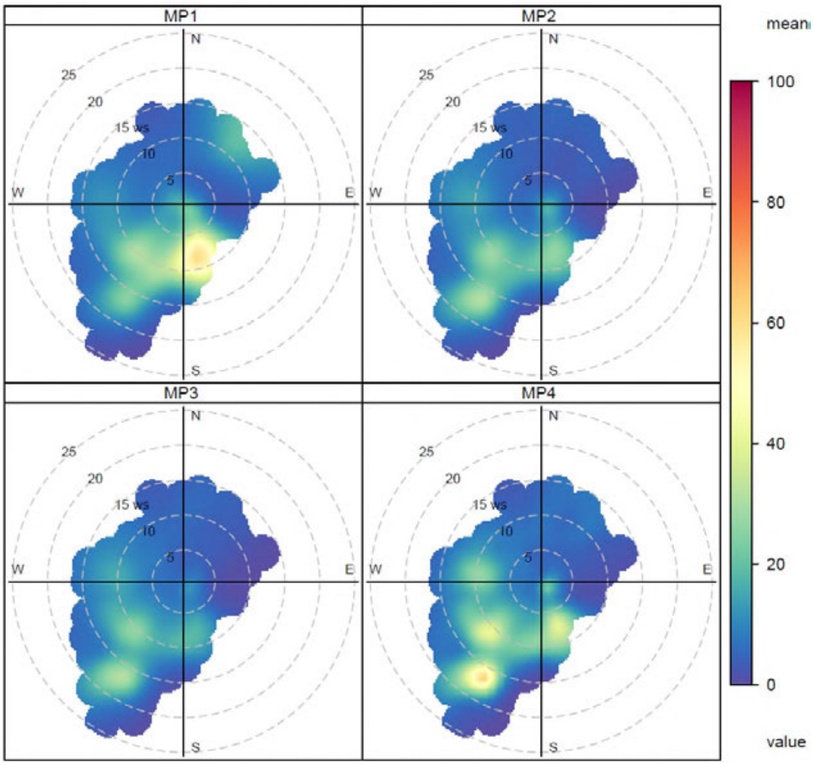

Figure 11: Polar Plots from MP1 to MP4 Showing 1-hr Average TSP Concentrations (µg/m³) per Wind Condition

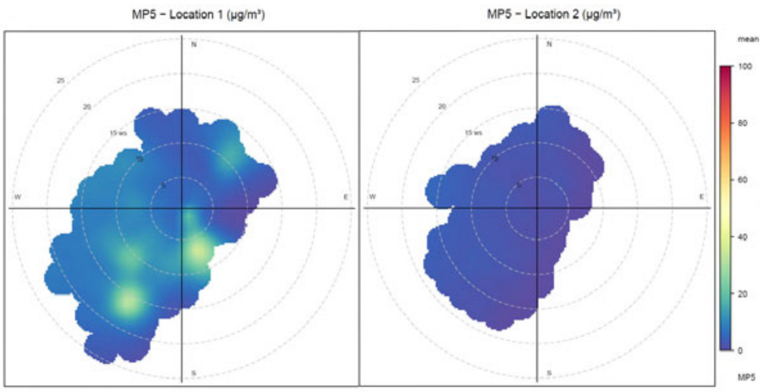

Figure 12: Polar Plots from MP5 Showing 1-hr Average TSP Concentrations (µg/m³) per Wind Condition

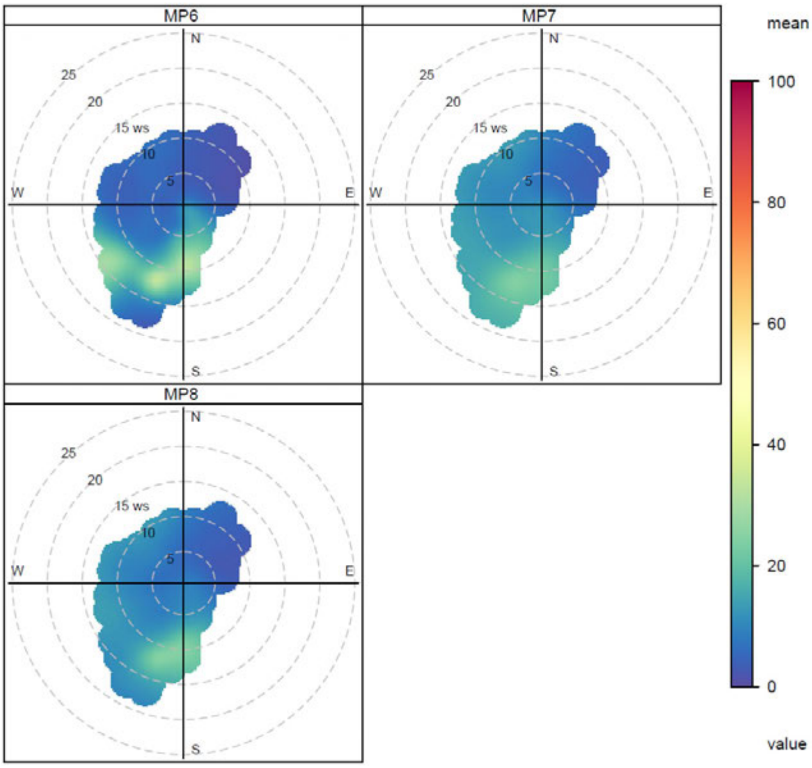

Figure 13: Polar Plots from MP6 to MP8 Showing 1-hr Average TSP Concentrations (µg/m³) per Wind Condition

These polar plots demonstrate which wind conditions (speed and direction) are present when elevated dust concentrations have been recorded. Figure 14 presents the polar plots from Figure 11 to Figure 13 in the locations where the data was measured. This shows in general, strong winds (greater than 10 m/s) from the south and southwest result in higher dust concentrations being recorded. When assessing each polar plot individually against the location of the monitor, the higher concentrations align with potential dust sources downwind on the Site. This provides confidence that the monitors are an effective dust management tool, and that historically they have been recording concentrations in line with potential upwind dust sources on the Site.

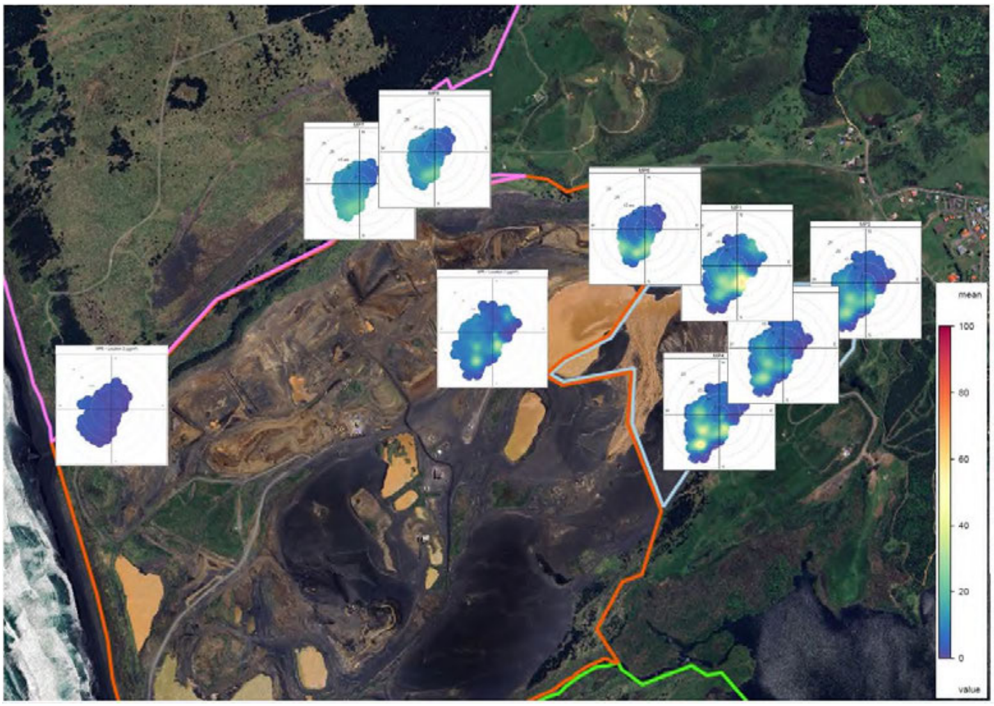

Figure 14: All 1-hr Average Polar Plots (µg/m³) Overlaid on an Aerial Photograph of the Site

PDP has also compared monitoring results from MP2 and MP4, with MP2, representing the closest monitor to Taharoa Village and MP4 being the monitor that is predominantly upwind of MP2, and therefore more representative of naturally occurring dust. This comparison, presented in Figure 16, shows that MP4 is consistently greater than MP2.

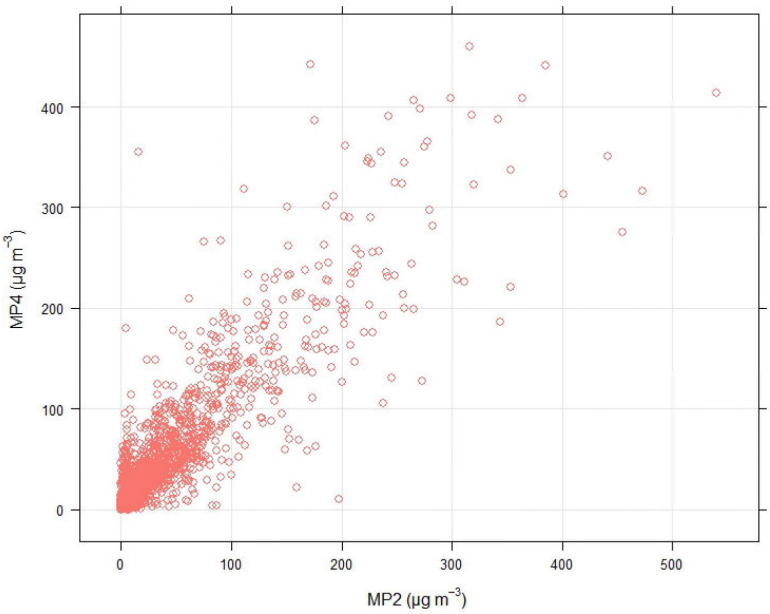

Figure 15: Comparison of same hour TSP concentrations MP2 and MP4

5.2 Dust Deposition

The dust particles emitted from activities undertaken in the CSB are likely to be either clay or sand like and typically range between 20 and 200 µm in diameter.

Figure 17, Figure 18, and Figure 19 present the potential particle travel distances based on a range of wind speeds and particle diameters. Stokes law has been used to calculate these potential travelling distances, with a conservative particle release height of 3 m assumed.

PDP has calculated the potential travelling distances for clay particles sized 20 and 70 µm in diameter. Figure 17 shows that smaller clay particles can travel up to 1,500 m when released from three metres (m) high and the wind speed is 15 m/s. PDP notes that an individual 20 µm particle is not visible to the naked eye however acknowledges that a significant cumulation of these particles in a localised area may become visible. Particles that are picked up from the ground will not necessary travel as far.

Figure 18 shows that the slightly larger particles measuring 70 µm in diameter could be transported up to 120 m by 15 m/s wind speeds, and up to 80 m by 10 m/s wind speeds.

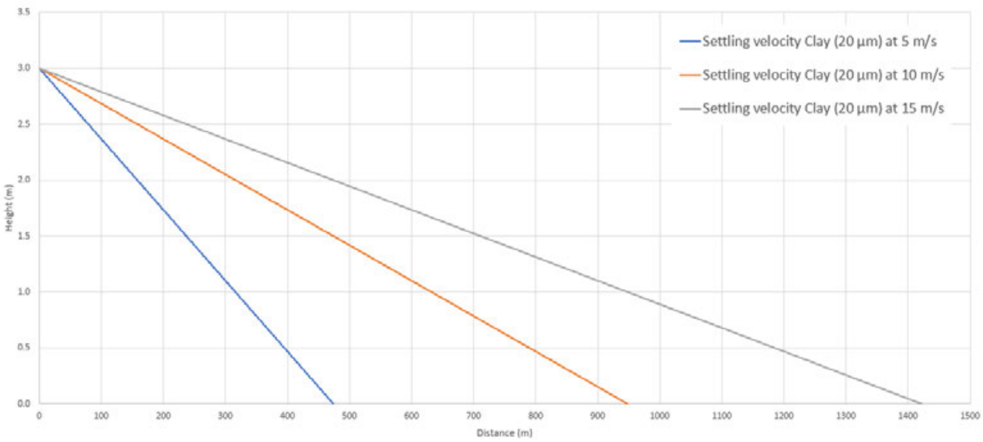

Figure 16: Deposition Distance of 20 µm Clay Particles from a Release Height of 3 m

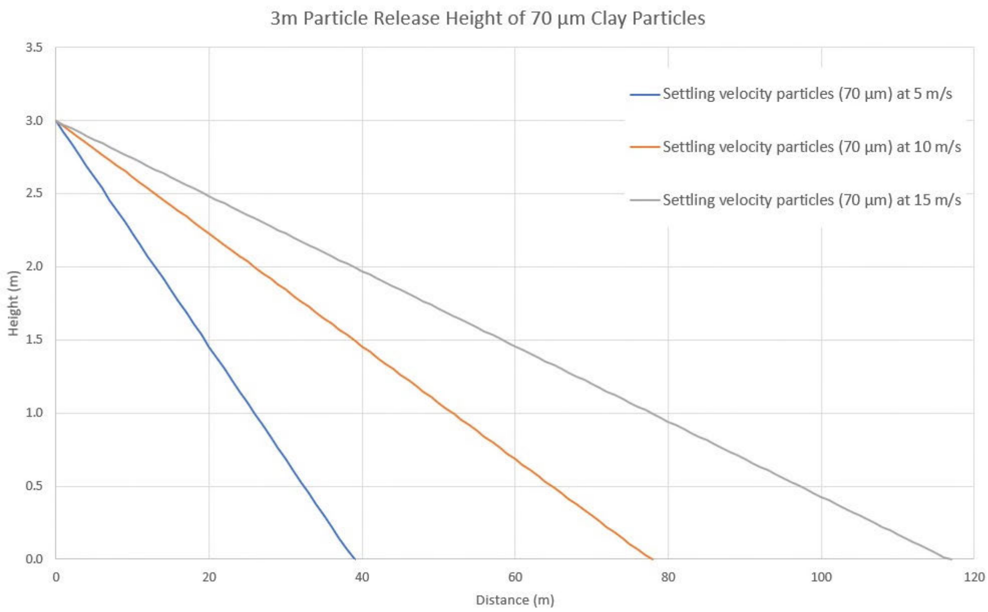

Figure 17: Deposition Distance of 70 µm Particles from a Release Height of 3 m

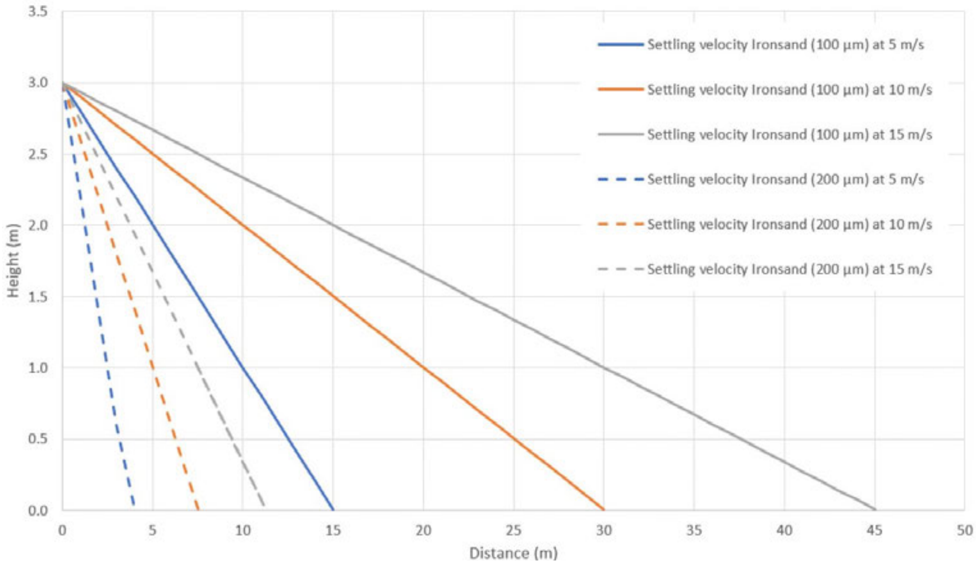

Figure 18: Deposition Distance of Ironsand Particles from a Release Height of 3 m

Figure 17 to Figure 19 demonstrate the distances that particles that might be generated on the Site can travel in varying wind conditions. The exposed coastal nature of the Site means that occasionally, very high wind speeds can occur, especially from the southwest. In such cases, while mitigation measures help, it may not be practicable to control dust to the point where significant concentrations are not recorded off-site.

6.0 Mitigation Measures

6.1 Current Mitigation Measures

There is a Site Interim Dust Management Plan (I-DMP) in place in relation to the CSB. This Plan was prepared in 2024, with PDP's input. PDP has set out the specific control measures in the Interim Dust Management Plan in Table 7.

In addition to measures set out in the I-DMP, TIL is progressively rehabilitating areas of the Site where works are complete. As stated previously PDP understands that TIL is planting more than 25,000 plants during winter 2025 (equating to 2.5 ha of planting) and rehabilitating a portion of the Eastern Block which will be planted in pines and handed back to the landowner. This progressive rehabilitation is also one of the most significant dust mitigation measures as it reduces the areas of exposed surfaces which consequently reduces the potential for wind-blown dust emissions to be present.

Table 7: TIL Dust Control Measures

Trigger Level	Within 300 m of the Northern and Eastern Boundary of the Central Block	Remainder of Site
Level 1 – Normal	• Normal operations. • Ensure water cart is available if needed. • Track roll silt/clay stockpiles whilst winds are low.	• Normal operations.
Level 2 – Alert	• Limit vehicle speeds to <10 km/h. • Minimise vehicle movements across exposed silt/clay. • Apply water to exposed clay/silt surfaces that are trafficked. • Limit drop heights when working with silts/clays. • Track roll stockpiles and apply water if needed. • Inspect every 2 hours to identify dust generation. • Monitor SCADA system to allow early identification of a change in alert level.	• Minimise vehicle movements across exposed silt/clay. • Ensure water cart is available if needed. • Commence pre-wetting areas if the wind is forecast to rise.
Level 3 – High	• Only undertake work if absolutely necessary. • Limit vehicle movements to the absolute minimum. • Dampen, and keep damp, all areas being actively mined, or all areas with silts/clays exposed.	• Limit vehicle speeds to <10 km/h. • Apply water to exposed clay/silt surfaces that are trafficked and stockpiles of silts/clays. • Limit drop heights when working with silts/clays. • Inspect every 2 hours to identify dust generation. • Monitor SCADA system to allow early identification of change in alert level.

Table 7: TIL Dust Control Measures

Trigger Level	Within 300 m of the Northern and Eastern Boundary of the Central Block	Remainder of Site
Level 4 – Extreme	Cease work that has the potential to generate dust (aside from placement of tailings and application of water to keep areas wet).	Limit vehicle speeds to <10 km/h and minimise vehicle movements. Dampen all areas within the active mining area and roads. Cease removing, transporting and stockpiling silt/clay overburden. Limit drop heights when working with silts/clays. Inspect every 2 hours to identify dust generation. Monitor SCADA system to allow early identification of change in alert level.

6.2 Trial Mitigation Measures

In addition to the measures set out in Section 6.1, TIL is also continuously investigating was to manage dust on the Site. The following methods are being explored to enhance the current dust management systems:

- Trialling a mobile fogging water cannon as a targeted dust control system;
- Trialling the application of polymers. TIL has trialled several products and is in the process of procuring product for a large scale trial;
- Implementing fixed automated sprinkler systems on the first 500 m of the main access road into the Site; and,
- Developing a mobile, quickly deployable irrigation system to allow targeted water application in 'high-risk' areas.

PDP considers that all of these measures will assist in controlling dust emissions from the Site when trialled in combination with the dust control measures set out in Section 6.1 and the ongoing rehabilitation measures discussed in Section 2.1.

Other measures, including the use of coconut matting have previously been trialled however PDP and TIL consider the other measures set out above are likely be more effective in controlling dust.

6.3 Recommended Mitigation Measures

As previously mentioned, the site is exposed to very high wind speeds due to the exposed coastal location.

To further enhance the Site's dust control framework, additional mitigation measures are recommended beyond those currently implemented as set out in Section 6.1 and proposed in Section 6.2. While the existing I-DMP has proven effective in controlling dust under typical conditions, the proximity of receptor R4 in particular, warrants the following proposed control:

PDP recommends that a minimum of 100 m is stabilised along the Central Block boundary, near to receptor R4, when mining is not actively occurring, and the surface is exposed for more than 3 months. In this context, stabilisation does not necessarily mean planting however this is a very effective form of stabilisation. Stabilisation can also be achieved by covering areas with geotextiles or by applying chemical suppressants (such as polymers), as well as any other measure which reduces the amount of exposed surface.

As mentioned in Section 2.5.1, receptor R4 is located 40 m from the boundary of the Central Block and is therefore defined as 'close' under the IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning[11] because it is within 100 m of a dust source. However, by introducing a 100 m priority stabilisation area adjacent to the site boundary R4 would effectively be positioned 140 m from any potential dust source following stabilisation. Any dust control measures implemented to help control dust at receptor R4 will also help control the other two nearby receptors (R2 and R3) as these are both located further form the boundary of the Central Block.

Figure 20 identifies the priority area for stabilisation as it will be the most effective area to control dust at the nearest receptors.

This boundary stabilisation will have a significant impact on minimising off-site dust effects and PDP recommends this mitigation measure is adopted and included in the Site's EMP. The TSP monitoring will provide feedback on the effectiveness of the stabilisation.

Generally, the larger the exposed areas are, the harder it is to manage wind-blown dust from them. Other exposed areas of the CSB should therefore be stabilised as soon as operationally practicable to aid the success of the mitigation measures proposed.

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[11] Institute of Air Quality Management, May 2016. *Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1*

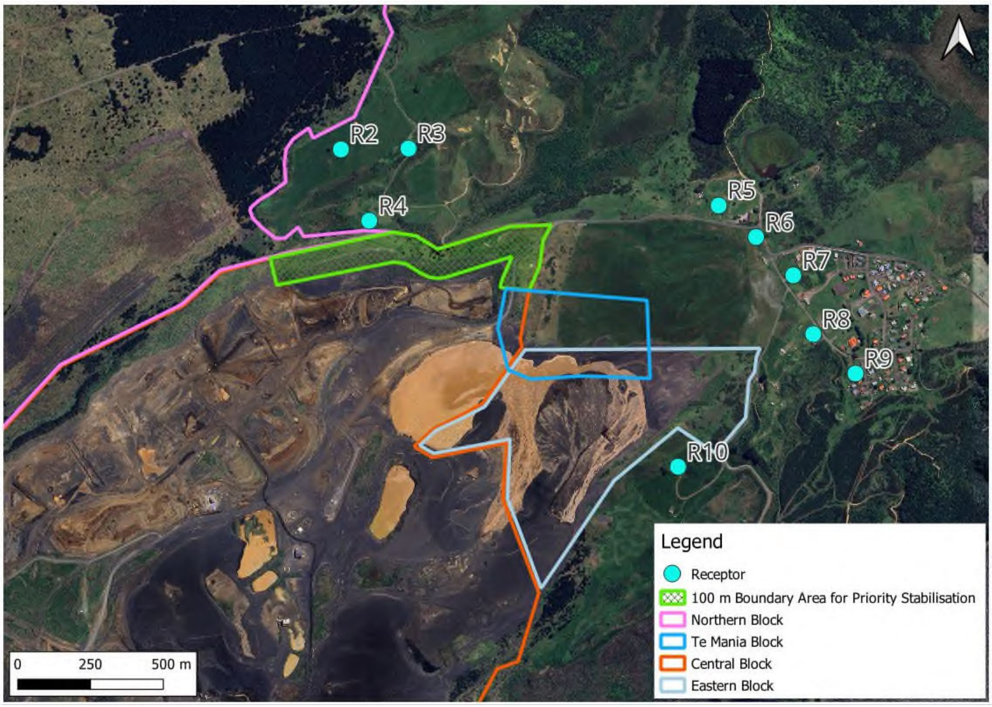

Figure 19: Priority Stabilisation Area in the Central Block

6.4 End of Mine Life Rehabilitation Measures

Dust management will occur during any de-commissioning type works (including removing buildings, pipes, DMU's, and mining equipment) as part of mine closure.

Measures to control dust have not yet been finalised for these activities however will be included in the Site's Concept Site Closure Plan. Given that the site is progressively rehabilitated, these measures are likely to be similar to what has already been considered above.

7.0 FIDOL Assessment

In the following section of the report PDP assesses the potential for dust effects from the mining operations in the CSB (including the current and recommended mitigation measures) against the FIDOL factors.

7.1 Frequency

To determine the frequency of potential adverse effects from dust, four parameters need to be established and understood. These are:

- The direction(s) of potentially affected receptors in relation to potential dust generating activities within the CSB;

- The frequency at which the winds blow from these directions with a wind speed great enough to transport dust significant distances;
- The distance between the receptor and the dust source; and,
- The frequency of dust discharges within the CSB.

PDP considers that wind speeds above 5 m/s have the greatest potential to cause dust nuisance at the identified receptors if the mitigation measures identified in the I-DMP are not implemented as these winds are strong enough to pick dust from the ground and transport it some distance as shown in Figure 17 to Figure 19.

Table 8 presents a summary of the first three parameters listed above.

Table 8: Summary of Receptor Downwind Frequencies and Distances to CSB

Receptor	Wind Direction(s) when Receptor is Downwind of CSB	% of time Downwind of CSB (winds > 5 m/s)	% of time Downwind of CSB (winds > 7.5 m/s)	Distance to boundary of the CSB (m)
R1	SE to SSW	10.2	5.4	1,050
R2	ESE to SW	19.1	10.8	300
R3	ESE to SW	19.1	10.8	275
R4	ESE to SW	19.1	10.8	40
R5	SSW to WSW	20.5	12.1	560
R6	SSW to W	23.1	13.4	700
R7	SW to W	15.0	8.9	810
R8	SW to WNW	16.1	9.2	975
R9	SW to WNW	16.1	9.2	1,140
R10	SW to NW	17.1	9.4	575

PDP notes that the percentages do not represent the percentage of time these receptors will experience nuisance dust effects, however, they show the receptors that are at a higher risk of being subject to adverse dust effects.

Receptor R6 is most frequently downwind of the CSB based on the 2022 to 2024 data at 23.1% of the time for winds greater than 5 m/s, and 13.4% of the time for winds greater than 7.5 m/s. Table 8 shows all receptors are downwind of the CSB for less than 15% of the time during winds greater than 7.5 m/s.

When considering these downwind percentages together with the separation distances also presented in Table 8, the potential frequency that receptors R1 to R3, and R5 to R10 might experience nuisance dust effects will be low. This is primarily due to the separation distances between these receptors and the boundary of the CSB, as well as the analysis that shows these receptors will all relatively infrequently be downwind of the CSB during high wind speeds.

PDP considers receptor R4 may experience slightly higher frequencies of nuisance dust effects, primarily due to the relatively small separation distance. However, after considering the frequency this receptor will be downwind, PDP considers R4 will experience low to moderately frequent nuisance dust effects.

These frequencies will reduce further with the appropriate mitigation measures applied which are discussed in Section 6.0.

7.2 Intensity

Intensity relates to the concentration of dust that is likely to be experienced at a receptor. Table 9 shows that the mean 1-hour average TSP concentrations across all monitors are well below the MfE suggested trigger level of 200 µg/m³. Furthermore, concentrations for all monitors between July 2023 and January 2025 (excluding MP1), were below the 200 µg/m³ suggested trigger level for 99 percent of the time. MP1 is located on the boundary of the Eastern Block, approximately 550 m from the nearest receptor (Receptor R6). This is a significant separation distance and when considering the MP1 concentrations and this separation distance, PDP considers the nearest receptors are unlikely to experience significant intensities of dust.

Overall, PDP considers receptors R1 to R3, and R5 to R10 will experience low intensities of dust. If the mitigation and dust control measures outlined in Section 6.0 are not appropriately implemented, receptor R4 may experience higher intensities of nuisance dust. However, with the mitigation and control measures applied, PDP considers R4 will typically experience low dust intensities.

7.3 Duration

Duration relates to the length of time that a receptor is exposed to adverse dust effects. PDP has calculated the percentage of the events where monitors MP2, MP3, MP4, and MP8 exceeded 200 µg/m³ which are presented in Table 9.

Table 9: TSP 1-hour Average 200 µg/m³ Exceedance Events

Event Hours	MP2		MP3		MP4		MP8	
	Events	% of Total Events	Events	% of Total Events	Events	% of Total Events	Events	% of Total Events
1	17	50%	12	63%	23	53%	1	50%
2	10	29%	5	27%	6	14%	0	0%
3	1	3%	0	0%	4	9%	0	0%
4	0	0%	1	5%	5	12%	1	50%
5	2	6%	0	0%	2	5%	0	0%
6-11	3	9%	1	5%	3	7%	0	0%
12+	1	3%	0	0%	0	0%	0	0%
Total Events	34		19		43		2	

Notes:
1. *MP8 was installed in October 2024.*

As shown in Figure 7, these monitors are closest to the nearby receptors and PDP considers these are the most representative of the 1-hour average TSP concentrations expected at the nearest receptors.

For this analysis, an event has been defined as a period of time where the TSP concentration was recorded as being at least 200 µg/m³ for one or more consecutive hours. For example, if consecutive hours recorded 1-hour average values of 90, 120, 205, 160, and 50 µg/m³, the third hour (which exceeds 200) is counted as a single one hour long event. If consecutive hours recorded 1-hour average values of 90, 240, 205, 215, and 50 µg/m³, the middle three hours would be counted as one, three hour long event.

These tables show that between July 2023 and July 2025 approximately half of the 200 µg/m³ exceedance events for these four monitors lasted for one hour, and between 67% and 90% (excluding MP8, which has only experienced two exceedance events) of events lasted for 2 hours or less.

One event lasting 12 hours or more was recorded by MP2 during May 2024. During this time period the average wind direction was from the northeast, with only one hour of wind recorded as blowing from the southwestern quadrant (which would place the Site upwind of the monitor). During this period a total of 4 mm of rain fell, the relative humidity (RH) averaged 91.4%, and the average wind speed was recorded as being relatively low (2.6 m/s). High RH can cause nephelometers (like those used on Site) to overread dust concentrations. Given the wind direction, rainfall, wind speed, and RH during this 12 or more hour event, PDP is confident the Site was not the cause of these elevated dust concentrations.

This data shows that the Site's current dust mitigation measures are effective in controlling dust, and when an event where elevated TSP concentrations are recorded, the measures ensure they generally do not extend for significant periods of time.

Based on the analysis presented in this section, PDP considers the duration of any elevated dust concentrations (greater than 200 µg/m³ as a 1-hour average) is likely to be for 2 hours or less. This duration typically correlates with the time it takes for Site staff to be alerted by a high concentration (using the alert system presented in Table 4) and action the appropriate implementation of additional dust control measures.

7.4 Offensiveness

In terms of dust, offensiveness is often related to the visibility of the dust which includes whether or not the dust is obvious on surfaces. Ironsand is naturally dark/black in colour and therefore if present in significant quantities can be noticeable and have the potential to cause nuisance effects. Clay particles are less likely to cause nuisance effects for two main reasons. Clay particle sizes are relatively small and therefore less visible. They are also very similar in colour to other common dust particles present in rural environments. These are therefore less likely to be detected over and above dust that may be present from typical rural activities, as long as the appropriate dust mitigation and management measures are implemented. If these mitigation measures are not implemented, then the risk of off-site dust effects will increase.

There is the potential for dust discharges to become offensive if they are transported in large quantities. This can occur even when all reasonable mitigation measures are implemented and during extremely high wind speeds which are possible due to the exposed coastal nature of the Site.

PDP considers that for the majority of the time the dust generated from the CSB is of a low to moderate offensiveness predominantly due to the variation in both colour and particle size.

7.5 Location

The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning[12] categorises a receptor as "distant" if the receptor is located between 200 and 400 m from the dust source[13].

With the exception of R4, all receptors are located a minimum of 275 m from the CSB. Figure 17 to Figure 19 present the calculated settling distances of the range of particle sizes and densities that PDP considers are likely to be discharged by the Site's operations. These figures show that the larger particles (70 µm and above) could travel up to 120 m during 15 m/s winds however the finer 20 µm particles can travel significant distances.

Table 10 sets out the distance classification (defined in Section 2.5.1) of each receptor as set out by the IAQM.

Table 10: Sensitive Receptors Distances Near the CSB

Receptor Name	Address	Receptor Type	Approx Distance from CSB Boundary (m)	IAQM Classification
R1	Taharoa Rd	Marae	1,050	Further than distant
R2	Unknown	Residential	300	Distant
R3	1891A Taharoa Rd	Residential	275	Distant
R4	1891 Taharoa Rd	Residential	40	Close
R5	Te Kura o Tahaaroa	School	560	Further than distant
R6	1 Rotopuhoe Rd	Residential	700	Further than distant
R7	Te Matangi St	Residential	810	Further than distant
R8	20 Aroka Marae Rd	Residential	975	Further than distant
R9	53 Pohutukawa Pl	Residential	1,140	Further than distant
R10	Unknown	Residential	575	Further than distant

[12] Institute of Air Quality Management, May 2016. *Guidance on the Assessment of Mineral Dust Impacts for Planning, v1.1*

[13] Distances further than 400 m are not classified.

In general, PDP considers that the Site is appropriately located and that there are generally sufficient separation distances between the Site and the nearby receptors. With the exception of receptor R4 (defined as close) all receptors are defined as either distant, or further than distant[14]. However, PDP acknowledges the relatively small separation distance between the CSB and receptor R4. Consequently, the priority stabilisation mitigation measures detailed in Section 6.3 has been recommended to minimise the potential for dust nuisance effects at this location.

PDP considers that if the mitigation measures outlined in Section 6 (including the recommended priority stabilisation area) are appropriately implemented this will further reduce the potential for nuisance dust effects to be experienced at receptor R4.

7.6 FIDOL Conclusion

Having assessed the mining operations in the CSB against the FIDOL factors, PDP considers it is unlikely that activities under the control of TIL will result in offensive or objectionable dust effects being experienced off-site for the reasons set out in Sections 7.1 to 7.5. All of the FIDOL factors must be considered before determining whether the dust is likely to be offensive or objectionable. This however is not to say that some dust will never be experienced off-site. PDP notes that during very high wind speeds, there will (regardless of the presence of the mine) be a significant contribution to TSP from naturally occurring sources, and marine aerosols in particulate. It is very difficult to ensure in these conditions that measured TSP concentrations remain below the trigger values discussed in Section 2.5.

8.0 Cumulative Effects

The locations of the potential dust generating sources and the receptors are such that the receptors are rarely downwind of multiple blocks of the Site, however the risk of future cumulative effects occurring is discussed in the following subsections on the occasions where they are.

8.1 Receptor R1

Receptor R1 is downwind of the Northern and Central Blocks when the winds are blowing between the southeast and southwest directions. Receptor R1 is located approximately 1,050 m from the boundary of the Central Block. PDP considers that this distance is adequate to control nuisance dust, and that there is a very low likelihood of cumulative dust effects being experienced at R1 as a result of the activities undertaken on the Northern and Central Blocks.

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[14] The IAQM does not include a distance definition of a receptor that is located further than 400 m from a dust source. PDP has therefore classified this as 'further than distant'.

8.2 Receptors R2 to R4

Receptors R2 to R4 are not downwind of more than one block of the Site at any point, with the exception of the Central Block and a relatively very small (approximately 3.4 ha) southeastern corner of the Northern Block in which PDP understands will not be mined.

PDP therefore considers there is a very low risk of cumulative effects being experienced at receptors R2, R3, and R4.

8.3 Receptors R5 to R9

When winds are blowing from between the south southwest and west northwest, receptors R5 to R9 may be downwind of more than one block. Receptor R5 is located approximately 1,100 m from the boundary of the northern block and R9 located approximately 1,600 m from the same boundary. This is a significant separation distance which PDP considers will be adequate to control any potential cumulative effects from the Northern Block, noting that Pit 1 is likely situated further that these stated distances.

The Te Mania Block is however located nearer than the Northern Block, with R5 being approximately 390 m from the boundary of the Te Mania Block. This is still a significant separation distance, and the mitigation measures set out in Section 6.0 apply to all blocks of the Site. PDP therefore considers that as long as any dust that is generated in the Te Mania Block is appropriately controlled, there is a low risk of cumulative effects being experienced downwind of the Central and Te Mania Blocks.

8.4 Receptor R10

During northwesterly winds, R10 is downwind of the Northern, Central, and Eastern Block, however, it is located approximately 1,200 m from the Northern Block boundary, meaning it is unlikely dust from this block will carry as far as R10.

Mining in the Eastern Block has also been completed, and Pit 1 of the Northern Block is relatively small (5 ha maximum open at any one time) and more than 1,900 m away. Pit 1 will also be mined over a relatively short time period (approximately 18 months). Northwesterly winds are also relatively uncommon at the Site, only accounting for 3.2% of the winds recorded between 2022 and 2024, with only 1.0% of all winds being from the northwest and greater than 5 m/s. PDP therefore considers that there is a low risk of cumulative effects being experienced at R10 from the activities undertaken at Pit 1 of the Northern Block and the Central Block.

9.0 Assessment Against Relevant Rules of the WRP

With regard to the CSB, the most relevant clauses in Section 6.1.8 of the WRP (which is set out in Section 3.0) are a), c), and d), noting that clause c) relates to the discharge of “objectionable” particulate matter to the extent that it causes an adverse effect at or beyond the boundary.

PDP considers it is extremely unlikely that direct health effects can be associated with the type of dust generated by TIL’s mining operations in the CSB.

The FIDOL assessment presented in this report concludes that as long as the mitigation and dust control measures currently presented in the Site’s I-DMP are appropriately implemented, there is a low potential for dust discharges from activities under the control of TIL within the CSB to cause offensive or objectionable effects at nearby receptors (as substantively explained above) .

PDP therefore considers that the site meets the requirements of permitted activity Rule 6.1.8, and Rule 6.1.16.1 of the WRP.

10.0 Conclusion

The purpose of this report is to assess the air discharge effects of the proposed activities within the CSB. In addition to this, PDP has set out additional mitigation measures to further enhance the Site’s dust control framework, including a priority stabilisation area near to receptor R4.

When assessing the existing TSP monitoring data together with the FIDOL factors and the Site’s current and proposed mitigation and dust control measures, PDP considers there is a low likelihood of offensive or objectionable dust effects being experienced off-site associated with future proposed activities as a result of site activities.

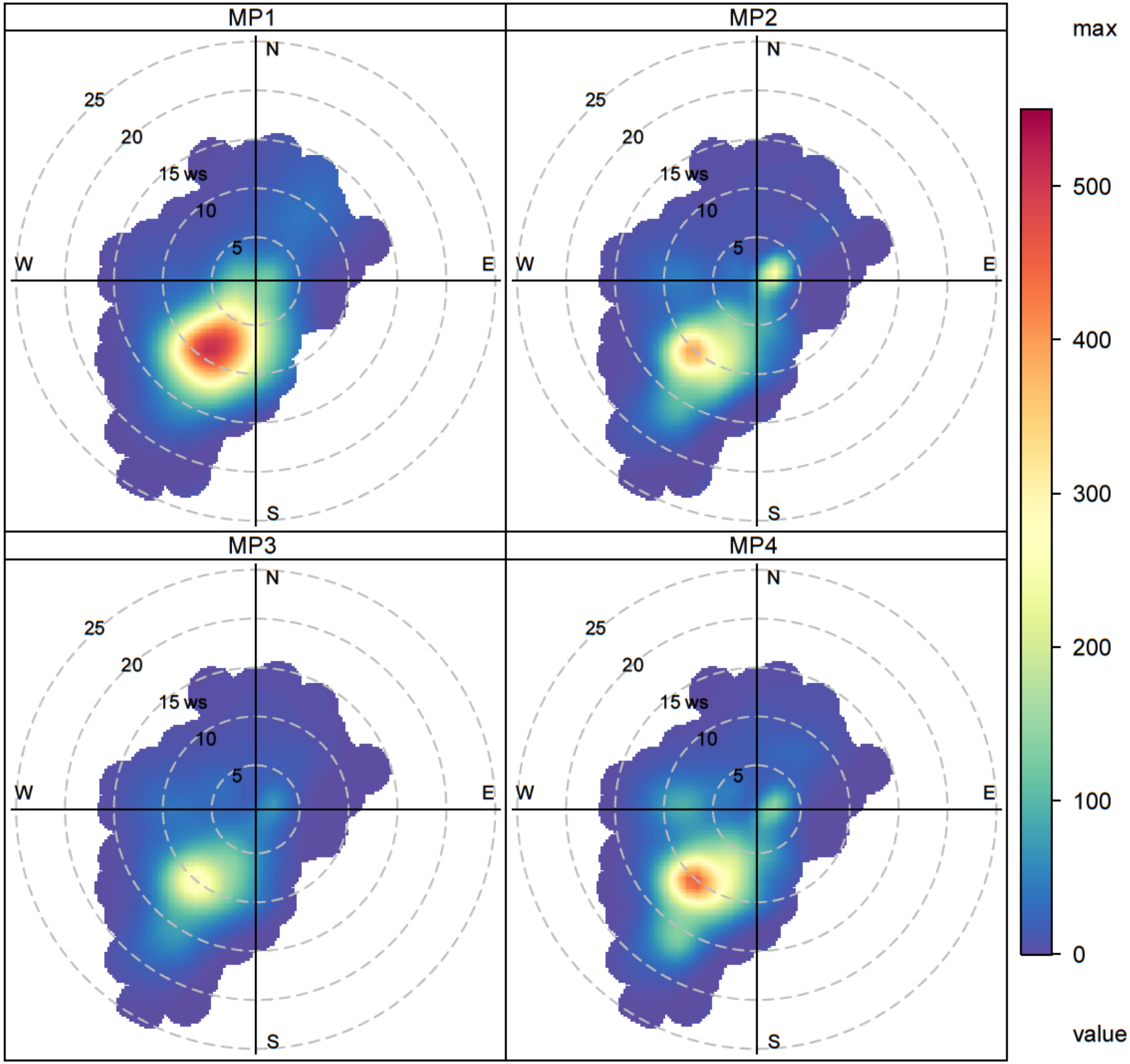
PDP considers that the Site can appropriately control dust emissions from its activities using the dust mitigation and control measures currently set out in the I-DMP and summarised in Section 6.0, to a point where offensive or objectionable effects are unlikely to be experienced at the nearby receptors.

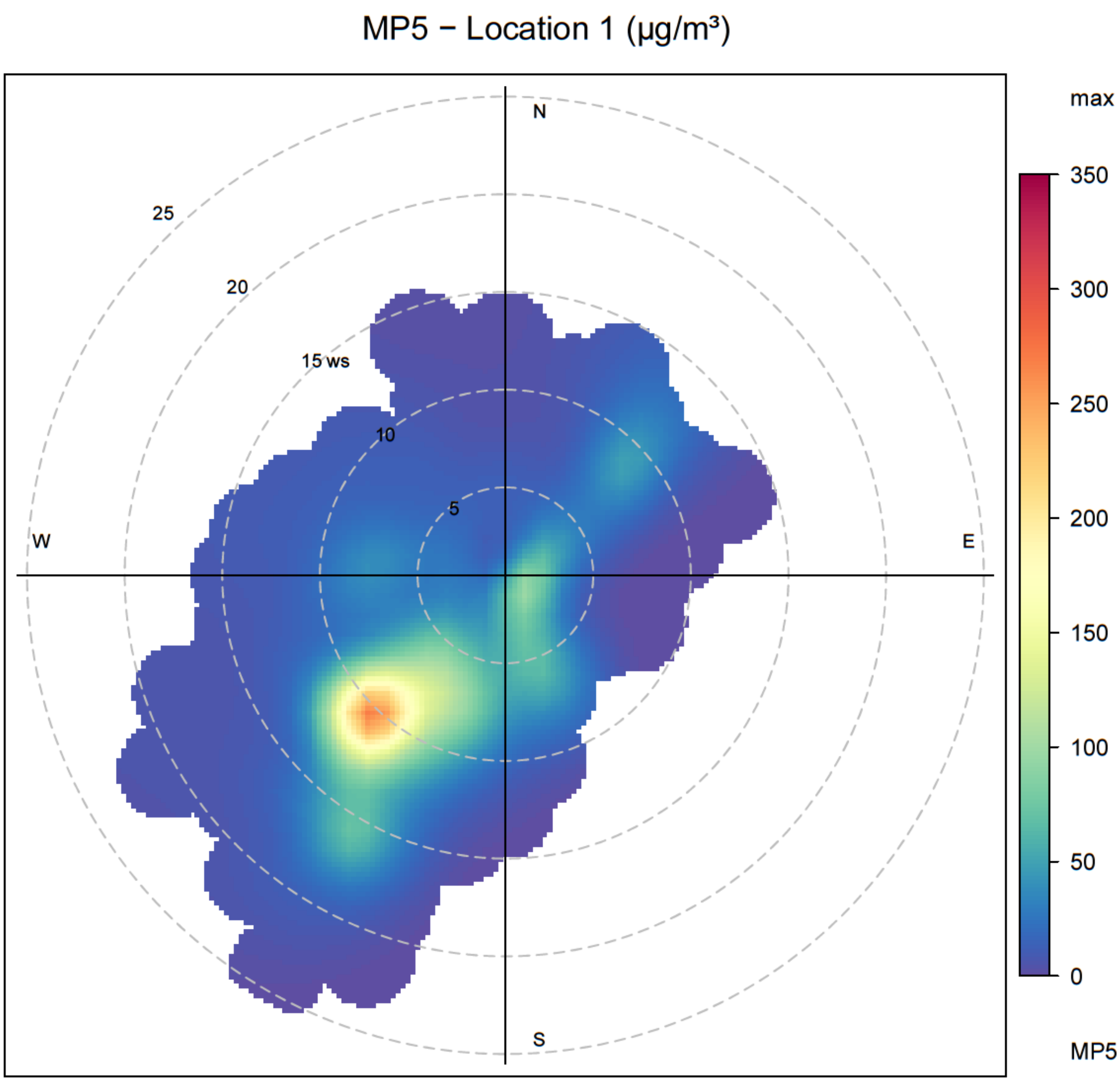
However as discussed, there is the potential in extremely strong wind conditions for there to be significant natural sources of TSP i.e. marine aerosols and natural sand, in particular. There is nothing that TIL can do to control these natural sources, and they would occur regardless of whether the mine was present or not.

Given that these natural sources will influence downwind concentrations of TSP, there may be occasions when despite the best efforts of TIL, high concentrations of TSP are experienced at nearby receptors.

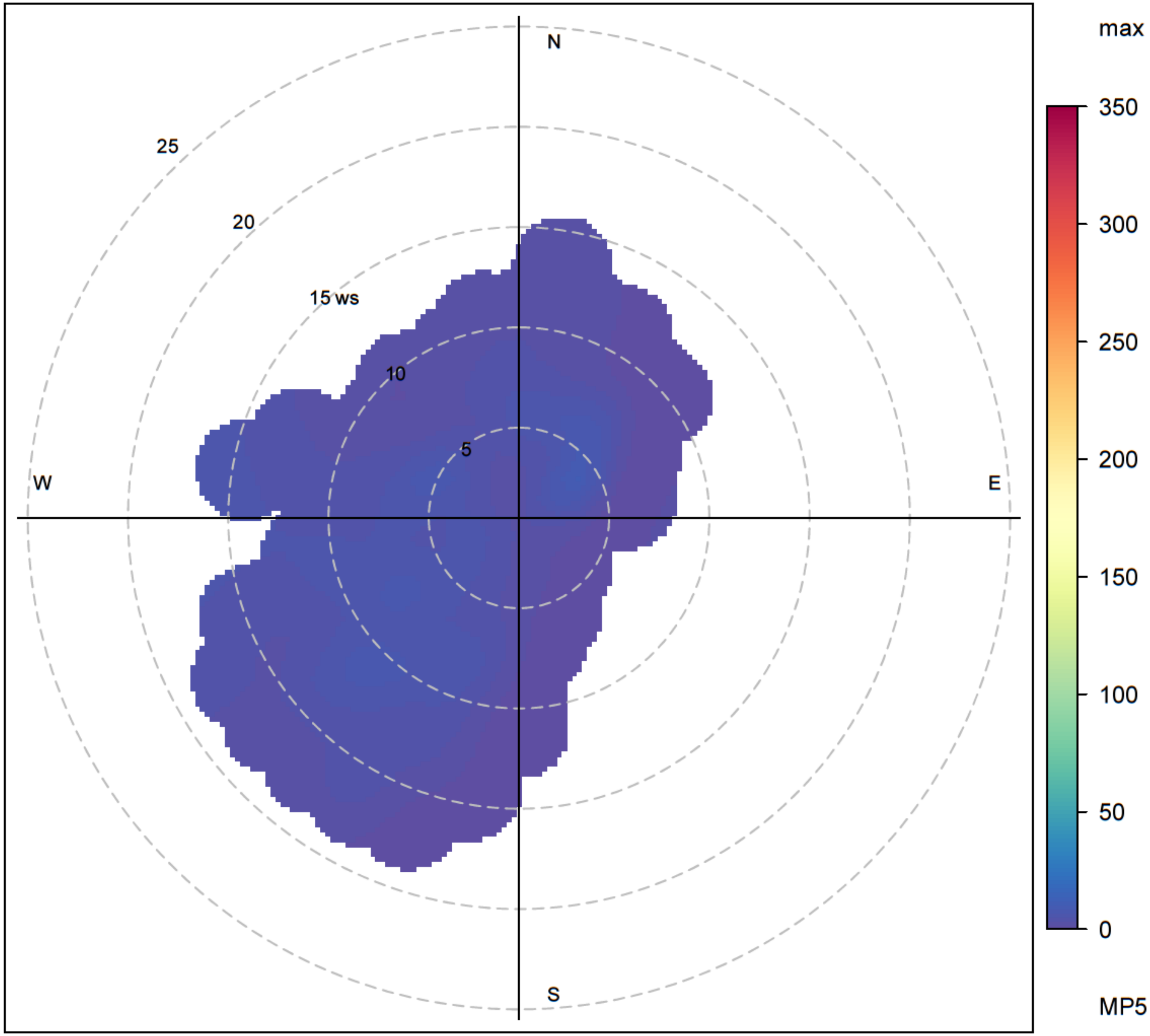
PDP also considers in relation to air quality, the proposed activities on the Site comply with Rule 6.1.16.1 of the WRP.

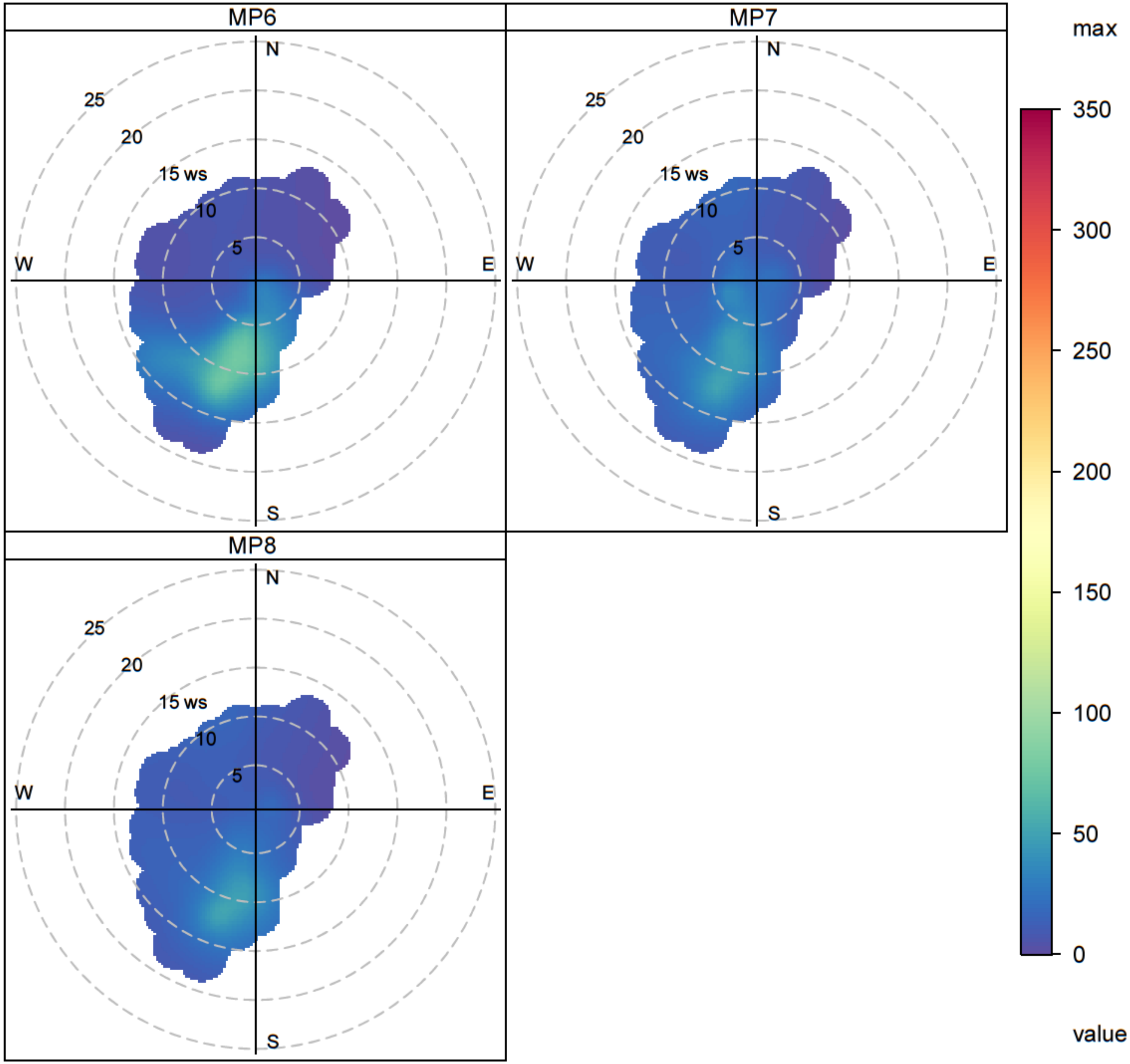
Appendix A: Maximum 1-hour Average TSP Polar Plots


MP1
MP2
MP3
MP4
N
S
E
W
5
10
15 ws
20
25
max
500
400
300
200
100
0
value


MP5 – Location 1 (µg/m³)
N
E
S
W
5
10
15 ws
20
25
max
350
300
250
200
150
100
50
0
MP5

MP5 – Location 2 (μg/m³)




MP6
MP7
MP8
N
E
S
W
5
10
15 ws
20
25
max
350
300
250
200
150
100
50
0
value