

Brookvale Green

Rural Interface Assessment and Recommendations

15 May 2026

Prepared for:

Vermont Street Partners No.4 Limited

Prepared by:

Angus Bews
Fruition Consultant

1. Purpose of this Report

This report assesses rural interface matters relevant to the Brookvale Green residential development at 174 – 176 Brookvale Road, Havelock North. The primary focus of this report is agrichemical spray drift and the physical buffer treatments required to reduce the potential for future residents to experience potential adverse effects from neighbouring productive land uses.

The assessment considers both current neighbouring land use and the range of rural production activities that may reasonably occur under the existing zoning framework and any approved consents. It draws directly from any potential reverse sensitivity issues and relevant regulatory and technical guidance.

The assessment has been prepared to inform the Brookvale Green substantive application. It should be read alongside the planning assessment, landscape plans, scheme plan, acoustic assessment, proposed conditions, and consent notice wording.

2. Statement of Qualifications and Experience

I am the Irrigation Services Manager at Fruition Horticulture Hawkes Bay Ltd, a Horticultural services and consultancy company based in the Hawkes Bay Region. I hold a Bachelor of Agriscience (major Horticulture) from Massey University. I have approximately seven years of experience in horticultural production and my career to date has involved four years of working with soil analysis and irrigation recommendations across orchards and vineyards. My experience includes completing due diligence reports for site selection for apple orchard production and preparing Land Use Capability reports analysing the potential for subdivision of rural properties under the NPS-HPL. I confirm that, in my capacity as author of parts of this FastTrack Application, I have read and abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023.

3. Site Context and Adjoining Rural Interfaces

Brookvale Green adjoins and is proximate to several productive or rural properties. These properties are zoned Plains Production zone in the Hastings District Plan (HDP). These interfaces are important because the proposal introduces residential activity into an environment where land-based primary production, rural production activities and associated operational effects are anticipated by the existing zoning and regional framework.

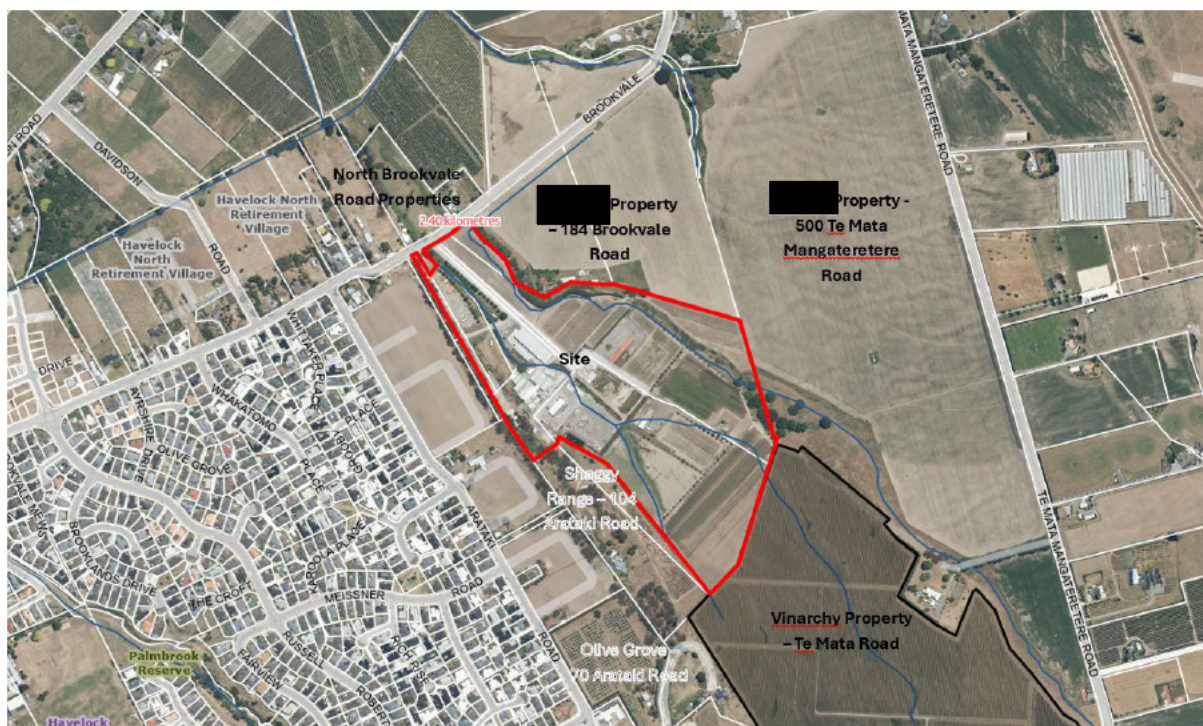


Figure 1: Location of Adjacent Properties relative to the Site

3.1 Vinarchy Vineyard – Te Mata Road

Lot 1 DP 27387 is managed by Vinarchy (Grape Production/Vinyard) and primarily uses¹:

- Recycling air-blast sprayers (drift-reducing)
- Particle size ~250 microns (low drift risk)
- Spray height ~2.1 m nozzle, 1.9 m canopy height
- Spray season typically September – April
- No existing shelter belt

3.2 [REDACTED] – 500 Te Mata Mangateretere Road

Lot 1 27388 (unknown management) historically arable and cropping production²:

- Sprayer type most likely boom operating
- Particle size crop dependant, ranging between 150-450 microns (low drift risk)
- Spray season typically September – May
- No existing shelter belt

3.3 [REDACTED] – 184 Brookvale Road

Lot 16 DP 3449 and Lot 21 DP 3449 (unknown management) historically arable and cropping production³:

- Sprayer type most likely boom operating

¹ Information received from direct discussion of vineyard management

² Information received from industry experts (arable and cropping consultant)

³ Information received from industry experts (arable and cropping consultant)

- Particle size crop dependant, ranging between 150-450 microns (low drift risk)
- Spray season typically September – May
- No existing tree shelter belt

3.4 [REDACTED] / Shaggy Range Property – 104 Arataki Road

Lot 1 DP 13265 and Lot 1 DP 16136 (Shaggy Range dog daycare, Forest & Bird plant nursery, and Christmas tree farm):

- Sprayer type most likely boom operating or handheld spraying
- Particle size crop dependant, ranging between 150-450 microns (low drift risk)
- Spray season typically September – May
- An existing she-oak shelter belt is in place on the neighbour's side of the southwest shared boundary where the christmas tree farm operations are located.

3.5 North Brookvale Road properties – 161, 163 and 185 Brookvale Road

Section 4 Block IV Te Mata Survey District, Lot 24 DP 3803 and **Lot 1 DP 338516** (Rural residential lifestyle properties):

- Likely handheld spraying associated with regular property maintenance
- Separated by Brookvale Road and a significant distance away from housing areas proposed on Brookvale Green site.

3.6 Environmental & Meteorological Context

The area has predominant West and Southwest winds. Drift hazard increases under very low or high winds, unpredictable direction, low humidity, inversion layers⁴.

4. Regulatory Framework

The regulatory framework relevant to this assessment operates across the HDP, the Hawke's Bay Regional Resource Management Plan (RRMP), and the New Zealand Standard for the Management of Agrichemicals (NZS 8409:2004). Overall, the HDP framework provides for the use and operation of rural production activities within the Plains Production Zone, including activities involving agrichemical application as provided for by the RRMP and guided by NZS 8409:2004.

4.1 Hastings District Plan (HDP)

The adjoining land is zoned Plains Production Zone under the HDP. Rule 6.2.4 PP1 provides for land-based primary production as a permitted activity within the zone. The definition of land-based primary production includes activities such as horticulture, viticulture, cropping, commercial vegetable production, livestock rearing, nurseries and directly associated accessory buildings, structures and activities. Accordingly, this assessment considers not only the current use of adjoining land, but also the potential agrichemical use associated with the range of rural production activities reasonably anticipated within the zoning framework.

4.2 Regional Resource Management Plan (RRMP)

The RRMP recognises the need to manage reverse sensitivity effects, maintain the ongoing operation of rural production activities and regulate the use and discharge of agrichemicals within the Hawke's

⁴ The Climate and Weather of the Hawke's Bay. https://webstatic.niwa.co.nz/static/web/Hawkes_Bay_Climate_NIWA.pdf

Bay region. At a higher level, the RRMP framework anticipates the use of setbacks, buffer zones and shelterbelt mitigation to reduce potential conflicts between sensitive activities and rural land uses, including agrichemical application.

Hawke's Bay Regional Council (HBRC) promotes the use of development setbacks and buffer zones as a method to manage reverse sensitivity effects and protect the ongoing operation of rural and infrastructure activities. In particular, Method MET UD1 states that Council will:

g) Promote development setbacks and buffer zones to protect natural physical processes, ensure natural hazard mitigation and manage reverse sensitivity effects.

J) Promote setbacks and buffer zones⁵ to protect the ongoing operation, maintenance and development of strategic infrastructure.

A buffer zone is a physical separation of the activity from neighbouring properties or resources and may be either a vertical separation or horizontal separation.

RRMP Rule 10⁶ establishes the regulatory framework for agrichemical application and specifically provides for the widespread application of agrichemicals as a permitted activity, subject to compliance with relevant standards and management requirements, including NZS 8409:2004⁷ (refer to NZS section below). The following matters are relevant to the assessment of potential spray drift effects and the design of appropriate interface mitigation for Brookvale Green.

"Rule 10 ...

b. – The discharge shall be undertaken in accordance with all mandatory requirements set out in Sections 2, 5 and 6 of the New Zealand Standard for the Management of Agrichemicals (NZS 8409:2004).

...

h. – Aerial and ground-based discharges shall be notified by the property owner, manager or contractor in accordance with the following requirements.

- i. Where the application is on private land, occurs on any land within 50m of an adjacent property twice in any 12 month period, and occurs in circumstances where spray drift beyond the property boundary cannot be avoided, a property spray plan shall be prepared at the beginning of each year, or spray season, in accordance with appendix M4 of the New Zealand Standard for the Management of Agrichemicals (NZS 8409:2004). The plan shall be given upon request to the owner or occupier of any adjacent property, or to a Council officer.*
- ii. Where the application is on private land, signs shall be used to clearly indicate the use of any agrichemicals:*
 - Within 10m of public land where there is a shelter belt giving effective protection between the application and the public land, or*

⁵ RRMP, Definition 9.32, Buffer Zone: *The distance between the boundary of an activity and an identified sensitive area.*

⁶ 6.4 Discharges to Air/Land/Water – Agrichemicals & Agricultural Discharges, 6.4.1 Agrichemicals – Discharges to Air/Land/Water

⁷ New Zealand Standard for the Management of Agrichemicals NZS 8409:2004

- *Within 30m of public land where there is no shelter belt giving effective protection between the application and the public land.”*

As set out in the RRMP Advisory Note 2 to Rule 10, NZS 8409:2004 summarises the key factors that influence the potential for agrichemical spray drift and the relative level of drift risk associated with different application and environmental conditions. These are set out in Table 1 below.

Table 1: Factors Influencing Agrichemical Spray Drift Hazard (NZS 8409:2004)

Factor	Potential Drift Hazard Scale	
	High	Low
Wind Speed	Zero/very low (<1 m/s) or >6 m/s	Steady (1-3 m/s)
Wind direction	Unpredictable	Predictable, and away from sensitive areas
Humidity	Low (delta T>8°C)	High (delta T<4°C)
Atmospheric stability	Inversion layer present	No inversion layer
Maximum height of release	>1.5m above the target	<0.5m above the target
Particle (droplet) size	<50 microns diameter	>250 microns diameter
Volatility	High (vapour pressure >10 mPa)	Low (vapour pressure <0.1 mPa)
Sensitive area	Close (<100 m away)	None, or more than 1 km distant
Buffer zone	None	Yes (>100m)
Shelter belts	No Shelter	Live shelter, >3m high and 1m wide
Toxicity	Scheduled agrichemicals	Unscheduled agrichemicals

4.3 New Zealand Standard for the Management of Agrichemicals NZS 8409:2004

NZS 8409:2004 is the recognised industry standard for the safe and effective management of agrichemical use in New Zealand. The standard provides technical guidance and best practice measures relating to the storage, handling, application and disposal of agrichemicals, including the management of spray drift effects. Relevant matters addressed by NZS 8409 include weather conditions, droplet size, release height, application methods, buffer separation distances, shelterbelt mitigation, notification requirements and spray planning. As noted above, the RRMP expressly incorporates NZS 8409:2004 into the regional regulatory framework for agrichemical use through Rule 10.

5. Assessment of Spray Drift and Reverse Sensitivity Effects

In undertaking this assessment, consideration has been given to the current activities occurring on adjoining land, and the range of land-based primary production activities and associated agrichemical use reasonably enabled within the existing zoning and regional planning framework outlined above.

This includes existing vineyard, cropping, rural production and weed management activities, as well as the potential for future horticultural or agricultural land uses permitted by the Plains Production Zone that may involve different spray methods and application frequencies over time. In particular, the assessment recognises that adjoining land may accommodate boom spraying, air-blast spraying and other agrichemical application methods associated with horticultural, viticultural and rural production activities.

The adjoining rural properties retain the ability to undertake agrichemical application as a permitted activity under the RRMP, subject to compliance with Rule 10 and NZS 8409:2004. That framework recognises that agrichemical application may result in limited spray drift beyond property boundaries in some circumstances, while also requiring management measures such as spray planning, notification, setbacks and shelterbelt mitigation to manage adverse effects.

This assessment has considered the environmental and operational factors identified within NZS 8409:2004 as influencing spray drift risk, including prevailing wind conditions, droplet size, release height, proximity to sensitive receivers, buffer separation and shelterbelt protection. NZS 8409:2004 identifies that the presence of effective live shelterbelt mitigation can significantly reduce recommended setback distances associated with agrichemical spray application. Conversely, where no effective shelterbelt protection is provided, substantially greater setback distances are generally required to achieve a similar level of spray drift mitigation.

Based on the NZS 8409:2004 guidance and the site-specific rural interface context, the following setback distances are relevant:

With Effective Live Shelterbelt Mitigation (recommended):

- Boom sprayer: 2 m (Blue Shading – Figure 2)
- Air-blast sprayer: 10 m (Red Shading – Figure 2)
- Aerial: 100 m

Without Effective Live Shelterbelt Mitigation:

- Boom sprayer: 10 m (Blue Shading – Figure 2)
- Air-blast sprayer: 30 m (Red Shading – Figure 2)
- Aerial: 300 m

Based on the site context, prevailing wind conditions, adjoining land uses and the applicable regulatory framework, I consider that the establishment of applicant-side shelterbelt mitigation along all rural interfaces (**Figure 2**) represents an appropriate and effective response to manage potential spray drift and reverse sensitivity effects associated with existing and potential rural production activities.

Design recommendations for the proposed shelterbelts are set out in Section 7.

6. Recommended Mitigation & Design Response

The use of live shelterbelt mitigation is recommended along all rural interfaces adjoining Brookvale Green (**Figure 2**). In my opinion, shelterbelt planting provides the most effective and practical long-term mitigation response by reducing spray drift movement beyond the boundary and increasing physical separation between productive land and sensitive residential receivers.

6.1 Shelterbelt & Setback Recommendations

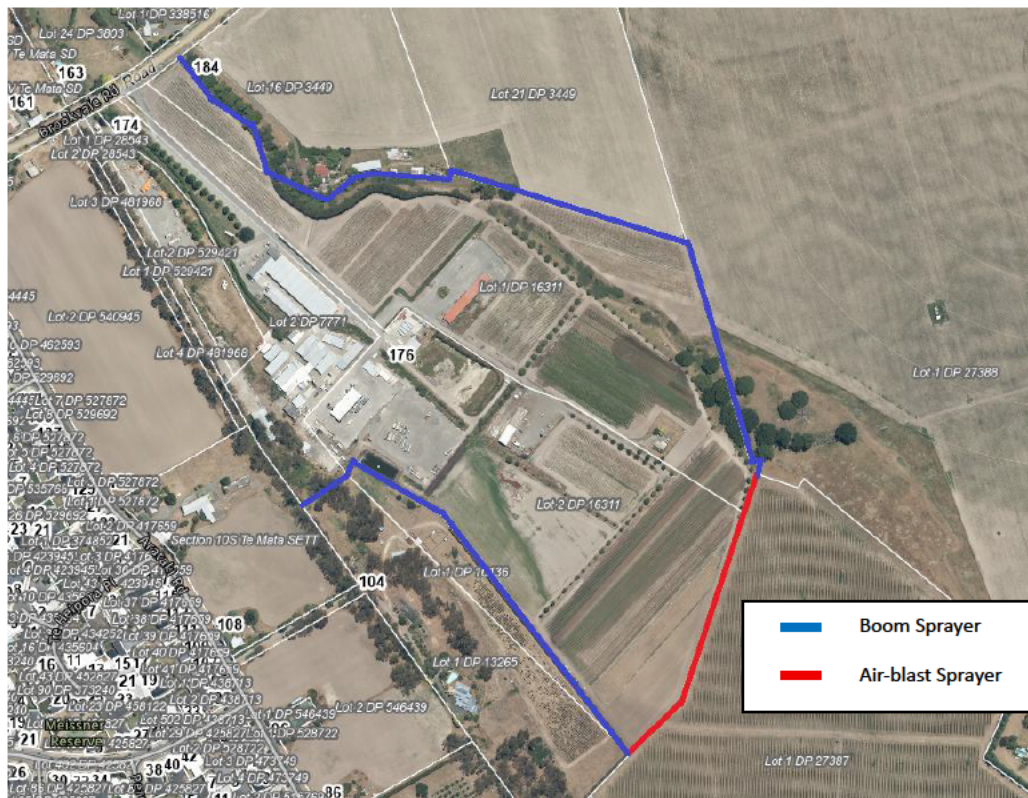


Figure 2: Recommended Shelterbelt Planting Buffer Zone

Based on the analysis of the relevant site context, metrological factors, agrichemical spray drift, and regulatory context above, I recommend the following shelterbelt design and buffer setback measures be incorporated into the Brookvale Green subdivision and development:

- Applicant-side shelterbelt planting along all rural interfaces identified in Figure 2.
- Setback of 2m at 'blue' interfaces on Figure 2.
- Setback of 10m at 'red' interfaces on Figure 2.
- Shelterbelt height of approximately 3–4 m at maturity.
- Minimum shelterbelt width of approximately 1 m.
- Minimum thickness of 50% porosity (1m wide).
- Continuous planting with minimal gaps along boundaries.
- Evergreen species (narrow leafed are preferred) will provide more protection throughout the year.
- Deciduous species are not recommended as generally the species will be at bud burst once the seasonal spray calendar commences.

Suitable tree species include:

- *Casuarina cunninghamiana* (she-oak)
- *Cryptomeria japonica* (Japanese cedar)
- *Cuprocyparis leylandii* (Leyland Cypress, non-spreading cultivar)

- *Olea europaea* (Olive, a dense evergreen option such as El Greco)
- *Pittosporum eugenioides* (Lemonwood)

6.2 Maintenance and Operational Recommendations

To support the ongoing effectiveness of the recommended shelterbelt mitigation, the following measures are recommended for the development:

- Requiring ongoing maintenance and replacement of shelterbelt planting (i.e. any diseased or failed plants).
- Replacement planting within the next appropriate planting season where shelterbelt effectiveness has been compromised.

As noted above, adjacent agricultural or horticultural practices are required to notify neighbouring properties of any spraying that may go beyond the boundary in accordance with RRMP Rule 10. We anticipate that this would occur at the start of season prior to the primary spray season, generally in August or September.

7. Conclusion

I have been engaged to assess the potential reverse sensitivity effects associated with agrichemical spray drift and the Brookvale Green Fast Track Substantive application. Based on my evaluation of the site context, local meteorological conditions, and the applicable regulatory framework, I have recommended a series of mitigation measures outlined above. With these measures in place, I am confident that any adverse reverse sensitivity effects arising from agrichemical spray drift from neighbouring productive land can be effectively managed to an acceptable level.