



memorandum

TO Christchurch City Council FROM [REDACTED]
DATE 8 May 2026
RE Living Earth Odour Monitoring: 1st – 30th April 2026 Summary

1.0 Background

Living Earth Limited (Living Earth) operates an organics processing plant and composting facility located at 40 Metro Place, Bromley, Christchurch (the LE Site). Living Earth's air discharges are subject to the conditions attached to air discharge consent CRC080301.1 ("the consent") from Canterbury Regional Council (CRC) to discharge contaminants (odour and dust) to air.

Specifically, Condition 27 of the consent states that:

"The discharges to air shall not cause odour or dust which is offensive or objectionable beyond the boundary of the site on which this consent is exercised."

While Living Earth operates the composting facility, Christchurch City Council (CCC) holds the consent.

Pattle Delamore Partners Limited (PDP) has been providing assistance to CCC and Living Earth regarding the assessment and management of odour effects from the site. This has included regular odour scouting. The objectives of the odour scouting are to:

- ✧ Correlate the intensity and characters of observed odour (where possible) to:
 - Odour sources in the Bromley area.
 - Specific activities and/or sources on the LE Site.
 - Meteorological conditions.
 - Time of day.
- ✧ Undertake FIDOL assessments to determine if offensive or objectionable odours are present beyond the site boundary.
- ✧ Corroborate the content of community (i.e., Smelt-It) complaints.

This letter provides a summary of PDP's observations of off-site odour scouting for the period between 1st and 30th April 2026. The stockpiles of the outdoor material, namely the unscreened compost, oversize stockpiles and screened fines have been cleared from the site since the 12th of January 2024.

2.0 Summary of Methodology

Odour observations are made by PDP odour scouts. To ensure consistency between scouts, PDP ensures the following:

1. Scouts periodically undertake parallel odour assessments with each other in the field.
2. Scouts periodically visit the LE Site and familiarise themselves with the character of the odour from the various onsite sources.
3. Scouts undergo nose calibration via direct dilution olfactometry according to the requirements of AS/NZS 4323.3:2001 Section 9.7.2.

During an assessment, scouts walk at a comfortable pace through the area downwind of the LE Site, making note of odours detected. PDP has defined a series of observation points in the area where the scout makes more detailed observations, shown in Figure 1. The exact route and observation points visited in an assessment depend on the meteorological conditions (wind speed and direction) and the odour (if any) detected by the scout on the route.

Sites H and M are immediately downwind of the site, located along Dyers Road with sites G and F. Sites I, J, K, and N are located in the heavy industrial zone. Sites A, C, B, D, P, and R are located in the residential zone around Bayswater Reserve. Sites E, L, O, and Q are located roughly along the residential-industrial boundary. In assessments, Sites E, O, D and Q are in the residential zone, while Site L is in the general industrial zone.



Figure 1: Odour Observation Locations

In key areas where odour is detected, or at known sensitive areas, a full 10-minute odour observation is taken. Where 10-minute observations are taken at a site, a FIDOL assessment is completed by the scout and a determination made as to whether the odour is offensive or objectionable.

Determinations made are necessarily the opinion of the odour scout at that time to the conditions they encounter. They are based upon observations in the field but may also include consideration of wider factors such as meteorological conditions and patterns of site activity when considering the potential for offensive or objectionable odour over longer time periods.

Each scout makes their determination with reference to other determinations made, both within PDP, and more widely amongst the air quality profession.

Summaries for each odour scout are included in Section 3.0. Detailed analysis of specific observations is included, where necessary. Results of all 10-minute odour observations, summarised by observation location, are appended to this memorandum. This memorandum presents the results of the odour scouting undertaken. This report does not analyse odour trends across time.

Due to a change in meteorological data availability since October 2024, wind speed, wind direction and temperature data from the Bromley AWS is not as readily available post-scouting. Retrospective windspeed and wind direction data will not be reported for this monitoring window.

2.1 FIDOL Analysis

As per Ministry for the Environment's Good Practice Guide for Assessing and Managing Odour (MfE GPG), odours were assessed against the FIDOL factors to determine if they were offensive or objectionable. The FIDOL factors are:

- ✧ Frequency;
- ✧ Intensity;
- ✧ Duration;
- ✧ Offensiveness/Character¹; and
- ✧ Location.

Odour intensity is reported on a scale of (0-6) as per the MfE's GPG Odour. PDP applies the following descriptions to each odour intensity to ensure consistency between scouts:

- | | |
|----------------------|--|
| 0. No Odour: | No odour. |
| 1. Very Weak: | Odour detectable but character not recognisable. |
| 2. Weak: | Odour detectable and barely recognisable. |
| 3. Distinct: | Odour readily recognisable. |
| 4. Strong: | Odour is strong but not causing discomfort to assessor. |
| 5. Very Strong: | The odour causes some discomfort; assessor can remain in area but will consider leaving/altering breathing patterns. |
| 6. Extremely Strong: | The odour causes assessor to feel nauseous or compelled to leave the area. |

¹ "It is preferable to refer to the character of an odour, rather than its 'offensiveness' to avoid confusion between the inherent characteristics of an odour (i.e., whether it is pleasant or unpleasant) and whether there is an 'objectionable or offensive' effect occurring as a result of exposure to odour." (MfE GPG Odour)

When determining whether odour is having an offensive or objectionable effect, odour scouts make their determination with respect to the FIDOL factors. No regulatory standard exists for the specific combination of FIDOL factors that do or do not constitute an offensive or objectionable odour. However, as a broad litmus test when making determinations at the Living Earth site, PDP scouts consider intermittently distinct (3) or continuous weak (2) odours of a negative hedonic tone (such as compost) to be offensive or objectionable in a residential zone.

Within a heavy industrial zone, there is a lower expectation of amenity as it pertains to odour.

Based on PDP's understanding, this approach is generally consistent with that used by other air quality professionals.

3.0 Results Summary

Result summaries for each odour scout are reported below. Results of all 10-minute odour observations, summarised by observation location, are appended to this memorandum.

Scouts were present in the Bromley area on the:

- ✧ 2nd April 2026;
- ✧ 10th April 2026;
- ✧ 17th April 2026; and
- ✧ 30th April 2026.

3.1 2nd April 2026

██████████ and ██████████ were the PDP odour scouts. The scouts were present for approximately 2 hours from 5 am. This was in response to a request by CCC to capture early morning conditions. One scout started near Site E and then walked along the boundary of the industrial area towards Site H, focussing on the ambient odour in the area. A series of 10-minute observations were performed between site H and the site boundary. Both scouts then did a scout through the residential areas from site C to site Q. North-easterly winds were forecast on the day. The odour scout route (yellow dots) and key scouting locations are shown in **Figure 2**.



Figure 2: 2nd April 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within **Table 1** that are highlighted blue denote locations within a residential zone, purple denotes locations within an industrial zone.

Table 1: 2nd April 2026 - Odour Scouting Summary

Site	Time	Observations
E	05:01	Very weak (1) odour of an indeterminate character detected.
F	05:06	No odour (0) detected.
G	05:09	Very weak (1) odour of an indeterminate character detected.
H	05:12	No odour (0) detected.
Site H	05:20	FIDOL assessment completed. No odour (0) was detected 92% of the time. Very weak (1) odours of an indeterminate character were detected 8% of the time. The odour was determined to be neither offensive nor objectionable.
Site H	05:50	FIDOL assessment completed. No odour (0) was detected 92% of the time. Very weak (1) odours of an indeterminate character were detected 8% of the time. The odour was determined to be neither offensive nor objectionable.
Site H	06:04	FIDOL assessment completed. No odour (0) was detected 18% of the time. Very weak (1) odours of an indeterminate character were detected 58% of the time. Weak (2) compost odour was detected 23% of the time. The odour was determined to be neither offensive nor objectionable.
H	06:25	Intermittent weak (2) compost odour was detected.
C	06:35	No odour (0) detected.
B	06:37	No odour (0) detected.
P	06:39	No odour (0) detected.
E	06:42	No odour (0) detected.
D	06:46	No odour (0) detected.
O	06:49	Very weak (1) odour of an indeterminate character detected.
O-Q	06:50	Weak (2) odour of a marine/fishy character detected.
Q	06:53	Very weak (1) odour of an indeterminate character detected.
O-Q	06:54	Weak (2) odour of a marine/fishy character detected.
O	06:55	No odour (0) detected.

No compost odour was detected in the residential area.

Some weak (2) compost odour was detected in the industrial area at site H. This odour was intermittent, and during a 10-minute observation at site H occurred only 23% of the time. The compost odour detected in the industrial area was not determined to be offensive or objectionable.

3.2 10th April 2026

██████ was the PDP odour scout. The scout was present for approximately 1 hour. The scout started near Site O then walked along the boundary of the residential area between sites Q and D. The scout then moved through the industrial area towards Site H, returning to site O via the industrial area eastern boundary and the residential area northern boundary. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 3.



Figure 3: 10th April 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 2 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 2: 10th April 2026 - Odour Scouting Summary

Site	Time	Observations
O	14:55	No odour (0) detected.
O-Q		Intermittent very weak (1) to weak (2) compost odour detected.
Q	14:59	No odour (0) detected.
O	15:03	FIDOL assessment completed. No odour (0) was detected 72% of the time. Very weak (1) odours of an indeterminate character were detected 12% of the time. Weak (2) compost odour was detected 12% of the time. Weak (2) rubbish odour was detected 3% of the time. The odour was determined to be neither offensive nor objectionable.
D	15:16	Intermittent weak (2) solvent/paint odour.
L	15:18	No odour (0) detected.
K-L		Intermittent weak (2) compost and rubbish odour.
K	15:23	No odour (0) detected.
J	15:26	No odour (0) detected.
I	15:30	No odour (0) detected.
N	15:33	Intermittent weak (2) compost and rubbish and solvent odour.
H	15:37	Weak (2) compost and rubbish odour.
G	15:40	No odour (0) detected.
F	15:43	Intermittent weak (2) exhaust odour detected.
E	15:46	No odour (0) detected.
D	15:49	No odour (0) detected.
O	15:53	Intermittent, weak (2) compost detected.

Some compost odour was detected at the boundary of the residential area around site O. A 10-minute FIDOL assessment at this location observed weak compost odours 12% of the time. These odours were traced through the industrial area to site H and as such may be attributed to the Living Earth site.

As this compost odour in the residential was very intermittent, it was not determined to be offensive or objectionable.

3.3 17th April 2026

██████ was the PDP odour scout. The scout was present for approximately 45 minutes. The scout started to the south of Bayswater reserve, moving north through the residential area past site P and E, before walking along the boundary of the industrial area towards Site M, then returning to site D via the same route. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 4.



Figure 4: 17th April 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 3 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 3: 17th April 2026 - Odour Scouting Summary

Site	Time	Observations
P	14:14	Weak (2) effluent odour detected.
E	14:17	Weak (2) solvent odour detected.
E	14:22	FIDOL assessment completed. Very weak (1) odours of an indeterminate character were detected 28% of the time. Weak (2) chemical/metallic odour was detected 55% of the time. Weak (2) sewer/effluent odour was detected 8% of the time. And distinct (3) chemical odour was detected 8% of the time.
F	14:35	Very weak (1) indeterminate to weak (2) effluent odour detected.
G	14:37	Very weak (1) indeterminate to weak (2) effluent odour detected.
H	14:41	Weak (2) effluent odour detected.
M	14:44	Weak (2) effluent odour detected.
H	14:48	Very weak (1) odour of an indeterminate character detected.
G	14:52	Weak (2) effluent odour detected.
F	14:54	Very weak (1) odour of an indeterminate character detected.
E	14:58	Weak (2) chemical/solvent odour detected.
D	15:02	Very weak (1) indeterminate to weak (2) effluent odour detected.

No compost odour was detected in the residential or industrial areas.

Weak (2) effluent odour was detected at various locations in both the residential and industrial areas, the appeared to be at discrete locations potentially related to wastewater vents nearby.

A 10-minute FIDOL assessment was performed at site E during which metallic/chemical/solvent type odours were observed these appeared to be originating from the auto body shop across the road where sanding and spray painting was occurring with the roller doors open. Compost odour was not detected.

3.4 30th April 2026

██████ was the PDP odour scout. The scout was present for approximately 1 hour. The scout started to the south of Bayswater reserve, moving north through the residential area past site P and E, before walking along the boundary of the industrial area towards Site H, then returning to site D via the same route. Sites L and K in the industrial area were also visited. North-easterly winds were forecast. The objective was to undertake odour monitoring in the area downwind of the LE Site. The odour scout route (yellow dots) and key scouting locations are shown in Figure 5.



Figure 5: 30th April 2026 - Odour Scout Route

Results from the odour scout are shown below. Entries within Table 4 that are highlighted blue denote locations within a residential zone and purple denotes locations within an industrial zone.

Table 4: 30th April 2026 - Odour Scouting Summary

Site	Time	Observations
P	14:32	No odour (0) detected.
E	14:35	Intermittent weak (2) compost odour detected.
E	14:40	FIDOL assessment completed. No odour (0) was detected 23% of the time. Very weak (1) odours of an indeterminate character were detected 47% of the time. Weak (2) compost odour was detected 25% of the time. Distinct (3) compost odour was detected 3% of the time. And distinct (3) non-compost related odour was detected 2% of the time. The odour was determined to be neither offensive nor objectionable.
F	14:55	Weak (2) compost odour detected.
G	14:57	No odour (0) detected.
H	14:58	Very weak (1) odour of an indeterminate character detected.
G	15:02	Weak (2) compost odour detected.
F	15:03	No odour (0) detected.
E	15:08	Very weak (1) odour of an indeterminate character detected.
D	15:12	No odour (0) detected.
L	15:13	Very weak (1) to weak (2) compost odour detected.
K	15:18	Weak (2) rubbish odour detected.
L	15:22	No odour (0) detected.
E	15:24	No odour (0) detected.

Intermittent weak to distinct compost odour was detected at site E, at the boundary of the residential area. This was not observed further into the residential area at sites P or D. The compost odour was traced back towards the Living Earth site at sites F and G. The compost odour in the industrial area was determined to be neither offensive nor objectionable. The odour in the residential boundary was intermittent and could not be traced further into the residential area indicating a rapid drop-off in intensity, or very high infrequency. The scout did not consider the effect of this localised observation to constitute an offensive or objectionable effect.

4.0 Summary

PDP undertook odour scouting on four occasions between the 1st of April 2026 and the 30th of April 2026. This included one early morning scout.

Typically, PDP considers that intermittent distinct (3) or continuous weak (2) odours of a negative hedonic tone (such as compost) are offensive or objectionable in a residential zone. Based on PDP's observations:

- ∴ 2nd April 2026
 - Undertaken between 5:00am and 7:00am.
 - No compost odour was detected in the residential area.
 - Some weak (2) compost odour was detected in the industrial area at site H. This odour was intermittent, and during a 10-minute observation at site H occurred only 23% of the time.
 - The compost odour detected in the industrial area was also not determined to be offensive or objectionable.
- ∴ 10th April 2026
 - Some compost odour was detected at the boundary of the residential area around site O. A 10-minute FIDOL assessment at this location observed weak compost odours 12% of the time.
 - As this compost odour was intermittent in the residential it was not determined to be offensive or objectionable.
- ∴ 17th April 2026
 - No compost odour was detected in the residential or industrial areas.
 - Weak (2) effluent odour was detected at various locations in both the residential and industrial areas, the appeared to be at discrete locations potentially related to wastewater vents nearby.
- ∴ 30th April 2026
 - Intermittent weak to distinct compost odour was detected at the boundary of the residential area (Site E).
 - This odour was not observed further into the residential area at sites P or D indicating a rapid drop-off in intensity, or very high infrequency.
 - The compost odour was determined to be neither offensive nor objectionable.

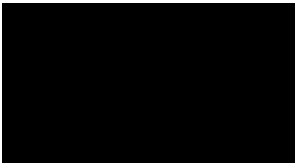
5.0 Limitations

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

This memorandum has been prepared by PDP on the specific instructions of Christchurch City Council 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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Prepared by



Air Quality Scientist

Reviewed by



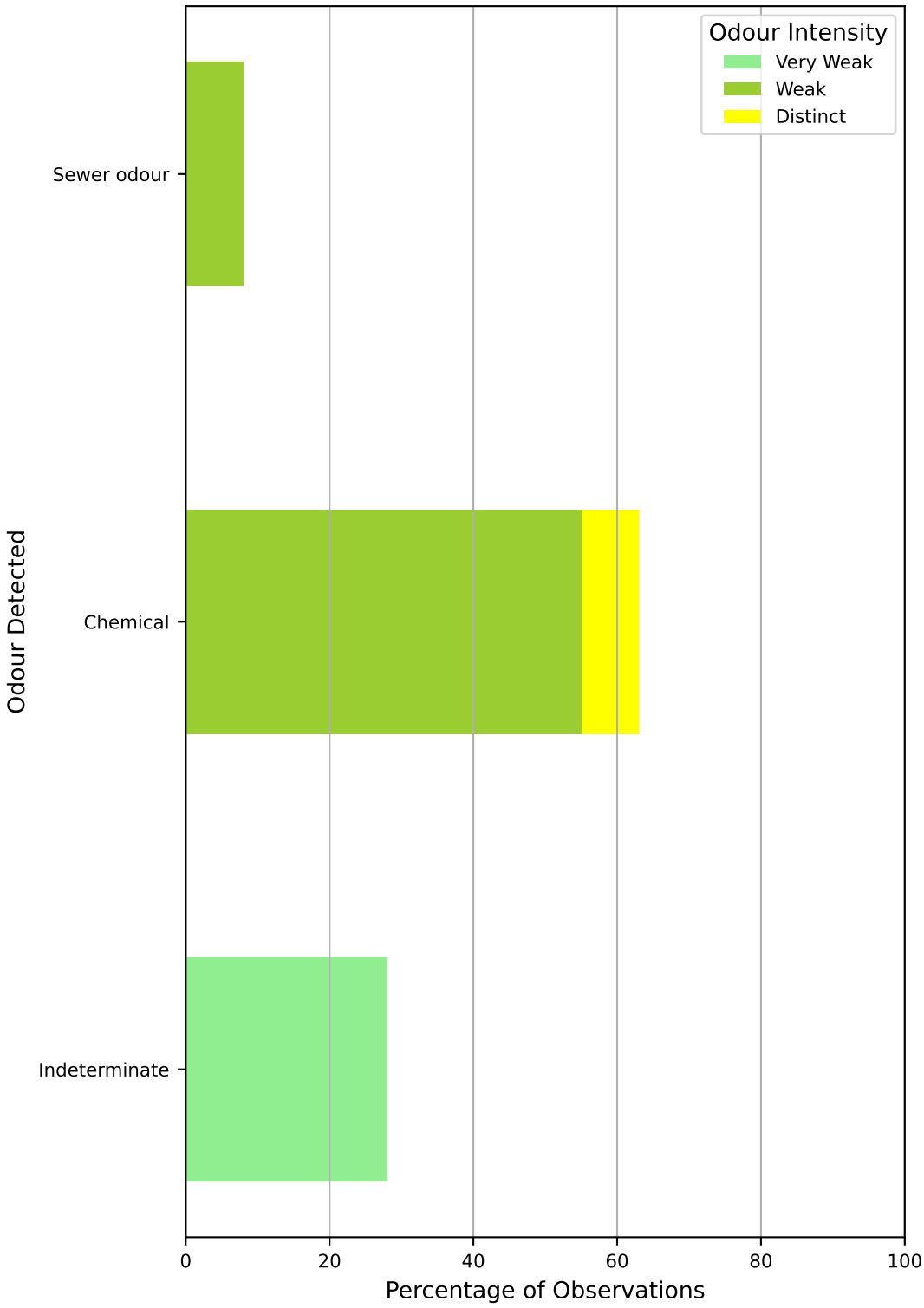
Service Leader - Air Quality

Approved by

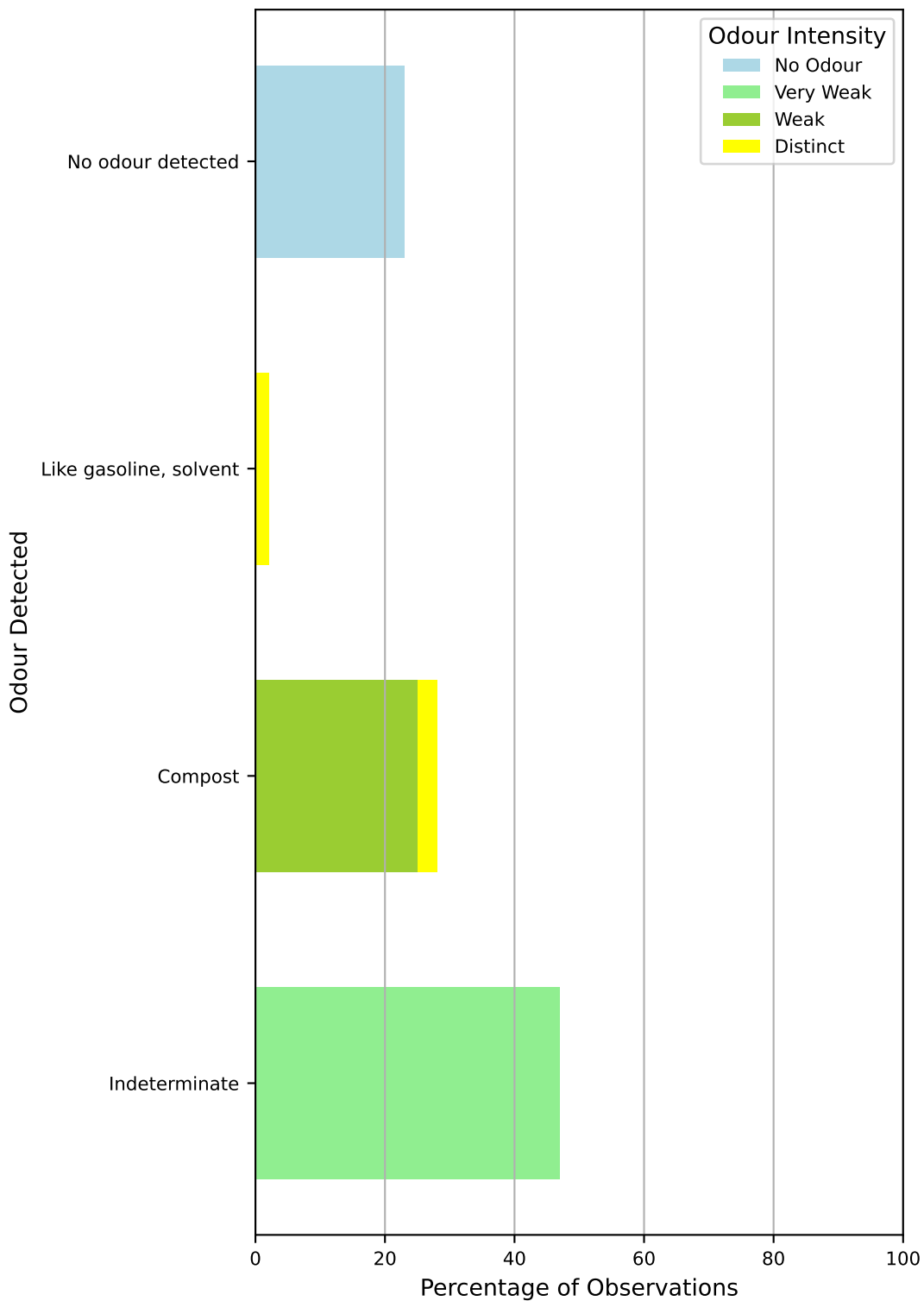


Group Director- Water Infrastructure

Site E 17/4



Site E 30/4



Site H 5:20 2/4

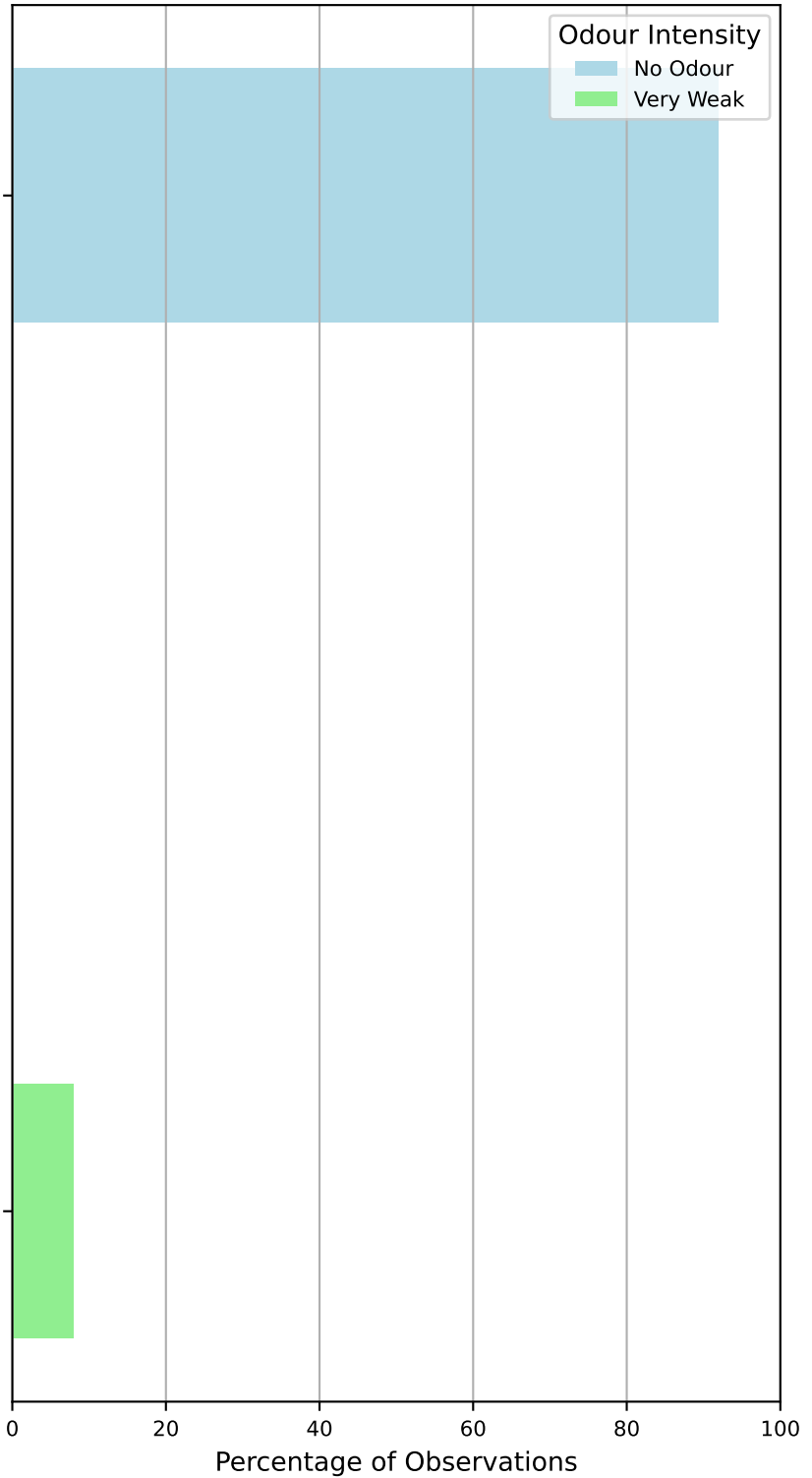
Odour Detected

No odour detected

Indeterminate

Odour Intensity

- No Odour
- Very Weak



Site H 5:50 2/4

Odour Detected

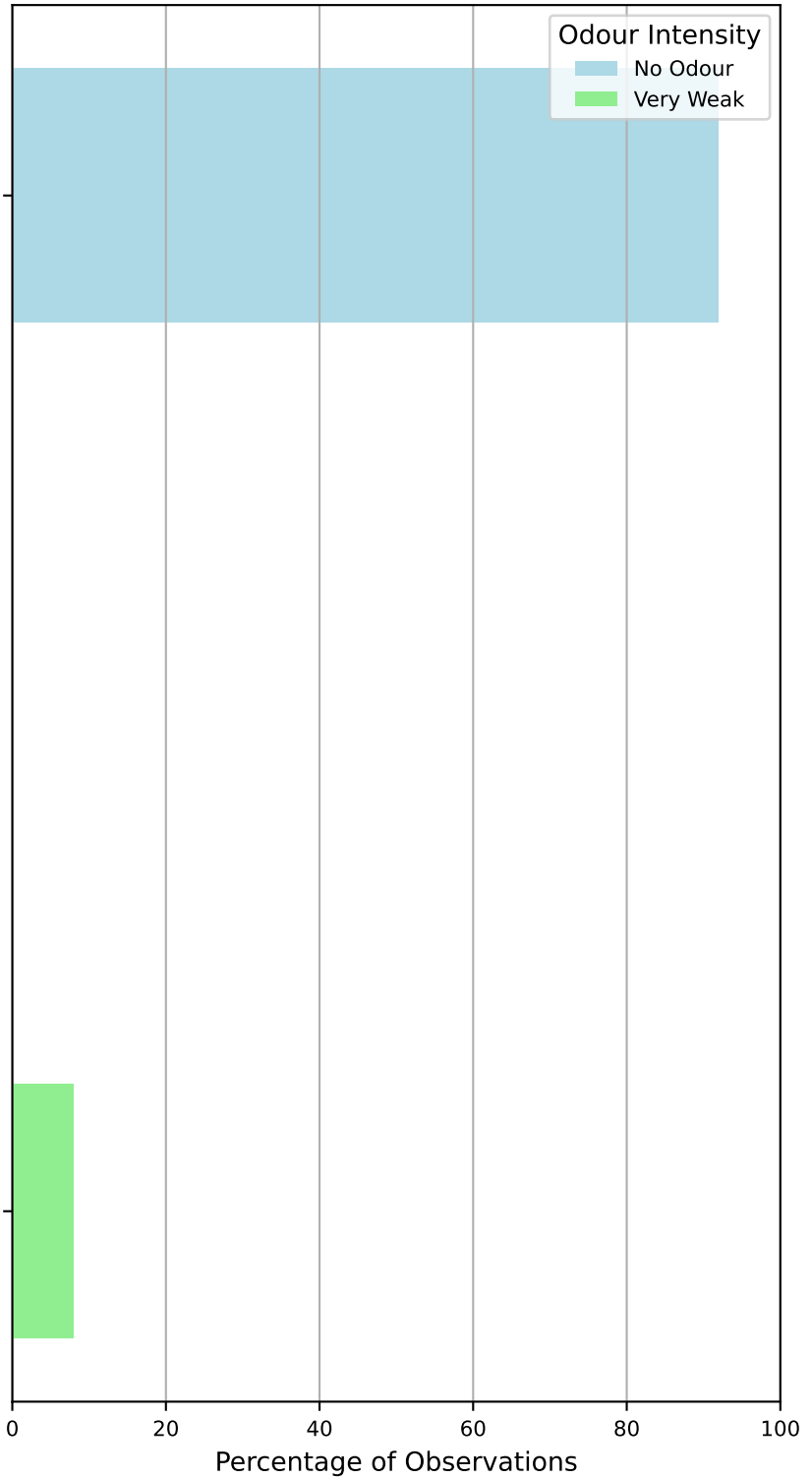
No odour detected

Indeterminate

Odour Intensity

No Odour

Very Weak



Site H 6:04 2/4

Odour Detected

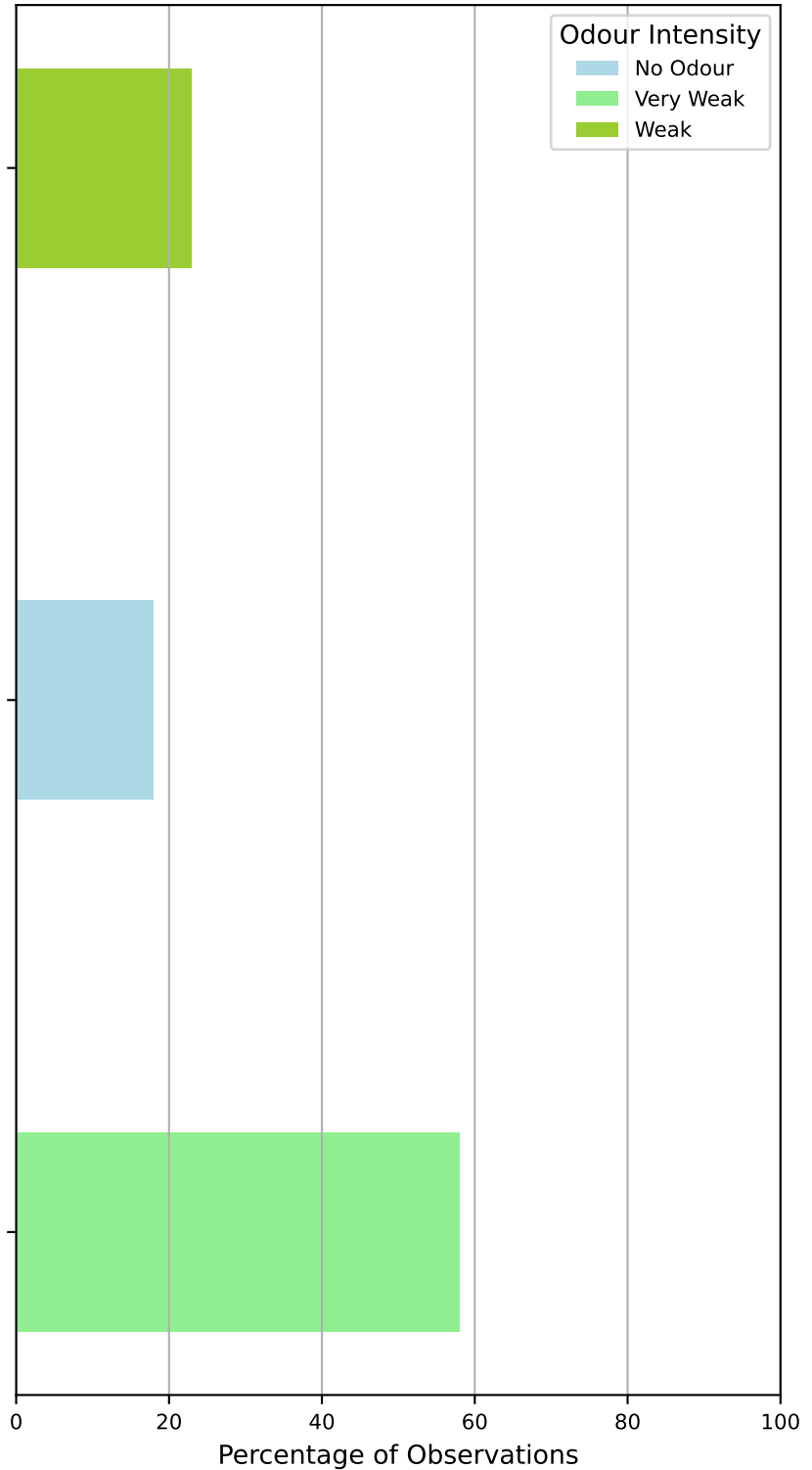
Odour Intensity

- No Odour
- Very Weak
- Weak

Compost

No odour detected

Indeterminate



Site O 10/4

