



memorandum

TO Laurence Dolan FROM Cameron Brown
Enviro NZ Limited DATE 18 April 2024
RE Response to Section 92 Request for Further Information

1.0 Introduction

In October 2023, Pattle Delamore Partners Limited (PDP) prepared an Air Quality Assessment for the Green Island Resource Recovery Precinct¹ as part of a new consent application numbered RM24.143. A request for further information under section 92(1) of the Resource Management Act 1991 (RMA) was issued on 9 April 2024 by the Otago Regional Council² (the s92). Questions 5 to 13 of this request for further information relate to air quality matters, and PDP has been engaged by Enviro NZ Limited (Enviro NZ) to provide responses to questions 6 and 12.

2.0 Question 6

Question 6 of the s92 response requested the following was considered:

- Please confirm whether it would be practicable to have a restriction on operating hours for certain activities with higher potential for odour, in particular bunker-to-bunker transfers, bunker unloading, and compost screening. For example, to require those activities only to be conducted between 10am and 4pm. The purpose of this request is to exclude meteorological conditions in the morning and late afternoon when the rate of dispersion may be poor.*

PDP understands that Enviro NZ is also responding to this question in relation to site operational matters. However, to assist in this PDP has reviewed the meteorological data (refer to section 3) to understand the potential impacts of changing operating hours.

Figure 1 presents six windroses which represent varying options for start and end times of work on site. Figure 2 then illustrates the locations of the nearby receptors which were identified in PDP's October 2023 air quality assessment.

¹ Pattle Delamore Partners Limited. 9 October 2023. *Green Island Resource Recovery Park Precinct – Air Quality Assessment*.

² Otago Regional Council. 9 April 2024. *Request for further information under section 92(1) of the Resource Management Act 1991 (the Act) – Consent Application Number RM24.143*

The windroses in Figure 4 indicate that:

- ∴ Overall, the windspeeds are higher during the day;
- ∴ The predominant winds during the daytime hours are from the east northeast, and from the northeast during the nighttime hours;
- ∴ Winds from the west southwest are also common during the daytime hours; and,
- ∴ Between 8:00 am and 9:00 am, there is a larger percentage of winds from the northeast, primarily in the percentage of light winds, however the winds from the remaining directions are very similar to those between 9:00 am and 10:00 am.

Consequently, PDP considers that while there is a reduction in the light winds as the day progresses, the variation occurs almost entirely in winds from the northeastern quadrant. However as can be seen in Figure 2, there are no identified receptors downwind of the site to the southwest.

Therefore, based on an analysis of meteorological data, PDP considers there would be minimal to no benefit in modifying the operating hours of the site in terms of the potential impacts of odour.

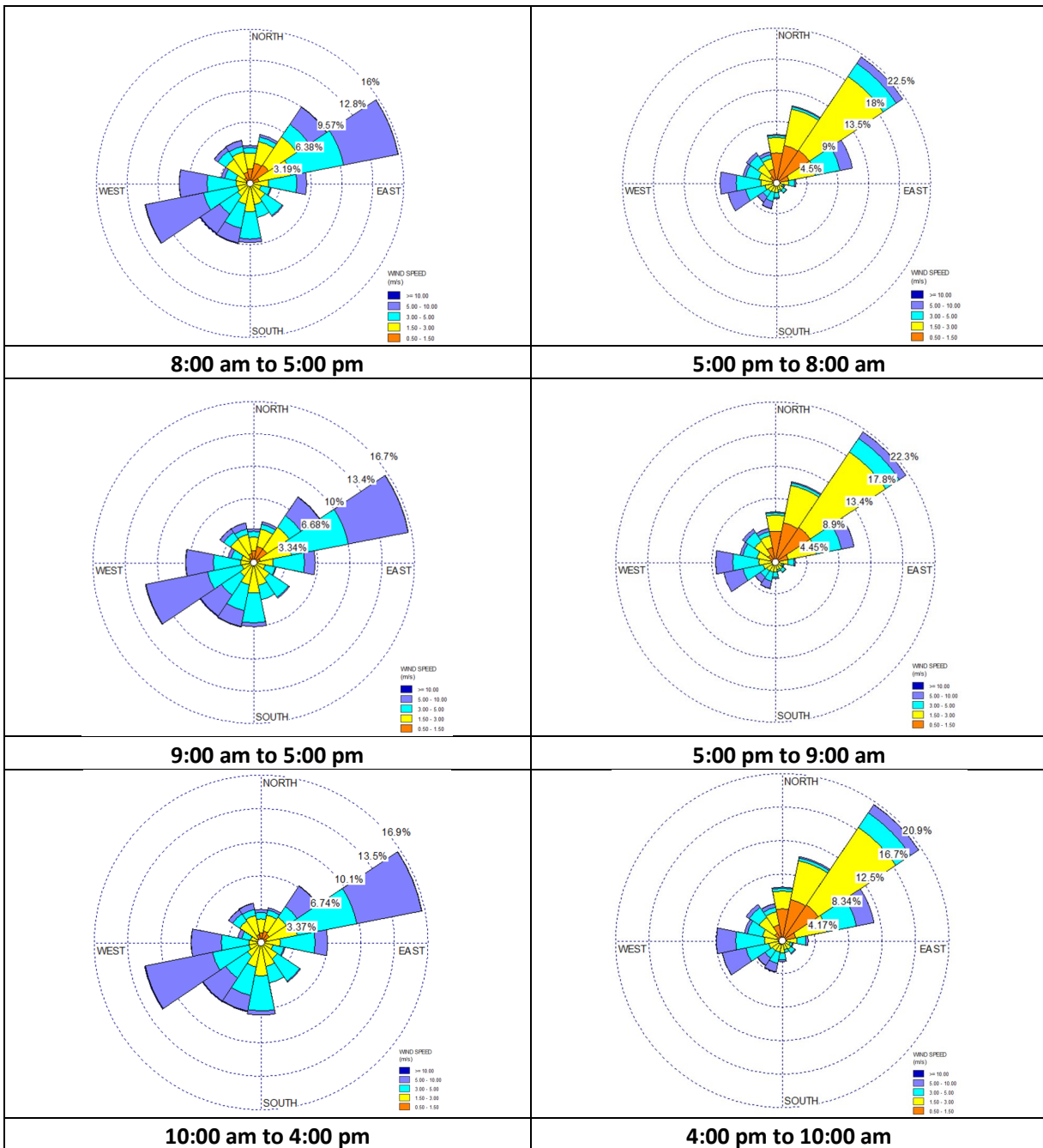


Figure 1: Green Island Windroses by Time - 1 March 2022 to 14 April 2024



Figure 2: Receptor Locations

3.0 Question 12

12. Meteorological Data

- a. *Now that two full years of meteorological data are available, please provide an addendum that covers two full years of meteorological data and confirm if any changes to the frequency analysis in the odour assessment arise from this.*
- b. *Please also provide the two full years of meteorological data as a digital data file.*

Figure 3 and Table 1 present the distribution of hourly average wind speeds and directions recorded at the on-site Automated Weather Station (AWS) between 1 March 2022 and 14 April 2024. Figure 3 shows that the predominant winds are from the northeast, with winds from the east northeast and west southwest also common. Figure 4 then compares the windrose from PDP’s October 2023 assessment and the updated windrose presented in Figure 3.

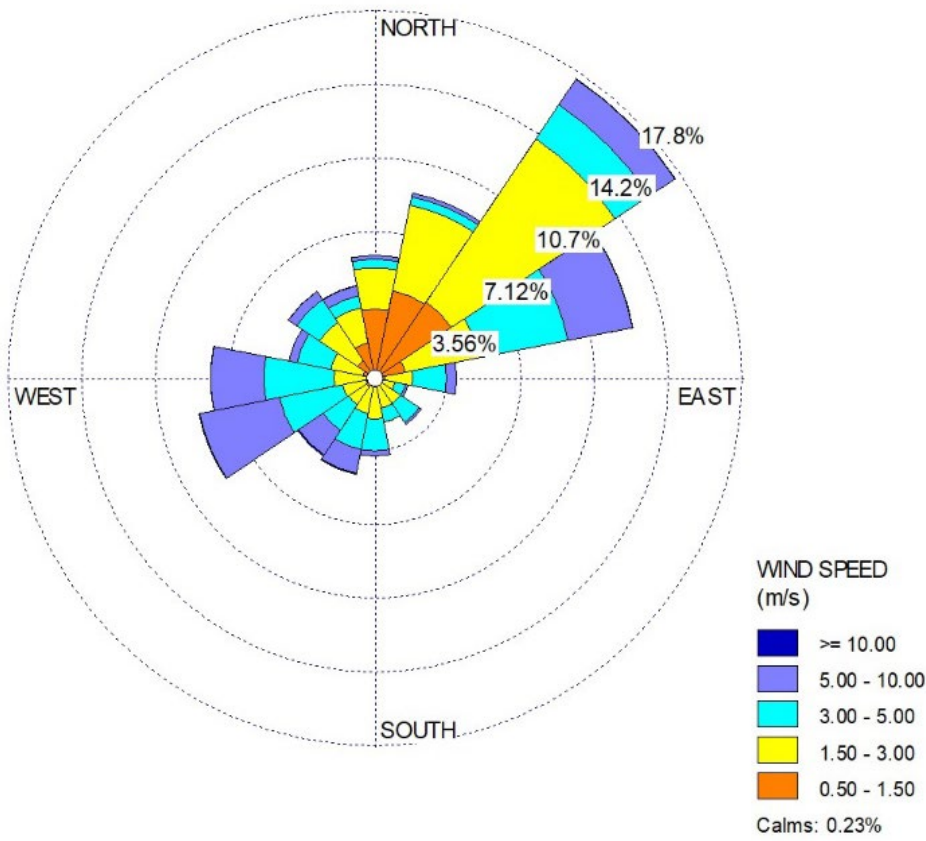


Figure 3: Green Island Windrose – 1 March 2022 to 14 April 2024

Table 1: Wind Speed Frequency Distribution (March 2022- April 2024)				
Direction	Frequency Distribution (%)			Total (%)
	0.5 - < 3 m/s	3 - 5 m/s	> 5 m/s	
North	5.4	0.4	0.2	6.0
North northeast	8.5	0.4	0.2	9.1
Northeast	14.0	2.0	1.5	17.5
East northeast	5.2	4.3	3.2	12.7
East	1.9	1.6	0.5	4.0
East southeast	1.1	0.5	0.1	1.7
Southeast	1.5	1.1	0.1	2.7
South southeast	1.5	0.7	0.0	2.2
South	2.0	1.5	0.3	3.8
South southwest	1.8	1.8	1.2	4.8
Southwest	1.6	1.5	1.5	4.6
West southwest	1.6	3.1	4.0	8.7
West	2.0	3.4	2.6	8.0
West northwest	2.2	1.7	0.4	4.3
Northwest	3.3	1.3	0.5	5.1
North northwest	3.5	0.6	0.5	4.6
TOTAL	57.1	25.9	16.8	99.8
Calms (< 0.5 m/s)				0.2

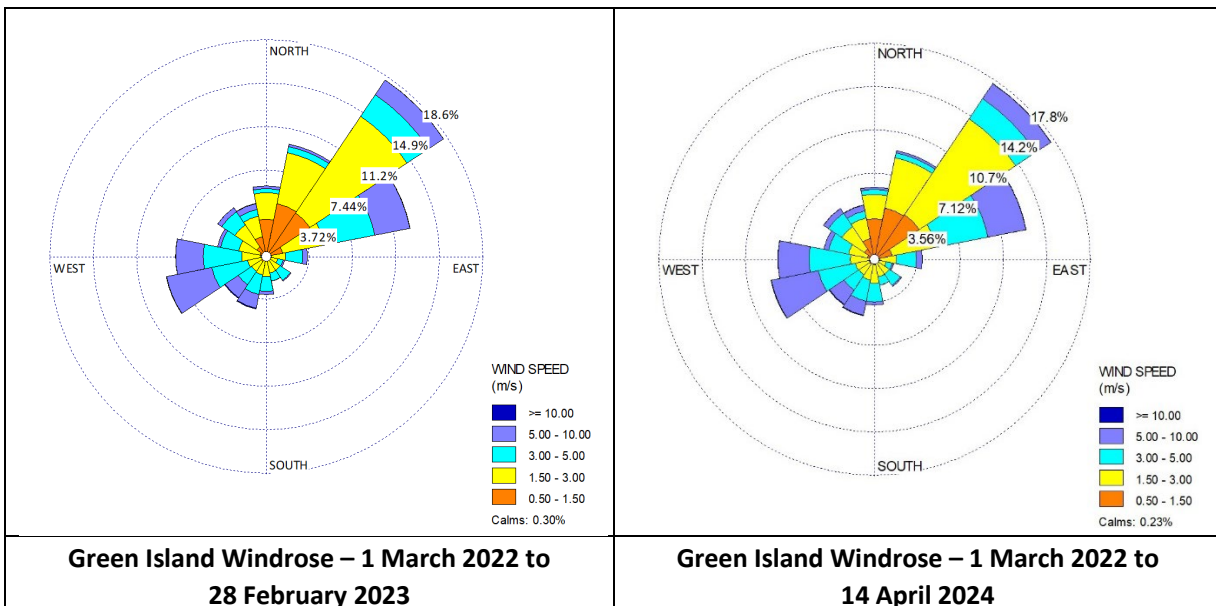


Figure 4: Green Island Windrose Comparison

Figure 5 presents the updated seasonal windroses for the time period between 1 March 2022 and 14 April 2024. These windroses are again very similar to those presented in PDP’s October 2023 air quality assessment and indicated that:

- ∴ In spring the prevailing winds are from the east northeast, with a significant component coming from the west and west southwest;
- ∴ In summer the prevailing winds are from the east northeast;
- ∴ In autumn the prevailing winds are from the northeast, with very few winds coming from the southeast quadrant; and,
- ∴ In winter the prevailing winds are from the northeast, with very few winds coming from the southeast quadrant.

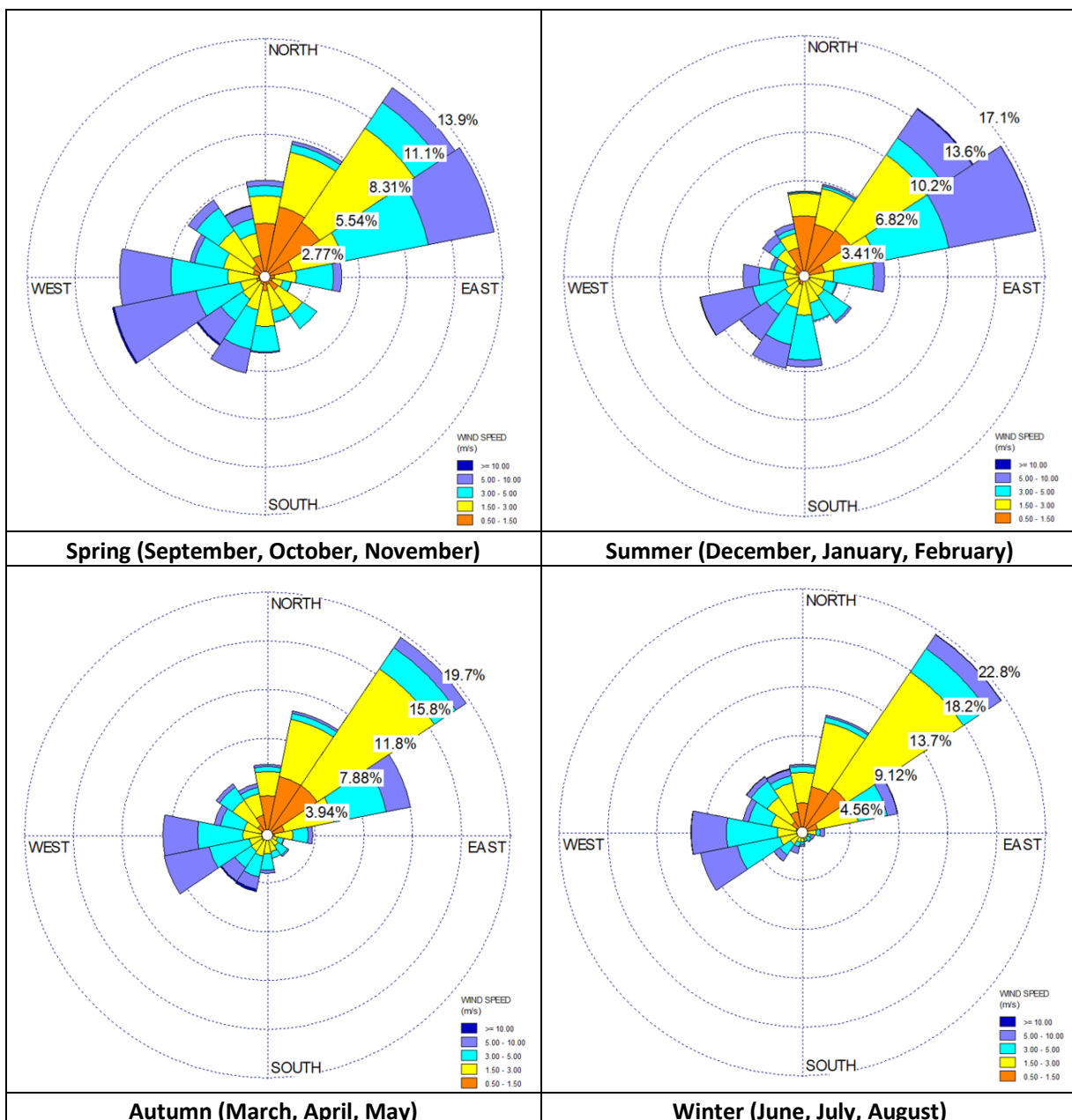


Figure 5: Green Island Seasonal Windroses – 1 March 2022 to 14 April 2024

4.0 Limitations

This memorandum has been prepared by PDP on the specific instructions of Enviro NZ Limited for the limited purposes described in the memorandum. PDP accepts no liability if the memorandum 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.

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