Appendix C

Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI) Reports

Soil Contamination Risk
Preliminary and Detailed Site Investigation Report and Remediation Action Plan

1/487 & 2/487 Weedons Road, Rolleston

September 2024

QUALITY CONTROL AND CERTIFICATION SHEET

Client: Your Section

Date of Issue: 19 September 2024

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APPENDICES

1 Executive Summary

The subject site comprises two rural residential lots located at 1/487 and 2/487 Weedons Road, Rolleston, Canterbury. It is proposed to rezone the site to allow residential development. This will enable future change in use, subdivision and potential disturbance of soils. Therefore, an assessment under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) is required. It is also noted that Momentum Environmental Ltd (MEL) is obligated to consider the requirements of Section 10 (4) of the Health and Safety at Work (Asbestos) Regulations 2016. This report details the work undertaken to assess the risks.

The Preliminary Site Investigation (PSI) portion of this investigation identified two confirmed or likely Hazardous Activities and Industries List (HAIL) activities on the subject site and determined there may be a risk to human health from contaminated soils. It was recommended that a Detailed Site Investigation be undertaken on the identified risk areas. The identified confirmed or likely HAIL activities were:

- Potential use of persistent pesticides on a historical apple orchard, current walnut orchard, an area of other horticultural activities and within a potentially unused commercial greenhouse (HAIL A10).
- Potential heavy metal contamination within potential former and current burn areas (HAIL I).

Soil sampling was undertaken on the 03 and 04 September 2024. The soil sampling identified seven current or former burn areas contaminated with arsenic above 'residential 10% produce' SGVs. The arsenic exceedances range from 22mg/kg to 1,120mg/kg compared with the 'residential 10% produce' SGV of 20mg/kg. One burn area also exceeds the 'residential 10% produce' SGV for lead with a result of 250mg/kg compared with the 'residential 10% produce' SGV of 210mg/kg. Given the mode of contamination this is likely limited to the top 100-150mm of soils. The contaminated areas have not been delineated.

It is recommended that the identified contaminated areas be remediated prior to the change of use or development of each area. It is also recommended that further investigation of the potential burn areas on 2/487 Weedons Road that could not be XRF tested or sampled during this investigation be undertaken when rural residential use of this property ceases. Of the untested/unsampled potential burn areas, BP3 is considered the most likely to be contaminated as the waste pile contained items of non-green waste and it has been present for at least 4 years. Delineation of the identified contaminated areas could occur at the same time to better inform remediation volumes. Equally, delineation could occur during the remediation process with the use of a portable XRF.

The current proposed remediation methodology is excavation and disposal off-site to an approved disposal facility. Following remediation, a Site Validation Report is required to be produced and provided to Selwyn District Council and ECan.

The remainder of the subject site is considered suitable for residential use with no further investigations required.

At the time of writing this report, resource consent for subdivision and change of use is required under the NESCS as a 'restricted discretionary' activity due to the presence of soil contamination above the applicable standards in Regulation 7. The current estimated remediation volumes are below permitted thresholds, therefore, the soil disturbance associated with remediation of the two contaminated areas can be carried out as a permitted activity.

2 Objectives of the Investigation

This report has been prepared in general accordance with the Ministry for the Environment's (MfE) "Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand, revised 2021" (CLMG) and the New Zealand Guidelines for Assessing and Managing Asbestos in Soils, November 2017 (NZ GAMAS). This report includes all requirements for a Preliminary and Detailed Site Investigation Report and a Remediation Action Plan.

The objective of this investigation is to:

- Collect and assess information from multiple sources to understand past and current land uses.
- Describe the physical and environmental features of the site to understand potential pathways and receptors.
- Establish whether an activity or industry described in the Hazardous Activities and Industries List (HAIL) is being, has been, or is more likely than not to have been undertaken on the site.
- Assess whether there is any risk to potential receptors that would warrant further investigation.
- Collect and analyse site information, including soil sampling and testing, to determine the extent and type of any contamination present.
- Provide remediation or site management recommendations to the client based on the results of the investigation.

3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Obtaining and review of Environment Canterbury (ECan) data from the Listed Land Use Register (LLUR).
- Search of Land Information New Zealand (LINZ) orchard database.
- Review of relevant historical aerial photographs.
- Review of relevant historical certificates of title (CTs).
- Review of Selwyn District Council (SDC) property files.
- Designing a sampling and analysis plan based on the identified contaminant risks.
- On site soil sampling and laboratory testing.
- Analysis of results against applicable soil guidelines values (SGVs).
- Preparation of this report in accordance with MfE guidelines.

4 Site Identification

The subject site is located at 1/487 and 2/487 Weedons Road, Rolleston, Canterbury as shown on the plan in Figure 1 below. The subject site is legally described as Lot 2 and Lot 3 DP 47839 and has a total area of approximately 8.6614ha.

Figure 1 – Location Plan

5 Proposed Site Use

It is proposed to rezone the site to allow residential development. This will enable future change in use, subdivision and potential disturbance of soils.

6 Site Description

6.1 Environmental Setting

Table 1 – Environmental Information

Topography	The subject site is generally flat land.
Geology	The ECan GIS database describes the soils at the subject site as Templeton deep silt. Nearby and onsite bore logs indicate that topsoils are underlain by layers of silty gravel, sandy gravel and gravel.
Soil Trace Elements	According to the ECan GIS database, natural concentrations of trace elements for the site are those of the 'Regional, Recent' soil group.
Groundwater	The subject site lies over the unconfined and semiconfined gravel aquifer system. Groundwater levels recorded onsite bore logs are between 10.9m and 12.54m deep. The direction of groundwater flow is generally in a south-easterly direction.
Surface Water	A water race runs along the opposite side of Weedons Road.

6.2 Site Layout and Current Site Uses

Both properties have a rural residential use.

1/487 Weedons Road contains a dwelling within an established garden on the northern quarter of the property. A large shed/workshop and two smaller animal shelters/chicken coops are present on the eastern quarter of the property. The remainder of the property is pastoral farmland.

2/487 Weedons Road contains a dwelling within an established garden on the southern quarter of the property. The curtilage area includes a garage/sleepout, another ancillary building, tennis court, swimming pool and a greenhouse. The majority of the rest of the property is a walnut orchard with one small area planted with blueberry bushes. A farm shed is present within the horticultural part of the property.

6.3 Surrounding Land Uses

The surrounding land is similar rural residential land.

6.4 Geotechnical Investigations

At the time of writing no geotechnical investigations were made available to Momentum Environmental Ltd (MEL).

7 Historical Site Use

7.1 Previous Site Ownership and Use

Historical Certificates of Title (CTs) were reviewed with the following relevant ownership information outlined below. No occupations of concern were identified.

03 August 1897	George Troll, farmer
26 May 1903	William McMeekan, farmer
27 March 1907	Ellen Page, spinster

06 July 1909	Walter Wright, farmer
01 July 1922	William Henry Peter Sowden, farmer
19 June 1933	Duncan Gillanders, farmer
22 November 1945	Ian Thomas Reid, farmer
11 February 1977	Ian Thomas Reid, farmer, John walker Allan, farmer and The Trustees Executors and Agency Company of New Zealand
11 September 1984	Northern Spy Orchards Ltd, Target Orchard Ltd, Green Leaf Orchard Ltd, City Side Orchard Ltd, Ellesmere Orchard Ltd, Paparua Orchard Ltd, Export Apples Ltd, Orchard Ride Ltd, Long Acre Orchard Ltd, Big Pick Orchard Ltd and Red Apple Orchard Ltd

1/487 Weedons Road

22 October 1985	City Side Orchard Ltd
09 July 1999	Northwest Farm Ltd
23 April 2002	Dean James Aitken, Edith Lorraine Aitken and William Gavin Hayes
13 February 2006	Edith Lorraine Aitken and Lindsay James Officer
11 March 2008	Edith Lorraine Aitken and Bevin Ian Godfrey
24 April 2015	Aaron Michael Kenny and Sarah Lee Meehan
24 April 2024	Your Section Ltd

2/487 Weedons Road

22 October 1985	Green Leaf Orchard Ltd
09 July 1999	Northwest Farm Ltd
05 April 2000	Lindsay James Officer and Laura Elizabeth Revill
07 May 2021	Aidan Robert Boniface and Joanne Margaret Boniface

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed. Copies of the historical CTs are included in Appendix A.

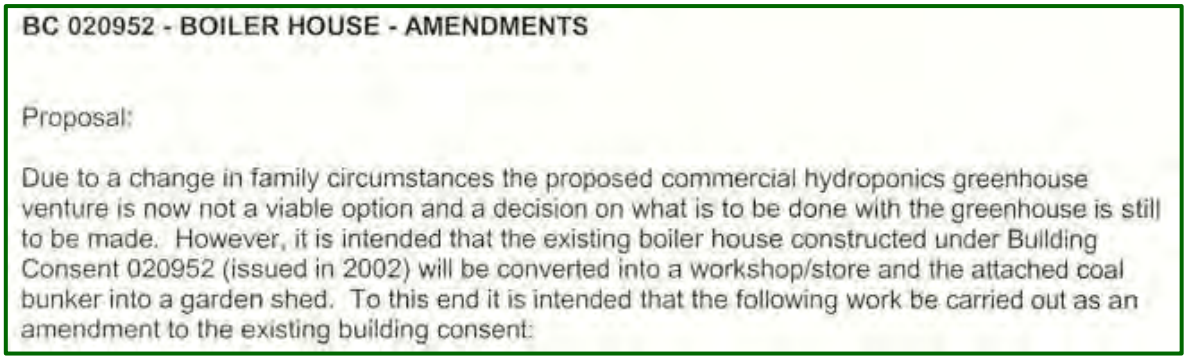
7.2 District Authority Records

The subject site is currently zoned Inner Plains in the operative Selwyn District Plan. It is zoned General Rural Zone in the proposed Selwyn District Plan.

1/487 Weedons Road

Property files were provided by Selwyn District Council (SDC) on 27 August 2024. The files included the following permits and consents:

- A building consent issued on 31 July 2002 to relocate a commercial glasshouse onto the subject site. with a boiler house.
- A building consent issued on 22 November 2002 to erect a dwelling and garage.
- A building consent issued on 23 December 2002 to erect a boiler house to heat the commercial glasshouse. The boiler was to be fuelled from a coal bunker via an automated auger. However, the building consent was later amended and the boiler house was changed to be a workshop and shed only. The records indicate that the boiler was removed to facilitate this amendment, however, it is unclear whether the boiler was ever used as it indicates the 'proposed commercial hydroponics greenhouse venture is now not a viable option' which suggests the horticultural activities had not yet commenced.



BC 020952 - BOILER HOUSE - AMENDMENTS

Proposal:

Due to a change in family circumstances the proposed commercial hydroponics greenhouse venture is now not a viable option and a decision on what is to be done with the greenhouse is still to be made. However, it is intended that the existing boiler house constructed under Building Consent 020952 (issued in 2002) will be converted into a workshop/store and the attached coal bunker into a garden shed. To this end it is intended that the following work be carried out as an amendment to the existing building consent:

Figure 2 – Snip from property file

- Building consent issued on 12 December 2006 for dwelling alterations (conversion of garage to bedroom).
- Building consent issued on 23 October 2013 for dwelling alterations (fire damage reinstatement).
- Building consent issued on 13 June 2016 for dwelling alterations.
- Building consent issued on 22 December 2023 to install a solid fuel heater.

2/487 Weedons Road

Property files were provided by Selwyn District Council (SDC) on 04 September 2024. The files included the following permits and consents:

- Building consent issued on 10 November 2000 to erect a hay shed.
- Building consent issued on 02 February 2001 to erect a dwelling.
- Building consent issued on 23 June 2004 for alterations to a farm building to add a workroom, car port, ablution facilities and a solid fuel heater.
- Building consent issued on 09 September 2004 to erect an implement shed.
- Building consent issued on 19 January 2009 to construct a swimming pool.

7.3 Regional Council Records

The subject site is listed on the Listed Land Use Register (LLUR) as part of a larger site for activities and industries as per the 'Hazardous Activities and Industries List' (HAIL). Site 118904, which includes the subject site, is listed for HAIL activity 'A10 – Persistent pesticide bulk storage or use'. An orchard was developed around 1984, with 1994 aerial photographs used to define the extent of planting. The listed site is categorised as 'Verified HAIL has not been investigated'.

One nearby site is also listed:

- 6/487 Weedons Road is listed as 'Site 235788', also for HAIL activity 'A10 – Persistent pesticide bulk storage or use'. This was part of the same orchard as Site 118904. However, this part of the orchard is listed as 'Yet to be reviewed' as investigations have been undertaken but not yet reviewed by ECan. Part of this site was investigated by Pattle Delamore Partners Ltd (PDP) in June 2019. This site was also investigated by MEL in March 2024. The investigations found no heavy metal or organochlorine pesticide (OCP) contamination that would pose a risk to human health or the environment from the former orchard use. A burn area contaminated with heavy metals above 'residential 10% produce' SGVs was identified and broadly delineated. The identified contaminated area is approximately 75m south-west of the subject site. This listed site is considered highly unlikely to pose a risk of migration of contaminants to the subject site.

The ECan GIS database shows two active bores on the subject site, used for domestic and stockwater supply. The nearest active well is M36/1914 used for irrigation, located approximately 10m south-west of the subject site.

The ECan GIS database shows an active resource consent for the subject site to discharge pool backwash water to land. Within a 100m radius of the subject site there are active resource consents to discharge domestic sewage tank effluent into ground, and to take and use groundwater.

7.4 LINZ Records

The LINZ Orchard layer shows there is a listed orchard on part of 2/487 Weedons Road. There are other nearby orchards as shown in blue on the plan below.

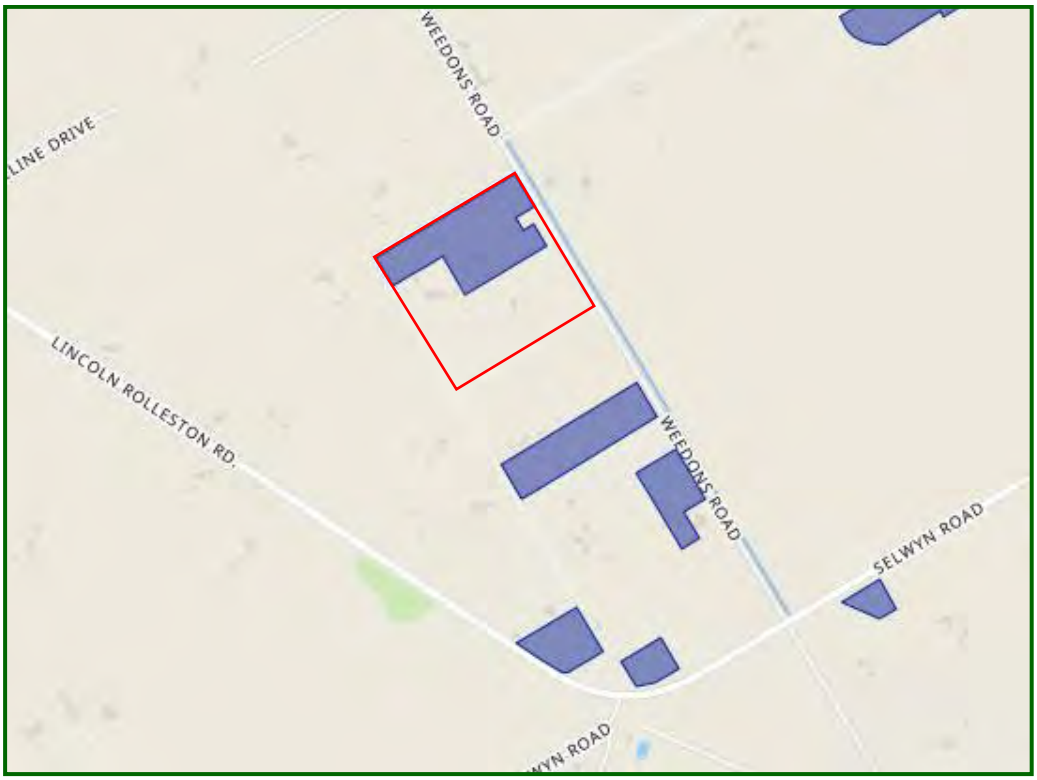


Figure 3 – LINZ Plan

7.5 Review of Historical Aerial Photographs

A total of eleven historical aerial photographs have been sourced from ECan GIS database to assess the historical use of the subject site. Copies of the aerial photographs used are included in Appendix C.

- The earliest available aerial photograph is from 1942 and shows the subject site is in pasture. The surrounding area is similar pastoral farmland.
- The next available aerial photograph is from 1961. There are no significant changes to the subject site. A dwelling has been constructed approximately 145m south-east of the subject site.
- The 1974 aerial photograph shows no significant changes to the subject site. Horticultural activities appear to be occurring beyond the subject site to the north-east. A dwelling is also now present beyond the subject site to the north-east.
- The 1982 aerial photograph shows no significant changes to the subject site or surrounding area.

- The 1994 aerial photograph shows an orchard has been planted on the subject site and the surrounding land on the south-west side of Weedons Road. Sheds, most likely the orchard yard area, are now present beyond the subject site to the south-west. The horticultural activities to the north-east appear to have ceased.
- The 2000 aerial photograph shows the orchard has been removed from one quarter of 2/487 Weedons Road. There are three potential burn areas visible on this paddock. The orchard has also been removed from the land to the south-west of the subject site. This area has been developed for rural residential use.
- The 2005 aerial photograph shows most of the orchard has been removed from the north-east half of 1/487 Weedons Road. Two structures are now present on 1/487 Weedons Road, one is the dwelling and the other the boiler house/workshop described in the property file. A garden is being established around the dwelling. A bare area of soils is present in the expected location of the glasshouse suggesting the glasshouse has been removed or is not yet fully built. A new area of trees appears to have been planted on the northern corner of 1/487 Weedons Road. A dwelling, sheds and garden have been established on the southern quarter of 2/487 Weedons Road. Trees are still present on the remaining paddocks of 2/487 Weedons Road. However, these are more spaced out than the previous aerials suggesting either some trees have been removed or the orchard has been replanted. Land to the north-west and south-east has also been developed for rural residential use.
- The 2012 aerial photograph shows possible burn areas at the north-east end of the former glasshouse location on 1/487 Weedons Road. Another possible burn area is visible on the northern corner of 2/487 Weedons Road and on the northern corner of the western paddock on this property. More of the orchard has been removed from the surrounding land.
- The 2016 aerial photograph shows the orchard has been removed from the south-west half of 1/487 Weedons Road. Nine potential burn areas are visible within these two cleared paddocks.
- The latest aerial photograph is dated 2020. It shows a possible burn area is present to the south-west of the dwelling on 1/487 Weedons Road. An area of possible soil disturbance is present neat the north-east boundary of 1/487 Weedons Road. Horticultural activities appear have ceased on part of 2/487 Weedons Road to the north-east of the dwelling. Another possible burn area is present on the western corner of the northern paddock of 2/487 Weedons Rd. There are no significant changes to the surrounding land.

8 Site Inspection

A site inspection was conducted on 03 September 2024 to identify any other potential sources of contamination not identified by the desktop portion of this investigation.

1/487 Weedons Road

The dwelling is a modern timber clad structure with a metal roof set within an established garden that includes raised vegetable beds and a domestic greenhouse. At the rear of the dwelling was a circle of bare soils with some ash, shown as BP13 on the Sample Location Plan in Appendix D. No other potential sources of contamination were identified around the dwelling or residential curtilage area.

Photo 1 – Dwelling on 1/487 Weedons Rd

Photo 2 – Domestic greenhouse

Photo 3 – Raised vege beds

Photo 4 – Potential burn area BP13

To the south-east of the dwelling is a workshop/shed with a lean-to woodshed on its south-west side and a lean-to hay shed on its south-east end. The workshop/shed has a concrete floor and is understood to be the former boiler house that was likely never used as a boiler house. A concrete coal bunker remains within the lean-to hay shed. No evidence that coal storage has occurred was observed.

Photo 5 – workshop/shed with lean-to woodshed

Photo 6 – Lean-to hay shed with concrete block coal bunker at back

The former greenhouse area is now a grassed paddock. A burn area (BP14) is present within this paddock. Charred metal and timber items are present within a raised pile of ash.

Photo 7 – Former greenhouse area

Photo 8 – Burn area BP14

The area of possible soil disturbance noted on the latest aerial near the north-east boundary of the property was observed to be a firewood processing area. This use is considered highly unlikely to pose a risk of contamination and no sampling of this area was considered necessary.

Photo 9 – Firewood processing area

2/487 Weedons Road

The residential curtilage area includes a modern dwelling, garage/sleepout, greenhouse and another ancillary building. A tennis court and swimming pool are also present. Inside the greenhouse, plants are being grown in a raised bed or pots inside the greenhouse. This was considered highly unlikely to pose a risk of contamination of the soils. An area of organic matter and ash was present at the end of the greenhouse, it was unclear whether this was a compost heap or a burn area (BP6). An ivy-covered mound of soils is present at the end of the tennis court. XRF testing of this mound detected no heavy metals above expected background levels. It is considered most likely that this soil was sourced from the property, from excavations during the development of the property for rural residential use.

Photo 10 – Dwelling on 2/487 Weedons Rd

Photo 11 – Garage/sleepout

Photo 12 – Ancillary building

Photo 13 – Raised bed inside greenhouse

Photo 14 – Compost heap/burn area BP6

Photo 15 – Ivy covered mound

Beyond the residential curtilage area is a farm building. Most of the floor is concrete, the bay without a concrete floor is being used as a woodshed. The area around the building is mainly gravel and appears to be being used for sorting walnuts and processing firewood. The majority of the property is planted with a walnut orchard. A number of piles of tree trimmings are present within the orchard area, three of these align with potential burn areas observed on the aerial photographs (BP2, BP3 and BP4). The majority of the waste piles contained only green waste so the likelihood of contamination of the underlying soils is considered to be low. Only BP3 contained non-green waste items including possible treated timber. As this burn area has been present since at least 2020 it is considered likely that the underlying soils are contaminated. Storage of items relating to an events business is occurring on the

northern quarter of 2/487 Weedons Road. The items include marquee parts (scaffolding, canvas, flooring), seats, and decorations. The items are considered unlikely to pose a risk of contamination of the underlying soils.

Photo 16 – Farm building

Photo 17 – Walnut sorting equipment and firewood

Photo 18 – Walnut orchard

Photo 19 – Green waste pile (BP1)

Photo 20 – Waste pile including non-green waste (BP3)

Photo 21 – Storage of event business equipment

An area of possible horticultural activities was observed on the aerial photographs at the rear of the farm building. Part of this area is currently planted with blueberries. The rest is now grassed and no horticultural activities are occurring.

Photo 22 – Blueberry area

Photo 23 – Grassed former horticultural area

Following the site inspection, the current owner of 2/487 Weedons Road was queried about the sprays used on the walnut orchard and blueberry area. Aidan Boniface advised that they have used small quantities of Glufosinate-ammonium around the blueberries to keep weeds down, no sprays have been used on the walnut trees. No other sprays have been used since they took ownership in 2021.

9 Preliminary Risk Assessment

9.1 Potential HAIL Uses

The Hazardous Activities and Industries List (HAIL) compiled by The Ministry for the Environment include the following categories (*in italics*) that could be associated with the historical uses of the site with a summary of the risk of these activities having been carried out on the site.

A – Chemical manufacture, application and bulk storage

10. Persistent pesticide bulk storage or use, including sport turfs, market gardens, orchards, glasshouses or spray sheds

The owners of the subject site between 1984 and 1999 were apple orchard companies. Aerial photographs show the subject site was planted as orchard from at least 1994. The apple orchard was progressively removed from the subject site from the early 2000's onwards. Persistent pesticides may have been used on the subject site during this time. Given the era of the apple orchard, the use of organochlorine pesticides (OCPs) is considered highly unlikely, however, has been included as a contaminant of concern out of an abundance of caution. Contaminants of concern include heavy metals and organochlorine pesticides (OCPs).

A commercial greenhouse was likely relocated onto 1/487 Weedons Road in 2002. However, it does not appear that it was ever used and it has since been removed from the property. If the greenhouse was operational, sprays including heavy metals and organonitrogen and organophosphorus pesticides (ONOPs) may have been used. Given the time since these potential activities, it is considered highly unlikely that any significant ONOP contamination remains.

A walnut orchard was planted on 2/487 Weedons Road between 2000 and 2005. Intensive use of sprays on nut orchards is not common practice and the current owner (since 2021) has indicated they have not used any sprays on the walnuts. However, the use of sprays prior to 2021 cannot be ruled out. Contaminants of concern include heavy metals.

Part of 2/487 Weedons Road appears to have had a horticultural use different from the surrounding walnut orchard from 2005 onwards. At the time of the site inspection, blueberries were planted on one half of this area and the other half was grassed. The current owner has indicated small amounts of Glufosinate-ammonium have been used around the blueberries to keep the weeds down. Glufosinate-ammonium has a soil half-life of 8-23 days and is not considered to be persistent. Potentially organonitrogen and organophosphorus pesticides (ONOPs) may have been used on this area prior to 2021 but given the time passed it is considered highly unlikely that any significant ONOP contamination remains.

> H - Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment

The orchard previously present on the subject site also extended onto adjacent land. Possible horticultural activities beyond the subject site to the north-east were observed on aerials from 1974 until 1994. It is considered highly unlikely that migration of contaminants to the subject site from other parts of the orchard area or the horticultural activities to the north-east would be distinguishable from any contamination on the subject site from its own horticultural uses.

> I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

There is no evidence of any buildings or structures being present on the subject site prior to 2000. No evidence of asbestos containing building materials (ACM) in a deteriorated state was observed during the site inspection. It is considered highly unlikely that soil contamination from lead-based paint products or asbestos containing materials exists on the subject site in sufficient quantities that would pose a risk to human health.

Multiple possible burn areas were observed on aerial photographs from 2000 onwards and during the site inspection. The majority of these burn areas were likely associated with clearing areas of former orchard. As such the material burnt was most likely green waste. However, the burning of non-green waste cannot be ruled out which could have caused contamination of the underlying soils. Contaminants of concern include heavy metals.

An ivy-covered mound of soils is present at the end of the tennis court on 2/487 Weedons Road. XRF testing of this mound detected no heavy metals above expected background levels. This mound of soil is not considered to be a potential source of soil contamination. HAIL I is not considered to apply to this mound of soil.

9.2 Preliminary NESCS Assessment

In relation to the NESCS, Regulation 5(7) states that land is considered to be covered if an activity or industry described in the HAIL is being undertaken; has been undertaken; or is more likely than not to have been undertaken on it. Regulation 6 describes the methods for determining this. Method 6(3) is to rely on a Preliminary Site Investigation. The 'NESCS Users Guide' indicates the test for 'more likely than not' is whether there is more than a 50 percent likelihood of the HAIL having occurred.

The table below states the likelihood of each HAIL identified in Section 9.1 above:

Table 2 – Preliminary NESCS Assessment

HAIL Category	6(3)a - Is being undertaken	6(3)b – has been undertaken	6(3)c – likelihood of having been undertaken (if not confirmed)
A10 – Persistent pesticide bulk storage or use	-	-	More likely than not
H – migration of contaminants	-	-	Highly unlikely
I – Any other land (lead paint & asbestos from buildings)	-	-	Highly unlikely
I – Any other land (burn areas)	Yes	-	More likely than not

9.3 Preliminary Conceptual Site Model

The following preliminary conceptual site model (CSM) indicates potentially complete exposure pathways associated with the identified risks at the site. The locations of the risk areas are shown on Figure 3 below.

Table 3 – Preliminary Conceptual Site Model

Conceptual Site Model				
Source	Pathways		Receptor	Exposure Pathway Status
• Potential use of persistent pesticides on historical apple orchard, current walnut orchard, area of other horticultural activities and within a commercial greenhouse. • Potential heavy metal contamination within possible former burn areas and current burn areas.	Human	Dermal contact, ingestion and inhalation through soil contact	Current and future site occupiers and workers involved in soil disturbance activities.	Potentially complete
	Ecological	Infiltration through soils to groundwater	Groundwater is assumed to be 10.9-12.54m deep at the site	Likely incomplete due to separation distance.
		Surface runoff to waterways	Water race on opposite side of Weedons Road	Likely incomplete

Based on the NESCS assessment and the preliminary CSM above, the NESCS does apply to the site. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminated Land Management Guidelines, be undertaken on the identified risk areas prior to development. These areas are shown on the Risk Area Plan below. Due to their small sizes, the approximate locations of the potential/known burn areas are simply marked with a yellow cross.

Figure 4 – Risk Area Plan **(yellow 'X' for potential** former and current burn areas)

10 Sampling and Analysis Plan

10.1 Sampling Design

The proposed use for the subject site is residential. For the purpose of designing a sampling plan the subject site has been considered as one exposure area with overlapping risk areas. The specifics of the sample design strategy are included in Table 4 below.

Table 4 – Sampling Design Strategy

Contaminants of concern	Apple orchard risk area – Heavy metals, OCPs Walnut orchard risk area – Heavy metals Other horticultural risk area – Heavy metals Greenhouse risk area – Heavy metals, ONOPs Burn areas – Heavy metals.
Media to be sampled	Soils

Number of sample locations	Apple orchard/walnut orchard/other horticultural/greenhouse risk areas – Contamination linked to horticultural uses is likely to be diffuse. Therefore, systematic or grid sampling of these areas is considered appropriate. During use as an apple orchard the subject site was divided into 8 paddocks by shelterbelts. Three of the 8 apple orchard paddocks had the trees removed in the early 2000s. Due to the short duration of the orchard activities and the time passed since the orchard was present, these areas are considered to be at a lower risk of significant contamination. Two sample locations per paddock is considered appropriate to assess the contamination from the former orchard on these three former paddocks. However, there are overlapping risk areas which also require assessment. Therefore, these three former paddocks will be sampled as follows: • Lower risk orchard paddock 1 – southern corner of 2/487 Weedons Road which includes the more recent 'other horticultural risk area'. One sample location to be placed within the residential curtilage area representing the former apple orchard use only. To also assess the 'other horticultural risk area', one sample location will be centrally placed within the blueberry growing area and one sample location to be centrally placed within the adjacent other former horticultural area. • Lower risk orchard paddock 2 – northern corner of 1/487 Weedons Road has no other potential sources of contamination. Two sample locations evenly distributed across this former paddock area. • Lower risk orchard paddock 3 – eastern corner of 1/487 Weedons Road includes the possible commercial greenhouse area. Two sample locations to be evenly distributed across this paddock ensuring that one location lies within the greenhouse area. The remaining 5 orchard paddocks continued to have an orchard use until more recently (either remaining planted with apple trees until the 2010s or planted with walnuts in the early 2000s to the present day). This increases the risk of a more significant build up of persistent pesticides. Four sample locations per paddock will be evenly distributed across these 5 paddocks. Burn Areas – A judgemental sampling strategy will be used with one sample location per burn area, sample locations to be guided by XRF screening. If the potential burn area aligns with a grid sample location described above, then the soils will be sampled as described for the grid sample location.
Depth of samples	Apple orchard/walnut orchard/other horticultural/greenhouse risk areas – Given the likely source of contamination and proposed use for the subject site, surface and near surface (250mm) samples are considered appropriate. Deeper samples may also be taken at other sample locations if buried contamination is suspected based on observations during sampling. Burn Areas – given the mode of contamination, surface samples are considered appropriate.
Testing Methodology	Apple orchard/walnut orchard/other horticultural/greenhouse risk areas – All surface samples will be analysed for seven heavy metals. All surface samples will be analysed for OCPs as seven laboratory composite samples. The three surface samples from the 'other horticultural' and greenhouse risk areas

	will be analysed for ONOPs as one laboratory composite sample. Analysis of the deeper samples and/or individual samples will occur if the initial results indicate possible contaminant concentrations of concern. Burn Areas – soil samples from locations where XRF screening identifies heavy metal concentrations of concern will be analysed for seven heavy metals to confirm the XRF readings. Where the XRF readings indicate no elevated heavy metals are present the soil samples will be held cold. Samples from former potential burn areas not XRF tested as they aligned with grid sample locations will be analysed as per the horticultural risk areas described above.
Field Sampling Technique	Samples to be taken by hand using a stainless-steel spade, trowel or fresh disposable nitrile gloves.
XRF Testing Procedure	3-4 XRF tests will be performed across each burn area. A soil sample will be taken at the location with the highest XRF readings in each burn area.

10.2 Soil Guideline Values

Human health soil contaminant standards for a group of 12 priority contaminants were derived under a set of five land-use scenarios and are legally binding under The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Health) Regulations 2011 (NESCS). These standards have been applied where applicable. The regulations describe these as Soil Contaminant Standards. For contaminants other than the 12 priority contaminants, the hierarchy as set out in the Ministry for the Environment Contaminated Land Management Guidelines No 2 has been followed. These are generally described as Soil Guideline Values. For simplicity, this report uses the terminology Soil Guideline Values (SGV) when referring to the appropriate soil contaminant standard or other derived value from the hierarchy. For soil, guideline values are predominantly risk based, in that they are typically derived using designated exposure scenarios that relate to different land uses. For each exposure scenario, selected pathways of exposure are used to derive guideline values. These pathways typically include soil ingestion, inhalation and dermal adsorption. The guideline values for the appropriate land use scenario relate to the most critical pathway.

The land-use scenario applicable for the site is 'residential 10% produce'. The 'commercial/industrial outdoor worker' land use scenario has been applied as a proxy for workers involved in disturbing soils activities.

The adopted trigger values used to determine need for assessment of ecological receptors (including stormwater disposal areas) also referred to as Ecological Guideline Values (EGVs) are the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (online) – Sediment GV-high (ANZWQ) multiplied by 3.

For comparison of site concentrations against expected background levels the following published concentrations will be used:

- Heavy metal concentrations will be assessed against the expected background levels as published in *Background Concentrations in Canterbury soils*, Tonkin and Taylor, July 2007.
- Organochlorine pesticide concentrations will be assessed against the concentrations published in *Ambient Concentrations of Selected Organochlorine in Soils*, Buckland, Ellis and Salter, 1998.

10.3 Quality Assurance and Quality Control

Field quality assurance measures as described in Section 4.3.1 of the "Contaminated Land Management Guidelines No 5: Site Investigation and Analysis of Soils, revised 2021" (CLMG) are to be followed. These include using trained staff, choosing appropriate sample containers, accurate and individual labelling and recording of locations, completing appropriate laboratory chain of custody forms, chilling of samples as appropriate and timely delivery to laboratories. All non-disposable sampling equipment should be decontaminated between samples using Decon 90 and rinsed with tap water. All samples are to be submitted to IANZ accredited laboratories. Quality control to ensure freedom from sample cross-contamination is to be measured by the appropriate use of duplicate and rinsate blank samples.

10.4 XRF Quality Assurance Measures

The current NZ XRF use guidelines (Ministry for the Environment. 2024. *Field use of X-ray fluorescence spectroscopy for investigation of contaminated soils.* Wellington) are to guide the use of the XRF for this investigation.

The XRF to be used is an Olympus Vanta M-Series with a 50KV tube. The manufacturer's instructions are to be followed in the use of the device. All users are to be trained and licensed to operate the XRF.

Standard reference materials and a blank are to be tested prior to each day's testing and compared with expected results. Blank readings are to be taken throughout the day's testing as appropriate to ensure there is no contamination of the XRF window.

It is intended that the device be used qualitatively at this site to guide sample collection and analysis.

11 Sampling Results

11.1 Summary of Works/Field Observations

Soil sampling was undertaken on 03 and 04 September 2024 in general accordance with the proposed sampling plan. A Sample Location Plan showing the sampled locations is included in Appendix D. Grid sample locations are labelled 'SS' and burn areas are labelled 'BP'. A Table of XRF Results from the XRF screening is included in Appendix E.

Twenty-seven grid sample locations were sampled at surface and 250mm depth. The sampled soils were generally dark brown silts.

Potential burn areas on 2/487 Weedons Road

Three potential burn areas were noted on the southern paddock of 2/487 Weedons Road on the 2000 aerial. One of these is now under the dwelling. It is likely that if any contamination of this area had occurred the contamination would have been removed during construction of the dwelling. Any remaining contamination is capped and does not pose a risk to human health. This location was not sampled. The second potential former burn area aligns with grid sample location SS9, this location was not XRF tested but was sampled at the surface and 250mm depth in accordance with the sampling plan for the grid samples. The third potential former burn area was XRF tested and sampled as BP5. The XRF readings indicated arsenic concentrations may exceed 'residential 10% produce' SGVs in this location. Therefore, soil sample BP5.1 was submitted for heavy metal analysis.

Eight waste piles/possible burn areas are currently present within the walnut orchard area. Of these current waste piles/burn areas four were XRF tested and sampled as BP1, BP2, BP4 and BP6. The

others could not be XRF tested or sampled as the underlying soils could not be accessed through the waste piles.

BP1 (current waste pile) and BP2 (observed on the 2012 aerial and has a current waste pile) were only seen to contain green waste with no evidence of burning. The XRF readings were all around expected background levels. Therefore, no HAIL activity is considered to have occurred at BP1 or BP2.

BP3 (current waste pile and observed on 2020 aerial) was not XRF tested or sampled as the underlying soils could not be accessed. Some items of non-green waste were observed in this waste pile. It is not clear whether burning has occurred at this location but as a waste pile/burn area has been present in this location for at least 4 years it is considered highly likely that some contamination of the underlying soils has occurred.

BP4 (current waste pile and observed on aerial photographs from 2012 onwards) currently contains only green waste. The underlying soils were seen to include ash indicating that burning has occurred in this location. The XRF screening identified arsenic contamination exceeding the 'residential 10% produce' SGV. Sample BP4.1 was submitted for heavy metal analysis to confirm the XRF readings.

BP6 was a compost area with ashy soils located at the end of the greenhouse. XRF testing of the soils indicated possible elevated arsenic concentrations. Sample BP6.1 was submitted for heavy metal analysis to confirm the XRF readings.

The remaining three current waste piles could not be XRF tested or sampled as the underlying soils could not be accessed through the waste piles. The waste piles only contained green waste most likely from tree pruning. These are shown without labels on the Sample Location Plan.

Potential burn areas on 1/487 Weedons Road

Multiple former potential burn areas were identified on 1/487 Weedons Road during the aerial photograph review. Grid sample locations SS22, SS26, SS25 and SS27 were aligned with four of these former potential burn areas. No ash or other evidence of burning was observed at these locations during sampling. These locations were sampled at surface and 250mm depth without XRF testing as per the sampling plan for the grid samples. Once the results of the surface samples from SS25 and SS27 showed exceedances of the 'residential 10% produce' SGVs for arsenic, the 250mm depth samples were also submitted for heavy metal analysis.

Six more former potential burn areas were XRF tested and sampled at the surface as BP7-BP10, BP11 and BP12. No ash or other evidence of burning was observed at these locations. The XRF readings were all around expected background levels around BP7, BP8, BP9, BP10 and BP11. Therefore, no HAIL activity is considered to have occurred at BP7, BP8, BP9, BP10 and BP11. The XRF screening identified arsenic contamination exceeding the 'residential 10% produce' SGV at BP12. Sample BP12.1 was submitted for heavy metal analysis to confirm the XRF readings.

Ashy soils were observed at former potential burn area BP15 confirming that this was previously a burn area. The XRF screening identified arsenic contamination exceeding the 'residential 10% produce' SGV. Sample BP15.1 was submitted for heavy metal analysis to confirm the XRF readings.

A circle of bare soils with some ash was observed adjacent to the dwelling during the site inspection. This was XRF tested and sampled as BP13. The XRF readings were all around expected background levels within this circle of bare soils. Therefore, no HAIL activity is considered to have occurred at BP13.

A current burn area including non-green waste items was observed within the greenhouse area during the site inspection. This was XRF tested and sampled as BP14. The XRF screening identified high arsenic concentrations, exceeding the 'residential 10% produce' SGV. Sample BP14.1 was submitted for heavy metal analysis to confirm the XRF readings.

Laboratory Analysis Summary

A total of 35 surface samples including two duplicates were analysed for seven heavy metals. Two 250mm depth samples were analysed for seven heavy metals once the surface samples showed heavy metal contamination was present. Twenty-seven surface samples were analysed for OCPs as seven laboratory composite samples. Three surface samples were analysed for ONOPs as one laboratory composite sample.

11.2 Evaluation of Results

The laboratory results show seven current or former burn areas exceed the 'residential 10% produce' soil guideline value (SGV) for arsenic. BP14 also exceeds the 'residential 10% produce' SGV for lead for one or more heavy metals, as shown in Table 5 below:

Table 5 – Samples exceeding residential 10% produce SGV **('-' = no exceedance)**

Sample	Depth (mm)	Arsenic (mg/kg)	Lead (mg/kg)
SS25	50	25	-
SS27	50	24	-
BP4.1	0-50	360	-
BP5.1	0-50	22	-
BP12.1	0-50	28	-
BP14.1	0-50	1,120	250
BP15.1	0-50	880	-
'Residential 10% Produce' SGV		20	210

The contamination is likely limited to the top 100-150mm of soils. This is verified by the arsenic results from SS25 and SS27 at 250mm depth which were below expected background levels.

The arsenic concentrations in samples BP4.1, BP14.1 and BP15.1 also exceed the 'commercial/industrial outdoor worker' SGV of 70mg/kg and the ecological guideline value (EGV) of 210mg/kg.

Away from the contaminated burn areas, background concentrations for one or more metals were exceeded in approximately two-thirds of the locations.

Traces of 4,4'-DDD (a breakdown product of DDT) were detected all of the seven composite samples analysed for OCPs. Traces of 4,4`-DDT was detected in two composite samples. The Total DDT concentrations were below the laboratory limit of detection for all seven composite samples analysed for OCPs.

Traces of Terbuthylazine were detected in the composite samples analysed for ONOPs. There are no soil guideline values for this compound. The result of 0.04mg/kg is considered highly unlikely to pose a risk to human health or the environment. All other ONOP analytes were below the laboratory limit of detection.

A Table of Laboratory Results is included in Appendix F and copies of the Laboratory Reports are included in Appendix G.

11.3 Results of Field & Laboratory Quality Assurance and Quality Control

The Relative Percentage Differences (RPD) for the duplicate sample pairs (SS7.1/DUP1 and SS18.1 / DUP2) were 0-11%, which is within acceptable ranges indicating no quality-control issues.

All laboratory tested samples were submitted to Hill Laboratories for analysis. Hill Laboratories holds IANZ accreditation. As part of holding accreditation the laboratory follows appropriate testing and quality control procedures. No quality control issues were identified.

11.4 Results of XRF Quality Assurance and Quality Control

The quality assurance measures prescribed above were followed. Calibration checks and blank testing showed no quality control issues.

12 Quantified Risk Assessment

Soil sampling has identified seven current or former burn areas contaminated with arsenic above 'residential 10% produce' SGVs. One burn area also exceeds the 'residential 10% produce' SGV for lead.

The following conceptual site model assesses the risk posed by the identified contaminants:

Table 5 – Revised conceptual site model

Conceptual Site Model				
Source	Pathways		Receptor	Risk Assessment
Arsenic contaminated burn areas with arsenic concentrations ranging from 22-1,120mg/kg. One burn area is also contaminated with lead.	Human	Dermal contact, ingestion and inhalation	Future site occupiers / land users.	Moderate to high risk to human health in an uncontrolled residential use as results exceed the 'residential 10% produce' SGV.
			Workers involved in soil disturbance at the site.	Moderate risk to human health as some results exceed the commercial / outdoor worker SGV for arsenic. It is likely this risk can be managed by the implementation of an appropriate Site Management Plan.
	Ecological	Infiltration through soils to groundwater	Groundwater is assumed to be 10.9-12.54m deep at the site	Low risk – contamination likely limited to top 100-150mm of soils.
		Surface runoff to waterways	Water race on opposite side of Weedons Road	Low risk due to the separation distances between the water race and any results exceeding EGVs.

It is recommended that the identified contaminated burn areas be remediated prior to development of the subject site for residential use. It is also recommended that further investigation of the potential burn areas that could not be tested/sampled on 2/487 Weedons Road be undertaken when rural residential use of this property ceases. Of the untested/unsampled potential burn areas, BP3 is considered the most likely to be contaminated as the waste pile contained items of non-green waste and it has been

present for at least 4 years. Delineation of the identified contaminated areas could occur at the same time to better inform remediation volumes. Equally, delineation could occur during remediation with the use of a portable XRF.

Although not posing a risk to human health or the environment, the client may consider also remediating burn area BP6 to ease future off-site disposal and consenting needs for new lot owners.

13 Scope and Purpose of Remediation

13.1 Remediation Objectives

The remediation objectives for the site are to remove any pathways between the contaminants and the receptors of significance. Based on the results for the site, the significant receptors are humans. There are multiple ways to achieve this objective, including, but not limited to, removal of the contaminated material, capping to create a barrier between the contaminated material and the receptor, or by implementing ongoing site management measures to reduce the risk.

Other ancillary objectives include:

- To ensure that appropriate site management measures are in place to protect workers from exposure to contaminants contained in the soils.
- To ensure that soil management controls are in place to prevent tracking of contaminants, dust, stormwater runoff erosion.
- To ensure that any contaminated soils removed off-site are disposed of to an appropriate location.

13.2 Remedial Options

While multiple options are available, in terms of practicality and consenting requirements, and due to the levels of contamination found, excavation and off-site disposal to an approved facility is the recommended methodology. The Remediation Action Plan included in this report has been written to support this method.

Alternative remediation options include capping the contaminated soils or relocating into a managed containment cell on other parts of the subject site, or a combination of measures. If alternative methodologies are to be pursued then an updated Remediation Action Plan will be required, along with consideration of environmental effects and consenting needs.

The following methodology and Site Management Plan should be followed for remediation by excavation of the contaminated soils and off-site disposal.

13.3 Proposed Standard of Remediation

The standard of remediation is to ensure contaminated material with heavy metal concentrations above the ‘residential 10% produce’ SGVs have been removed from the subject site and disposed of at a facility authorised to receive the material.

It is noted that this standard of remediation does not intend to leave the site as ‘clean’ which is defined as having all contaminant levels below expected natural background levels. This may mean that off-site disposal of soils from future development works will not qualify for disposal to cleanfill facilities. If required, the client could choose to remediate to a higher standard.

13.4 Proposed Remediation Methodology

The proposed remediation methodology below is to be planned and carried out as a separate work programme prior to any bulk earthworks or other development related earthworks to avoid any risks of cross-contamination and delays to the main earthworks programme. Prior to beginning any earthworks, a site meeting between the contractor's on-site representative and Momentum Environmental Ltd (MEL) is to take place. This will also allow MEL staff to mark the appropriate areas, particularly as the contaminated areas have only been broadly delineated to date.

The remediation of the subject site is to occur as follows:

1. Set up all site controls and equipment as required and in accordance with the General Site Management Plan detailed below in Section 14.
2. Excavate the identified affected areas to approximately 100mm below ground level.
3. Carry out XRF testing to determine the extent of any remaining heavy metal contamination in the soil. Undertaking XRF testing in conjunction with the excavation works will help minimise the volumes requiring disposal while ensuring the remediation objectives are met.
4. Continue to excavate any remaining heavy metal contaminated soils in accordance with the objectives set out above.
5. Dispose of soils to a suitable disposal location, as per Section 13.7
6. Following excavation works, the excavated area including walls and base, should be tested by XRF to confirm whether the remediation goal has been achieved. When the XRF results indicate success, laboratory validation sampling should be undertaken.
7. If laboratory results indicate further heavy metal contamination is present, further excavations and validation sampling will be required.
8. Decontaminate all equipment prior to commencing other site earthworks.

13.5 Remediation Volumes

The following estimated volumes have been provided in good faith to assist in consenting and estimating the extent and cost of works required. The likely affected volumes are based on the current known or expected extent of contamination found and is not to be taken as the final or maximum likely volume. All remediation of contaminated soils has the risk of extending further out or deeper due to hidden areas of contamination.

The contaminated areas have not been delineated. The size of the affected areas has been estimated based on observations during sampling and previous extents shown by historical aerial photographs. The depth of contamination is likely limited to the top 100-150mm of soils based on experience with remediation of other contaminated burn areas.

Table 6 – Estimated In-Situ Remediation Volumes

Contaminated Area	Approx. Size of Area	Approx. In-situ Volume
Former burn area SS25	Size of area on aerial photographs is estimated to be 180m^2.	18-27m^3
Former burn area SS27	Size of area on aerial photographs is estimated to be 80m^2.	0.8-1.2m^3
Current burn area BP4	Current waste pile measures approximately 7x8m. However, aerial photographs indicate the affected area may measure 130m^2.	13-20m^3

Former burn area BP5	Size of area on aerial photographs is estimated to be 170m^2.	17-26m^3
Former burn area BP12	Size of area on aerial photographs is estimated to be 65m^2.	7-10m^3
Current burn area BP14	Size of area of ashy soils observed during sampling estimated to be 70m^2.	7-11m^3
Former burn area BP15	Size of area on aerial photographs is estimated to be 115m^2.	11-17m^3
	Approx. Total	74-112 m^3

13.6 Regulatory Requirements

Soil sampling has shown contamination levels exceed the applicable standards in Regulation 7. Therefore, at the time of writing, the proposed change of use and subdivision will require resource consent from the Waimakariri District Council under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations (NESCS).

The remediation excavations will include the activities of soil disturbance and off-site disposal. The permitted volumes are compared with the estimated remediation volumes in Table 7 below:

Table 7 – Remediation Permitted Activity Assessment

		Indicative soil volume	Complies
Area of the 'piece of land'	86,614m^2		
Permitted soil disturbance volume 25 cubic metres per 500m^2	4,331m^3	74-112 m^3	Yes
Permitted removal volume 5 cubic metres per 500m^2 per year	866m^3	74-112 m^3	Yes

Based on the above, the soil disturbance associated with the remediation activities will comply and are classified as a 'permitted activity' under the NESCS.

It is recommended that a planner fully assess all proposed activities associated with the development and remediation against the Land and Water Regional Plan to determine whether consents from ECan are necessary due to the identification of contaminated land.

13.7 Disposal Location

The following table identifies the main disposal locations in Canterbury for the identified contaminants of concern at the time of writing this report.

Table 8 – Potential Disposal Locations

Landfill	Contaminant		Acceptability of site soils
	Arsenic	Lead	
Burwood Landfill	80mg/kg	880mg/kg	Former burn areas SS25, SS27, BP5, & BP12: soils do qualify. Former/current burn areas BP4, BP14 & BP15 – soils do not qualify due to the arsenic concentrations.
Hororata Managed Fill Site	140mg/kg	500mg/kg	Former burn areas SS25, SS27, BP5, & BP12: soils do qualify. Former/current burn areas BP4, BP14 & BP15 – soils do not qualify due to the arsenic concentrations.
Kate Valley (Class A landfill)	100mg/kg or 5g/m³ by TCLP	100mg/kg or 5g/m³ by TCLP	Soils may qualify for disposal at Kate Valley Landfill subject to TCLP analysis.
Canterbury EnviroSolutions (Temuka)	CESL has a soil holding and remediation pad for the testing and storage of contaminated material. They are able to blend, treat and retest contaminated soils prior to disposal at an appropriate landfill. Therefore, whether they can accept material is determined on a case-by-case basis. It is recommended that the results from this DSI are sent to CESL to determine whether they can accept the material and obtain a quote for disposal.		

13.8 Disposal Documentation

For any off-site disposal, all weighbridge/disposal dockets are to be retained and a copy provided to the suitably qualified and experienced practitioner (SQEP) to include in the final validation report and to show compliance with any resource consent conditions.

14 Site Management Plan

14.1 Site Setup

- Fencing should be installed to prevent unauthorised access to the work area if required.
- Contaminated areas should be clearly identified with site entry and exits planned before works commence.
- Appropriate washing/decontamination facilities should be put in place to clean any equipment exposed to contaminated soils.
- A large, consistent and reliable water supply and applicators for dust suppression should be available.
- Remediation should be planned in advance to ensure it occurs in a staged approach/ methodical manner to ensure that vehicles do not track contaminated soils onto cleaner areas.
- A complete copy of this Remediation Action Plan should be provided to all relevant parties, including the contractor, prior to any works commencing.

14.2 Personal Occupational Safety and Health Measures

The contractor shall prepare a site-specific Health and Safety Plan covering all relevant matters and all workers will be inducted prior to site works beginning. As a minimum, the following matters will need to be included:

- Appropriate personal protection gear which should include as a minimum, head to toe clothing, the use of gloves for any worker handling soil, dust masks to prevent ingestion of contaminated dust particles, safety footwear, hard hats and hi-vis vests.

- Appropriate hand washing measures to prevent ingestion of contaminated soil particles.
- Truck loading procedures and spill prevention.
- Decontamination measures for all equipment.

14.3 Stormwater and Soil Management

Remediation work should not take place during heavy rain or high wind. If rainfall occurs and tracking of wet contaminated soils off the site becomes a risk, work should cease.

In general, stockpiling should be kept to a minimum. Any contaminated soil that is to be stockpiled on the site should be appropriately stabilised to prevent mobilisation of contaminants through wind or rain as required. This may include covering, compacting, polymer or other measures appropriate to the soil type and conditions.

14.4 Dust Control

Water will be made available at the remediation site with operators available and will be used to keep the dust emissions to an acceptable level to protect human health as required.

All vehicles transporting soils off-site will use tarpaulins to prevent dust emissions if required.

14.5 Unexpected Contamination Discovery Protocols

During the excavation works, if any other hazardous material is encountered in significant volumes that pose a threat to the health of workers on site, all works should cease until the hazardous material has been assessed by a SQEP in accordance with MfE guidelines.

Signs that would indicate further assessment is required include visually discoloured soils, olfactory evidence of hydrocarbons or other potential contaminants, oily greasy soils, asbestos containing materials or significant rubbish items.

15 Site Validation Strategy

Following remediation excavation works, the excavated areas including walls and base, shall be tested by XRF to confirm the extent of any remaining contamination or to confirm remediation has been successful. Laboratory sampling will be required to confirm the XRF readings. The number and location of validation samples is to be determined by an experienced contaminated land practitioner based on the final lateral and vertical extent of the remediated areas.

Where sampling reveals the goals have not been achieved, further remediation works shall be carried out either by further excavation or by capping the remaining soils as deemed most appropriate.

A Site Validation Report will be produced and provided to Selwyn District Council and ECan.

16 Conclusion

This investigation identified a risk of soil contamination on the subject site from potential former burn areas, current burn areas, former use as an apple orchard and more recent horticultural activities including a possibly unused commercial greenhouse, a walnut orchard and blueberry growing.

Soil sampling was undertaken on the 03 and 04 September 2024. The soil sampling identified seven current or former burn areas contaminated with arsenic above ‘residential 10% produce’ SGVs. One burn area also exceeds the ‘residential 10% produce’ SGV for lead. Given the mode of contamination,

the contamination is likely limited to the top 100-150mm of soils. The contaminated areas have not been delineated.

It is recommended that the identified contaminated areas be remediated prior to the change of use or development of each area. It is also recommended that further investigation of the potential burn areas that could not be tested/sampled on 2/487 Weedons Road be undertaken when rural residential use of this property ceases. Of the untested/unsampled potential burn areas, BP3 is considered the most likely to be contaminated as the waste pile contained items of non-green waste and it has been present for at least 4 years. Delineation of the identified contaminated areas could occur at the same time to better inform remediation volumes. Equally, delineation could occur during remediation with the use of a portable XRF.

The current proposed remediation methodology is excavation and disposal off-site to an approved disposal facility. Following remediation, a Site Validation Report is required to be produced and provided to Selwyn District Council and ECan.

The remainder of the subject site is considered suitable for residential use with no further investigations required.

At the time of writing this report, resource consent for the proposed subdivision and change of use is required under the NESCS as a 'restricted discretionary' activity due to the presence of soil contamination above the applicable standards in Regulation 7.

17 Limitations

Momentum Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Momentum Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Momentum Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

This report does not attempt to describe all risks or possible outcomes resulting from carrying out remediation works. Any party carrying out remediation works shall be responsible for all such works, including implementing all health and safety precautions as appropriate. Momentum Environmental Limited disclaims all liability whatsoever for any loss or damages, if any, suffered by any party as a result of any remediation works undertaken.

No part of this report may be reproduced, distributed, publicly displayed, or made into a derivative work without the permission of Momentum Environmental Ltd, other than the distribution in its entirety for the purposes it is intended.

Appendix A – Historical Certificates of Title

CANCELLED

Land and Deeds 69

No. 168/949

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 22.6624 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4296

DISTRICT LAND REGISTRAR CANTERBURY N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 14.12.1977 at 9.33 am.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

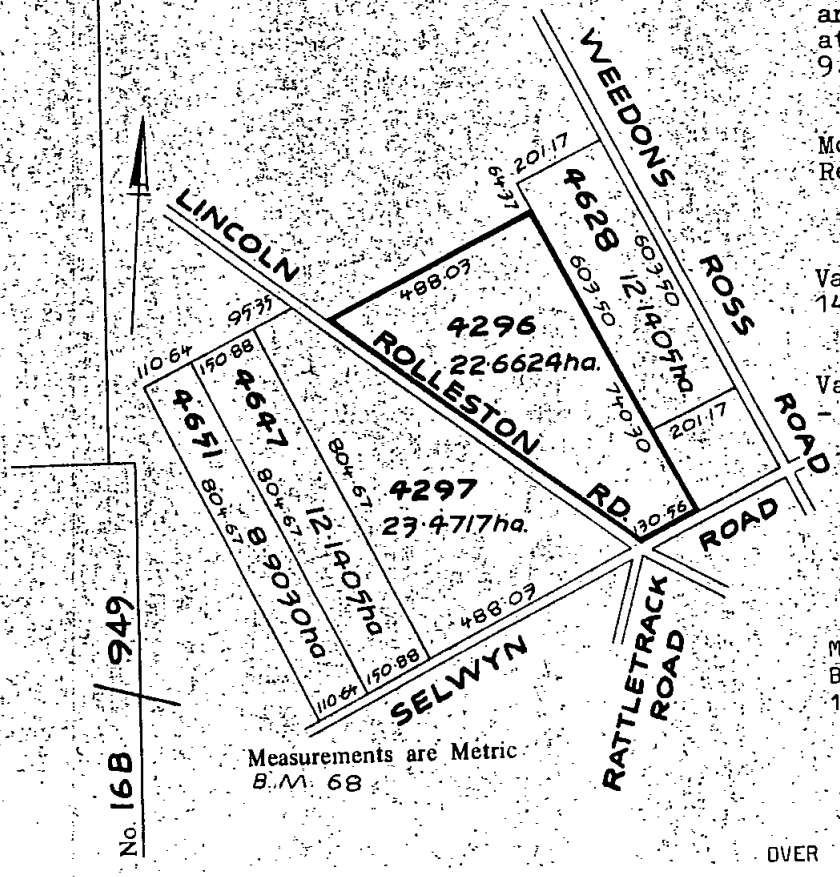
DISCHARGED

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11-12-1981 at 9.40 a.m.

DISCHARGED

for A.L.R.



Measurements are Metric
B.M. 68

No. 168/949

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority Making Mortgages 359857/1 and 116057/2 first and second Mortgages respectively - 11-12-1981 at 9.40a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

for A.LR.

PLAN No. 47504 LODGED 3/6/84
AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984
AND DEPOSITED 16/10/1984

Pursuant to Section 306 (3) of the Local Government Act 1974 Lot 19 Plan 47504 is vested in the Ellesmere County Council as Road

A.L.R.

No.502775/1 Compliance Certificate pursuant to Section 306 (1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

O.C.T.512483/2) 16.10.1984)

Cancelled and CsT.26F/951-953 issued for Lots 16-18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

Land and Deeds 69

No. 168 / 951

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 12.1405 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4628

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid, of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED 11.12.1981 A.L.R.

A.L.R.

Variation of Mortgage 116057/2 - 14.12.1977 at 9.33 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

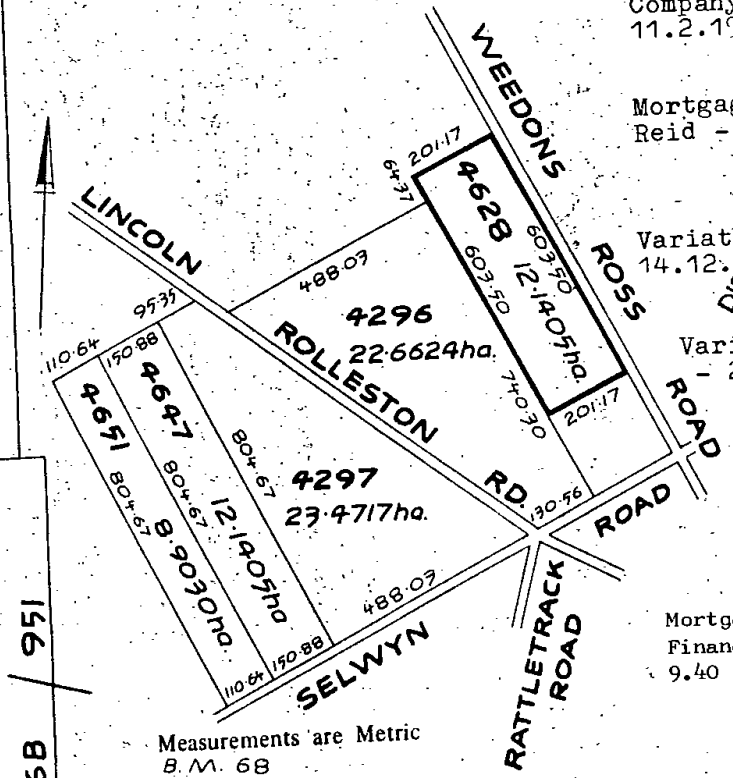
Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

DISCHARGED 11.12.1981

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11.12.1981 at 9.40 a.m.

for A.L.R.



Measurements are Metric
B.M. 68

No. 168 / 951

OVER...

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority making Mortgages 359857/1 and 116057/2 first and second mortgages respectively - 11.12.1981 at 9.40 a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

DISCHARGED

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

DISCHARGED

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.

DISCHARGED

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

DISCHARGED

for A.L.R.

PLAN No. 47504 LODGED 3/6/84

AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984

AND DEPOSITED 16/10/84

No.502775/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

OCT 512483/2) 16.10.1984) Cancelled and CsT.26F/952 and 953 issued for Lots 17 and 18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

Land and Deeds 69

No. 168/954

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

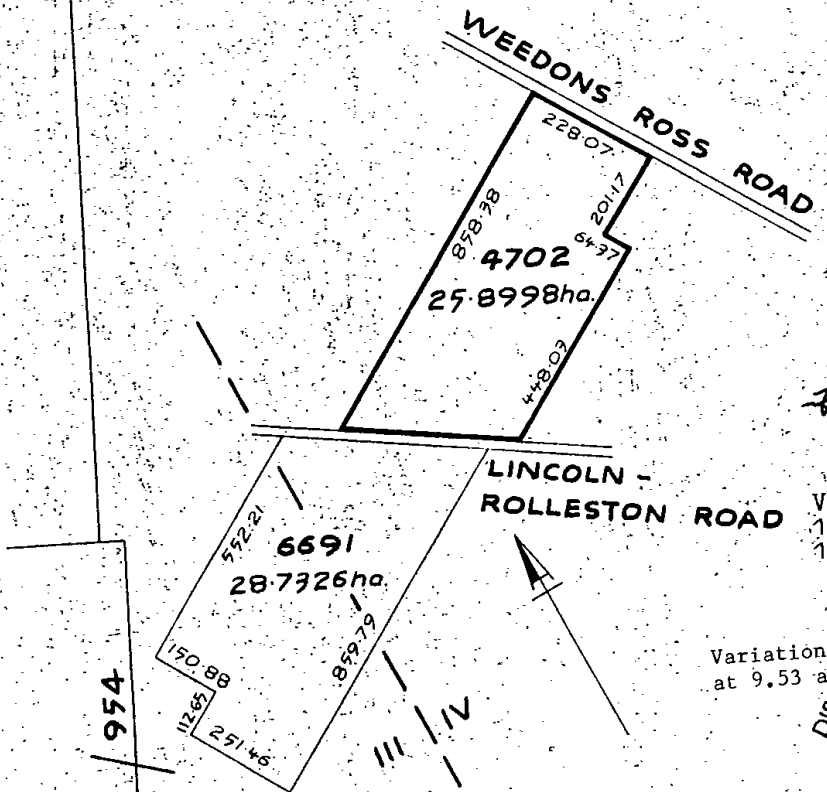
This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY.

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 25.8998 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4702

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar



Transfer 116057/1 to Ian Thom Reid of Springston, Farmer John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealanc at Dunedin - 11.2.1977 at 9.39 a.m.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED 11.9.1979 L.R.

Variation of Mortgage 116057/2 14.12.1977 at 9.33 a.m.

DISCHARGED L.R.

Variation of Mortgage 116057/2 24.10.1978 at 10.36 am.

for A.L.R.

DISCHARGED

Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

for A.L.R.

over...

No. 168/954

Measurements are Metric
B.M. 68

Register copy for L. & D. 69, 71, 72

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11.12.1981 at 9.40 a.m.

DISCHARGED 11.9.1984 A.L.R.

for A.L.R.

No. 359857/2 Memorandum of Priority making Mortgages ~~359857~~ 359857/1 and 116057/2 first and second mortgages respectively - 11.12.1981 at 9.40 a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

DISCHARGED

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

DISCHARGED 11.9.1984 A.L.R.

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.m.

DISCHARGED

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

DISCHARGED

for A.L.R.

OCT 512483/2) 16.10.1984) Cancelled and CsT.26F/951,952 issued for Lots 16 and 17 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

PLAN No. 47504 LODGED 3/10/1984
AND DEPOSITED

Transfer 507081/4 Northern Spy Orchards Limited, to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47639 LODGED 31/10/1984
AND DEPOSITED 16/10/84

No.502775/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

CANCELLED

Land and Deeds 69

No. 26F/952

References
Prior C/T 16B/949,951,954.

Transfer No.
N/C. Order No. 512483/2

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 16th day of October one thousand nine hundred and eighty four under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares --

~~XX~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 23.0566 hectares or thereabouts being Lot 17 Deposited Plan 47504 --

DISTRICT LAND REGISTRAR
CANTERBURY

for Assistant Land Registrar

Subject to:

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45am

DISCHARGED 1985

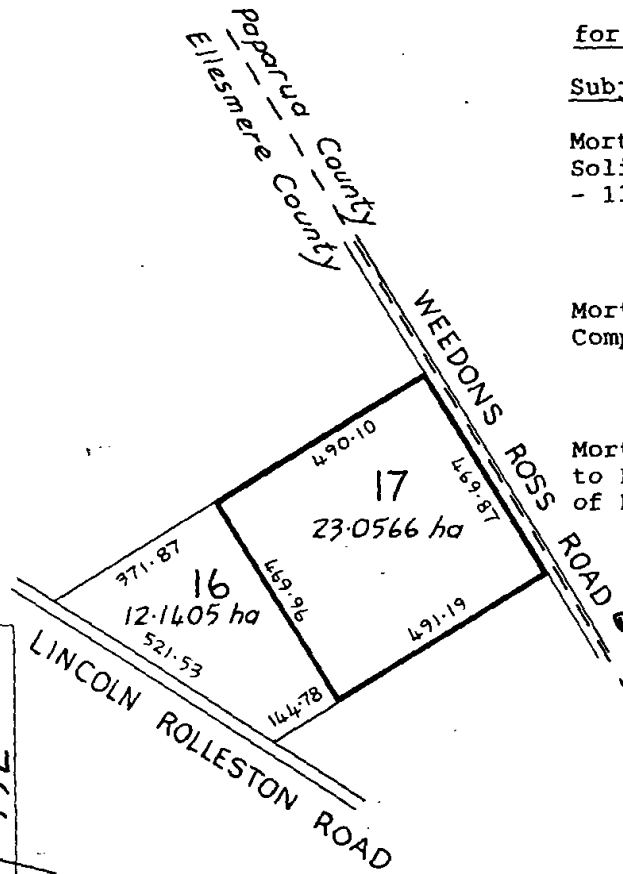
for A.L.R.

Mortgage 557632/2 to Templeton Nominee Company Limited - 23.7.1985 at 10.47am

A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47am.

A.L.R.



Measurements are Metric

Plan 47839 deposited 22/10/1985

No.572825/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 22.10.1985 at 12.10p.m.

A.L.R.

No.572825/2 Resolution pursuant to Section 321(3)(b) Local Government Act 1974 in respect of Lots 14 and 15 DP 47839 - 22.10.1985 at 12.10 p.m.

A.L.R.

- O V E R -

No. 26F/952

OCT.572825/3) Cancelled and New
22.10.1985) CsT. issued for Lots
on D.P.47839 as
follows:

1 & 1/11th share of 12,13,14,15 - 28A/416

2 & 1/11th share of 12,13,14,15 - 28A/417

3& 1/11th share of 12,13,14,15 - 28A/418

4 & 1/11th share of 12,13,14,15 - 28A/419

5 & 1/11th share of 12,13,14,15 - 28A/420

6 & 1/11th share of 12,13,14,15 - 28A/421

7 & 1/11th share of 12,13,14,15 - 28A/422

8 & 1/11th share of 12,13,14,15 - 28A/423

9 & 1/11th share of 12,13,14,15 - 28A/424

10 & 1/11th share of 12,13,14,15 - 28A/425

11 & 1/11th share of 12,13,14,15 - 28A/426

A.L.R.

CANCELLED - DUPLICATE DESTROYED

CANCELLED

No. 28A/417

References
Prior C/T 26F/952,953

Transfer No.
N/C. Order No. 572825/3

Land and Deeds 69

CANCELLED REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

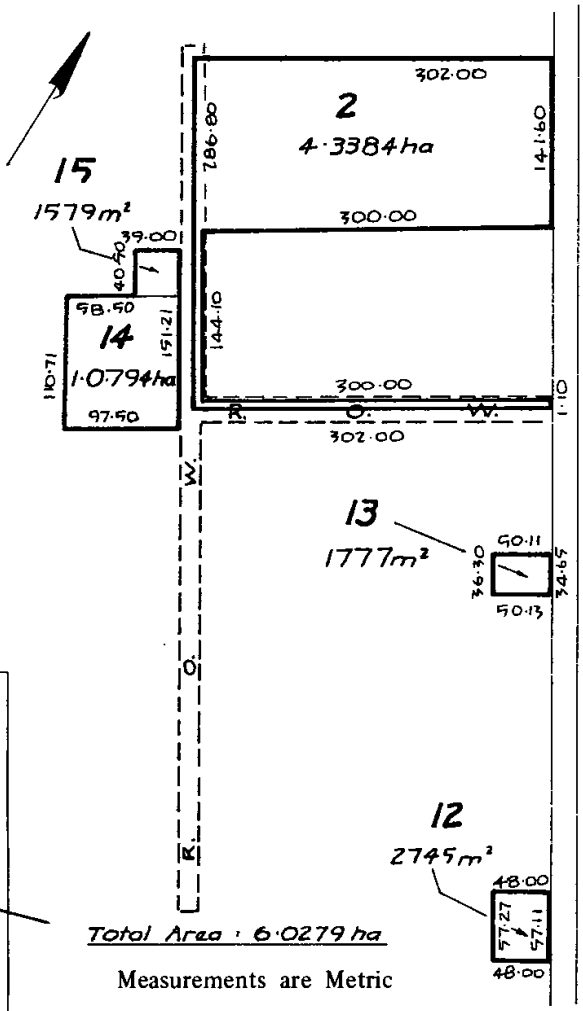
This Certificate dated the 22nd day of October one thousand nine hundred and eighty-five under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares are ------

FIRSTLY

~~is~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3384 hectares or thereabouts being Lot 2 on Deposited Plan 47839 AND SECONDLY an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.6895 hectares or thereabouts being Lots 12,13,14 and 15 on Deposited Plan 47839 ——

Ellasmere County



Measurements are Metric

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

ASSISTANT LAND REGISTRAR

Subject to:

ROAD

i. No. 572825/2 Resolution pursuant to Section 321 (3)(b) Local Government Act 1974 in respect of Lots 14 and 15 herein - 22.10.1985 at 12.10 p.m.

ii. Mortgage 557632/2 to Templeton Nominee Company Limited - 23.7.1985 at 10.47 a.m.

DISCHARGED 29.7.1988 A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47 a.m.

DISCHARGED 29.7.1988 A.L.R.

WEEDONS

OVER...

No. 28A/417

CERTIFICATE OF TITLE No. 28A / 417

No. 572825/4 Easement Certificate specifying intended easements on DP 47839

Nature	Servient Tenement	Dominant Tenement
Right of Way Right to drain water and sewage, right to convey electric power telephonic communications and water	2B(herein)	1,3-11, 14 & 15 (28A/416, 418-426)
" "	1C,3A,4K, 5J,6I,7H, 8G,9F,10E 11D	2, 14 & 15

- 22.10.1985 at 12.10 p.m.

A.L.R.

The easements specified in Easement Certificate 572825/4 above, when created, will be subject to Section 309 (1)(a) Local Government Act 1974

A.L.R.

Transfer 572825/6 to Green Leaf Orchard Limited at Christchurch - 22.10.1985 at 12.10p.m.

A.L.R.

CAVEAT 572825/16 BY ELLESMERE COUNTY COUNCIL - 22.10.1985 at 12.10p.m.

WITHDRAWN 3 JUL 1986 A.L.R.

A.L.R.

Mortgage 599926/8 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1986 A.L.R.

for A.L.R.

Mortgage 599926/9 of Mortgage 599926/8 to Development Finance Corporation of New Zealand - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1986 A.L.R.

for A.L.R.

Mortgage 599926/10 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 5/8/1988

for A.L.R.

Mortgage 599926/11 of Mortgage 599926/10 to The National Bank of New Zealand Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 5/8/1988

for A.L.R.

Mortgage A2554/3 to ASB Bank Limited - 3.7.1992 at 11.35am

A.L.R.

OCT A57248/1&/3 - Cancelled and NCT 37B/612, 37B/602 issued for Lot 12 DP 47839 and the balance herein respectively 22.6.1993

A.L.R.

CANCELLED DUPLICATE DESTROYED

9577E—50,000/12/83MK

CANCELLED

No. 28A/418

References
Prior C/T 26F/952,953

Transfer No.
N/C. Order No. 572825/3

Land and Deeds 69

CANCELLED
REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

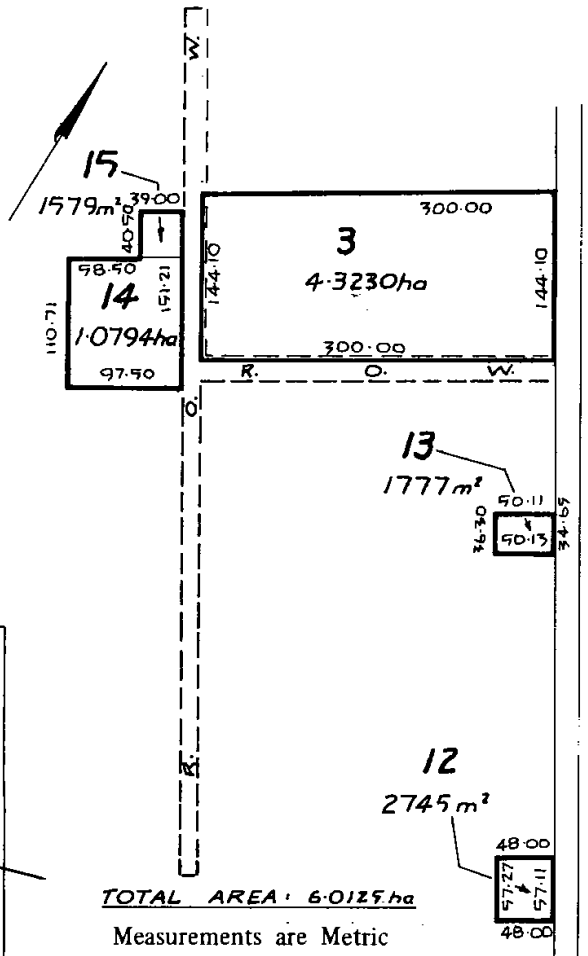
This Certificate dated the 22nd day of October one thousand nine hundred and eighty-five under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares are ------

FIRSTLY

~~is~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3230 hectares or thereabouts being Lot 3 on Deposited Plan 47839 and SECONDLY an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.6895 hectares or thereabouts being Lots 12,13 14 and 15 on Deposited Plan 47839 ——

Ellesmere County



TOTAL AREA: 6·0125ha

Measurements are Metric

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

ASSISTANT LAND REGISTRAR

Subject to:

i. No. 572825/2 Resolution pursuant to Section 321 (3)(b) Local Government Act 1974 in respect of Lots 14 and 15 herein - 22.10.1985 at 12.10 p.m.

ii. Mortgage 557632/2 to Templeton Nominee Company Limited - 23.7.1985 at 10.47 a.m.

DISCHARGED 294 23/10/85 A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47 a.m.

DISCHARGED 244 23/10/85 A.L.R.

A.L.R.

OVER...

No. 28A/418

CERTIFICATE OF TITLE No. 28A / 418

No. 572825/4 Easement Certificate specifying intended easements on DP 47839

Nature	Servient Tenement	Dominant Tenement
Right of Way Right to drain water and sewage, right to convey electric power telephonic communications and water	3A(herein)	1,2,4-11 14,15 (28A/416,417, 419-426)
" "	1C,2B,4K, 5J,6I,7H, 8G,9F,10E 11D	3,14 & 15

- 22.10.1985 at 12.10 p.m.

A.L.R.

The easements specified in Easement Certificate 572825/4 above, when created, will be subject to Section 309 (1)(a) Local Government Act 1974

A.L.R.

Transfer 572825/7 to City Side Orchard Limited at Christchurch - 22.10.1985 at 12.10p.m.

A.L.R.

CAVEAT 572825/16 BY ELLESMERE COUNTY COUNCIL - 22.10.1985 at 12.10p.m.

WITHDRAWN

A.L.R.

Mortgage 599926/12 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992 A.L.R.

for A.L.R.

Mortgage 599926/13 of Mortgage 599926/12 to Development Finance Corporation of New Zealand - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992 A.L.R.

for A.L.R.

Mortgage 599926/14 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992 A.L.R. 7570444

for A.L.R.

Mortgage 599926/15 of Mortgage 599926/14 to The National Bank of New Zealand Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992 A.L.R.

for A.L.R.

Mortgage A2551/3 to ASB Bank Limited - 3.7.1992 at 11.35am

A.L.R.

OCT A57248/1&/4 - Cancelled and NCT 37B/612, 37B/603 issued for Lot 12 DP 47839 and the balance herein respectively 22.6.1993

A.L.R.

CANCELLED DUPLICATE DESTROYED

9577E—50.000/12/83MK

References
Prior C/T 28A/417

Transfer No.
N/C. Order No. A57248/3

Land and Deeds 69

REGISTER

CANCELLED

No. 37B/602

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that GREEN LEAF ORCHARD LIMITED at Christchurch ---

is seised ~~of an estate~~ Firstly in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by *memorial* underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3384 hectares or thereabouts being Lot 2 Deposited Plan 47839 and Secondly an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.4150 hectares or thereabouts being Lots 13,14 and 15 Deposited Plan 47839 ---

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR
CANTERBURY N.Z.

Lots 14 and 15 DP 47839 are subject to:

Certificate 572825/2 pursuant to Section 321(3)(b) Local Government Act 1974 - 22.10.1985 at 12.10pm

Subject to:

Right of Way marked B on DP 47839, right to drain water and sewage, right to convey water, electric power and telephonic communications over part herein appurtenant to Lots 1,3-11,14&15 on DP 47839 (37A/601, 603-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

Mortgage A2554/3 to ASB Bank Limited - 3.7.1992 at 11.37am

DISCHARGED 7 9 1 for RGL

Appurtenant hereto:

Rights of Way marked C,A,K,J,I,H,G,F,E&D respectively on DP 47839, rights to drain water and sewage and rights to convey electric power, telephonic communications and water over part Lots 1,3-11 DP 47839 (37B/601,603-611) as specified in Easement Certificate 572825/4

Measurements are Metric

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

A.L.R.

The within land has the benefit of a land covenant over Lot 12 DP 47839 (37B/612) contained in Transfer A69509/13 - 6.9.1993 at 11.13am

for A.L.R.

Mortgage A277254/2 to The Trustees Executors and Agency Company of New Zealand Limited

DISCHARGED 7 9 1 for RGL

No. A277254/11 Memorandum of Priority making Mortgages A277254/2 and A2554/3 first and second mortgages respectively

both on 14.1.1997 at 2.41pm

for A.L.R.

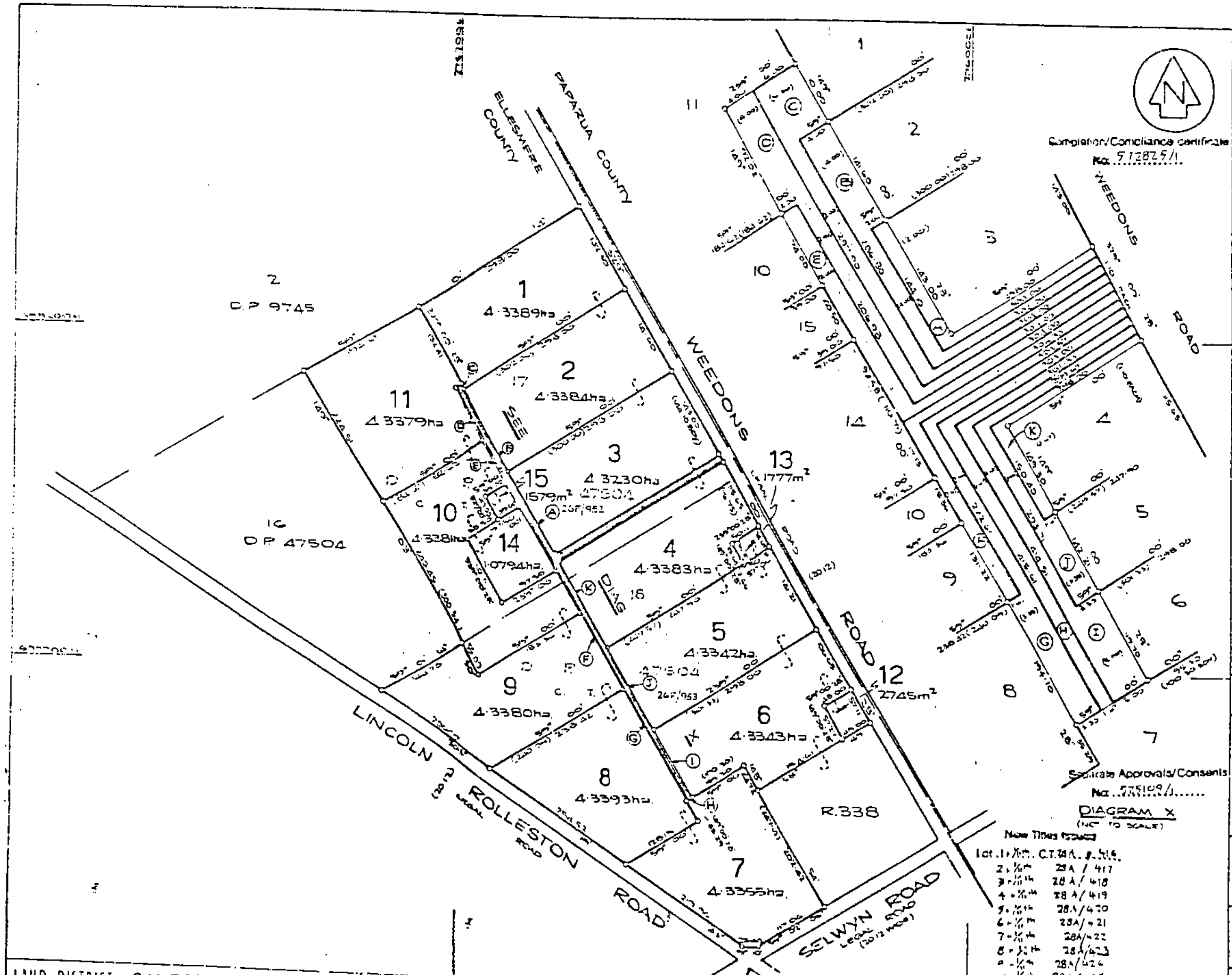
A414880.23 Transfer to Northwest Farm Limited

A414880.24 Mortgage to Bank of New Zealand

all 9.7.1999 at 12.34

for RGL

No. 37B/602



APPROVED

Registered Proprietor

NOTE: LOTS 14 & 15 HAVE NO FRONTAGE TO A PUBLIC ROAD.

MEMORANDUM OF EASEMENTS

Pursuant to a resolution under Section 305 Local Government Act 1974 dated 19th day of November 1984 the Ellesmere County Council has approved this plan of subdivision conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifies that the plan is in accordance with the requirements and provisions of the operative district scheme. The common seal of the Ellesmere County Council was affixed hereto in the presence of

Chairman

County Clerk

Total Area 49·8854ha.

Comprised in C.T. 26F/952 & C.T. 26F/953.

BRIAN ROBERT FOOTE CHRISTCHURCH

Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966.

Dated at CHRISTCHURCH this 24th day of Sept 1984 Signature B.R. Foote

Field Book Traverse Book

Reference Plans DP 9745, DP 47504

Examined Checked

Approved as to Survey

15.1.85 Chief Surveyor

Deposited this 22nd day of 1985

District Land Registrar

DP 47839

LAND DISTRICT CANTERBURY
SURVEY BLK.& DIST. IV LEESTON
NZMS 261 SHEET No. M36 - 10000/3.1

LOTS 1—15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504

TERRITORIAL AUTHORITY ELLESMERE COUNTY
Surveyed by McClelland, Brantmore & Associates
Scale 1:4000 Date JULY 1984

37B/602

A436549.1 CsT 47C/31, 33 & 39 issued for Lots 2, 13-15
DP 47839 - 2.12.1999 at 1.57

For RGL

CANCELLED
DUPLICATE DESTROYED

References
Prior C/T 28A/418

Transfer No.
N/C. Order No. A57248/4

Land and Deeds 69

No. 37B/603

REGISTER

CANCELLED

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that CITY SIDE ORCHARD LIMITED at Christchurch ---

is seised ~~of an estate~~ Firstly in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3230 hectares or thereabouts being Lot 3 Deposited Plan 47839 and Secondly an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.4150 hectares or thereabouts being Lots 13,14 and 15 Deposited Plan 47839

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR

Lots 14 and 15 DP 47839 are subject to:

Certificate 572825/2 pursuant to Section 321(3)(b) Local Government Act 1974 - 22.10.1985 at 12.10pm

Subject to:

Right of Way marked A on DP 47839, right to drain water and sewage, right to convey water, electric power and telephonic communications over part herein appurtenant to Lots 1,2,4-11,14&15 on DP 47839 (37A/601, 602,604-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

Mortgage A2551/3 to ASB Bank Limited - 3.7.1992 at 11.35am

DISCHARGED 9 1 for RGL

Appurtenant hereto:

Rights of Way marked C,B,K,J,I,H,G,F,E&D respectively on DP 47839, rights to drain water and sewage and rights to convey electric power, telephonic communications and water over part Lots 1,2,4-11 DP 47839 (37B/601,602,604-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

A.L.R.

The within land has the benefit of a land covenant over Lot 12 DP 47839 (37B/612) contained in Transfer A69509/13 - 6.9.1993 at 11.13am

for A.L.R.

Mortgage A277254/3 to The Trustees Executors and Agency Company of New Zealand Limited

DISCHARGED 9 1 for RGL

No. A277254/11 Memorandum of Priority making Mortgages A277254/3 and A2551/3 first and second mortgages respectively

both on 14.1.1997 at 2.41pm

for A.L.R.

A414880.23 Transfer to Northwest Farm Limited

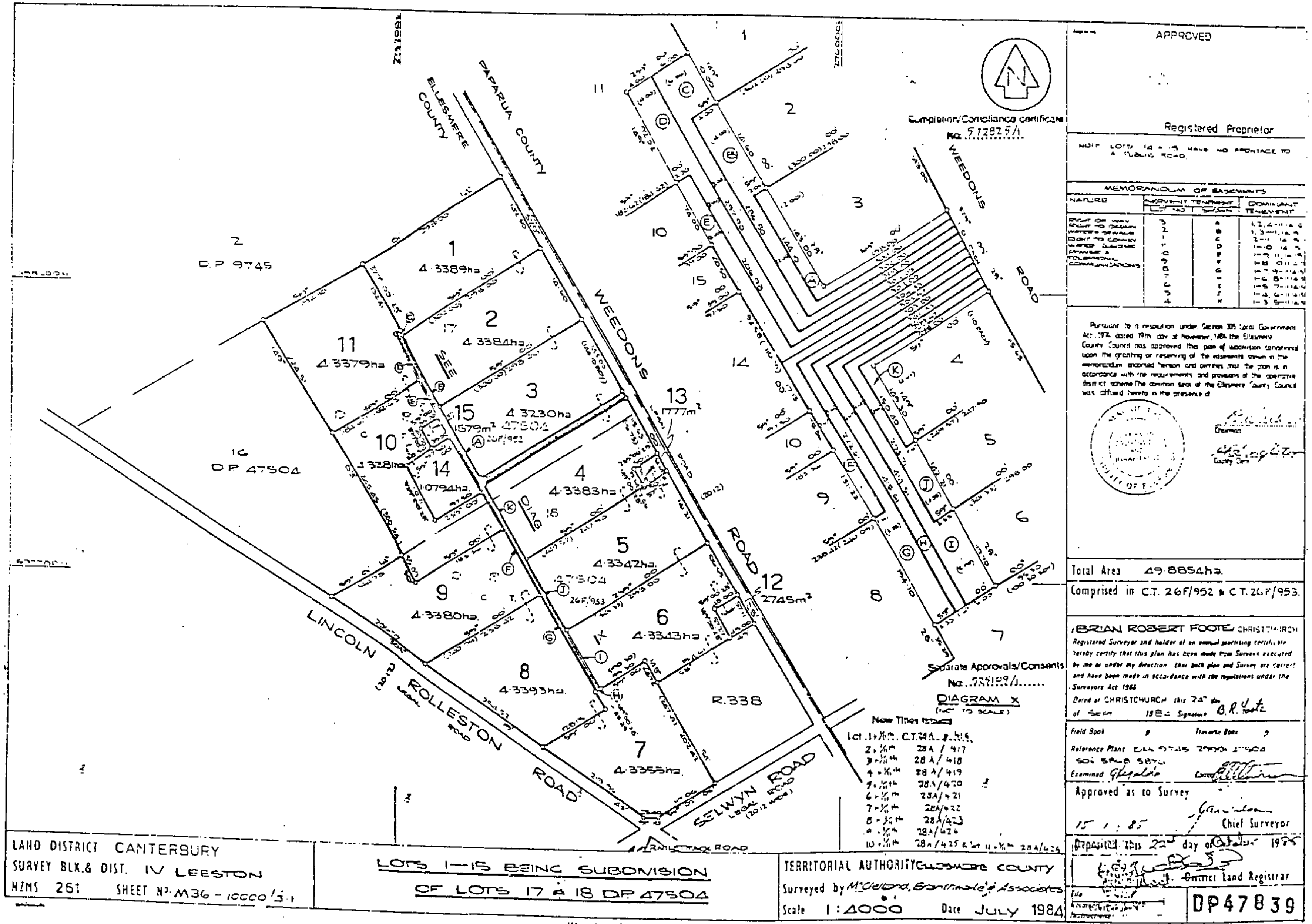
A414880.24 Mortgage to Bank of New Zealand

all 9.7.1999 at 12.34

for RGL

Measurements are Metric

No. 37B/603



APPROVED
Registered Proprietor
NOTE LOTS 14 & 15 HAVE NO FRONTAGE TO A PUBLIC ROAD.
MEMORANDUM OF EASEMENTS
Completion/Compliance certificate No. 512825/1
WEEDONS ROAD
PAPARUA COUNTY
ELLESMERE COUNTY
LINCOLN ROLLESTON ROAD
SELWYN ROAD
D.P. 9745
D.P. 47504
Pursuant to a resolution under Section 305 Local Government Act 1974 dated 19th day of November 1984 the Ellesmere County Council has approved this plan of subdivision conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifies that the plan is in accordance with the requirements and provisions of the operative district scheme. The common seal of the Ellesmere County Council was affixed hereto in the presence of
Total Area 49.8854ha.
Comprised in C.T. 26F/952 & C.T. 26F/953.
I BRIAN ROBERT FOOTE CHRISTCHURCH
Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1986
Dated at CHRISTCHURCH this 24th day of Sept 1984 Signature B.R. Foote
Separate Approvals/Consents No. 526109/1
DIAGRAM X (NOT TO SCALE)
New Titles Issued
Approved as to Survey
15 / 1 / 85 Chief Surveyor
Deposited this 22nd day of October 1985
District Land Registrar
LAND DISTRICT CANTERBURY
SURVEY BLK.& DIST. IV LEESTON
NZMS 261 SHEET No. M36 - 10000/3.1
LOTS 1—15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504
TERRITORIAL AUTHORITY ELLESMERE COUNTY
Surveyed by McClelland, Brantingham & Associates
Scale 1:4000 Date JULY 1984
DP 47839

37B/603

A436549.1 CsT 47C/32, 33 & 39 issued for Lots 3, 13-15
DP 47839 - 2.12.1999 at 1.57

For RGL

CANCELLED
DUPLICATE DESTROYED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB47C/31**

Land Registration District **Canterbury**

Date Issued 02 December 1999

Prior References
CB37B/602

Estate Fee Simple

Area 4.3384 hectares more or less

Legal Description Lot 2 Deposited Plan 47839

Original Registered Owners

Lindsay James Officer and Laura Elizabeth Revill

Interests

572825.4 Easement Certificate specifying the following easements - 22.10.1985 at 12.10 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839 - herein	B DP 47839	Lot 1 Deposited Plan 47839	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839 - herein	B DP 47839	Lot 3-11 Deposited Plan 47839	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839 - herein	B DP 47839	Lot 14 Deposited Plan 47839	

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839 - herein	B DP 47839	Lot 15 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 1 Deposited Plan 47839	C DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839	A DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 4 Deposited Plan 47839	K DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839	J DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839	I DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 7 Deposited Plan 47839	H DP 47839	Lot 2 Deposited Plan 47839 - herein

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 8 Deposited Plan 47839	G DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 9 Deposited Plan 47839	F DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 10 Deposited Plan 47839	E DP 47839	Lot 2 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 11 Deposited Plan 47839	D DP 47839	Lot 2 Deposited Plan 47839 - herein

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Land Covenant in Transfer A69509.13 - 6.9.1993 at 11.13 am

Land Covenant in Transfer A436549.2 - 2.12.1999 at 1.57 pm

A450130.1 Transfer creating the following easements in gross - 15.3.2000 at 12.55 pm

Type	Servient Tenement	Easement Area	Grantee	Statutory Restriction
Right to convey electric power	Lot 2 Deposited Plan 47839 - herein	B DP 82278	Orion New Zealand Limited	

5080216.1 Notice of marriage of Lindsay James Officer to Laura Elizabeth Revill - 6.9.2001 at 3:48 pm

5080216.2 Mortgage to Westpac Banking Corporation - 6.9.2001 at 3:48 pm

5538251.1 Variation of Mortgage 5080216.2 - 1.4.2003 at 9:00 am

5951441.1 Discharge of Mortgage 5080216.2 - 31.3.2004 at 9:00 am

5951441.2 Transfer to Lindsay James Officer (3/10 share) and Laura Elizabeth Officer (7/10 share) - 31.3.2004 at 9:00 am

5951441.3 Transfer to Lindsay James Officer and Laura Elizabeth Officer - 31.3.2004 at 9:00 am

5951441.4 Mortgage to Westpac Banking Corporation - 31.3.2004 at 9:00 am

7095691.1 Application pursuant to Section 99A Land Transfer Act 1952 vesting Mortgage 5951441.4 in Westpac New Zealand Limited - 2.11.2006 at 9:00 am

7958492.1 Variation of Mortgage 5951441.4 - 7.10.2008 at 9:00 am

12109687.1 Discharge of Mortgage 5951441.4 - 7.5.2021 at 4:25 pm

12109687.2 Bond pursuant to Section 108(2)(b) Resource Management Act 1991 - 7.5.2021 at 4:25 pm

12109687.3 Transfer to Aidan Robert Boniface and Joanne Margaret Boniface - 7.5.2021 at 4:25 pm

12109687.4 Mortgage to Kiwibank Limited - 7.5.2021 at 4:25 pm

LT69

47C/31

Reference:
Prior CT: 37B/602
Document No.: A436549.1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952

This Certificate dated the 2nd day of December One Thousand Nine Hundred and Ninety Nine under the seal of the Registrar-General of Land, New Zealand, for the Land Registration District of CANTERBURY

WITNESSETH that **NORTHWEST FARM LIMITED**

is seised of an estate in **fee simple** (subject to such reservations, restrictions, encumbrances and interests as are notified by memorial endorsed hereon) in the land hereinafter described, delineated on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3384 hectares, more or less being **LOT 2 DEPOSITED PLAN 47839**

REGISTRAR-GENERAL OF LAND NEW ZEALAND

for Registrar-General of Land

Appurtenant hereto is a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part Lots 1, 3-11 marked C, A, K, J, I, H, G, F, E & D respectively on DP 47839 CsT 47C/30, 47C/32-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Subject to a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part herein marked B on DP 47839 appurtenant to Lots 1, 3-11, 14 & 15 DP 47839 CsT 47C/30, 32-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

All 22.10.1985 at 12.10

Land covenant in Transfer A69509.13 - 6.9.1993 at 11.13

A414880.24 Mortgage to Bank of New Zealand - 9.7.1999 at 12.34

DISCHARGED 31/3/2000 for RGL

A436549.2 Transfer to Northwest Farm Limited

Land covenant in Transfer A436549.2

All 2.12.1999 at 1.57

For RGL

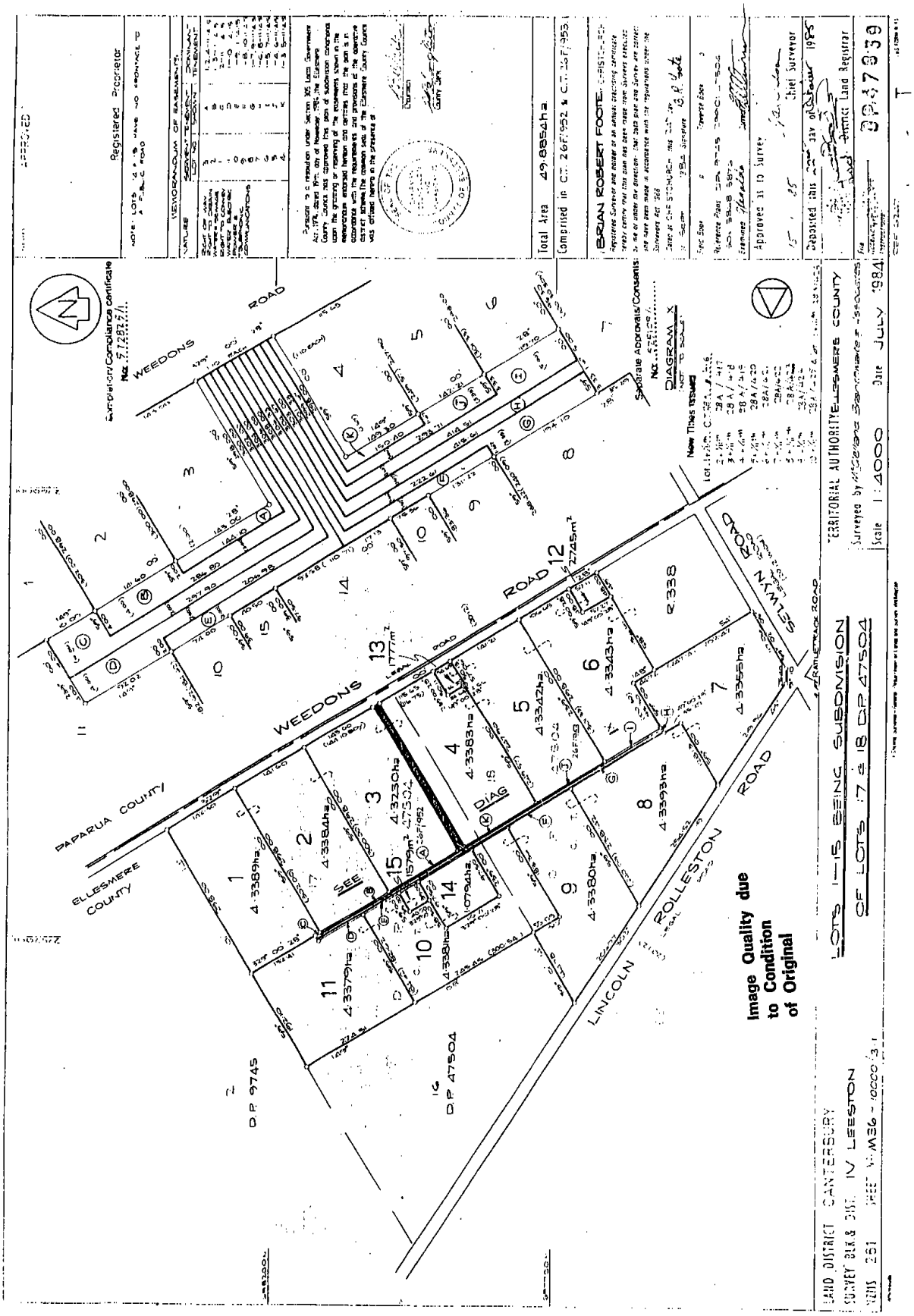
A453086.1 Transfer to Lindsay James Officer and Laura Elizabeth Revill - 5.4.2000 at 11.20

for RGL

47C/31

Subject to a right to convey electric power in gross over the part herein marked B on DP 82278 to Orion New Zealand Limited created by Transfer A450130.1 - 15.3.2000 at 12.55

for RGL


Registered Proprietor
MEMORANDUM OF EASEMENTS
Total Area 49.885ha
BRIAN ROBERT FOOTE
Approved as to Survey
Deposited this 22nd day of October 1985
Chief Surveyor
Land District Canterbury
Territorial Authority Ellesmere County
Lots 1-15 being Subdivision of Lots 17 & 18 DP 47504
Scale 1:4000
Date July 1984
DP 17939
Compliance/Compliance certificate
Subdivisional Approvals/Consents
DIAGRAM X
Now Titles Issued
WEEDONS ROAD
ROAD 12
ROAD 13
ROLLESTON ROAD
LINCOLN ROAD
PAPARUA COUNTY
ELLESMERE COUNTY
DP 9745
DP 47504
Image Quality due to Condition of Original

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB47C/32**

Land Registration District **Canterbury**

Date Issued 02 December 1999

Prior References
CB37B/603

Estate Fee Simple

Area 4.3230 hectares more or less

Legal Description Lot 3 Deposited Plan 47839

Original Registered Owners
Northwest Farm Limited

Interests

572825.4 Easement Certificate specifying the following easements - 22.10.1985 at 12.10 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 1 Deposited Plan 47839	C DP 47839	Lot 3 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839	B DP 47839	Lot 3 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 4 Deposited Plan 47839	K DP 47839	Lot 3 Deposited Plan 47839 - herein	

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839	J DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839	I DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 7 Deposited Plan 47839	H DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 8 Deposited Plan 47839	G DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 9 Deposited Plan 47839	F DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 10 Deposited Plan 47839	E DP 47839	Lot 3 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 11 Deposited Plan 47839	D DP 47839	Lot 3 Deposited Plan 47839 - herein

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 1 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 2 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 4 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 5 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 6 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 7 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 8 Deposited Plan 47839

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 9 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 10 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 11 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 14 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839 - herein	A DP 47839	Lot 15 Deposited Plan 47839

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Land Covenant in Transfer A69509.13 - 6.9.1993 at 11.13 am

Land Covenant in Transfer A436549.2 - 2.12.1999 at 1.57 pm

A450130.1 Transfer creating the following easements in gross - 15.3.2000 at 12.55 pm

Type	Servient Tenement	Easement Area	Grantee	Statutory Restriction
Right to convey electric power	Lot 3 Deposited Plan 47839 - herein	A DP 82278	Orion New Zealand Limited	

5197545.1 Transfer to Dean James Aitken, Edith Lorraine Aitken and William Gavin Hayes - 23.4.2002 at 9:00 am

5197545.2 Mortgage to ASB Bank Limited - 23.4.2002 at 9:00 am

6749884.1 Transmission to Edith Lorraine Aitken and William Gavin Hayes as survivors - 13.2.2006 at 9:00 am

6749884.2 Transfer to Edith Lorraine Aitken and Lindsay James Officer - 13.2.2006 at 9:00 am

7740875.1 Transfer to Edith Lorraine Aitken and Bevin Ian Godfrey - 11.3.2008 at 3:19 pm

7774576.1 Correction of Name of Edith Lorraine Aitken to Lorraine Edith Aitken - 7.4.2008 at 9:00 am

9963194.1 Discharge of Mortgage 5197545.2 - 24.4.2015 at 2:38 pm

9963194.2 Transfer to Aaron Michael Kenny and Sarah Lee Meehan - 24.4.2015 at 2:38 pm

9963194.3 Mortgage to Westpac New Zealand Limited - 24.4.2015 at 2:38 pm

13088116.1 Discharge of Mortgage 9963194.3 - 23.8.2024 at 3:34 pm

13088116.2 Transfer to Yoursection Limited - 23.8.2024 at 3:34 pm

13088116.3 Mortgage to Aaron Michael Kenny and Sarah Lee Kenney - 23.8.2024 at 3:34 pm

LT69

47C/32

Reference:
Prior CT: 37B/603
Document No.: A436549.1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952

This Certificate dated the 2nd day of December One Thousand Nine Hundred and Ninety Nine under the seal of the Registrar-General of Land, New Zealand, for the Land Registration District of CANTERBURY

WITNESSETH that **NORTHWEST FARM LIMITED**

is seised of an estate in **fee simple** (subject to such reservations, restrictions, encumbrances and interests as are notified by memorial endorsed hereon) in the land hereinafter described, delineated on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3230 hectares, more or less being **LOT 3 DEPOSITED PLAN 47839**

REGISTRAR-GENERAL OF LAND NEW ZEALAND

for Registrar-General of Land

Appurtenant hereto is a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part Lots 1, 2, 4-11 marked C, B, K, J, I, H, G, F, E & D respectively on DP 47839 CsT 47C/30, 31, 33-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Subject to a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part herein marked A on DP 47839 appurtenant to Lots 1, 2, 4-11, 14 & 15 DP 47839 CsT 47C/30, 31, 33-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

All 22.10.1985 at 12.10

Land covenant in Transfer A69509.13 - 6.9.1993 at 11.13

A414880.24 Mortgage to Bank of New Zealand - 9.7.1999 at 12.34 DISCHARGED 21/3/00 for RGL

A436549.2 Transfer to Northwest Farm Limited

Land covenant in Transfer A436549.2

All 2.12.1999 at 1.57

For RGL

47C/32

Subject to a right to convey electric power in gross over the part herein marked A on DP 82278 to Orion New Zealand Limited created by Transfer A450130.1 - 15.3.2000 at 12.55

for RGL

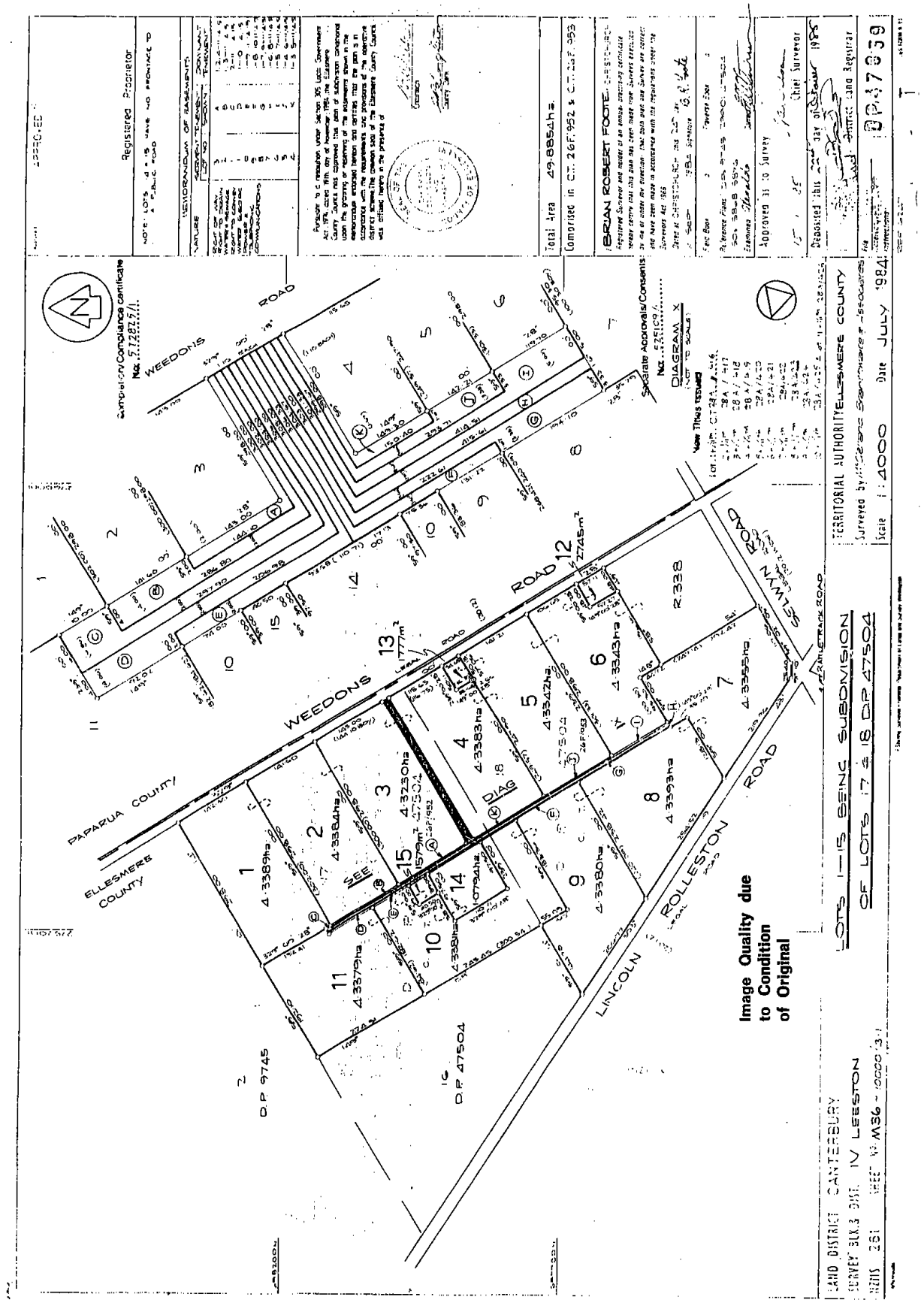


Image Quality due to Condition of Original
LOTS 1-15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504
WEEDONS ROAD
ROLLESTON ROAD
LINCOLN
PAPARUA COUNTY
ELLESMERE COUNTY
DP 9745
DP 47504
Registered Proprietor
Total Area 49.885ha.
Compiled in CT 26F/952 & CT 28F/353
BRIAN ROBERT FOOTE
Approved as to Survey
Deposited this 2nd day of January 1985
Chief Surveyor
Land District Canterbury
Survey Dist. IV Leeston
Surveyed by Wilkinson Sammons & Associates
Scale 1:4000
Date July 1984
Territorial Authority Ellesmere County
DP 47504

[Form B.

NEW ZEALAND.

Register-book, Vol. 174 folio 27

Reference: Vol. 2/3 folio 69/112 Substituted Transfer No. Application No 8074.

174/27

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

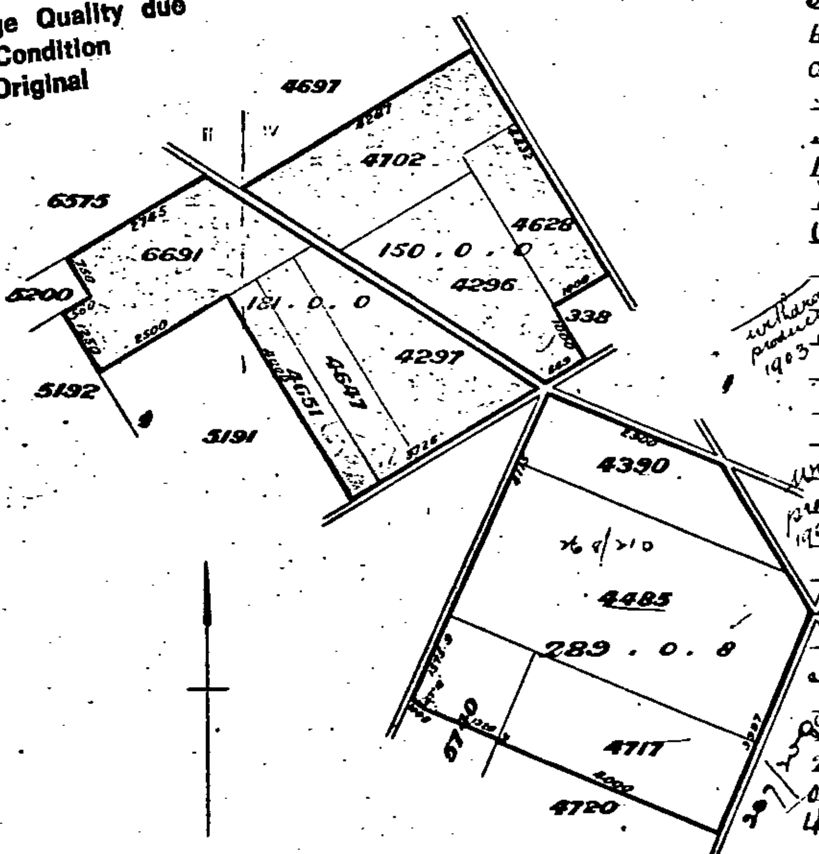
This Certificate, dated the third day of August, one thousand eight hundred and ninety-seven, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury Witnesseth that George Troll of Springston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All those parcels of land containing together six hundred and twenty acres and eight perches or thereabouts situated in Block IV of the Leeston Survey District comprising Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651. 4702. 4717 and 6691 and part of Rural Section 5740.

G. G. Bridge
District Land Registrar

CANCELLED AS TO PART COLOURED RED.

Image Quality due to Condition of Original



Scale 20 chains to an inch

Outstanding Mortgage Registered No 91547 George Troll to George Henry Moore affecting Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651 and 4702 and [illegible] DISCHARGED 26.5.1903. D.L.R. G. G. Bridge D.L.R.

Mortgage 37606 produced [illegible] 1897 at [illegible] George Troll to George Henry [illegible] DISCHARGED [illegible] 4717 and 6691. 26.5.1903. D.L.R. G. G. Bridge D.L.R.

Withdrawn produced 1903 — [illegible] produced [illegible] 1898 [illegible] against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691. [illegible]

Withdrawn produced 1903 — [illegible] produced 31 May 1900 [illegible] against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691. [illegible]

Mortgage 51269 produced 21 May 1903 at 2 pm George Troll to Annie Augle Townend [illegible] G. G. Bridge D.L.R.

Transfer 59776 produced 21 May 1903 at 2 pm. George Troll to William McMeekan of Rural Sections 4296. 4297. 4628. 4647. 4651. 4702 and 6691. G. G. Bridge D.L.R.

174/27

174/27

Mortgage 20059 produced 5 March 1911 at 1.56 p.m. George Trott to Arthur Edgar Gravenor Rhode and Arthur Llewellyn Rhode and John Matthias Barker and Robert Peter Rhodes and Robert Heaton Rhodes and Arthur Edgar Gravenor Rhode. [illegible] at D.L.R.

Mortgage 20060 produced 15 March 1911 at 1.51 p.m. George Trott to Arthur Edgar Gravenor Rhodes. [illegible] at D.L.R.

2 Dis/310

Transfer 9775 produced 10 October 1911 at 3 p.m. George Trott to David Marshall of Imlay exempt. D.L.R.

Cancelled

CERTIFICATE OF TITLE,

Vol. , folio

174/27

207/200

NEW ZEALAND.

CANCELLED

[Form B.

References: Vol. 174, folio 27
Transfer No. 59776

Register-book,
Vol. 207, folio 200

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

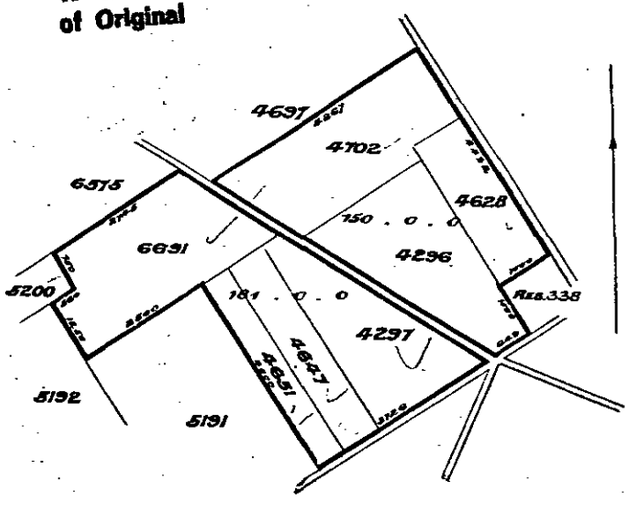
This Certificate, dated the twenty-sixth day of May, one thousand nine hundred and three, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, Witnesseth that

William McHeckan of Springston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All those parcels of land containing together three hundred and thirty one acres a thereabouts situated in Block IV of the Leeston Survey District comprising Rural sections 4296 4297 4628 4651 4702 and 6691

District Land Registrar

Image Quality due to Condition of Original



Scale, 20 chains to an inch.

Mortgage 5126 produced 26 May 1903 at 2pm George Trott to Annie Quick DISCHARGED 31/5/1907 W. Rhodes L.R.

Mortgage 5134 produced 26 May 1903 at 2pm William McHeckan to Joseph Gould and George Gould DISCHARGED 27-3-1907 W. Rhodes L.R.

Transfer 74002 produced 27th March 1907 at 2.52 pm William McHeckan to Ellen Page of Christchurch Spinster

Mortgage 6463 produced 31 May 1907 at 10 am Ellen Page to Annie Quick DISCHARGED

Certificate of Marriage 118 of Ellen Page with Andrew Badcock of Springston Farmer at Christchurch on 19th June 1907 produced 6 August 1907 at 2.45 pm

Transfer of 4t 2a 37p produced 6 July 1909 at 11.31 am Ellen Badcock to Walter Wright of Springston Farmer

Mortgage 8572 produced 17th May 1912 at 3.15 pm Walter Wright to Annie DISCHARGED

Transmission 9617 of Mortgage 8572 to Alfred Arnaud Morris McKellar, Cecil George McKellar, Norman Lindsay Macbeth and Frederick Henry Pyne. Entered 22nd March, 1915 at 11.49 am DISCHARGED L.R.

207/200

207/200

Transmission 12233 of Mortgage 85724 to the above named Alfred Arnaud Norris McKellar, Cecil George McKellar and Norman Lindsay Macbeth. Entered 21 December, 1915, at 10 am. DISCHARGED

Extension of Mortgage 85724 and Increase of Rate of Interest produced 21st Dec 1917 at 11.54 am. DISCHARGED

Transmission No 14451 of Mortgage No 85724 to Cecil George McKellar and Norman Lindsay McKellar Entered 29/6/22 at 12 o'c DISCHARGED

Transfer 14698.2 produced 1st July 1922 at 11.20 am Walter Wright to William Henry Peter Bowden of Springston farmer

Variation of the terms of Mortgage 85724 produced 27th Sept 1929 at 11.25 am DISCHARGED

Variation of the terms of Mortgage 85724 produced 30 June 1930 at 3 pm DISCHARGED

Transmission 23046 of Mortgage 85724 to Cecil George McKellar entered 3 November 1931 at 3 pm DISCHARGED

Transfer 200583 of Mortgage 85724 Cecil George McKellar to Frank Sturman Wilding and Cecil George McKellar produced 3 December 1931 at 3 pm DISCHARGED

Transfer 204594 produced 19th June 1933 at 11.56 am William Henry Peter Bowden to Duncan Gillanders of Springston Farmer

Mortgage 184635 produced 19 June 1933 at 11.56 am Duncan Gillanders to Godfrey Rosamond Macfarlane Wilson

Mortgage 184636 produced 19 June 1933 at 11.57 am Duncan Gillanders to William Henry Peter Bowden DISCHARGED

Mortgage 184637 produced 19 June 1933 at 11.58 am Duncan Gillanders to Donald Gillanders DISCHARGED

Mortgage 198705 produced 16th June 1938 at 2.20 pm Gillanders to Godfrey Rosamond Macfarlane Wilson and Douglas Rockell Hawkins and Edmund Wellesley Reeves as shares DISCHARGED

Mortgage 198706 produced 16th June 1938 at 2.21 pm Duncan Gillanders to Donald Gillanders DISCHARGED

Transfer 265888 produced 22 December 1945 at 11.49 am Duncan Gillanders to Thomas Reid a member of H.M. Armed Forces DISCHARGED

Mortgage 253001 produced 16 November 1945 at 11.51 am Duncan Gillanders to The State Advances Corporation of New Zealand DISCHARGED

Transfer Douglas Rockell Hawkins and Ernest Everest England to Ida Estella Edwards produced 24th October 1953 at 11.27 am

Error in

THIS REPRODUCTION (ON A REDUCED SCALE) IS CERTIFIED TO BE A TRUE COPY OF THE [illegible] FOR THE PURPOSES OF [illegible] TRANSFER ACT 1952.

A.L.R.

OCT 77158/1) Cancelled and
26.4.1976) C.T.'s 16B/949-
) 955 issued for
) R.S.'s 4296, 4297,
) 4628, 4647, 4651
) 4702 and 6691

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CERTIFICATE OF TITLE,

Vol. , folio

207/200

Appendix B – LLUR Statement

Property Statement from the Listed Land Use Register

Visit ecan.govt.nz/HAIL for more information or
contact Customer Services at ecan.govt.nz/contact/ and quote ENQ389092

Date generated: 01 September 2024
Land parcels: Lot 2 DP 47839
Lot 3 DP 47839

The information presented in this map is specific to the area within a 100m radius of property you have selected. Information on properties outside the serach radius may not be shown on this map, even if the property is visible.

Sites at a glance

Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
118904	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd	A10 - Persistent pesticide bulk storage or use;	Not Investigated

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry only.

Nearby sites

Site number	Name	Location	HAIL activity(s)	Category
235788	6/487 Weedons Road, Rolleston	6/487 Weedons Road, Rolleston	A10 - Persistent pesticide bulk storage or use;	Yet to be reviewed

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 100m buffer.

More detail about the sites

Site 118904: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd (Intersects enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd
Legal description(s): Lot 1 DP 427521,Lot 1 DP 47839,Lot 10 DP 47839,Lot 11 DP 47839,Lot 14 DP 47839,Lot 15 DP 47839,Lot 2 DP 427521,Lot 2 DP 47839,Lot 3 DP 47839,Lot 4 DP 47839,Lot 5 DP 47839,Lot 6 DP 47839,Lot 8 DP 47839,Lot 9 DP 47839,Part Lot 7 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

5 Nov 2014 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

5 Nov 2014 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 383544 **Soil Contamination Risk Detailed Site Investigation Report & Remediation Action Plan 148, 156, 178 Lincoln Rolleston Rd & 6/487 Weedons Rd, Rolleston**
Momentum Environmental Limited - Detailed Site Investigation
26 Mar 2024

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Site 235788: 6/487 Weedons Road, Rolleston (Within 100m of enquiry area.)

Category: Yet to be reviewed
Definition: Investigation reports have been received for this site, but we have not yet reviewed them.

Location: 6/487 Weedons Road, Rolleston
Legal description(s): Lot 10 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

7 Jun 2019 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

7 Jun 2019 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 235786 **Detailed Site Investigation - 6/487 Weedons Road, Rolleston**
Pattle Delamore Partners Ltd - Detailed Site Investigation

4 Jun 2019

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Nearby investigations of interest

There are no investigations associated with the area of enquiry.

Disclaimer

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Appendix C – Historical Aerial Photographs

1942 Aerial

Information has been derived from various organisations, including Environment Canterbury and the Canterbury Maps partners. Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). Environment Canterbury and the Canterbury Maps partners do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:29 AM

1961 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:30 AM

1974 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:30 AM

1982 Aerial

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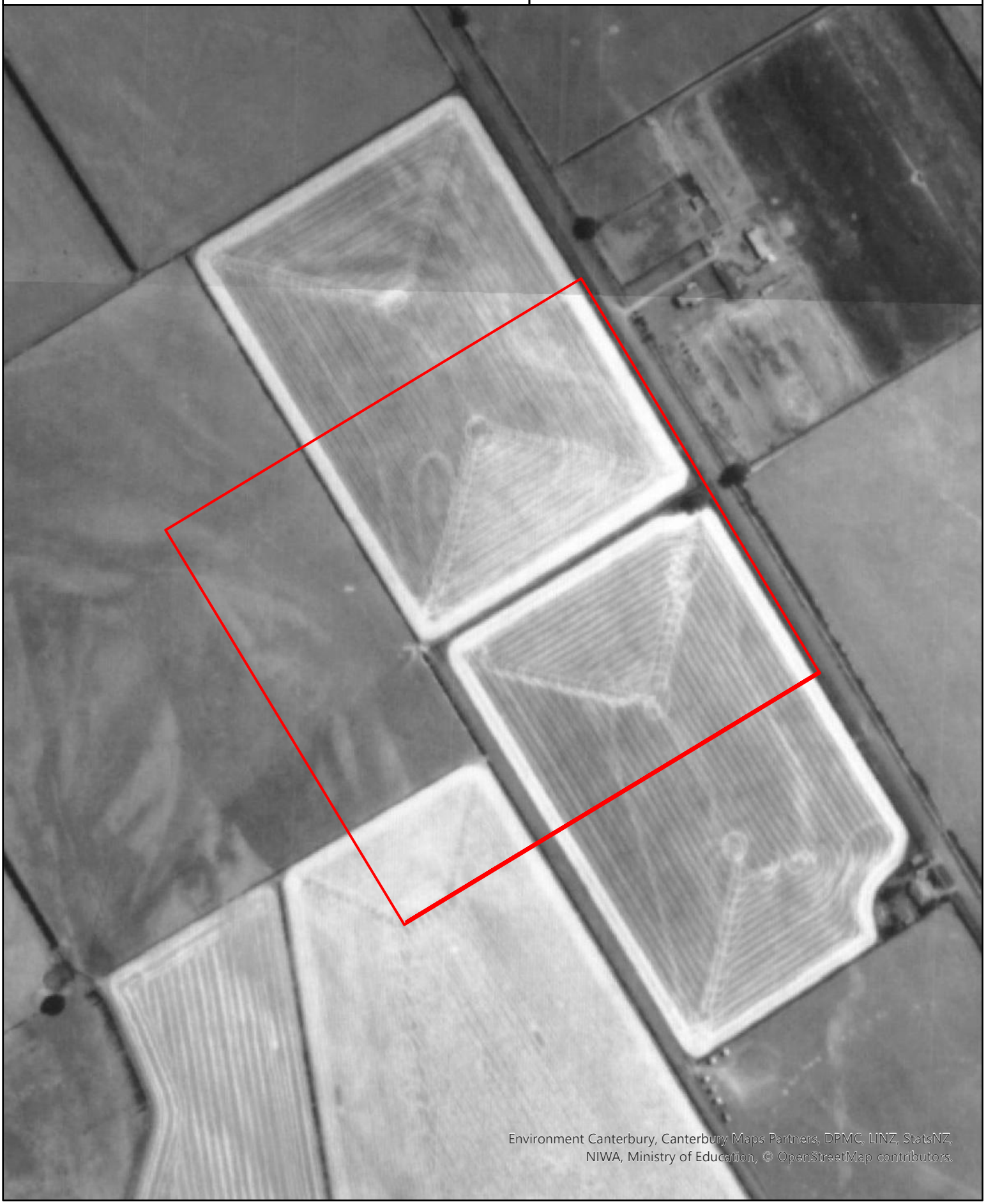
N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:31 AM



Environment Canterbury, Canterbury Maps Partners, DPMC, LINZ, StatsNZ, NIWA, Ministry of Education, © OpenStreetMap contributors.

1994 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:31 AM

2000 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:31 AM

2005 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:32 AM

2012 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:32 AM

2016 Aerial

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N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 11/09/2024 at 1:02 PM

2020 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.2 Kilometres

Scale: 1:3,000 @A4

Map Created by MEL on 2/09/2024 at 11:26 AM

Appendix D – Sample Location Plan

MOMENTUM ENVIRONMENTAL LTD.

Specialist soil contamination experts, keeping your project moving.

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LEGEND

• SS1	Soil sample location
• SS1	Soil sample location XRF tested only
• BP3	Burn area unable to be XRF tested/sampled
⊙ SS1	Soil sample location that exceeds the 'residential 10% produce' SGV for arsenic
	Green waste piles (likely from pruning trees) where the underlying soils could not be accessed for XRF testing/soil sampling

PLAN MUST BE PRINTED IN COLOUR

Graphic scale is approximate only

0 30 60 90 120 150m

Date: 06 September 2024 Drawing No: 895/1

1/487 & 2/487 Weedons Road
Sample Location Plan

Notes:
1. This plan has been prepared for soil contamination risk assessment purposes only. No liability is accepted if the plan is used for any other purposes.
2. Any measurements taken from this plan which are not dimensioned on the electronic copy are at the risk of the user.
3. Soil sample locations are approximate only

Appendix E – Table of XRF Results

Table of XRF Results - 1/487 & 2/487 Weedons Road, Rolleston

Date of testing: 03 & 04 September 2024

Units: ppm

Sample ID (Lab tested in bold)	Sample Depth (mm)	XRF Reading No	Date	Time	Test Duration (secs)	Total Recoverable Arsenic	
						Result	Error
Calibration Test	-	1	3/09/2024	9:47:01	40.0	455	4
Calibration Test	-	2	3/09/2024	9:47:57	40.0	11	1
Blank	-	3	3/09/2024	9:49:06	40.0	<LOD	3
BP1	0	4	3/09/2024	9:54:13	31.2	<LOD	4
BP1	0	5	3/09/2024	9:55:23	40.0	<LOD	4
BP1	0	6	3/09/2024	9:56:36	30.7	2	1
BP2	0	7	3/09/2024	9:58:32	31.1	8	1
BP2	0	8	3/09/2024	9:59:34	30.0	<LOD	2
BP2	0	9	3/09/2024	10:00:49	30.0	2	1
BP4	0	10	3/09/2024	10:22:59	30.0	207	2
BP5	0	11	3/09/2024	10:37:09	30.0	12	1
BP5	0	12	3/09/2024	10:37:46	28.5	5	1
BP5	0	13	3/09/2024	10:38:24	31.1	15	1
Blank	-	14	3/09/2024	10:50:59	40.0	<LOD	3
Mound	0	15	3/09/2024	11:16:49	30.7	5	1
Mound	0	16	3/09/2024	11:17:57	31.1	4	1
Mound	0	17	3/09/2024	11:19:18	30.7	4	1
Mound	0	18	3/09/2024	11:20:52	30.7	<LOD	4
Mound	0	19	3/09/2024	11:22:35	30.0	4	1
BP6	0	20	3/09/2024	11:24:59	40.0	12	0
BP6	0	21	3/09/2024	11:26:17	30.0	2	0
BP6	0	22	3/09/2024	11:27:38	31.1	7	0
BP13	0	23	3/09/2024	12:52:12	30.0	5	1
BP13	0	24	3/09/2024	12:52:48	30.0	4	1
BP13	0	25	3/09/2024	12:53:25	30.0	3	1
BP9	0	26	3/09/2024	12:59:25	30.0	4	1
BP9	0	27	3/09/2024	13:00:01	30.0	4	1
BP9	0	28	3/09/2024	13:00:39	30.0	3	1
Blank	-	29	3/09/2024	13:07:18	40.0	<LOD	4
BP14	0	30	3/09/2024	13:41:33	31.1	5	0
BP14	0	31	3/09/2024	13:42:22	30.0	499	4
BP11	0	32	3/09/2024	14:03:32	30.7	5	1
BP11	0	33	3/09/2024	14:04:09	30.0	3	1
BP11	0	34	3/09/2024	14:04:48	30.0	5	1
BP12	0	35	3/09/2024	14:09:44	32.7	44	1
BP12	0	36	3/09/2024	14:10:24	30.0	14	1
BP12	0	37	3/09/2024	14:11:02	30.0	8	1
BP12	0	38	3/09/2024	14:13:26	31.1	17	1
misfire	-	39	3/09/2024	14:25:02	13.0	<LOD	5

BP8	0	40	3/09/2024	14:25:32	30.0	4	1
BP8	0	41	3/09/2024	14:26:12	30.0	3	1
BP8	0	42	3/09/2024	14:27:16	30.7	4	1
BP15	0	43	3/09/2024	14:29:57	30.0	18	1
BP15	0	44	3/09/2024	14:30:44	22.4	253	2
Blank	-	45	3/09/2024	14:36:39	40.0	<LOD	3
Calibration Test	-	1	4/09/2024	8:55:03	40.0	448	4
Calibration Test	-	2	4/09/2024	8:56:02	40.0	10	1
Blank	-	3	4/09/2024	8:57:11	40.0	<LOD	3
BP7	0	4	4/09/2024	9:09:33	30.7	3	1
BP7	0	5	4/09/2024	9:10:13	30.7	3	1
BP7	0	6	4/09/2024	9:10:56	30.7	3	1
BP10	0	7	4/09/2024	9:15:45	30.0	3	1
BP10	0	8	4/09/2024	9:16:23	30.7	3	1
BP10	0	9	4/09/2024	9:17:06	30.0	4	1
Blank	-	10	4/09/2024	9:24:03	40.0	<LOD	3
Soil Guideline Values	Residential 10% Produce SGV					20	
	Outdoor Worker					70	
	Reference					NES	

Result exceeds 'residential 10% produce' SGV

Appendix F – Tables of Laboratory Results

Table of Laboratory Results - 1/487 & 2/487 Weedons Road, Rolleston

Date of sampling: 03 & 04 September 2024

	Sample Name:	SS1.1	SS2.1	SS3.1	SS4.1	SS5.1	SS6.1	SS7.1	DUP 1	SS8.1	SS9.1	SS10.1	SS11.1	RPD	Soil Guideline Values					
Soil Results	Depth:	50	50	50	50	50	50	50	50	50	50	50	50	SS7.1 & DUP1	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_1$
	Lab Number:	3664199.1	3664199.3	3664199.5	3664199.7	3664199.9	3664199.11	3664199.13	3664199.69	3664199.15	3664199.17	3664199.19	3664199.21							
Heavy Metals																				
Arsenic	mg/kg	4	3	3	3	4	4	3	3	3	4	5	3	0%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.16	0.17	0.17	0.19	0.18	0.18	0.19	0.21	0.19	0.15	0.17	0.15	10%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	16	13	13	13	15	14	13	13	14	13	14	13	0%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	39	26	11	15	22	19	25	24	10	27	21	26	4%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	17.1	14	13.2	12	16.2	19.4	13.6	13.4	13.8	15.3	13.8	13.7	1%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	12	10	10	10	11	11	9	10	10	9	14	11	11%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	100	80	67	75	81	86	82	83	66	85	73	81	1%	7,400	400,000	NEPM	1230	ANZWQ	93.94

	Sample Name:	SS12.1	SS13.1	SS14.1	SS15.1	SS16.1	SS17.1	SS18.1	DUP 2	SS19.1	SS20.1	SS21.1	SS22.1	RPD	Soil Guideline Values					
Soil Results	Depth:	50	50	50	50	50	50	50	50	50	50	50	50	SS18.1 & DUP2	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_1$
	Lab Number:	3664199.23	3664199.25	3664199.27	3664199.29	3664199.31	3664199.33	3664199.35	3664199.7	3664199.37	3664199.39	3664199.41	3664199.43							
Heavy Metals																				
Arsenic	mg/kg	3	4	3	4	4	4	4	4	3	4	4	5	0%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.15	0.18	0.23	0.21	0.15	0.15	0.16	0.16	0.19	0.17	0.15	0.14	0%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	12	14	14	14	16	16	14	15	13	14	15	16	2%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	22	12	25	19	18	13	23	24	23	17	18	20	1%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	13	14.3	15	14.8	16.2	16.7	15.6	16.1	13.1	16.6	17.2	18	1%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	9	10	10	10	11	12	11	11	9	10	12	12	0%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	73	66	86	82	82	72	84	87	88	75	83	87	1%	7,400	400,000	NEPM	1230	ANZWQ	93.94

	Sample Name:	SS23.1	SS24.1	SS25.1	SS25.2	SS26.1	SS27.1	SS27.2	BP4.1	BP5.1	BP6.1	BP12.1	BP14.1	BP15.1	Soil Guideline Values					
Soil Results	Depth:	50	50	50	250	50	50	250	0-50	0-50	0-50	0-50	0-50	0-50	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_1$
	Lab Number:	3664199.45	3664199.47	3664199.49	3664199.50	3664199.51	3664199.53	3664199.53	3664199.57	3664199.58	3664199.59	3664199.65	3664199.67	3664199.68						
Heavy Metals																				
Arsenic	mg/kg	5	4	25	8	5	24	10	360	22	18	28	1120	880	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.16	< 0.10	0.61	0.24	0.19	0.17	0.17	0.6	0.26	0.27	0.17	0.82	0.23	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	16	14	25	15	17	22	17	198	26	18	22	430	420	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	21	6	44	18	23	35	23	330	53	36	45	780	580	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	17.5	16	19.2	15.5	19.8	16	17.7	17	17	13.4	17.7	250	16.3	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	11	9	11	11	14	11	11	11	11	11	12	11	10	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	86	52	159	88	98	144	110	850	200	177	97	1120	240	7,400	400,000	NEPM	1230	ANZWQ	93.94

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

NEPM - National Environmental Protection Measures 2013, Australia

ANZWQ - Australian and New Zealand - Guidelines for Fresh and Marine Water Quality (online) - 3 x Sediment GV-high

$_1$ Concentrations for 'Regional, Recent' soil group from Background concentrations in Canterbury soils, Tonkin and Taylor, July 2007

Table of Laboratory Results - 1/487 & 2/487 Weedons Road, Rolleston

Date of sampling: 03 & 04 September 2024

	Sample Name:	Composite of SS1.1, SS2.1, SS5.1 & SS6.1	Composite of SS3.1, SS4.1, SS7.1 & SS8.1	Composite of SS9.1, SS10.1 & SS13.1	Composite of SS11.1, SS12.1, SS14.1 & SS15.1	Soil Guideline Values			
Soil Results	Depth	50	50	50	50	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Background$_2$
	Lab number	3664199.71	3664199.72	3664199.73	3664199.74				
Organochlorine Pesticides (OCPs) in soil									
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.012	< 0.014	< 0.013	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.012	< 0.014	< 0.013	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.012	< 0.014	< 0.013	-	-	-	-
4,4'-DDD	mg/kg dry wt	0.034	0.05	0.052	0.034	-	-	-	-
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.012	< 0.014	< 0.013	-	-	-	-
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.012	< 0.014	< 0.013	-	-	-	-
Total DDT	mg/kg dry wt	< 0.08	< 0.07	< 0.08	< 0.08	70	1,000	NES	0.43 $_2$
All other analytes in the OCP suite were below the laboratory limit of detection									

	Sample Name:	Composite of SS16.1, SS17.1, SS20.1 & SS21.1	Composite of SS18.1, SS19.1, SS24.1 & SS25.1	Composite of SS22.1, SS23.1, SS26.1 & SS27.1	Composite of SS10.1, SS13.1 & SS24.1	Soil Guideline Values			
Soil Results	Depth	50	50	50	50	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Background$_2$
	Lab number	3664199.75	3664199.76	3664199.77	3664199.78				
Organochlorine Pesticides (OCPs) in soil									
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.013	-	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.013	-	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.013	< 0.013	-	-	-	-	-
4,4'-DDD	mg/kg dry wt	0.044	0.033	0.023	-	-	-	-	-
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.013	-	-	-	-	-
4,4'-DDT	mg/kg dry wt	0.017	0.014	< 0.013	-	-	-	-	-
Total DDT	mg/kg dry wt	< 0.08	< 0.08	< 0.08	-	70	1,000	NES	0.43 $_2$
All other analytes in the OCP suite were below the laboratory limit of detection									
Organonitro&Phosphorus Pesticides in Soil									
Terbuthylazine	mg/kg dry wt	-	-	-	0.04	-	-	-	-
All other analytes in the ONOP suit were below the laboratory limit of detection									

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

Notes:

This table does not represent the full analytical results, please refer to the laboratory reports for full details.

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

$_2$ Concentrations for 'Christchurch Metropolitan' soils from Ambient Concentrations of selected organochlorine in soils, Buckland, Ellis and Salter 1998

Appendix G – Laboratory Reports

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Certificate of Analysis

Client:	Momentum Environmental Limited	**Lab No:**	3664199	SPv2
Contact:	Nicola Peacock	**Date Received:**	04-Sep-2024	
	C/- Momentum Environmental Limited	**Date Reported:**	17-Sep-2024	**(Amended)**
	19 Robertsons Road	**Quote No:**	72157	
	Kirwee 7671	**Order No:**		
		Client Reference:	895-1&2/487 Weedons Rd	
		Submitted By:	Fran Hobkirk	

Sample Type: Soil

		Sample Name:	SS1.1 03-Sep-2024 9:54 am	SS2.1 03-Sep-2024 10:06 am	SS3.1 03-Sep-2024 10:16 am	SS4.1 03-Sep-2024 10:20 am	SS5.1 03-Sep-2024 10:34 am
		Lab Number:	3664199.1	3664199.3	3664199.5	3664199.7	3664199.9
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		4	3	3	3	4
Total Recoverable Cadmium	mg/kg dry wt		0.16	0.17	0.17	0.19	0.18
Total Recoverable Chromium	mg/kg dry wt		16	13	13	13	15
Total Recoverable Copper	mg/kg dry wt		39	26	11	15	22
Total Recoverable Lead	mg/kg dry wt		17.1	14.0	13.2	12.3	16.2
Total Recoverable Nickel	mg/kg dry wt		12	10	10	10	11
Total Recoverable Zinc	mg/kg dry wt		100	80	67	75	81

		Sample Name:	SS6.1 03-Sep-2024 10:39 am	SS7.1 03-Sep-2024 10:57 am	SS8.1 03-Sep-2024 11:02 am	SS9.1 03-Sep-2024 11:00 am	SS10.1 03-Sep-2024 11:25 am
		Lab Number:	3664199.11	3664199.13	3664199.15	3664199.17	3664199.19
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		4	3	3	4	5
Total Recoverable Cadmium	mg/kg dry wt		0.18	0.19	0.19	0.15	0.17
Total Recoverable Chromium	mg/kg dry wt		14	13	14	13	14
Total Recoverable Copper	mg/kg dry wt		19	25	10	27	21
Total Recoverable Lead	mg/kg dry wt		19.4	13.6	13.8	15.3	13.8
Total Recoverable Nickel	mg/kg dry wt		11	9	10	9	14
Total Recoverable Zinc	mg/kg dry wt		86	82	66	85	73

		Sample Name:	SS11.1 03-Sep-2024 11:50 am	SS12.1 03-Sep-2024 11:52 am	SS13.1 03-Sep-2024 11:31 am	SS14.1 03-Sep-2024 11:55 am	SS15.1 03-Sep-2024 12:00 pm
		Lab Number:	3664199.21	3664199.23	3664199.25	3664199.27	3664199.29
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		3	3	4	3	4
Total Recoverable Cadmium	mg/kg dry wt		0.15	0.15	0.18	0.23	0.21
Total Recoverable Chromium	mg/kg dry wt		13	12	14	14	14
Total Recoverable Copper	mg/kg dry wt		26	22	12	25	19
Total Recoverable Lead	mg/kg dry wt		13.7	12.5	14.3	15.2	14.8
Total Recoverable Nickel	mg/kg dry wt		11	9	10	10	10
Total Recoverable Zinc	mg/kg dry wt		81	73	66	86	82

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Soil						
Sample Name:		SS16.1 03-Sep-2024 1:17 pm	SS17.1 03-Sep-2024 1:22 pm	SS18.1 03-Sep-2024 1:22 pm	SS19.1 03-Sep-2024 1:28 pm	SS20.1 03-Sep-2024 1:42 pm
Lab Number:		3664199.31	3664199.33	3664199.35	3664199.37	3664199.39
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	4	4	3	4
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.15	0.16	0.19	0.17
Total Recoverable Chromium	mg/kg dry wt	16	16	14	13	14
Total Recoverable Copper	mg/kg dry wt	18	13	23	23	17
Total Recoverable Lead	mg/kg dry wt	16.2	16.7	15.6	13.1	16.6
Total Recoverable Nickel	mg/kg dry wt	11	12	11	9	10
Total Recoverable Zinc	mg/kg dry wt	82	72	84	88	75

Sample Name:		SS21.1 03-Sep-2024 1:46 pm	SS22.1 03-Sep-2024 12:43 pm	SS23.1 03-Sep-2024 12:38 pm	SS24.1 03-Sep-2024 2:07 pm	SS25.1 03-Sep-2024 1:55 pm
Lab Number:		3664199.41	3664199.43	3664199.45	3664199.47	3664199.49
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	5	5	4	25
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.14	0.16	< 0.10	0.61
Total Recoverable Chromium	mg/kg dry wt	15	16	16	14	25
Total Recoverable Copper	mg/kg dry wt	18	20	21	6	44
Total Recoverable Lead	mg/kg dry wt	17.2	18.4	17.5	16.2	19.2
Total Recoverable Nickel	mg/kg dry wt	12	12	11	9	11
Total Recoverable Zinc	mg/kg dry wt	83	87	86	52	159

Sample Name:		SS25.2 03-Sep-2024 1:58 pm	SS26.1 03-Sep-2024 12:57 pm	SS27.1 03-Sep-2024 1:01 pm	SS27.2 03-Sep-2024 1:03 pm	BP4.1 03-Sep-2024 10:28 am
Lab Number:		3664199.50	3664199.51	3664199.53	3664199.54	3664199.57
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	8	5	24	10	360
Total Recoverable Cadmium	mg/kg dry wt	0.24	0.19	0.17	0.17	0.6
Total Recoverable Chromium	mg/kg dry wt	15	17	22	17	198
Total Recoverable Copper	mg/kg dry wt	18	23	35	23	330
Total Recoverable Lead	mg/kg dry wt	15.5	19.8	16.0	17.7	17.0
Total Recoverable Nickel	mg/kg dry wt	11	14	11	11	11
Total Recoverable Zinc	mg/kg dry wt	88	98	144	110	850

Sample Name:		BP5.1 03-Sep-2024 10:44 am	BP6.1 03-Sep-2024 11:33 am	BP12.1 03-Sep-2024 2:16 pm	BP14.1 03-Sep-2024 1:47 pm	BP15.1 03-Sep-2024 2:35 pm
Lab Number:		3664199.58	3664199.59	3664199.65	3664199.67	3664199.68
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	22	18	28	1,120	880
Total Recoverable Cadmium	mg/kg dry wt	0.26	0.27	0.17	0.82	0.23
Total Recoverable Chromium	mg/kg dry wt	26	18	22	430	420
Total Recoverable Copper	mg/kg dry wt	53	36	45	780	580
Total Recoverable Lead	mg/kg dry wt	17.0	13.4	17.7	250	16.3
Total Recoverable Nickel	mg/kg dry wt	11	11	12	11	10
Total Recoverable Zinc	mg/kg dry wt	200	177	97	1,120	240

Sample Name:		DUP 1 03-Sep-2024 10:57 am	DUP 2 03-Sep-2024 1:23 pm	Composite of SS1.1, SS2.1, SS5.1 & SS6.1	Composite of SS3.1, SS4.1, SS7.1 & SS8.1	Composite of SS9.1, SS10.1 & SS13.1
Lab Number:		3664199.69	3664199.70	3664199.71	3664199.72	3664199.73
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	80	83	73
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	4	-	-	-
Total Recoverable Cadmium	mg/kg dry wt	0.21	0.16	-	-	-
Total Recoverable Chromium	mg/kg dry wt	13	15	-	-	-
Total Recoverable Copper	mg/kg dry wt	24	24	-	-	-
Total Recoverable Lead	mg/kg dry wt	13.4	16.1	-	-	-

Sample Type: Soil						
Sample Name:		DUP 1 03-Sep-2024 10:57 am	DUP 2 03-Sep-2024 1:23 pm	Composite of SS1.1, SS2.1, SS5.1 & SS6.1	Composite of SS3.1, SS4.1, SS7.1 & SS8.1	Composite of SS9.1, SS10.1 & SS13.1
Lab Number:		3664199.69	3664199.70	3664199.71	3664199.72	3664199.73
Heavy Metals, Screen Level						
Total Recoverable Nickel	mg/kg dry wt	10	11	-	-	-
Total Recoverable Zinc	mg/kg dry wt	83	87	-	-	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
alpha-BHC	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
beta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
delta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
cis-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
trans-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
2,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
4,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
2,4'-DDE	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
4,4'-DDE	mg/kg dry wt	-	-	0.034	0.050	0.052
2,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
4,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Total DDT Isomers	mg/kg dry wt	-	-	< 0.08	< 0.07	< 0.08
Dieldrin	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endosulfan I	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endosulfan II	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endrin	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endrin aldehyde	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Endrin ketone	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Heptachlor	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014
Methoxychlor	mg/kg dry wt	-	-	< 0.013	< 0.012	< 0.014

Sample Name:		Composite of SS11.1, SS12.1, SS14.1 & SS15.1	Composite of SS16.1, SS17.1, SS20.1 & SS21.1	Composite of SS18.1, SS19.1, SS24.1 & SS25.1	Composite of SS22.1, SS23.1, SS26.1 & SS27.1	Composite of SS10.1, SS13.1 & SS24.1
Lab Number:		3664199.74	3664199.75	3664199.76	3664199.77	3664199.78
Individual Tests						
Dry Matter	g/100g as rcvd	81	80	80	79	82
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
alpha-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
beta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
delta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
4,4'-DDE	mg/kg dry wt	0.034	0.044	0.033	0.023	-
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
4,4'-DDT	mg/kg dry wt	< 0.013	0.017	0.014	< 0.013	-
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.08	-
Dieldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Endosulfan I	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Endosulfan II	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Endrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-

Sample Type: Soil						
Sample Name:		Composite of SS11.1, SS12.1, SS14.1 & SS15.1	Composite of SS16.1, SS17.1, SS20.1 & SS21.1	Composite of SS18.1, SS19.1, SS24.1 & SS25.1	Composite of SS22.1, SS23.1, SS26.1 & SS27.1	Composite of SS10.1, SS13.1 & SS24.1
Lab Number:		3664199.74	3664199.75	3664199.76	3664199.77	3664199.78
Organochlorine Pesticides Screening in Soil						
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Endrin ketone	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Heptachlor	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Methoxychlor	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	-
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg dry wt	-	-	-	-	< 0.07
Alachlor	mg/kg dry wt	-	-	-	-	< 0.05
Atrazine	mg/kg dry wt	-	-	-	-	< 0.07
Atrazine-desethyl	mg/kg dry wt	-	-	-	-	< 0.07
Atrazine-desisopropyl	mg/kg dry wt	-	-	-	-	< 0.13
Azaconazole	mg/kg dry wt	-	-	-	-	< 0.04
Azinphos-methyl	mg/kg dry wt	-	-	-	-	< 0.13
Benalaxyl	mg/kg dry wt	-	-	-	-	< 0.04
Bitertanol	mg/kg dry wt	-	-	-	-	< 0.13
Bromacil	mg/kg dry wt	-	-	-	-	< 0.07
Bromopropylate	mg/kg dry wt	-	-	-	-	< 0.07
Butachlor	mg/kg dry wt	-	-	-	-	< 0.07
Captan	mg/kg dry wt	-	-	-	-	< 0.13
Carbaryl	mg/kg dry wt	-	-	-	-	< 0.07
Carbofuran	mg/kg dry wt	-	-	-	-	< 0.07
Chlorfluazuron	mg/kg dry wt	-	-	-	-	< 0.07
Chlorothalonil	mg/kg dry wt	-	-	-	-	< 0.07
Chlorpyrifos	mg/kg dry wt	-	-	-	-	< 0.07
Chlorpyrifos-methyl	mg/kg dry wt	-	-	-	-	< 0.07
Chlortoluron	mg/kg dry wt	-	-	-	-	< 0.13
Cyanazine	mg/kg dry wt	-	-	-	-	< 0.07
Cyfluthrin	mg/kg dry wt	-	-	-	-	< 0.08
Cyhalothrin	mg/kg dry wt	-	-	-	-	< 0.07
Cypermethrin	mg/kg dry wt	-	-	-	-	< 0.16
Deltamethrin (including Tralomethrin)	mg/kg dry wt	-	-	-	-	< 0.07
Diazinon	mg/kg dry wt	-	-	-	-	< 0.04
Dichlofluanid	mg/kg dry wt	-	-	-	-	< 0.07
Dichloran	mg/kg dry wt	-	-	-	-	< 0.2
Dichlorvos	mg/kg dry wt	-	-	-	-	< 0.09
Difenoconazole	mg/kg dry wt	-	-	-	-	< 0.10
Dimethoate	mg/kg dry wt	-	-	-	-	< 0.13
Diphenylamine	mg/kg dry wt	-	-	-	-	< 0.13
Diuron	mg/kg dry wt	-	-	-	-	< 0.07
Fenpropimorph	mg/kg dry wt	-	-	-	-	< 0.07
Fluazifop-butyl	mg/kg dry wt	-	-	-	-	< 0.07
Fluometuron	mg/kg dry wt	-	-	-	-	< 0.07
Flusilazole	mg/kg dry wt	-	-	-	-	< 0.07
Fluvalinate	mg/kg dry wt	-	-	-	-	< 0.05
Furalaxyl	mg/kg dry wt	-	-	-	-	< 0.04
Haloxyfop-methyl	mg/kg dry wt	-	-	-	-	< 0.07
Hexaconazole	mg/kg dry wt	-	-	-	-	< 0.07
Hexazinone	mg/kg dry wt	-	-	-	-	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	-	-	-	-	< 0.4
Kresoxim-methyl	mg/kg dry wt	-	-	-	-	< 0.04
Linuron	mg/kg dry wt	-	-	-	-	< 0.4
Malathion	mg/kg dry wt	-	-	-	-	< 0.07

Sample Type: Soil						
Sample Name:		Composite of SS11.1, SS12.1, SS14.1 & SS15.1	Composite of SS16.1, SS17.1, SS20.1 & SS21.1	Composite of SS18.1, SS19.1, SS24.1 & SS25.1	Composite of SS22.1, SS23.1, SS26.1 & SS27.1	Composite of SS10.1, SS13.1 & SS24.1
Lab Number:		3664199.74	3664199.75	3664199.76	3664199.77	3664199.78
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Metalaxyl	mg/kg dry wt	-	-	-	-	< 0.07
Methamidophos	mg/kg dry wt	-	-	-	-	< 0.4
Metolachlor	mg/kg dry wt	-	-	-	-	< 0.05
Metribuzin	mg/kg dry wt	-	-	-	-	< 0.07
Molinate	mg/kg dry wt	-	-	-	-	< 0.13
Myclobutanil	mg/kg dry wt	-	-	-	-	< 0.07
Naled	mg/kg dry wt	-	-	-	-	< 0.4
Norflurazon	mg/kg dry wt	-	-	-	-	< 0.13
Oxadiazon	mg/kg dry wt	-	-	-	-	< 0.07
Oxyfluorfen	mg/kg dry wt	-	-	-	-	< 0.04
Paclobutrazol	mg/kg dry wt	-	-	-	-	< 0.07
Parathion-ethyl	mg/kg dry wt	-	-	-	-	< 0.07
Parathion-methyl	mg/kg dry wt	-	-	-	-	< 0.07
Pendimethalin	mg/kg dry wt	-	-	-	-	< 0.07
Permethrin	mg/kg dry wt	-	-	-	-	< 0.03
Pirimicarb	mg/kg dry wt	-	-	-	-	< 0.07
Pirimiphos-methyl	mg/kg dry wt	-	-	-	-	< 0.07
Prochloraz	mg/kg dry wt	-	-	-	-	< 0.4
Procymidone	mg/kg dry wt	-	-	-	-	< 0.07
Prometryn	mg/kg dry wt	-	-	-	-	< 0.04
Propachlor	mg/kg dry wt	-	-	-	-	< 0.07
Propanil	mg/kg dry wt	-	-	-	-	< 0.2
Propazine	mg/kg dry wt	-	-	-	-	< 0.04
Propiconazole	mg/kg dry wt	-	-	-	-	< 0.05
Pyriproxyfen	mg/kg dry wt	-	-	-	-	< 0.07
Quizalofop-ethyl	mg/kg dry wt	-	-	-	-	< 0.07
Simazine	mg/kg dry wt	-	-	-	-	< 0.07
Simetryn	mg/kg dry wt	-	-	-	-	< 0.07
Sulfentrazone	mg/kg dry wt	-	-	-	-	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	-	-	-	-	< 0.13
Tebuconazole	mg/kg dry wt	-	-	-	-	< 0.07
Terbacil	mg/kg dry wt	-	-	-	-	< 0.07
Terbumeton	mg/kg dry wt	-	-	-	-	< 0.07
Terbuthylazine	mg/kg dry wt	-	-	-	-	0.04
Terbuthylazine-desethyl	mg/kg dry wt	-	-	-	-	< 0.07
Terbutryn	mg/kg dry wt	-	-	-	-	< 0.07
Thiabendazole	mg/kg dry wt	-	-	-	-	< 0.4
Thiobencarb	mg/kg dry wt	-	-	-	-	< 0.07
Tolylfluanid	mg/kg dry wt	-	-	-	-	< 0.04
Triazophos	mg/kg dry wt	-	-	-	-	< 0.07
Trifluralin	mg/kg dry wt	-	-	-	-	< 0.07
Vinclozolin	mg/kg dry wt	-	-	-	-	< 0.07

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3664199-SPv1' issued on 10-Sep-2024 at 1:32 pm.
Reason for amendment: At the client's request, testing has been added.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49-51, 53-54, 57-59, 65, 67-70
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49-51, 53-54, 57-59, 65, 67-70
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	71-77
Organonitro&phosphorus Pesticides Screen in Soil by GCMS	Sonication extraction, GC-MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.02 - 0.2 mg/kg dry wt	78
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	71-78
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 04-Sep-2024 and 17-Sep-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

Soil Contamination Risk
Preliminary and Detailed Site Investigation Report

10/487 Weedons Road,
Rolleston, Canterbury

December 2024

www.momentumenviro.co.nz

Specialist soil contamination experts, keeping your project moving.

QUALITY CONTROL AND CERTIFICATION SHEET

Client: Your Section

Date of Issue: 17 December 2024

Report written by:

Fran Hobkirk, Environmental Scientist, BSc.
(8 years contaminated land experience)

Signed: 

Email: fran@momentumenviro.co.nz
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Report reviewed and certified as a Suitably Qualified and Experienced Practitioner by:

Nicola Peacock, Principal Environmental Engineer, NZCE, CEnvP
(16 years contaminated land experience within 32 years environmental experience)

Signed: 

Email: nicola@momentumenviro.co.nz
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CONTENTS

APPENDICES

1 Executive Summary

The subject site is a rural residential lot located at 10/487 Weedons Road, Rolleston, Canterbury. It is proposed to rezone the subject site to allow residential development. This will enable future change in land use, subdivision and disturbance of soils. Therefore, an assessment under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) is required. It is also noted that Momentum Environmental Ltd (MEL) is obligated to consider the requirements of Section 10 (4) of the Health and Safety at Work (Asbestos) Regulations 2016.

The Preliminary Site Investigation (PSI) portion of this investigation identified potential sources of contamination on the subject site associated with confirmed or likely Hazardous Activities and Industries List (HAIL) activities and determined there may be a risk to human health from contaminated soils. It was recommended that a Detailed Site Investigation be undertaken on the identified risk areas. The identified potential sources of contamination were:

- Possible former livestock dip/spray race (HAIL A8).
- Possible storage of persistent pesticides within a former yard area (HAIL A10).
- Potential use of persistent pesticides on a former apple orchard (HAIL A10).
- Potential heavy metal and/or asbestos contamination from former buildings within a former yard area (HAIL I).
- Potential heavy metal contamination within current and possible former burn areas (HAIL I).

Soil sampling was undertaken on 02 December 2024. The soil sampling identified irregular arsenic contamination exceeding the 'residential 10% produce' soil guideline value (SGV) of 20mg/kg within the former yard area. The arsenic exceedances range from 22mg/kg to 192mg/kg. The arsenic concentrations were generally higher at 250mm depth than at the surface. Elevated concentrations of dieldrin are also present. The results to date have not identified dieldrin concentrations exceeding the 'residential 10% produce' SGV, however given the presence of dieldrin it is likely that a dip or spray race was present in this area, and it is possible that higher levels of dieldrin exist beyond the sampled locations.

Soil sampling also identified arsenic contamination exceeding the 'residential 10% produce' SGV within the current burn area (BP6) and one former burn area (BP9). The contaminated areas have not yet been delineated.

It is recommended that the former yard area and the contaminated burn areas be remediated prior to the change of use or development of each area. Before developing a Remediation Action Plan, further investigation should be undertaken within the former yard area to better define the contamination around the former dip area. Further investigation to delineate the extent of contamination around BP6 and BP9 could also be completed at this time. Alternatively, delineation of BP6 and BP9 could occur during remediation with the use of a portable XRF device.

The remainder of the subject site is considered suitable for residential use with no further investigations required. It is noted that surface soils contain one or more heavy metals, mainly copper, above expected background levels at the majority of sample locations across the subject site, which may impact disposal options for any excess soils requiring offsite disposal.

At the time of writing this report, the NESCS does apply to the subject site and resource consent will be required.

2 Objectives of the Investigation

This report has been prepared in general accordance with the Ministry for the Environment's (MfE) "Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand, revised 2021" (CLMG) and the New Zealand Guidelines for Assessing and Managing Asbestos in Soils, November 2017 (NZ GAMAS). This report includes all requirements for a Preliminary and Detailed Site Investigation Report.

The objectives of this investigation are to:

- Collect and assess information from multiple sources to understand past and current land uses.
- Describe the physical and environmental features of the subject site to understand potential pathways and receptors.
- Establish whether an activity or industry described in the Hazardous Activities and Industries List (HAIL) is being, has been, or is more likely than not to have been undertaken on the subject site.
- Assess whether there is any risk to potential receptors that would warrant further investigation.
- Collect and analyse subject site information, including soil sampling and testing, to determine the extent and type of any contamination present.
- Provide remediation or site management recommendations to the client based on the results of the investigation.

3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Obtaining and review of Environment Canterbury (ECan) data from the Listed Land Use Register (LLUR).
- Search of Land Information New Zealand (LINZ) orchard database.
- Review of relevant historical aerial photographs.
- Review of relevant historical certificates of title (CTs).
- Review of Selwyn District Council (SDC) property files.
- Designing a sampling and analysis plan based on the identified contaminant risks.
- On site soil sampling and laboratory testing.
- Analysis of results against applicable soil guidelines values (SGVs).
- Preparation of this report in accordance with MfE guidelines.

4 Site Identification

The subject site is located at 10/487 Weedons Road, Rolleston, Canterbury as shown on the plan in **Figure 1** below. The subject site is legally described as Lot 6 DP 47839 and has a total area of approximately 4.3343ha.

Figure 1 – Location Plan

5 Proposed Site Use

It is proposed to rezone the subject site to allow residential development. This will enable future change in use, subdivision and potential disturbance of soils.

6 Site Description

6.1 Environmental Setting

Table 1 – Environmental Information

Topography	The subject site is generally flat land.
Geology	The ECan GIS database describes the soils at the subject site as Templeton deep silt. Nearby and onsite bore logs indicate that topsoils are underlain by layers of clay, claybound gravels, and sandy gravels.
Soil Trace Elements	According to the ECan GIS database, natural concentrations of trace elements for the site are those of the 'Regional, Recent' soil group.
Groundwater	The subject site lies over the unconfined and semiconfined gravel aquifer system. Groundwater levels recorded on nearby and on-site bore logs are between 12.8m and 14.85m deep. The direction of groundwater flow is generally south-easterly.
Surface Water	A water race runs along the opposite side of Weedons Road.

6.2 Site Layout and Current Site Uses

The subject site has a rural residential use. A dwelling with an attached garage, a detached garage/workshop and two sheds are present within the residential curtilage area. The remainder of the subject site is divided into paddocks used for grazing. A farm shed is located within the south-west most paddock.

6.3 Surrounding Land Uses

The surrounding land is similar rural residential land.

6.4 Geotechnical Investigations

At the time of writing no geotechnical investigations were made available to Momentum Environmental Ltd (MEL).

7 Historical Site Use

7.1 Previous Site Ownership and Use

Historical Certificates of Title (CTs) were reviewed with the following relevant ownership information outlined below:

03 August 1897	George Troll, farmer
26 May 1903	William McMeekan, farmer
27 March 1907	Ellen Page, spinster
06 July 1909	Walter Wright, farmer
01 July 1922	William Henry Peter Sowden, farmer
19 June 1933	Duncan Gillanders, farmer
22 November 1945	Ian Thomas Reid, farmer
11 February 1977	Ian Thomas Reid, farmer, John walker Allan, farmer and The Trustees Executors and Agency Company of New Zealand

11 September 1984	Northern Spy Orchards Ltd, Target Orchard Ltd, Green Leaf Orchard Ltd, City Side Orchard Ltd, Ellesmere Orchard Ltd, Paparua Orchard Ltd, Export Apples Ltd, Orchard Ride Ltd, Long Acre Orchard Ltd, Big Pick Orchard Ltd and Red Apple Orchard Ltd
22 October 1985	Export Apples Ltd
09 July 1999	Northwest Farm Ltd
06 August 2002	Cornelis Schaap and Vicki Anne Schaap
16 January 2007	Paul Alexander Goodwin and Tessa Jacqueline Mocatta
08 August 2008	Paul Alexander Goodwin, Tessa Jacqueline Mocatta and Templetons Trustees Limited
01 September 2010	Paul Alexander Goodwin, Tessa Jacqueline Mocatta and Landley Trustees Limited

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed. Copies of the historical CTs are included in **Appendix A.**

7.2 District Authority Records

The subject site is currently zoned Inner Plains in the operative Selwyn District Plan and General Rural Zone in the proposed Selwyn District Plan.

Property files were provided by Selwyn District Council (SDC) on 26 November 2024. The files included the following permits and consents:

- A building permit issued on 18 February 1981 to erect a wool shed with a concrete floor and corrugated iron walls and roof. This was to be a 3-bay extension to an existing wool shed.
- A building permit issued on 18 September 1984 to erect a farm workshop/storage shed with a concrete floor and corrugated iron walls and roof.
- A building consent issued on 09 August 2002 to erect a domestic garage/workshop
- A building consent issued on 21 November 2002 to erect a domestic dwelling.
- A building consent issued on 19 June 2007 to erect a 2-bay Versatile farm building
- A building consent issued on 20 August 2007 to erect a domestic garage
- A building consent issued on 07 June 2022 for the installation of a solid fuel heater.

7.3 Regional Council Records

The subject site is listed on the Listed Land Use Register (LLUR) as part of a larger site for activities and industries as per the 'Hazardous Activities and Industries List' (HAIL). Site 118904, which includes the subject site, is listed for HAIL activity 'A10 – Persistent pesticide bulk storage or use'. An orchard was developed around 1984, with 1994 aerial photographs used to define the extent of planting. The listed site is categorised as 'Verified HAIL has not been investigated'.

Two nearby sites are also listed:

- 6/487 Weedons Road is listed as 'Site 235788', also for HAIL activity 'A10 – Persistent pesticide bulk storage or use'. This was part of the same orchard as Site 118904. However, this part of the orchard is listed as 'Yet to be reviewed' as investigations have been undertaken but not yet reviewed by ECan. Part of this site was investigated by Pattle Delamore Partners Ltd (PDP) in June 2019. This site was also investigated by MEL in March 2024. The investigations found no heavy metal or organochlorine pesticide (OCP) contamination that would pose a risk to human

health or the environment from the former orchard use. A burn area contaminated with heavy metals above 'residential 10% produce' SGVs was identified and broadly delineated. The identified contaminated area is approximately 75m south-west of the subject site.

- Reids Pit, 452 Selwyn Road is listed for HAIL activity 'G5 – Waste disposal to land'. A Preliminary Site Investigation (PSI) was completed by Malloch Environmental Ltd (now known as Momentum Environmental Ltd, MEL) in August 2014 as Selwyn District Council proposed to redevelop the site as a recreational reserve. The PSI determined the site had been used for gravel extraction from the late 1970s until the early 2000s. Following this, the site was used as a Selwyn District Council hardfill dumping site with limited general rubbish dumping. Sampling completed by MEL in 2019 showed heavy metals, organochlorine pesticides (OCP) and polycyclic aromatic hydrocarbons (PAHs) below the relevant background criteria.

The ECan GIS database shows two active bores on the subject site, used for domestic supply. The nearest, downgradient active well is M36/5916, a domestic and stockwater supply well, located approximately 105m south of the subject site.

The ECan GIS database shows an active resource consent for the subject site to discharge domestic sewage tank effluent into ground. Within a 100m radius of the subject site there are similar active resource consents to discharge domestic sewage tank effluent into ground. There are also active resource consents for Reids Pit associated with establishing a recreational park:

- to use land for earthworks and for the deposition of material onto and into land,
- to discharge contaminants onto land and into land,
- to discharge construction phase stormwater onto and into land, and
- to discharge dust to air.

7.4 LINZ Records

The LINZ Orchard layer shows there is a listed orchard on part of the subject site. There are other nearby orchards as shown in blue on the plan below.

Figure 3 – LINZ Plan

7.5 Review of Historical Aerial Photographs

A total of ten historical aerial photographs have been sourced from ECan GIS database to assess the historical use of the subject site. Copies of the aerial photographs used are included in **Appendix C.**

- The earliest available aerial photograph is from **1942** and shows the subject site is mainly in pasture. Farm sheds are present on the eastern corner of the subject site. The surrounding area is mainly similar pastoral farmland. A dwelling is present beyond the subject site to the east. A gravel pit is visible beyond the subject site to the south.
- The next available aerial photograph is from **1961.** More sheds have been added to the south-eastern side of the subject site. There are no significant changes to the surrounding land.
- The **1974** aerial photograph shows a possible livestock dip within the farm yard area of the subject site. There are no significant changes to the surrounding land.
- The **1982** aerial photograph shows no significant changes to the subject site. The gravel pit beyond the subject site to the south has increased in size.
- The **1994** aerial photograph shows an orchard has been planted on the subject site and most of the surrounding land. All the previously noted structures have been removed from the subject site. The gravel pit beyond the subject site to the south has increased in size and now extends to the boundary of the subject site.
- The **2000** aerial photograph shows the orchard has been removed from part of the subject site. There are three potential burn areas visible on this paddock. There are no significant changes to the surrounding land. The rows on the paddock to the north-east of the subject site appear to be associated with mowing hay/balage rather than horticultural activities.
- The **2005** aerial photograph shows a dwelling and two farm sheds have been constructed on the south-west end of the subject site. Three potential burn areas are visible to the south-east of the dwelling and one potential burn area is visible to the north-west of the dwelling. Rural residential development has also occurred beyond the subject site to the north-west and south-west.
- The **2012** aerial photograph shows the previously noted potential burn area to the north-west of the dwelling is a small pond. Most of the orchard trees have been removed from the central paddock on the subject site. A potential burn area is visible within this paddock. More of the surrounding orchard has been removed and developed for rural residential use.
- The latest aerial photograph is dated **2020**. It shows some of the orchard trees have been removed from the north-east end of the subject site. There are three potential burn areas in this cleared area. The gravel pit to the south is being landscaped into a recreational area.

8 Site Inspection

A site inspection was conducted on 02 December 2024 to identify any other potential sources of contamination not identified by the desktop portion of this investigation. No additional potential sources of contamination were observed.

Structures within the residential curtilage area include a dwelling with attached garage, a separate garage/workshop, a large garden shed/lean-to and shipping container, and a smaller shed/kennel. All the buildings are modern and all appear to have concrete floors. The curtilage area also includes a domestic vegetable garden and domestic greenhouse. No potential sources of contamination were observed within the residential curtilage area.

Photo 1 – Dwelling

Photo 2 – Attached garage

Photo 3 – Detached garage/workshop

Photo 4 – Shed / lean-to and shipping container

Photo 5 – Shed / kennel

Photo 6 – Domestic vegetable garden

Photo 7 – Domestic greenhouse

Beyond the residential curtilage area, the subject site is divided into paddocks used for grazing. Some apple and nut trees remain within the paddocks. The majority of these are on the north-east end of the subject site. They do not appear to be currently actively cultivated and recent use of any pesticide sprays is considered highly unlikely. A farm shed is present on the eastern corner of the south-west paddock on the subject site. A loading ramp and stock pen is located on the southern corner of this paddock. There are no other structures within the paddocks.

A burn pile including non-green waste is present within one of the central paddocks, this burn area was also observed on the aerial photographs. Soil appears to have been excavated to create a depression for burning in, with a slight mound of soils to the south. This burn area is marked BP6 on the Sample Location Plan in **Appendix D**. No remaining evidence of burning was observed at any of the other potential burn areas noted on the aerial photographs. An area of bare soils was present at one of the three potential burn areas on the north-east paddock of the subject site, but this seemed to be caused by stock feeding rather than burning as no ash or charred materials was observed. This potential burn area is marked BP7 on the Sample Location Plan in **Appendix D**.

Some storage of items is occurring along the south-east boundary of the subject site. Stored items included firewood, untreated timber pallets and farm equipment. No bulk storage of treated timber was observed. It is considered highly unlikely that this storage of items poses a risk of soil contamination.

Photo 8 – Farm shed

Photo 9 – Wooden pens & loading ramp

Photo 10 – Paddock

Photo 11 – Paddock with apple trees remaining from former orchard use

Photo 12 – Current burn area (BP6)

Photo 13 – Bare soils at BP7

Photo 14 – Minor storage of items along boundary

9 Preliminary Risk Assessment

9.1 Potential HAIL Uses

The Hazardous Activities and Industries List (HAIL) compiled by the Ministry for the Environment includes the following categories (*in italics*) that could be associated with the historical uses of the subject site, with a summary of the risk of these activities having been carried out on the subject site.

A – Chemical manufacture, application and bulk storage

8. Livestock dip or spray race operations

A stockyard was visible on the 1974 aerial photograph. A livestock dip or spray race operation may have been present within these stockyards. Contaminants of concern include heavy metals and organochlorine pesticides (OCPs).

> *10. Persistent pesticide bulk storage or use, including sport turfs, market gardens, orchards, glasshouses or spray sheds*

A yard area with farm sheds was visible on the south-east side of the subject site on aerial photographs from 1942 until 1994. Persistent pesticides may have been stored in these sheds. Given the layout of the yard area, any storage of chemicals is likely to have occurred at the north-east end of the yard. Contaminants of concern include heavy metals and organochlorine pesticides (OCPs).

The owners of the subject site between 1984 and 1999 were apple orchard companies. Aerial photographs show the subject site was planted as orchard from at least 1994. The apple orchard was progressively removed from the subject site from the early 2000's onwards. Given the era of the apple orchard, the use of organochlorine pesticides (OCPs) is considered highly unlikely, however, has been included as a contaminant of concern out of an abundance of caution. Contaminants of concern include heavy metals and OCPs.

> **H - Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment**

The orchard previously present on the subject site also extended onto adjacent land. It is considered highly unlikely that migration of contaminants to the subject site from other parts of the orchard area would be distinguishable from any contamination on the subject site from its own orchard use.

The ECan LLUR also included Reids Pit, an area of land subject to filling activities, located directly south of the subject site. Based on the previous investigations undertaken at Reids Pit, there is highly unlikely to be a risk from the migration of hazardous substances to the subject site, in sufficient quantity to pose a risk to human health or the environment.

> **I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment**

The subject site had buildings sited on it within a farm yard area since at least 1942 until the late 1980s. While these buildings were likely constructed from timber and unpainted galvanised metal, the use of lead-based paints and/or asbestos containing building materials (ACM) cannot be ruled out. Any natural deterioration or intentional removal may have caused contamination of the surrounding soils. Contaminants of concern include heavy metals and asbestos.

Multiple possible burn areas were observed on aerial photographs from 2000 onwards. One burn pile was observed during the site inspection. The majority of these burn areas were likely associated with clearing areas of former orchard. As such the material burnt was most likely green waste. However, the burning of non-green waste which could have caused contamination of the underlying soils cannot be ruled out. Contaminants of concern include heavy metals.

9.2 Preliminary NESCS Assessment

In relation to the NESCS, Regulation 5(7) states that land is considered to be covered if an activity or industry described in the HAIL is being undertaken; has been undertaken; or is more likely than not to

have been undertaken on it. Regulation 6 describes the methods for determining this. Method 6(3) is to rely on a Preliminary Site Investigation. The 'NESCS Users Guide' indicates the test for 'more likely than not' is whether there is more than a 50 percent likelihood of the HAIL having occurred.

The table below states the likelihood of each HAIL identified in **Section 9.1** above:

Table 2 – Preliminary NESCS Assessment

HAIL Category	6(3)a - Is being undertaken	6(3)b – has been undertaken	6(3)c – likelihood of having been undertaken (if not confirmed)
A8 – Livestock dip or spray race	-	-	More likely than not
A10 – Persistent pesticide bulk storage or use	-	-	More likely than not
H – migration of contaminants	-	-	Highly unlikely
I – Any other land (lead paint & asbestos from old buildings)	-	-	Unlikely
I – Any other land (burn areas)	Yes	-	More likely than not

9.3 Preliminary Conceptual Site Model

The following preliminary conceptual site model (CSM) indicates potentially complete exposure pathways associated with the identified risks at the subject site. The locations of the risk areas are shown on **Figure 3** below.

Table 3 – Preliminary Conceptual Site Model

Conceptual Site Model				
Source	**Pathways**		**Receptor**	**Exposure Pathway Status**
• Possible former livestock dip/spray race. • Possible storage of persistent pesticides within former yard area. • Potential use of persistent pesticides on former apple orchard. • Potential heavy metal and/or asbestos contamination from former buildings within former yard area. • Potential heavy metal contamination within current and	**Human**	Dermal contact, ingestion and inhalation through soil contact	Current and future site occupiers and workers involved in soil disturbance activities.	Potentially complete
	Ecological	Infiltration through soils to groundwater	Groundwater is assumed to be 12.8-14.85m deep at the subject site.	Likely incomplete due to depth to groundwater.
		Surface runoff to waterways	Water race on opposite side of Weedons Road	Likely incomplete due to separation distance and shelterbelts preventing spray drift.

possible former burn areas.				

Based on the NESCS assessment and the preliminary CSM above, the NESCS does apply to the subject site. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminated Land Management Guidelines, be undertaken on the identified risk areas prior to development. These areas are shown on the Risk Area Plan below. Due to their small sizes, the approximate locations of the potential/known burn areas are simply marked with a yellow cross.

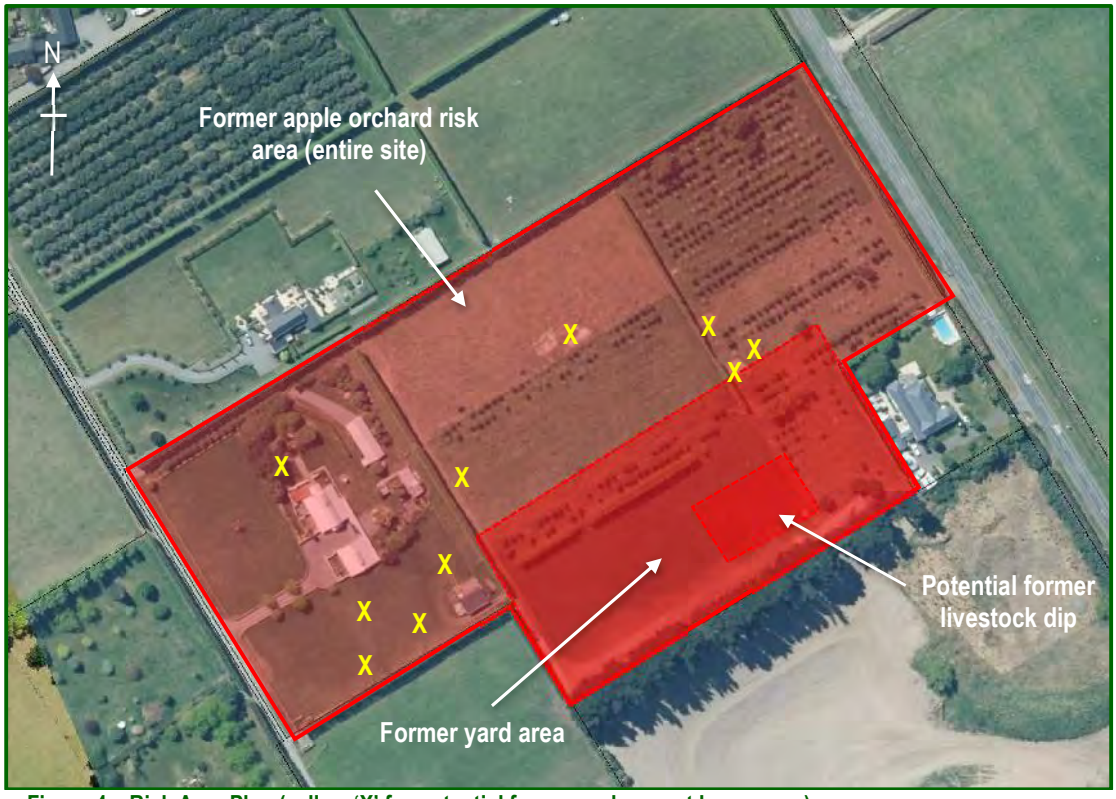


Figure 4 – Risk Area Plan (yellow 'X' for potential former and current burn areas)

10 Sampling and Analysis Plan

10.1 Sampling Design

The proposed use for the subject site is residential. For the purpose of designing a sampling plan the subject site has been considered as one exposure area with overlapping risk areas. The specifics of the sample design strategy are included in **Table 4** below.

Table 4 – Sampling Design Strategy

Contaminants of concern	**Orchard risk area** – Heavy metals, OCPs **Former yard area including potential livestock dip** – Heavy metals, OCPs and asbestos **Burn areas** – Heavy metals.
Media to be sampled	Soils

Number of sample locations	**Orchard risk area** – Contamination linked to horticultural uses is likely to be diffuse. Therefore, systematic or grid sampling of these areas is considered appropriate. A grid of twelve sample locations will be distributed across the paddocks of the subject site. **Former yard area including potential livestock dip** – the majority of the former buildings and the livestock dip are located on the north-east end of this risk area. 26 sample locations will be placed across the yard area with most of the locations placed in a grid across the north-east end. **Burn Areas** – A judgemental sampling strategy will be used with one sample location per burn area. The sample locations will be guided by XRF screening – where heavy metal contamination is detected a sample will be taken at the location with the highest XRF readings, where no contamination is detected a field composite sample will be taken with subsamples taken from each of the XRF test locations.
Depth of samples	**Orchard risk area** – Given the likely source of contamination and proposed use for the subject site, surface and near surface (250mm) samples are considered appropriate. Deeper samples may also be taken at sample locations if buried contamination is suspected based on observations during sampling. **Former yard area including potential livestock dip** – Given the likely source of contamination and proposed use for the subject site, surface and near surface (250mm) samples are considered appropriate. Further investigation including deeper samples may be required if contamination is identified, particularly around the potential dip location. **Burn Areas** – given the mode of contamination, surface samples are considered appropriate.
Testing Methodology	**Orchard risk area** – All surface samples will be analysed for seven heavy metals. All surface samples will be analysed for OCPs as laboratory composite samples. Analysis of the deeper samples and/or individual samples will occur if the initial results indicate possible contaminant concentrations of concern. **Former yard area including potential livestock dip** – All surface and 250mm depth samples will be analysed for seven heavy metals. A selection of surface samples will be analysed for OCPs as laboratory composite samples. Additional OCP analysis will be undertaken if the composite sample results indicate possible contaminant concentrations of concern are present. Asbestos analysis will only be undertaken if visual evidence of asbestos contamination is identified in the soils, such as demolition debris. **Burn Areas** – soil samples from locations where XRF screening identifies heavy metal concentrations of concern will be analysed for seven heavy metals to confirm the XRF readings. Where the XRF readings indicate no elevated heavy metals are present the soil samples will be held cold.
Field Sampling Technique	Samples to be taken by hand using a stainless-steel spade, trowel or fresh disposable nitrile gloves.
XRF Testing Procedure	3-4 XRF tests will be performed across each burn area.

10.2 Soil Guideline Values

Human health soil contaminant standards for a group of 12 priority contaminants were derived under a set of five land-use scenarios and are legally binding under The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Health) Regulations 2011 (NESCS). These standards have been applied where applicable. The regulations describe these as Soil Contaminant Standards. For contaminants other than the 12 priority contaminants, the hierarchy as set out in the Ministry for the Environment Contaminated Land Management Guidelines No 2 has been followed. These are generally described as Soil Guideline Values. For simplicity, this report uses the terminology Soil Guideline Values (SGV) when referring to the appropriate soil contaminant standard or other derived value from the hierarchy. For soil, guideline values are predominantly risk based, in that they are typically derived using designated exposure scenarios that relate to different land uses. For each exposure scenario, selected pathways of exposure are used to derive guideline values. These pathways typically include soil ingestion, inhalation and dermal adsorption. The guideline values for the appropriate land use scenario relate to the most critical pathway.

The land-use scenario applicable for the site is 'residential 10% produce'. The 'commercial/industrial outdoor worker' land use scenario has been applied as a proxy for workers involved in disturbing soils activities.

The adopted trigger values used to determine need for assessment of ecological receptors (including stormwater disposal areas) also referred to as Ecological Guideline Values (EGVs) are the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (online) – Sediment GV-high (ANZWQ) multiplied by 3.

For comparison of site concentrations against expected background levels the following published concentrations will be used:

- Heavy metal concentrations will be assessed against the expected background levels as published in *Background Concentrations in Canterbury soils*, Tonkin and Taylor, July 2007.
- Organochlorine pesticide concentrations will be assessed against the concentrations published in *Ambient Concentrations of Selected Organochlorine in Soils*, Buckland, Ellis and Salter, 1998.

10.3 Quality Assurance and Quality Control

Field quality assurance measures as described in Section 4.3.1 of the "Contaminated Land Management Guidelines No 5: Site Investigation and Analysis of Soils, revised 2021" (CLMG) are to be followed. These include using trained staff, choosing appropriate sample containers, accurate and individual labelling and recording of locations, completing appropriate laboratory chain of custody forms, chilling of samples as appropriate and timely delivery to laboratories. All non-disposable sampling equipment should be decontaminated between samples using Decon 90 and rinsed with tap water. All samples are to be submitted to IANZ accredited laboratories. Quality control to ensure freedom from sample cross-contamination is to be measured by the appropriate use of duplicate and rinsate blank samples.

10.4 XRF Quality Assurance Measures

The current NZ XRF use guidelines (Ministry for the Environment. 2024. *Field use of X-ray fluorescence spectroscopy for investigation of contaminated soils.* Wellington) are to guide the use of the XRF for this investigation.

The XRF to be used is an Olympus Vanta M-Series with a 50KV tube. The manufacturer's instructions are to be followed in the use of the device. All users are to be trained and licensed to operate the XRF.

Standard reference materials and a blank are to be tested prior to each day's testing and compared with expected results. Blank readings are to be taken throughout the day's testing as appropriate to ensure there is no contamination of the XRF window.

It is intended that the device be used qualitatively at this site to guide sample collection and analysis.

11 Sampling Results

11.1 Summary of Works/Field Observations

Soil sampling was undertaken on 02 December 2024 in general accordance with the proposed sampling plan. Sample Location Plans showing the sampled locations is included in **Appendix D**. Paddock sample locations are labelled 'P', sample locations within the former yard area are labelled 'SS' and burn areas are labelled 'BP'. A Table of XRF Results from the XRF screening is included in **Appendix E**.

Twelve paddock sample locations were sampled at surface and 250mm depth. One location (P5) was also sampled at 450mm depth to assist with possible future offsite disposal of soils. The sampled soils were generally brown silts and brown clay.

Twenty-six sample locations were placed within the former yard risk area of the subject site. Traces of anthropogenic material including brick fragments, possible ash, concrete fragments and metal fragments were observed at 250mm depth at sample locations SS7, SS10, SS11, SS12, SS18, and SS19. No suspected asbestos containing materials or significant volumes of demolition debris were observed. Therefore, analysis of samples for asbestos was not considered necessary.

The XRF screening did not detect any heavy metal contamination likely to exceed 'residential 10% produce' SGVs at potential burn areas BP1-BP5 and BP8. All readings in these locations were less than half the relevant 'residential 10% produce' SGV.

Elevated arsenic exceeding the 'residential 10% produce' SGV of 20mg/kg was detected at BP6 (the current burn area) and BP9. This indicated that burning of non-green waste has occurred in these locations. It is noted that no visible evidence of burning remains at BP9. BP6 is the location of the current burn area and has been slightly excavated. The location of BP6 appears to have moved between the 2012 aerial photograph and the latest aerial/observed location. Three individual tests were performed to the west of the current burn area, in the location of the former possible burn area. No heavy metal contamination was detected by these tests.

The surface samples from the paddocks, all the samples from the former yard area, three burn area samples and four duplicates were submitted for seven heavy metal analysis at the laboratory. Once the initial results showed some heavy metals were elevated in the paddock surface soils the deeper samples were also submitted for heavy metal analysis to assist with any future offsite disposal of soils. A total of 84 samples including 4 duplicates were analysed for seven heavy metals. 29 surface samples were analysed for OCPs as 8 laboratory composite samples. Once initial results indicated that dieldrin was present within the yard area the samples with the highest arsenic concentrations (a common co-contaminant around livestock dips) were submitted for individual OCP analysis.

11.2 Evaluation of Results

A Table of XRF readings is included in **Appendix E**. Tables of Laboratory Results are included in **Appendix F** and copies of the Laboratory Reports are included in **Appendix G**.

Paddock Samples

There were no exceedances of 'residential 10% produce' SGVs in the paddock samples. Copper is elevated above expected background levels in the surface samples at 9 out of 12 sample locations. Cadmium is above expected background levels in two surface samples. Zinc is above expected background levels in one surface sample. All heavy metals were below expected background levels in the 250mm or deeper samples.

Traces of DDT were detected in one composite sample from the paddock area. The Total DDT concentration of 0.1mg/kg is below the accepted ambient concentration. All other OCP results for these samples were below the laboratory limit of detection.

Former Yard Area

The laboratory results show irregular arsenic contamination exceeding the 'residential 10% produce' SGV is present on the north-east end of the former yard area. The arsenic exceedances range from 22mg/kg to 192mg/kg and were generally higher at 250mm depth than in the surface soils.

One or more heavy metals are elevated above expected background levels across the former yard area. On the south-west end of the area the elevated heavy metals are limited to the surface soils. On the north-east end of this area heavy metals remain elevated above expected background levels at 250mm depth.

Traces of DDT were detected in one composite sample from this area. The Total DDT concentration of 0.1mg/kg is below the accepted ambient concentration. Traces of dieldrin were detected in two composite samples from this area. As arsenic is a common co-contaminant to dieldrin in dip areas, the two samples with the highest arsenic concentrations (SS23 and SS24) were analysed individually for OCPs. Dieldrin was detected at location SS24 at the surface and at 250mm depth. The dieldrin results to date are below the 'residential 10% produce' SGV of 2.6mg/kg.

Burn Areas

The XRF readings and laboratory results show one current and one former burn area exceed the 'residential 10% produce' SGV of 20mg/kg for arsenic. The arsenic concentration at current burn area BP6 is 26mg/kg. The arsenic concentration at former burn area BP9 is 73mg/kg.

11.3 Results of Field & Laboratory Quality Assurance and Quality Control

The Relative Percentage Differences (RPD) for each duplicate sample pair are shown in **Table 5** below. These are within acceptable ranges indicating no quality-control issues.

Table 5 – RPD results for duplicate samples

Duplicate Sample Pair	Relative Percentage Differences (RPD) Range
P5.1 & DUP1	0-15%
SS1.1 & DUP2	0-13%
SS13.1 & DUP3	0-11%
SS26.1 & DUP4	0-22%

All laboratory tested samples were submitted to Hill Laboratories for analysis. Hill Laboratories holds IANZ accreditation. As part of holding accreditation the laboratory follows appropriate testing and quality control procedures. No quality control issues were identified.

11.4 Results of XRF Quality Assurance and Quality Control

The quality assurance measures prescribed above were followed. Calibration checks and blank testing showed no quality control issues.

12 Quantified Risk Assessment

Soil sampling has identified irregular arsenic contamination exceeding the 'residential 10% produce' SGVs on the north-east end of the former yard area. The arsenic exceedances range from 22mg/kg to 192mg/kg and were generally higher at 250mm depth than in the surface soils. Elevated concentrations of dieldrin are also present. The results to date have not identified dieldrin concentrations exceeding the 'residential 10% produce' SGV, however given the presence of dieldrin it is likely that a dip or spray race was present in this area, and it is possible that higher levels of dieldrin exist beyond the sampled locations. The area has been broadly delineated by the sampling to date, the current estimated area measures approximately 2,500m^2.

Soil sampling has also identified a current burn area and one former burn area contaminated with arsenic above 'residential 10% produce' SGVs. The arsenic concentration at current burn area BP6 is 26mg/kg. The arsenic concentration at former burn area BP9 is 73mg/kg. Delineation of the contaminated areas has not yet been undertaken. The extent of each contaminated area has been estimated from the aerial photographs. It is noted that the current location of BP6 is slightly north-east of the burn area observed on the 2012 aerial. Although XRF testing of the surface soils did not detect any contamination in the original location, given the depression that is present for BP6 it is possible that buried contamination is present in this area. Therefore, this area has been included in the current estimated contaminated area of approximately 140m^2. The estimated contaminated area for BP9 measures approximately 32m^2.

The following conceptual site model assesses the risk posed by the identified contaminants:

Table 6 – Revised conceptual site model

Conceptual Site Model				
Source	**Pathways**		**Receptor**	**Risk Assessment**
Irregular arsenic contamination exceeding the 'residential 10% produce' SGV of 20mg/kg (arsenic concentrations of 22-192mg/kg) and possible dieldrin contamination in the former yard area. Arsenic contaminated	**Human**	Dermal contact, ingestion and inhalation	Future site occupiers / land users.	Moderate to high risk to human health in an uncontrolled residential use as results exceed the 'residential 10% produce' SGV.
			Workers involved in soil disturbance at the subject site.	Moderate risk to human health as some results exceed the commercial/outdoor worker SGV of 70mg/kg for arsenic. It is likely this risk can be managed by the implementation of an appropriate Site Management Plan.
	Ecological	Infiltration through soils to groundwater	Groundwater is assumed to be 12.8-14.85m deep	Low risk due to the depth to groundwater and all results were below EGVs.

burn areas with arsenic concentrations of 26-73mg/kg. No results exceed EGVs.			at the subject site.	
		Surface runoff to waterways	Water race on opposite side of Weedons Road	Low risk due to the separation distances and all results were below EGVs.

It is recommended that the former yard area and the contaminated burn areas be remediated prior to the change of use or development of each area. Before developing a Remediation Action Plan, further investigation should be undertaken within the former yard area to better define the contamination around the former dip area. Further investigation to delineate the extent of contamination around BP6 and BP9 could also be completed at this time. Alternatively, delineation of BP6 and BP9 could occur during remediation with the use of a portable XRF device.

13 Conclusion

This investigation identified potential sources of contamination on the subject site associated with confirmed or likely Hazardous Activities and Industries List (HAIL) activities, as follows:

- Possible former livestock dip/spray race (HAIL A8).
- Possible storage of persistent pesticides within a former yard area (HAIL A10).
- Potential use of persistent pesticides on a former apple orchard (HAIL A10).
- Potential heavy metal and/or asbestos contamination from former buildings within a former yard area (HAIL I).
- Potential heavy metal contamination within current and possible former burn areas (HAIL I).

Soil sampling was undertaken on the 02 December 2024. The soil sampling identified irregular arsenic contamination exceeding the 'residential 10% produce' SGV of 20mg/kg within the former yard area. Elevated concentrations of dieldrin are also present. The results to date have not identified dieldrin concentrations exceeding the 'residential 10% produce' SGV, however higher concentrations of dieldrin may exist beyond the sampled locations.

Soil sampling also identified arsenic contamination exceeding the 'residential 10% produce' SGV with the current burn area and one former burn area. The contaminated areas have not been delineated.

It is recommended that the former yard area and the contaminated burn areas be remediated prior to the change of use or development of each area. Before developing a Remediation Action Plan, further investigation should be undertaken within the former yard area to better define the dieldrin contamination around the former dip area. Further investigation to delineate the extent of contamination around BP6 and BP9 could also be completed at this time. Alternatively, delineation of BP6 and BP9 could occur during remediation with the use of a portable XRF device.

The remainder of the subject site is considered suitable for residential use with no further investigations required. It is noted that surface soils contain one or more heavy metals, mainly copper, above expected background levels at the majority of sample locations across the subject site which may impact disposal options for any excess soils requiring offsite disposal.

At the time of writing this report, the NESCS does apply to the subject site and consent will be required.

14 Limitations

Momentum Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Momentum Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Momentum Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

No part of this report may be reproduced, distributed, publicly displayed, or made into a derivative work without the permission of Momentum Environmental Ltd, other than the distribution in its entirety for the purposes it is intended.

Appendix A – Historical Certificates of Title

CANCELLED

Land and Deeds 69

No. 168/949

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 22.6624 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4296

DISTRICT LAND REGISTRAR CANTERBURY N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 14.12.1977 at 9.33 am.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

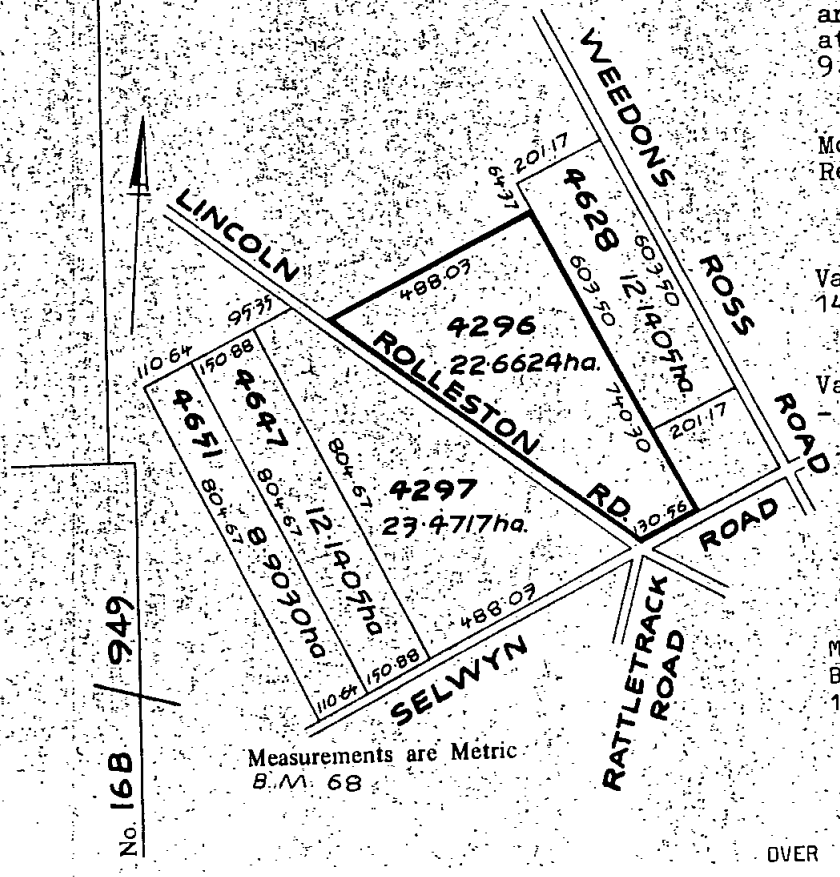
DISCHARGED

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11-12-1981 at 9.40 a.m.

DISCHARGED

for A.L.R.



Measurements are Metric
B.M. 68

No. 168/949

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority Making Mortgages 359857/1 and 116057/2 first and second Mortgages respectively - 11-12-1981 at 9.40a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

for A.LR.

PLAN No. 47504 LODGED 3/6/84
AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984
AND DEPOSITED 16/10/1984

Pursuant to Section 306 (3) of the Local Government Act 1974 Lot 19 Plan 47504 is vested in the Ellesmere County Council as Road

A.L.R.

No.502775/1 Compliance Certificate pursuant to Section 306 (1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

O.C.T.512483/2) 16.10.1984)

Cancelled and CsT.26F/951-953 issued for Lots 16-18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

Land and Deeds 69

No. 168 / 951

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 12.1405 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4628

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid, of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED 11.12.1981 A.L.R.

A.L.R.

Variation of Mortgage 116057/2 - 14.12.1977 at 9.33 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

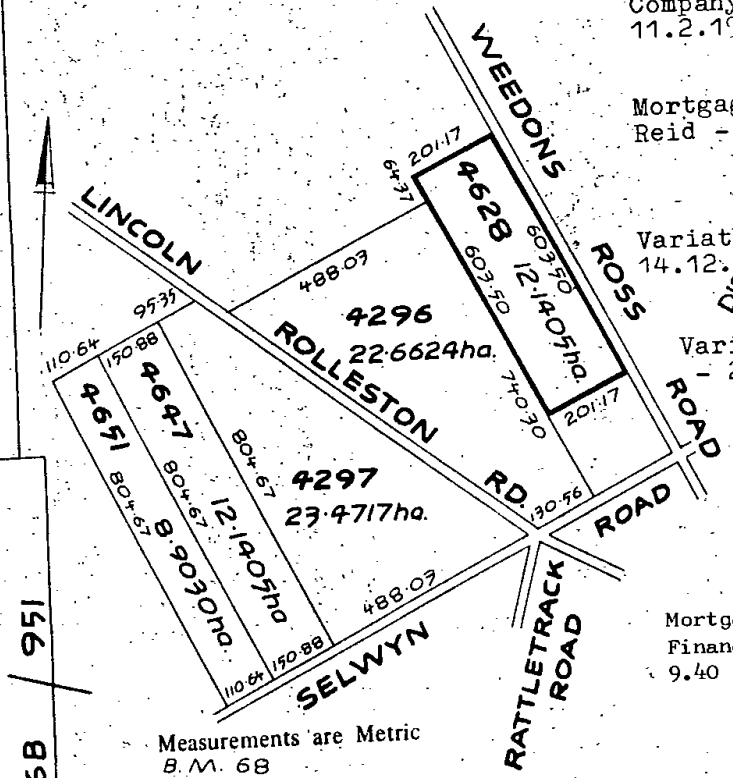
Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

DISCHARGED 11.12.1981

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11.12.1981 at 9.40 a.m.

for A.L.R.



Measurements are Metric
B.M. 68

No. 168 / 951

OVER...

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority making Mortgages 359857/1 and 116057/2 first and second mortgages respectively - 11.12.1981 at 9.40 a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

DISCHARGED

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

DISCHARGED

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.

DISCHARGED

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

DISCHARGED

for A.L.R.

PLAN No. 47504 LODGED 3/6/84

AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984

AND DEPOSITED 16/10/84

No.502775/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

OCT 512483/2) 16.10.1984) Cancelled and CsT.26F/952 and 953 issued for Lots 17 and 18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

Land and Deeds 69

No. 26F/953

References
Prior C/T 16B/949,951.

Transfer No.
N/C. Order No.512483/2

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 16th day of October one thousand nine hundred and eighty four under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares -

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 26.3260 hectares or thereabouts being Lot 18 Deposited Plan 47504 --

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

for Assistant Land Registrar

Subject to:

Mortgage 507081/5 to Raymond Sutton Solicitors Nominee Company Limited - 11.9.1984 at 11.45am.

DISCHARGED 23/7/1985

for A.L.R.

Mortgage 557632/2 to Templeton Nominee Company Limited - 23.7.1985 at 10.47am

A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47am.

A.L.R.

Plan 47839 deposited 22/10/1985

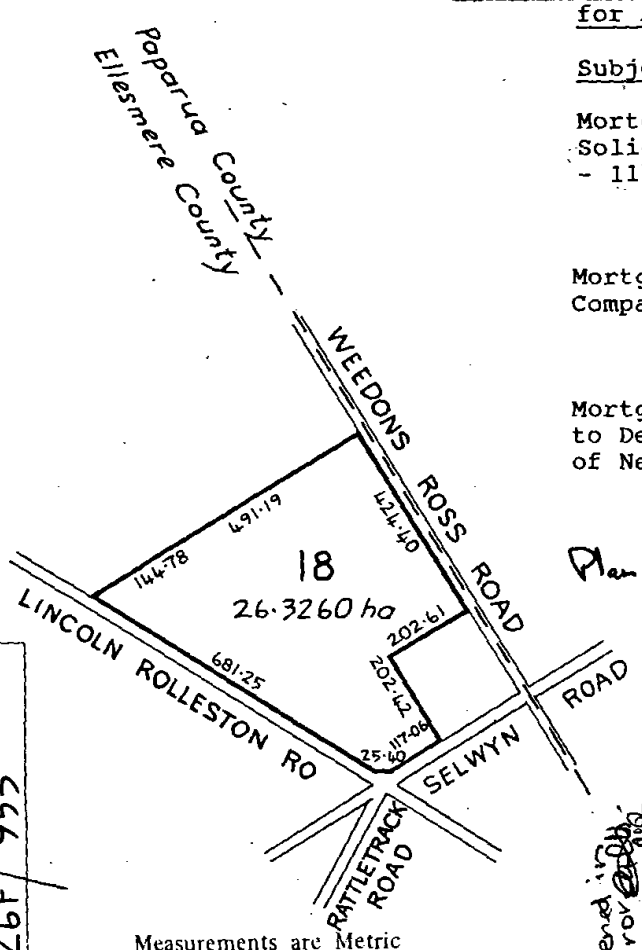
No.572825/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 22.10.1985 at 12.10p.m.

A.L.R.

~~No.572825/2 Resolution pursuant~~ to Section 321(3)(b) Local Government Act 1974 ~~in~~ respect of Lots 14 and 15 D.P.47839 - 22.10.1985 at 12.10p.m.

A.L.R.

extend road error



Measurements are Metric

No. 26F/953

OVER

OCT.572825/3) Cancelled and new
22.10.1985) CsT. issued for Lots
on D.P.47839 as follows:

1 & 1/11th share of 12,13,14,15 - 28A/416

2 & 1/11th share of 12,13,14,15 - 28A/417

3 & 1/11th share of 12,13,14,15 - 28A/418

4 & 1/11th share of 12,13,14,15 - 28A/419

5 & 1/11th share of 12,13,14,15 - 28A/420

6 & 1/11th share of 12,13,14,15 - 28A/421

7 & 1/11th share of 12,13,14,15 - 28A/422

8 & 1/11th share of 12,13,14,15 - 28A/423

9 & 1/11th share of 12,13,14,15 - 28A/424

10 & 1/11th share of 12,13,14,15 - 28A/425

11 & 1/11th share of 12,13,14,15 - 28A/426

A.L.R.

CANCELLED - DUPLICATE DESTROYED

CANCELLED

References
Prior C/T 26F/952,953

Transfer No.
N/C. Order No. 572825/3

CANCELLED

Land and Deeds 69

REGISTER

No. 28A/421

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

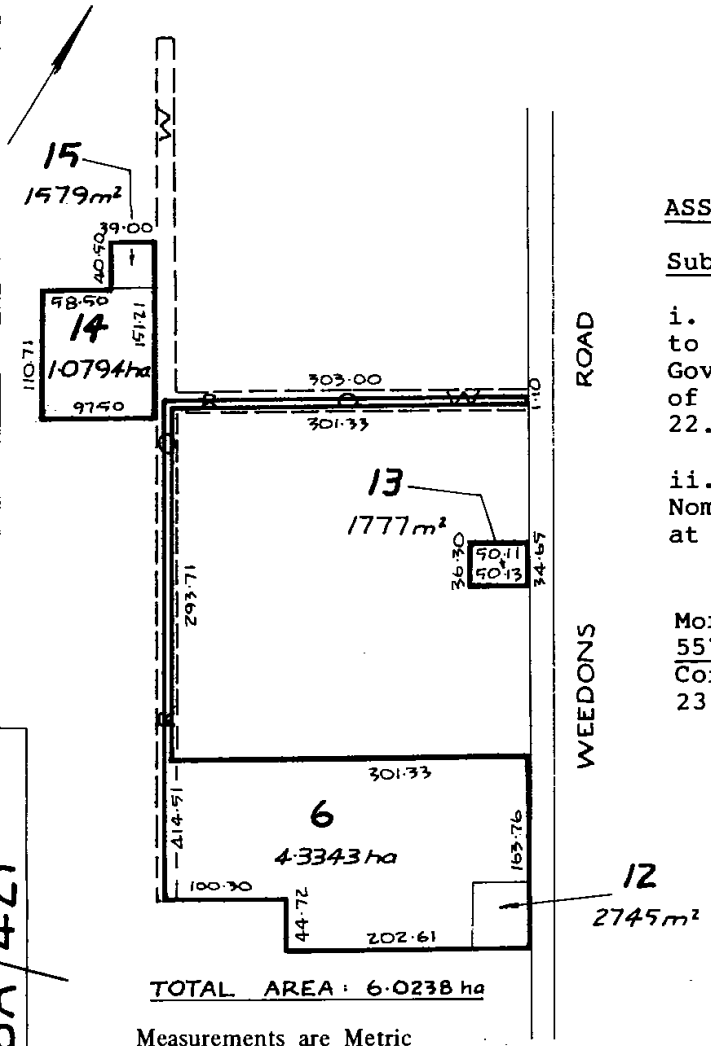
This Certificate dated the 22nd day of October one thousand nine hundred and eighty-five under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares are ------

FIRSTLY

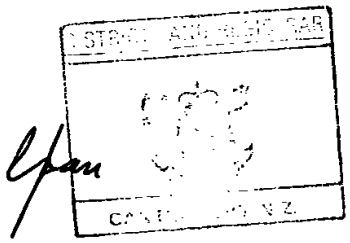
~~is~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3343 hectares or thereabouts being Lot 6 on Deposited Plan 47839 AND SECONDLY an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.6895 hectares or thereabouts being Lots 12,13 14 and 15 on Deposited Plan 47839 ——

Ellesmere County



TOTAL AREA: 6·0238 ha

Measurements are Metric



ASSISTANT LAND REGISTRAR

Subject to:

i. No. 572825/2 Resolution pursuant to Section 321 (3)(b) Local Government Act 1974 in respect of Lots 14 and 15 herein - 22.10.1985 at 12.10 p.m.

ii. Mortgage 557632/2 to Temple Nominee Company Limited - 22.10.1985 at 10.47 a.m.

DISCHARGED 29 APR 1986 A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47 a.m.

DISCHARGED 29 APR 1986 A.L.R.

A.L.R.

OVER...

No. 28A/421

CERTIFICATE OF TITLE No. 28A / 421

No. 572825/4 Easement Certificate specifying intended easements on DP 47839

Nature	Servient Tenement	Dominant Tenement
Right of Way Right to drain water and sewage, right to convey electric power telephonic communications and water	6I(herein)	1-5,7-11, 14,15 (28A/416-420,422-426)
" "	1C,2B,3A, 4K,5J,7H, 8G,9F,10E, 11D	6,14 & 15

- 22.10.1985 at 12.10 p.m.

A.L.R.

The easements specified in Easement Certificate 572825/4 above, when created, will be subject to Section 309 (1)(a) Local Government Act 1974

A.L.R.

Transfer 572825/10 to Export Apples Limited at Christchurch - 22.10.1985 at 12.10p.m.

A.L.R.

CAVEAT 572825/16 BY ELLESMERE COUNTY COUNCIL - 22.10.1985 at 12.10p.m.

WITHDRAWN

A.L.R.

Mortgage 599926/24 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992

for A.L.R.

Mortgage 599926/25 of Mortgage 599926/24 to Development Finance Corporation of New Zealand - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1992

for A.L.R.

Mortgage 599926/26 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 5/8/1992

for A.L.R.

Mortgage 599926/27 of Mortgage 599926/26 to The National Bank of New Zealand Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 5/8/1992

for A.L.R.

Mortgage A2556/3 to ASB Bank Limited - 3.7.1992 at 11.35am

A.L.R.

OCT A57248/1&/7 - Cancelled and NCT 37B/612, 37B/606 issued for Lot 12 DP 47839 and the balance herein respectively 22.6.1993

A.L.R.

CANCELLED DUPLICATE DESTROYED

9577E—50.000/12/83MK

References
Prior C/T 28A/421

Transfer No.
N/C. Order No. A57248/7

Land and Deeds 69

REGISTER

CANCELLED

No. 37B/606

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of June one thousand nine hundred and ninety three *under the seal of the District Land Registrar of the Land Registration District of* CANTERBURY

WITNESSETH that EXPORT APPLES LIMITED at Christchurch ---

Firstly
is seised ~~of an estate~~ in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3343 hectares or thereabouts being Lot 6 Deposited Plan 47839 and Secondly an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.4150 hectares or thereabouts being Lots 13,14 and 15 Deposited Plan 47839

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR

Lots 14 and 15 DP 47839 are subject to:

Certificate 572825/2 pursuant to Section 321(3)(b) Local Government Act 1974 - 22.10.1985 at 12.10pm

Subject to:

Right of Way marked I on DP 47839, right to drain water and sewage, right to convey water, electric power and telephonic communications over part herein appurtenant to Lots 1-5,7-11,14&15 on DP 47839 (37A/601-605,607-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

Mortgage A2556/3 to ANZ Bank Limited - 3.7.1992 at 11.05am

DISCHARGED for RGL

Appurtenant hereto:

Rights of Way marked C,B,A,K,J,H,G,F,E&D respectively on DP 47839, rights to drain water and sewage and rights to convey electric power, telephonic communications and water over part Lots 1-5, 7-11 DP 47839 (37B/601-605,607-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

A.L.R.

The within land has the benefit of a land covenant over Lot 12 DP 47839 (37B/612) contained in Transfer A69509/13 - 6.9.1993 at 11.13am

for A.L.R.

Mortgage A277254/6 to The Trustees Executors and Agency Company of New Zealand Limited

DISCHARGED for A.L.R.

No. A277254/11 Memorandum of Priority making Mortgages A277254/6 and A2556/3 first and second mortgages respectively

both on 14.1.1997 at 2.41pm

for A.L.R.

A414880.23 Transfer to Northwest Farm Limited

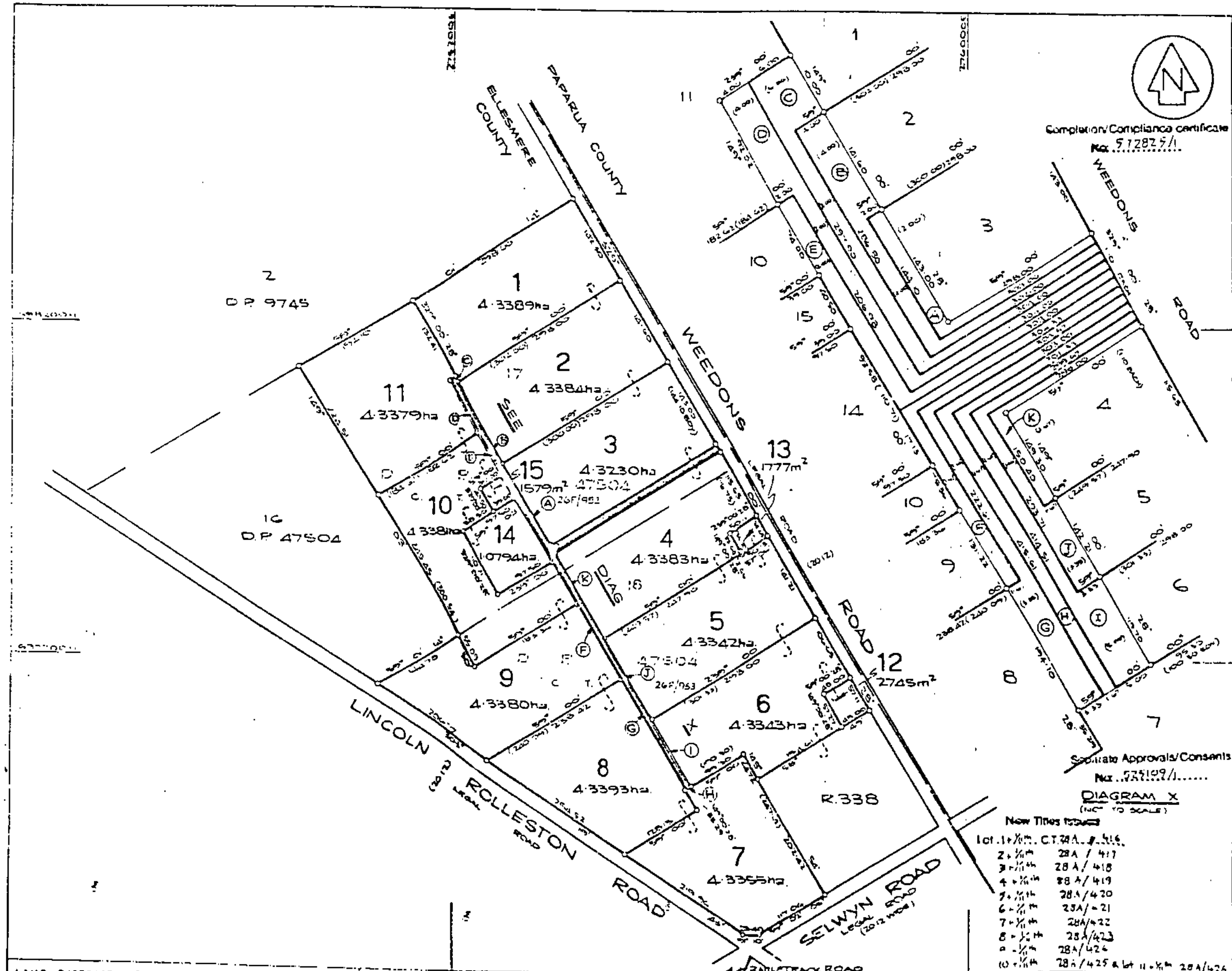
A414880.24 Mortgage to Bank of New Zealand

all 9.7.1999 at 12.34

for RGL

Measurements are Metric

No. 37B/606



APPROVED

Registered Proprietor

NOTE: LOTS 14 & 15 HAVE NO FRONTAGE TO A PUBLIC ROAD.

Pursuant to a resolution under Section 305 Local Government Act 1974 dated 19th day of November 1984 the Ellesmere County Council has approved this plan of subdivision conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifies that the plan is in accordance with the requirements and provisions of the operative district scheme. The common seal of the Ellesmere County Council was affixed hereto in the presence of

Chairman

County Clerk

Total Area 49·8854ha.

Comprised in C.T. 26F/952 & C.T. 26F/953.

I BRIAN ROBERT FOOTE, CHRISTCHURCH Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction, that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1986.

Dated at CHRISTCHURCH this 24th day of Sept 1984 Signature B.R. Foote

New Titles Issued

Lot 1 + 1/15th C.T. 28A/416, 2 + 1/15th 28A/417, 3 + 1/15th 28A/418, 4 + 1/15th 28A/419, 5 + 1/15th 28A/420, 6 + 1/15th 28A/421, 7 + 1/15th 28A/422, 8 + 1/15th 28A/423, 9 + 1/15th 28A/424, 10 + 1/15th 28A/425 & lot 11 + 1/15th 28A/426

Field Book / Traverse Book

Reference Plans DP 9745, 29991, 47504

Examined / Correct

Approved as to Survey

15 1 85 Chief Surveyor

Deposited this 22nd day of October 1985

District Land Registrar

LAND DISTRICT CANTERBURY
SURVEY BLK.& DIST. IV LEESTON
NZMS 261 SHEET No. M36 - 10000/3.1

LOTS 1–15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504

TERRITORIAL AUTHORITY ELLESMERE COUNTY
Surveyed by McClelland, Brentnall & Associates
Scale 1:4000 Date JULY 1984

DP47839

37B/606

A436549.1 CT 47C/33 issued for Lot 13 DP 47839 & CT 47C/35 & 39 issued for Lots 6, 14 & 15 DP 47839 - 2.12.1999 at 1.57

For RGL

CANCELLED
DUPLICATE DESTROYED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB47C/35**

Land Registration District **Canterbury**

Date Issued 02 December 1999

Prior References
CB37B/606

Estate Fee Simple

Area 4.3343 hectares more or less

Legal Description Lot 6 Deposited Plan 47839

Original Registered Owners
Northwest Farm Limited

Interests

572825.4 Easement Certificate specifying the following easements - 22.10.1985 at 12.10 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 1 Deposited Plan 47839	C DP 47839	Lot 6 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839	B DP 47839	Lot 6 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839	A DP 47839	Lot 6 Deposited Plan 47839 - herein	

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 4 Deposited Plan 47839	K DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839	J DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 7 Deposited Plan 47839	H DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 8 Deposited Plan 47839	G DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 9 Deposited Plan 47839	F DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 10 Deposited Plan 47839	E DP 47839	Lot 6 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 11 Deposited Plan 47839	D DP 47839	Lot 6 Deposited Plan 47839 - herein

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 1 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 2 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 3 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 4 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 5 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 7 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 8 Deposited Plan 47839

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 9 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 10 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 11 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 14 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839 - herein	I DP 47839	Lot 15 Deposited Plan 47839

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Land Covenant in Transfer A69509.13 - 6.9.1993 at 11.13 am

Land Covenant in Transfer A436549.2 - 2.12.1999 at 1.57 pm

5306321.1 Transfer to Cornelis Schaap (1/2 share) and Vicki Anne Schaap (1/2 share) - 6.8.2002 at 12:56 pm

5306321.2 Mortgage to Bank of New Zealand - 6.8.2002 at 12:56 pm

5566683.1 Discharge of Mortgage 5306321.2 - 29.4.2003 at 9:00 am

5566683.2 Mortgage to ASB Bank Limited - 29.4.2003 at 9:00 am

7190864.1 Discharge of Mortgage 5566683.2 - 16.1.2007 at 9:00 am

7190864.2 Transfer to Paul Alexander Goodwin (1/2 share) and Tessa Jacqueline Mocatta (1/2 share) - 16.1.2007 at 9:00 am

7190864.3 Mortgage to Pioneer First Limited - 16.1.2007 at 9:00 am

7902979.1 Discharge of Mortgage 7190864.3 - 8.8.2008 at 3:51 pm

7902979.2 Transfer to Paul Alexander Goodwin, Tessa Jacqueline Mocatta and Templetons Trustees Limited (1/2 share) and Tessa Jacqueline Mocatta, Paul Alexander Goodwin and Templetons Trustees Limited (1/2 share) - 8.8.2008 at 3:51 pm

7906240.1 Mortgage to Public Trust - 13.8.2008 at 9:00 am

8576823.1 Discharge of Mortgage 7906240.1 - 1.9.2010 at 2:51 pm

8576823.2 Transfer to Paul Alexander Goodwin, Tessa Jacqueline Mocatta and Landley Trustees Limited (1/2 share) and Tessa Jacqueline Mocatta, Paul Alexander Goodwin and Landley Trustees Limited (1/2 share) - 1.9.2010 at 2:51 pm

8576823.3 Mortgage to Westpac New Zealand Limited - 1.9.2010 at 2:51 pm

10844087.1 Discharge of Mortgage 8576823.3 - 13.7.2017 at 3:02 pm

10844087.2 Mortgage to Kiwibank Limited - 13.7.2017 at 3:02 pm

13055587.1 Revocation of Land Covenant created by Transfer A436549.2 - 30.10.2024 at 2:29 pm

LT69

Reference:
Prior CT: 37B/606
Document No.: A436549.1

REGISTER

47C/35

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952

This Certificate dated the 2nd day of December One Thousand Nine Hundred and Ninety Nine under the seal of the Registrar-General of Land, New Zealand, for the Land Registration District of CANTERBURY

WITNESSETH that **NORTHWEST FARM LIMITED**

is seised of an estate in **fee simple** (subject to such reservations, restrictions, encumbrances and interests as are notified by memorial endorsed hereon) in the land hereinafter described, delineated on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3343 hectares, more or less being **LOT 6 DEPOSITED PLAN 47839**

REGISTRAR-GENERAL OF LAND NEW ZEALAND

For the Registrar-General of Land

Appurtenant hereto is a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part Lots 1-5, 7-11 marked C, B, A, K, J, H, G, F, E & D respectively on DP 47839 CsT 47C/30-34, 36-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Subject to a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part herein marked I on DP 47839 appurtenant to Lots 1-5,7-11, 14 & 15 DP 47839 CsT 47C/30-34, 36-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

All 22.10.1985 at 12.10

Land covenant in Transfer A69509.13 - 6.9.1993 at 11.13

A414880.24 Mortgage to Bank of New Zealand - 9.7.1999 at 12.34 DISCHARGED 3.1.13 for RGL

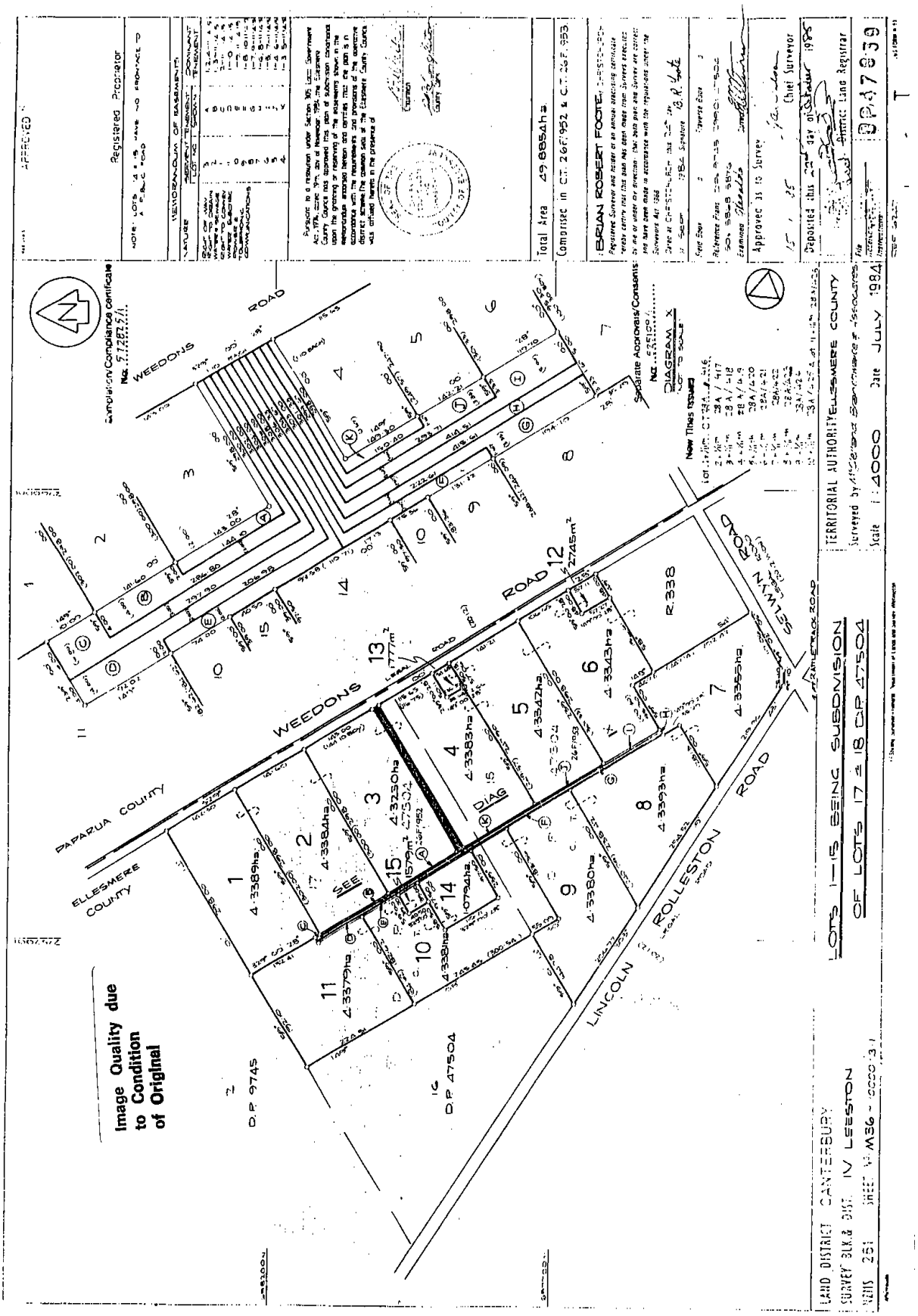
A436549.2 Transfer to Northwest Farm Limited

Land covenant in Transfer A436549.2

All 2.12.1999 at 1.57

For RGL

47C/35


APPROVED
Registered Proprietor
MEMORANDUM OF EASEMENTS
NATURE
Total Area 49.8854ha
Comprise in CT. 26F/952 & CT. 26F/953
BRIAN ROBERT FOOTE
Approved as to Survey
Chief Surveyor
Deposited this 2nd day of October 1984
DP 47239
Compliance/Compliance certificate
No. 512875/1
Separate Approvals/Consents
No. 65512/1
DIAGRAM X
Now Titles Issued
WEEDONS ROAD
ROLLESTON ROAD
LINCOLN ROAD
PAPAKUA COUNTY
ELLESMERE COUNTY
LOTS 1-15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504
TERRITORIAL AUTHORITY ELLESMERE COUNTY
Surveyed by Aerial Surveys Canterbury Associates
Scale 1:4000 Date JULY 1984
LAND DISTRICT CANTERBURY
SURVEY BLK & DIST IV LEESTON
SHEET No M36 - 6000
DP 9745
DP 47504
Image Quality due to Condition of Original

[Form B.

174/27

NEW ZEALAND.

Reference: Vol. 2/3, folio 69/112 Substituted ~~Transfer No.~~ Application No 8074.

Register-book, Vol. 174 folio 27

(3,000/10/96—5008

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

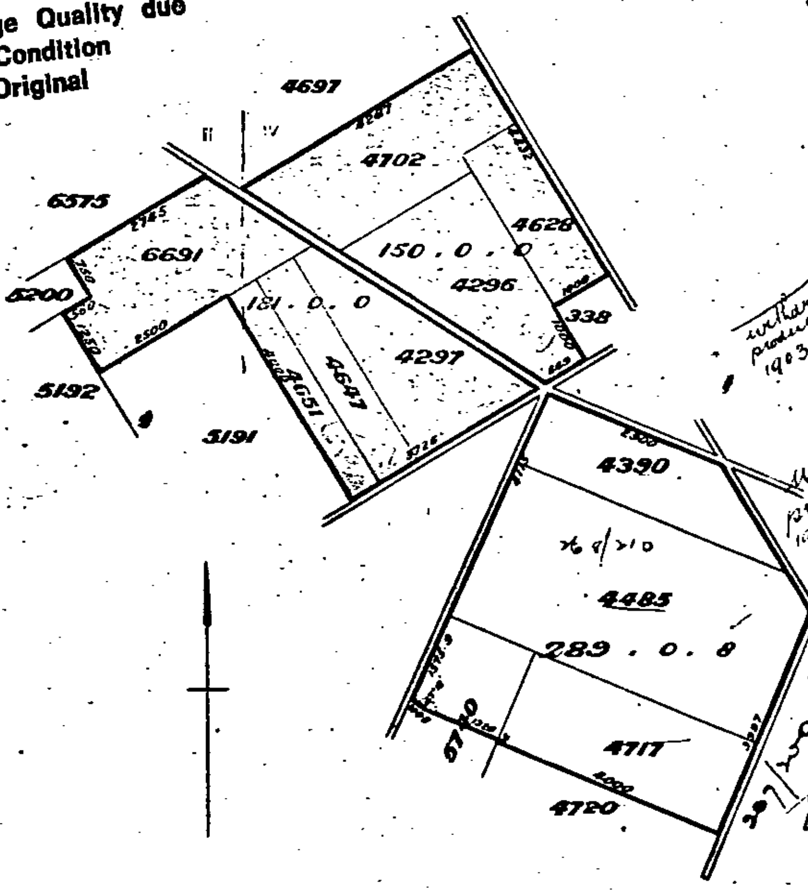
This Certificate, dated the third day of August, one thousand eight hundred and ninety-seven, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury **Witnesseth** that George Troll of Springston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All those parcels of land containing together six hundred and twenty acres and eight perches or thereabouts situated in Block IV of the Leeston Survey District comprising Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651. 4702. 4717 and 6691 and part of Rural Section 5740.

G. G. Bridges
District Land Registrar

CANCELLED
AS TO PART COLOURED RED.

Image Quality due to Condition of Original



Scale: 20 chains to an inch

Outstanding Mortgage Registered No 91547 George Troll to George Henry Moore affecting Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651. and 4702 and part of 5740.
DISCHARGED 26.5.1903. D.L.R. G. G. Bridges D.L.R.

Mortgage 37606 produced 4th June 1897 at 2.45 pm George Troll to George Henry [DISCHARGED 26.5.1903 D.L.R.] Sections 4717 and 6691. G. G. Bridges D.L.R.

Withdrawn produced 1903 ~~X 7776 produced 26 August 1898 at 2.30 pm against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691.~~
[illegible] D.L.R.

Withdrawn produced 1903 ~~X 12237 produced 31 May 1900 at 2 pm against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691.~~
[illegible] D.L.R.

Mortgage 51269 produced 21 May 1903 at 2 pm George Troll to Annie Quayle Townend [illegible] G. G. Bridges D.L.R.

Transfer 59776 produced 21 May 1903 at 2 pm George Troll to William McMeckan of Rural Sections 4296. 4297. 4628. 4647. 4651. 4702 and 6691. G. G. Bridges D.L.R.

ACC

174/27

174/27

174/27

Mortgage 20059 produced 5 March 1911 at 1.56 p.m. George Trott to Arthur Edgar Gravenor Rhode and Arthur Llewellyn Rhode and John Matthias Barker and Robert Peter Rhodes and Robert Heaton Rhodes and Arthur Edgar Gravenor Rhode. [illegible] at D.L.R.

Mortgage 20060 produced 15 March 1911 at 1.51 p.m. George Trott to Arthur Edgar Gravenor Rhodes. [illegible] at D.L.R.

2 105/310

Transfer 9775 produced 10 October 1911 at 3 p.m. George Trott to David Marshall of Ballarat [illegible] [illegible]

Cancelled

CERTIFICATE OF TITLE,

Vol. , folio

174/27

207/200

NEW ZEALAND.

CANCELLED

[Form B.

References: Vol. 174, folio 27
Transfer No. 59776

Register-book,
Vol. 207, folio 200

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

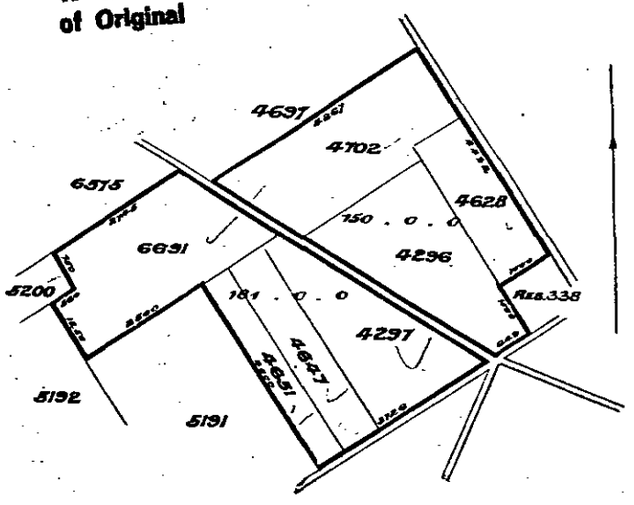
This Certificate, dated the twenty-sixth day of May, one thousand nine hundred and three, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, Witnesseth that

William McHeckan of Springston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All those parcels of land containing together three hundred and thirty one acres a thereabouts situated in Block IV of the Leeston Survey District comprising Rural sections 4296 4297 4628 4651 4702 and 6691

District Land Registrar

Image Quality due to Condition of Original



Scale, 20 chains to an inch.

Mortgage 5126 produced 26 May 1903 at 2pm George Trott to Annie Quick DISCHARGED 31/5/1907 W. Rhodes L.R.

Mortgage 5134 produced 26 May 1903 at 2pm William McHeckan to Joseph Gould and George Gould DISCHARGED 27-3-1907 W. Rhodes L.R.

Transfer 74002 produced 27th March 1907 at 2.52 pm William McHeckan to Ellen Page of Christchurch Spinster

Mortgage 6463 produced 31 May 1907 at 10 am Ellen Page to Annie Quick DISCHARGED

Certificate of Marriage 118 of Ellen Page with Andrew Badcock of Springston Farmer at Christchurch on 19th June 1907 produced 6 August 1907 at 2.45 pm

Transfer of 4t 2a 37p produced 6 July 1909 at 11.31 am Ellen Badcock to Walter Wright of Springston Farmer

Mortgage 8572 produced 17th May 1912 at 3.15 pm Walter Wright to Annie DISCHARGED

Transmission 9617 of Mortgage 8572 to Alfred Arnaud Morris McKellar, Cecil George McKellar, Norman Lindsay Macbeth and Frederick Henry Pyne. Entered 22nd March, 1915 at 11.49 am DISCHARGED L.R.

207/200

207/200

Transmission 12233 of Mortgage 85724 to the above named Alfred Arnaud Norris McKellar, Cecil George McKellar and Norman Lindsay Macbeth. Entered 21 December, 1915, at 10 am. DISCHARGED

Extension of Mortgage 85724 and Increase of Rate of Interest produced 21st Dec 1917 at 11.54 am. DISCHARGED

Transmission No 14451 of Mortgage No 85724 to Cecil George McKellar and Norman Lindsay McKellar Entered 29/6/22 at 12 o'c DISCHARGED

Transfer 14698.2 produced 1st July 1922 at 11.20 am Walter Wright to William Henry Peter Bowden of Springston farmer

Variation of the terms of Mortgage 85724 produced 27th Sept 1929 at 11.25 am DISCHARGED

Variation of the terms of Mortgage 85724 produced 30 June 1930 at 3 pm DISCHARGED

Transmission 23046 of Mortgage 85724 to Cecil George McKellar entered 3 November 1931 at 3 pm DISCHARGED

Transfer 200583 of Mortgage 85724 Cecil George McKellar to Frank Sturman Wilding and Cecil George McKellar produced 3 December 1931 at 3 pm DISCHARGED

Transfer 204594 produced 19th June 1933 at 11.56 am William Henry Peter Bowden to Duncan Gillanders of Springston Farmer

Mortgage 184635 produced 19 June 1933 at 11.56 am Duncan Gillanders to Godfrey Rosamond Macfarlane Wilson

Mortgage 184636 produced 19 June 1933 at 11.57 am Duncan Gillanders to William Henry Peter Bowden DISCHARGED

Mortgage 184637 produced 19 June 1933 at 11.58 am Duncan Gillanders to Donald Gillanders DISCHARGED

Mortgage 198705 produced 16th June 1938 at 2.20 pm Gillanders to Godfrey Rosamond Macfarlane Wilson and Douglas Rockell Hawkins and Edmund Wellesley Reeves as shares DISCHARGED

Mortgage 198706 produced 16th June 1938 at 2.21 pm Duncan Gillanders to Donald Gillanders DISCHARGED

Transfer 265888 produced 22 December 1945 at 11.49 am Duncan Gillanders to Thomas Reid a member of H.M. Armed Forces DISCHARGED

Mortgage 253001 produced 16 November 1945 at 11.51 am Duncan Gillanders to The State Advances Corporation of New Zealand DISCHARGED

Transfer Douglas Rockell Hawkins and Ernest Everest England to Ida Estella Edwards produced 24th October 1953 at 11.27 am

Error in

THIS REPRODUCTION (ON A REDUCED SCALE) IS CERTIFIED TO BE A TRUE COPY OF THE [illegible] FOR THE PURPOSES OF [illegible] TRANSFER ACT 1952.

A.L.R.

OCT 77158/1) Cancelled and
26.4.1976) C.T.'s 16B/949-
) 955 issued for
) R.S.'s 4296, 4297,
) 4628, 4647, 4651
) 4702 and 6691

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CERTIFICATE OF TITLE,

Vol. , folio

207/200

Appendix B – LLUR Statement

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry from our Listed Land Use Register (LLUR). The LLUR holds information about sites that have been used or are currently used for activities which have the potential to cause contamination.

The LLUR statement shows the land parcel(s) you enquired about and provides information regarding any potential LLUR sites within a specified radius.

Please note that if a property is not currently registered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR database is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; additional relevant information may be held in other files (for example consent and enforcement files).

Please contact Environment Canterbury if you wish to discuss the contents of this property statement.

Yours sincerely

Contaminated Sites Team

Property Statement
from the Listed Land Use Register

Visit ecan.govt.nz/HAIL for more information or
contact Customer Services at ecan.govt.nz/contact/ and quote ENQ398455

Date generated: 26 November 2024
Land parcels: Lot 6 DP 47839

The information presented in this map is specific to the area within a 100m radius of property you have selected. Information on properties outside the serach radius may not be shown on this map, even if the property is visible.

Sites at a glance

Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
118904	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd	A10 - Persistent pesticide bulk storage or use;	Not Investigated

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry only.

Nearby sites

Site number	Name	Location	HAIL activity(s)	Category
82092	SN82092 - Reids Pit, Selwyn Road, Rolleston, Selwyn	SN82092 - Reids Pit, Selwyn Road, Rolleston, Selwyn	G5 - Waste disposal to land;	Partially Investigated
235788	6/487 Weedons Road, Rolleston	6/487 Weedons Road, Rolleston	A10 - Persistent pesticide bulk storage or use;	Yet to be reviewed

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 100m buffer.

More detail about the sites

Site 82092: SN82092 - Reids Pit, Selwyn Road, Rolleston, Selwyn (Within 100m of enquiry area.)

Category: Partially Investigated
Definition: Verified HAIL has been partially investigated.

Location: SN82092 - Reids Pit, Selwyn Road, Rolleston, Selwyn
Legal description(s): RES 338

HAIL activity(s):

Period from	Period to	HAIL activity
?	?	Waste disposal to land (excluding where biosolids have been used as soil conditioners)

Notes:

Investigations:

INV 225297 **Soil Contamination Risk, Preliminary Site Investigation Report, Reids Pit, 452 Selwyn Road, Rolleston**
Malloch Environmental Ltd - Preliminary Site Investigation
15 Aug 2014

INV 233400 **Soil Contamination Risk, Detailed Site Investigation Report, Reids Pit, 452 Selwyn Road, Rolleston**
Malloch Environmental Ltd - Detailed Site Investigation
4 Mar 2019

Summary of investigation(s):

Site history: According to former site operators, 452 Selwyn Road, Rolleston (Reids Pit, the site) was used for gravel extraction from the late 1970s until the early 2000s. Following this, the site was used as a Selwyn District Council hardfill dumping site with limited general rubbish dumping. Selwyn District Council are proposing to import significant quantities of cleanfill and topsoil into the site with the aim of creating a recreational reserve.

INV225297 - Soil Contamination Risk, Preliminary Site Investigation - Reids Pit, 452 Selwyn Road, Rolleston - Malloch Environmental 2014

Malloch Environmental (Malloch) were engaged to complete a preliminary site investigation (PSI) for Selwyn District Council to assess the potential for soil contamination at Reids Pit. The PSI included assessment of nearby bores, district and regional council records, historic aerial photographs, interviews with former council staff and a site visit. The consultant identified the potential for soil contamination due to landfill activities and suggested a detailed site investigation (DSI) be completed to assess the risk to human health.

INV233400 - Soil Contamination Risk, Detailed Site Investigation Report - Reids Pit, 452 Selwyn Road, Rolleston - Malloch Environmental 2019

Malloch completed a DSI report to outline the results of limited soil sampling completed in 2014. Ten test pits were excavated to 500 mm below ground level (bgl). Soil samples were collected from 100 mm and 500 mm bgl and composited to form five composite samples of four sub-samples. Composite samples were analysed for trace elements (arsenic, cadmium, chromium, copper, lead, nickel and zinc) and organochlorine pesticides. One of the composite samples was also analysed for polycyclic aromatic hydrocarbons (PAHs). Results were compared with National Environmental Standard (NES) Soil Contaminant Standards for recreational land use.

Results: Fill material encountered was predominantly hardfill and imported soil with minor traces of wood bark and road chip. Trace element results were all below local background concentrations and organochlorine pesticides were below adopted ambient concentrations. PAHs were below recreational standards.

Conclusions: The site has been categorised as partially investigated.

Justification: An insufficient number of soil samples have been collected to fully characterise the fill material onsite.

Site 118904: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd (Intersects enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 10/487, 11/487 Weedons Rd
Legal description(s): Lot 1 DP 427521,Lot 1 DP 47839,Lot 10 DP 47839,Lot 11 DP 47839,Lot 14 DP 47839,Lot 15 DP 47839,Lot 2 DP 427521,Lot 2 DP 47839,Lot 3 DP 47839,Lot 4 DP 47839,Lot 5 DP 47839,Lot 6 DP

47839,Lot 8 DP 47839,Lot 9 DP 47839,Part Lot 7 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

5 Nov 2014 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

5 Nov 2014 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 383544 **Soil Contamination Risk Detailed Site Investigation Report & Remediation Action Plan 148, 156, 178 Lincoln Rolleston Rd & 6/487 Weedons Rd, Rolleston**
Momentum Environmental Limited - Detailed Site Investigation
26 Mar 2024

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Site 235788: 6/487 Weedons Road, Rolleston (Within 100m of enquiry area.)

Category: Yet to be reviewed
Definition: Investigation reports have been received for this site, but we have not yet reviewed them.

Location: 6/487 Weedons Road, Rolleston
Legal description(s): Lot 10 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

7 Jun 2019 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

7 Jun 2019 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 235786 **Detailed Site Investigation - 6/487 Weedons Road, Rolleston**
Pattle Delamore Partners Ltd - Detailed Site Investigation
4 Jun 2019

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Nearby investigations of interest

There are no investigations associated with the area of enquiry.

Disclaimer

The enclosed information is derived from Environment Canterbury’s Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Listed Land Use Register

What you need to know

Everything is connected

What is the Listed Land Use Register (LLUR)?

The LLUR is a database that Environment Canterbury uses to manage information about land that is, or has been, associated with the use, storage or disposal of hazardous substances.

Why do we need the LLUR?

Some activities and industries are hazardous and can potentially contaminate land or water. We need the LLUR to help us manage information about land which could pose a risk to your health and the environment because of its current or former land use.

Section 30 of the Resource Management Act (RMA, 1991) requires Environment Canterbury to investigate, identify and monitor contaminated land. To do this we follow national guidelines and use the LLUR to help us manage the information.

The information we collect also helps your local district or city council to fulfil its functions under the RMA. One of these is implementing the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil, which came into effect on 1 January 2012.

For information on the NES, contact your city or district council.

How does Environment Canterbury identify sites to be included on the LLUR?

We identify sites to be included on the LLUR based on a list of land uses produced by the Ministry for the Environment (MfE). This is called the Hazardous Activities and Industries List (HAIL)[1]. The HAIL has 53 different activities, and includes land uses such as fuel storage sites, orchards, timber treatment yards, landfills, sheep dips and any other activities where hazardous substances could cause land and water contamination.

We have two main ways of identifying HAIL sites:

- We are actively identifying sites in each district using historic records and aerial photographs. This project started in 2008 and is ongoing.
- We also receive information from other sources, such as environmental site investigation reports submitted to us as a requirement of the Regional Plan, and in resource consent applications.

[1] The Hazardous Activities and Industries List (HAIL) can be downloaded from MfE's website www.mfe.govt.nz, keyword search HAIL

How does Environment Canterbury classify sites on the LLUR?

Where we have identified a HAIL land use, we review all the available information, which may include investigation reports if we have them. We then assign the site a category on the LLUR. The category is intended to best describe what we know about the land use and potential contamination at the site and is signed off by a senior staff member.

Please refer to the Site Categories and Definitions factsheet for further information.

What does Environment Canterbury do with the information on the LLUR?

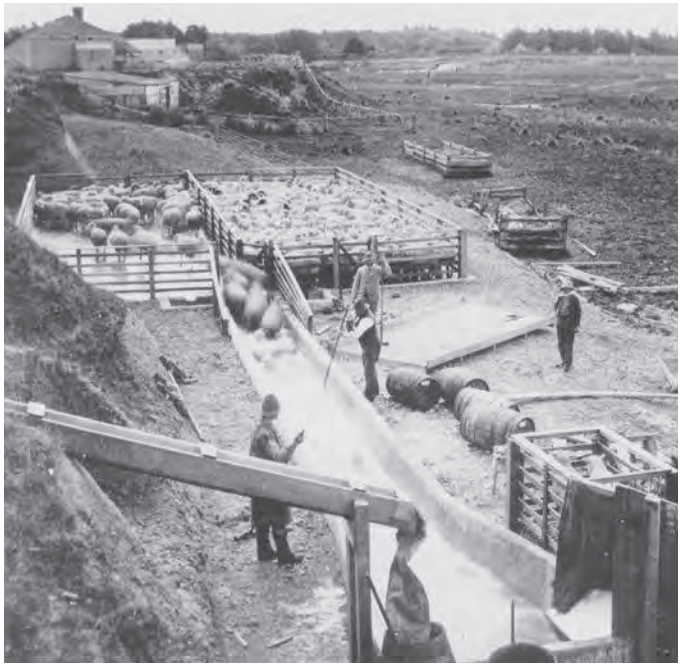
The LLUR is available online at www.llur.ecan.govt.nz. We mainly receive enquiries from potential property buyers and environmental consultants or engineers working on sites. An inquirer would typically receive a summary of any information we hold, including the category assigned to the site and a list of any investigation reports.

We may also use the information to prioritise sites for further investigation, remediation and management, to aid with planning, and to help assess resource consent applications. These are some of our other responsibilities under the RMA.

If you are conducting an environmental investigation or removing an underground storage tank at your property, you will need to comply with the rules in the Regional Plan and send us a copy of the report. This means we can keep our records accurate and up-to-date, and we can assign your property an appropriate category on the LLUR. To find out more, visit www.ecan.govt.nz/HAIL.

IMPORTANT!

The LLUR is an online database which we are continually updating. A property may not currently be registered on the LLUR, but this does not necessarily mean that it hasn't had a HAIL use in the past.



Sheep dipping (ABOVE) and gas works (TOP) are among the former land uses that have been identified as potentially hazardous. (Photo above by Wheeler & Son in 1987, courtesy of Canterbury Museum.)

My land is on the LLUR – what should I do now?

IMPORTANT! Just because your property has a land use that is deemed hazardous or is on the LLUR, it doesn't necessarily mean it's contaminated. The only way to know if land is contaminated is by carrying out a detailed site investigation, which involves collecting and testing soil samples.

You do not need to do anything if your land is on the LLUR and you have no plans to alter it in any way. It is important that you let a tenant or buyer know your land is on the Listed Land Use Register if you intend to rent or sell your property. If you are not sure what you need to tell the other party, you should seek legal advice.

You may choose to have your property further investigated for your own peace of mind, or because you want to do one of the activities covered by the National Environmental Standard for Assessing and Managing Contaminants in Soil. Your district or city council will provide further information.

If you wish to engage a suitably qualified experienced practitioner to undertake a detailed site investigation, there are criteria for choosing a practitioner on www.ecan.govt.nz/HAIL.

I think my site category is incorrect – how can I change it?

If you have an environmental investigation undertaken at your site, you must send us the report and we will review the LLUR category based on the information you provide. Similarly, if you have information that clearly shows your site has not been associated with HAIL activities (eg. a preliminary site investigation), or if other HAIL activities have occurred which we have not listed, we need to know about it so that our records are accurate.

If we have incorrectly identified that a HAIL activity has occurred at a site, it will be not be removed from the LLUR but categorised as Verified Non-HAIL. This helps us to ensure that the same site is not re-identified in the future.

Contact us

Property owners have the right to look at all the information Environment Canterbury holds about their properties.

It is free to check the information on the LLUR, online at www.llur.ecan.govt.nz.

If you don't have access to the internet, you can enquire about a specific site by phoning us on (03) 353 9007 or toll free on 0800 EC INFO (32 4636) during business hours.

Contact Environment Canterbury:

Email: ecinfo@ecan.govt.nz

Phone:
Calling from Christchurch: (03) 353 9007
Calling from any other area: 0800 EC INFO (32 4636)

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Everything is connected

Promoting quality of life through balanced resource management.

www.ecan.govt.nz E13/101

Listed Land Use Register

Site categories and definitions

When Environment Canterbury identifies a Hazardous Activities and Industries List (HAIL) land use, we review the available information and assign the site a category on the Listed Land Use Register. The category is intended to best describe what we know about the land use.

If a site is categorised as **Unverified** it means it has been reported or identified as one that appears on the HAIL, but the land use has not been confirmed with the property owner.

If the land use has been confirmed but analytical information from the collection of samples is not available, and the presence or absence of contamination has therefore not been determined, the site is registered as:

Not investigated:

- A site whose past or present use has been reported and verified as one that appears on the HAIL.
- The site has not been investigated, which might typically include sampling and analysis of site soil, water and/or ambient air, and assessment of the associated analytical data.
- There is insufficient information to characterise any risks to human health or the environment from those activities undertaken on the site. Contamination may have occurred, but should not be assumed to have occurred.

If analytical information from the collection of samples is available, the site can be registered in one of six ways:

At or below background concentrations:

The site has been investigated or remediated. The investigation or post remediation validation results confirm there are no hazardous substances above local background concentrations other than those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterise the site.

Below guideline values for:

The site has been investigated. Results show that there are hazardous substances present at the site but indicate that any adverse effects or risks to people and/or the environment are considered to be so low as to be acceptable. The site may have been remediated to reduce contamination to this level, and samples taken after remediation confirm this.

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Managed for:

The site has been investigated. Results show that there are hazardous substances present at the site in concentrations that have the potential to cause adverse effects or risks to people and/or the environment. However, those risks are considered managed because:

- the nature of the use of the site prevents human and/or ecological exposure to the risks; and/or
- the land has been altered in some way and/or restrictions have been placed on the way it is used which prevent human and/or ecological exposure to the risks.

Partially investigated:

The site has been partially investigated. Results:

- demonstrate there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment; or
- do not adequately verify the presence or absence of contamination associated with all HAIL activities that are and/or have been undertaken on the site.

Significant adverse environmental effects:

The site has been investigated. Results show that sediment, groundwater or surface water contains hazardous substances that:

- have significant adverse effects on the environment; or
- are reasonably likely to have significant adverse effects on the environment.

Contaminated:

The site has been investigated. Results show that the land has a hazardous substance in or on it that:

- has significant adverse effects on human health and/or the environment; and/or
- is reasonably likely to have significant adverse effects on human health and/or the environment.

If a site has been included incorrectly on the Listed Land Use Register as having a HAIL, it will not be removed but will be registered as:

Verified non-HAIL:

Information shows that this site has never been associated with any of the specific activities or industries on the HAIL.

Please contact Environment Canterbury for further information:

(03) 353 9007 or toll free
on 0800 EC INFO (32 4636)
email ecinfo@ecan.govt.nz

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

E13/102

Appendix C – Historical Aerial Photographs

1942 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:17 AM

1961 Aerial

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:18 AM

1974 Aerial

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:18 AM

1982 Aerial

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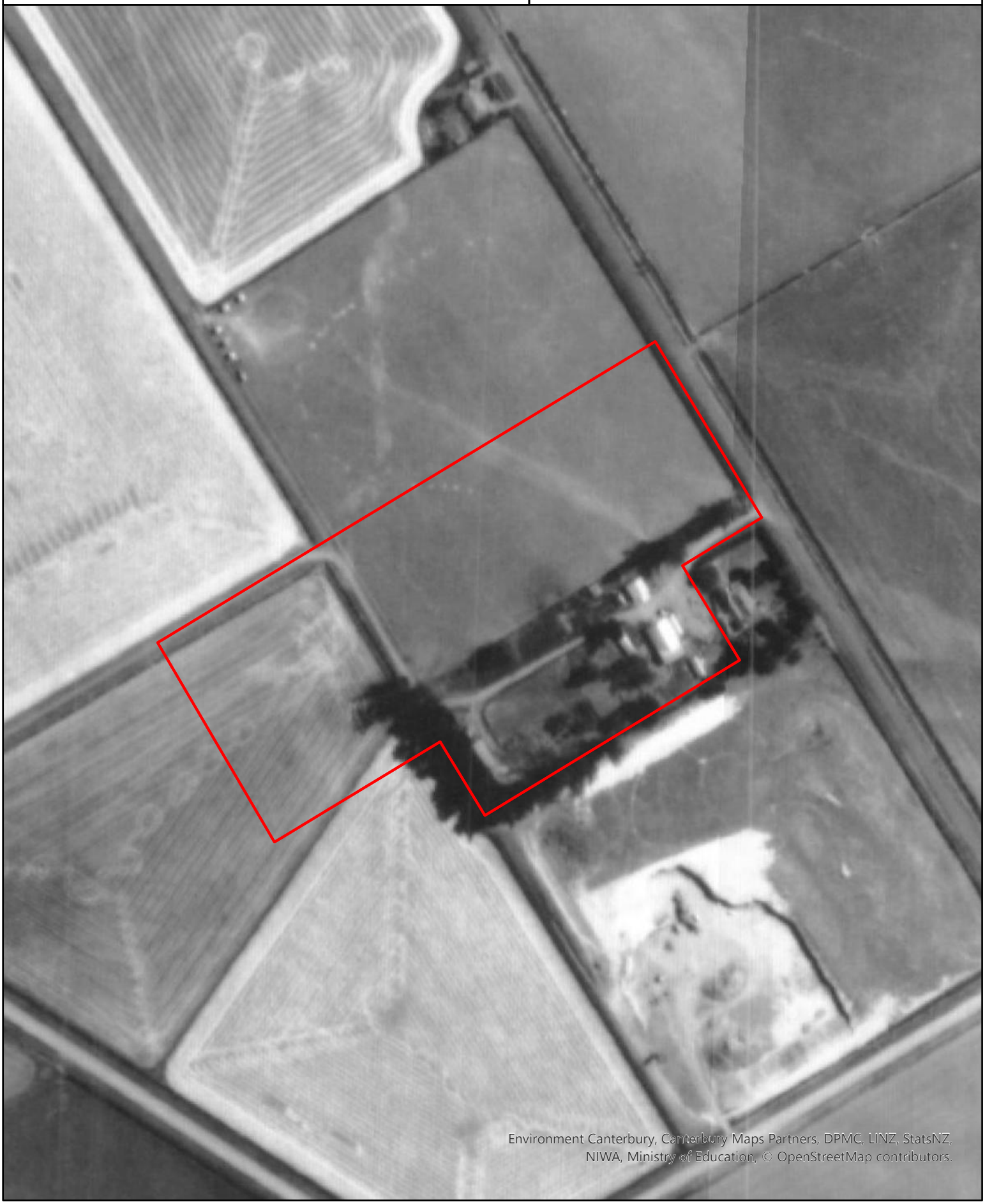
N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:20 AM



1994 Aerial

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:21 AM

Land Information New Zealand, Environment Canterbury, Ministry for Primary Industries, Environment Canterbury, Canterbury Maps Partners, DPMC, LINZ, StatsNZ, NIWA, Ministry of Education, © OpenStreetMap contributors.

2000 Aerial

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:22 AM

2005 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:22 AM

2012 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:23 AM

2020 Aerial

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,500 @A4

Map Created by MEL on 27/11/2024 at 9:24 AM

Appendix D – Sample Location Plans

MOMENTUM ENVIRONMENTAL LTD.

Specialist soil contamination experts, keeping your project moving.

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LEGEND

• SS1	Soil sample location
• SS1	Sample location XRF tested only
• #1	Individual XRF test location
⊙ SS1	Soil sample location exceeds 'residential 10% produce' SGV for arsenic
	Composite sample groups
	Approximate area requiring remediation

PLAN MUST BE PRINTED IN COLOUR

Graphic scale is approximate only

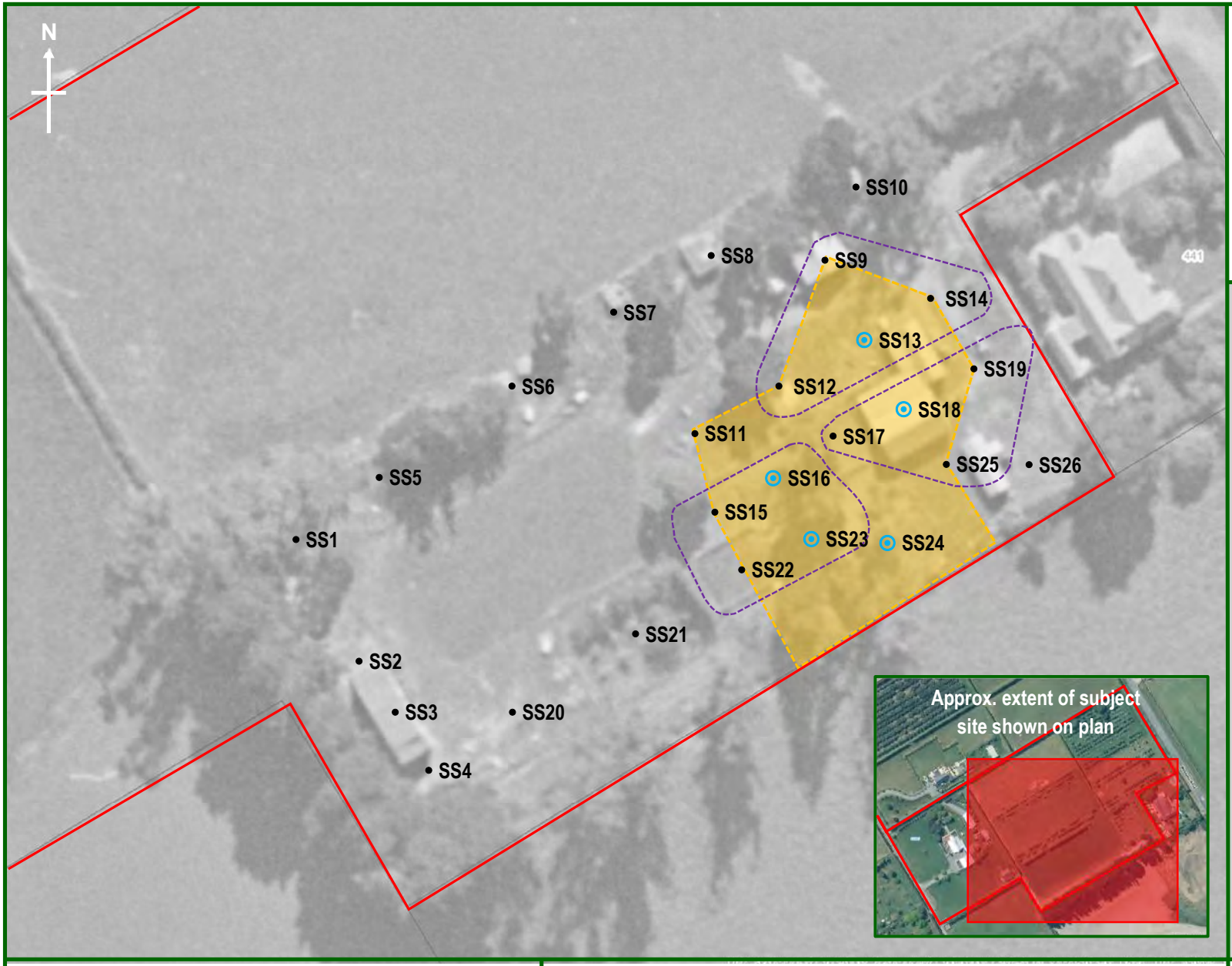
0 20 40 60 80 100m

Date: 09 December 2024 **Drawing No:** 928/1

10/487 Weedons Rd, Rolleston
Sample Location Plan

Notes:

1. This plan has been prepared for soil contamination risk assessment purposes only. No liability is accepted if the plan is used for any other purposes.
2. Any measurements taken from this plan which are not dimensioned on the electronic copy are at the risk of the user.
3. Soil sample locations are approximate only



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LEGEND

- • SS1 — Soil sample location
- • SS1 — Sample location XRF tested only
- ⊙ SS1 — Soil sample location exceeds 'residential 10% produce' SGV for arsenic
- Composite sample groups
- Approximate area requiring remediation

Plan image – 1974 aerial sourced from Canterbury Maps

PLAN MUST BE PRINTED IN COLOUR

Graphic scale is approximate only

0 15 30 45 60 75m

Date: 09 December 2024 **Drawing No:** 928/2

Former Yard Area – 10/487 Weedons Rd, Rolleston

Sample Location Plan

Notes:

1. This plan has been prepared for soil contamination risk assessment purposes only. No liability is accepted if the plan is used for any other purposes.
2. Any measurements taken from this plan which are not dimensioned on the electronic copy are at the risk of the user.
3. Soil sample locations are approximate only

Appendix E – Table of XRF Results

Table of XRF Results - 10/487 Weedons Road, Rolleston

Date of testing: 02 December 2024

Units: ppm

Sample ID (Lab tested in bold)	Sample Depth (mm)	XRF Reading No	Date	Time	Test Duration (secs)	Total Recoverable Arsenic	
						Result	Error
Calibration Test	-	1	2/12/2024	8:43:31	40.0	443	4
Calibration Test	-	2	2/12/2024	8:44:24	40.0	11	1
Blank	-	3	2/12/2024	8:45:18	40.0	<LOD	3
BP1	0	4	2/12/2024	8:51:39	36.8	4	1
BP1	0	5	2/12/2024	8:52:24	30.0	5	1
BP1	0	6	2/12/2024	8:53:00	30.6	4	1
BP2	0	7	2/12/2024	9:11:00	33.2	5	1
BP2	0	8	2/12/2024	9:11:51	30.0	5	1
BP2	0	9	2/12/2024	9:12:35	30.0	4	1
BP3	0	10	2/12/2024	9:16:56	31.6	3	1
BP3	0	11	2/12/2024	9:17:39	30.0	<LOD	4
BP3	0	12	2/12/2024	9:18:18	30.7	<LOD	4
BP4	0	13	2/12/2024	9:24:55	30.0	4	1
BP4	0	14	2/12/2024	9:25:31	30.0	3	1
BP4	0	15	2/12/2024	9:26:12	30.0	3	1
BP5	0	16	2/12/2024	9:31:49	30.0	4	1
BP5	0	17	2/12/2024	9:32:31	30.0	4	1
BP5	0	18	2/12/2024	9:33:18	30.7	3	1
west of BP6	0	19	2/12/2024	9:46:24	30.0	4	1
west of BP6	0	20	2/12/2024	9:47:14	31.1	6	1
west of BP6	0	21	2/12/2024	9:48:03	30.7	5	1
BP6	0	22	2/12/2024	9:48:55	30.0	<LOD	4
BP6	50	23	2/12/2024	9:49:49	30.0	2	1
BP6	50	24	2/12/2024	9:50:56	30.0	**32**	1
BP7	0	25	2/12/2024	10:03:31	30.0	4	1
BP7	0	26	2/12/2024	10:04:11	30.0	<LOD	5
BP7	0	27	2/12/2024	10:04:48	24.4	5	1
BP8	0	28	2/12/2024	10:09:51	31.2	6	1
BP8	0	29	2/12/2024	10:10:35	31.3	5	1
BP8	0	30	2/12/2024	10:11:22	30.0	<LOD	5
BP9	0	31	2/12/2024	10:16:12	22.8	**36**	2
BP9	0	32	2/12/2024	10:17:00	23.2	**48**	2
BP9	0	33	2/12/2024	10:17:35	16.8	**123**	3
Blank	0	34	2/12/2024	10:26:44	40.0	<LOD	3
Pallets	0	35	2/12/2024	10:36:55	30.0	<LOD	2
Pallets	0	36	2/12/2024	10:37:40	30.0	<LOD	2
Blank	-	37	2/12/2024	10:43:14	40.0	<LOD	3
Soil Guideline Values	**Residential 10% Produce SGV**					20	
	Commercial/Outdoor Worker					70	
	Reference					NES	

Result exceeds 'residential 10% produce' SGV

Appendix F – Tables of Laboratory Results

Table of Laboratory Results - 10/487 Weedons Road, Rolleston

Date of sampling: 02 December 2024

PADDOCKS - SURFACE SAMPLES

	Sample Name:	P1.1	P2.1	P3.1	P4.1	P5.1	DUP1	P6.1	P7.1	P8.1	P9.1	P10.1	P11.1	P12.1	RPD	Soil Guideline Values					
Soil Results	Depth:	50	50	50	50	50	50	50	50	50	50	50	50	50	P5.1 & DUP1	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_1$
	Lab Number:	3730785.1	3730785.3	3730785.5	3730785.7	3730785.9	3730785.87	3730785.12	3730785.14	3730785.16	3730785.18	3730785.20	3730785.22	3730785.24							
Heavy Metals																					
Arsenic	mg/kg	3	2	3	3	7	7	3	6	3	3	3	3	7	0%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.13	0.17	0.14	0.15	0.22	0.19	0.19	0.15	0.18	0.22	0.13	0.15	< 0.10	15%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	11	10	11	11	15	13	11	13	13	13	12	13	13	14%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	21	20	15	23	27	26	19	31	22	23	21	27	27	4%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	10.4	11	12.1	13	13	13	13.5	18.2	15.7	13.5	17.5	12.9	21	0%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	7	7	8	8	9	9	8	9	9	9	9	9	10	0%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	65	62	64	76	92	88	78	84	90	101	86	83	84	4%	7,400	400,000	NEPM	1230	ANZWQ	93.94

PADDOCKS - DEEPER SAMPLES

	Sample Name:	P1.2	P2.2	P3.2	P4.2	P5.2	P5.3	P6.2	P7.2	P8.2	P9.2	P10.2	P11.2	P12.2	Soil Guideline Values					
Soil Results	Depth:	250	250	250	250	250	450	250	250	250	250	250	250	250	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_1$
	Lab Number:	3730785.2	3730785.4	3730785.6	3730785.8	3730785.10	3730785.11	3730785.13	3730785.15	3730785.17	3730785.19	3730785.21	3730785.23	3730785.25						
Heavy Metals																				
Arsenic	mg/kg	2	3	3	3	4	4	2	3	3	3	4	3	5	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	< 0.10	< 0.10	0.1	< 0.10	0.11	< 0.10	< 0.10	0.11	< 0.10	0.13	0.11	< 0.10	< 0.10	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	10	12	13	12	14	14	11	13	15	14	13	12	14	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	7	8	6	7	10	5	8	12	9	13	9	7	9	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	9	10	12	12.2	13.1	12.9	10.9	13.3	14.8	12.9	17.5	12.3	15.5	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	8	8	8	8	10	11	8	9	11	10	10	9	10	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	44	48	53	50	60	52	51	60	68	71	62	51	60	7,400	400,000	NEPM	1230	ANZWQ	93.94

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

NEPM - National Environmental Protection Measures 2013, Australia

ANZWQ - Australian and New Zealand - Guidelines for Fresh and Marine Water Quality (online) - 3 x Sediment GV-high

$_1$ Concentrations for 'Regional, Recent' soil group from Background concentrations in Canterbury soils, Tonkin and Taylor, July 2007

Table of Laboratory Results - 10/487 Weedons Road, Rolleston

Date of sampling: 02 December 2024

FORMER YARD AREA

	Sample Name:	SS1.1	DUP2	SS1.2	SS2.1	SS2.2	SS3.1	SS3.2	SS4.1	SS4.2	SS5.1	SS5.2	RPD	Soil Guideline Values					
Soil Results	Depth:	50	50	25	50	250	50	250	50	250	50	250	SS1.1 & DUP2	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background d_t
	Lab Number:	3730785.26	3730785.88	3730785.27	3730785.28	3730785.29	3730785.30	3730785.31	3730785.32	3730785.33	3730785.34	3730785.35							
Heavy Metals																			
Arsenic	mg/kg	3	3	3	4	3	3	3	4	3	3	3	0%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.11	0.11	< 0.10	< 0.10	< 0.10	0.13	< 0.10	0.13	< 0.10	0.11	< 0.10	0%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	11	10	11	11	11	11	11	11	10	11	12	10%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	20	19	9	20	10	25	9	25	9	26	8	5%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	19	18	19.3	20	16.5	23	15	25	12.5	28	13.7	5%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	8	7	8	8	8	8	8	8	8	8	9	13%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	81	78	57	79	54	110	62	99	58	97	70	4%	7,400	400,000	NEPM	1230	ANZWQ	93.94

	Sample Name:	SS6.1	SS6.2	SS7.1	SS7.2	SS8.1	SS8.2	SS9.1	SS9.2	SS10.1	SS10.2	SS11.1	SS11.2	Soil Guideline Values					
Soil Results	Depth:	50	250	50	250	50	250	50	250	50	250	50	250	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background d_t
	Lab Number:	3730785.36	3730785.37	3730785.38	3730785.39	3730785.40	3730785.41	3730785.42	3730785.43	3730785.44	3730785.45	3730785.46	3730785.47						
Heavy Metals																			
Arsenic	mg/kg	3	4	16	20	7	4	8	8	4	4	7	4	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.13	< 0.10	0.26	0.16	0.24	< 0.10	0.31	0.38	0.11	< 0.10	0.21	< 0.10	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	11	13	20	18	14	13	14	15	14	13	13	14	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	24	10	48	30	19	8	31	27	23	11	30	9	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	42	26	34	27	97	26	84	84	23	15.4	62	24	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	9	9	9	10	9	9	10	11	10	9	10	10	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	106	74	210	181	147	70	191	171	89	65	159	79	7,400	400,000	NEPM	1230	ANZWQ	93.94

	Sample Name:	SS12.1	SS12.2	SS13.1	DUP3	SS13.2	SS14.1	SS14.2	SS15.1	SS15.2	SS16.1	SS16.2	RPD	Soil Guideline Values					
Soil Results	Depth:	50	250	50	50	250	50	250	50	250	50	250	SS13.1 & DUP3	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background d_t
	Lab Number:	3730785.48	3730785.49	3730785.50	3730785.89	3730785.51	3730785.52	3730785.53	3730785.54	3730785.55	3730785.56	3730785.57							
Heavy Metals																			
Arsenic	mg/kg	8	5	17	16	**22**	5	6	7	7	**33**	**26**	6%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.36	0.14	0.38	0.38	0.41	0.19	0.17	0.18	0.14	0.19	0.13	0%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	12	13	14	13	16	15	16	14	13	12	12	7%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	38	12	47	46	92	41	32	38	28	35	12	2%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	78	26	117	105	113	61	57	22	24	31	26	11%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	9	9	10	9	14	9	10	9	9	8	8	11%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	184	90	240	230	260	130	103	118	102	136	94	4%	7,400	400,000	NEPM	1230	ANZWQ	93.94

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

NEPM - National Environmental Protection Measures 2013, Australia

ANZWQ - Australian and New Zealand - Guidelines for Fresh and Marine Water Quality (online) - 3 x Sediment GV-high

$_t$ Concentrations for 'Regional, Recent' soil group from Background concentrations in Canterbury soils, Tonkin and Taylor, July 2007

Table of Laboratory Results - 10/487 Weedons Road, Rolleston

Date of sampling: 02 December 2024

FORMER YARD AREA & BURN AREAS

	Sample Name:	SS17.1	SS17.2	SS18.1	SS18.2	SS19.1	SS19.2	SS20.1	SS20.2	SS21.1	SS21.2	SS22.1	SS22.2	Soil Guideline Values					
Soil Results	Depth:	50	250	50	250	50	250	50	250	50	250	50	250	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background d_t
	Lab Number:	3730785.58	3730785.59	3730785.60	3730785.61	3730785.62	3730785.63	3730785.64	3730785.65	3730785.66	3730785.67	3730785.68	3730785.69						
Heavy Metals																			
Arsenic	mg/kg	11	9	**23**	**40**	8	9	4	3	5	4	6	5	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.28	0.26	0.19	0.15	0.27	0.28	0.14	< 0.10	0.18	< 0.10	0.14	< 0.10	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	13	13	14	16	16	16	13	12	12	13	12	14	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	43	22	42	28	41	40	25	7	29	10	25	10	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	55	47	63	71	56	87	18.8	13.2	17.4	14.5	17.5	14.3	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	9	9	10	9	10	10	9	8	9	9	8	9	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	220	179	139	121	149	146	107	58	101	67	100	64	7,400	400,000	NEPM	1230	ANZWQ	93.94

	Sample Name:	SS23.1	SS23.2	SS24.1	SS24.2	SS25.1	SS25.2	SS26.1	DUP4	SS26.2	BP6.1	BP7.1	BP9.1	RPD	Soil Guideline Values					
Soil Results	Depth:	50	250	50	250	50	250	50	50	250	0-50	0-50	0-50	SS26.1 & DUP4	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Ecological Receptors	Reference	Background$_t$
	Lab Number:	3730785.70	3730785.71	3730785.72	3730785.73	3730785.74	3730785.75	3730785.76	3730785.90	3730785.77	3730785.83	3730785.84	3730785.86							
Heavy Metals																				
Arsenic	mg/kg	**93**	**192**	**72**	**110**	16	19	6	6	6	**26**	3	**73**	0%	20	70	NES	210	ANZWQ	12.58
Cadmium	mg/kg	0.15	0.11	0.25	0.12	0.3	0.26	0.28	0.3	0.21	0.34	< 0.10	0.21	7%	3	1,300	NES	30	ANZWQ	0.19
Chromium	mg/kg	12	12	12	13	12	13	11	11	13	16	11	40	0%	460	6,300	NES	1110	ANZWQ	22.70
Copper	mg/kg	36	16	68	40	53	46	43	40	37	47	390	68	7%	>10,000	>10,000	NES	810	ANZWQ	20.30
Lead	mg/kg	28	19	51	47	78	80	109	87	96	20	15	62	22%	210	3,300	NES	660	ANZWQ	40.96
Nickel	mg/kg	8	8	9	9	7	8	8	9	10	6	8	9	12%	400	6,000	NEPM	156	ANZWQ	20.70
Zinc	mg/kg	132	110	144	93	200	174	190	181	156	210	430	154	5%	7,400	400,000	NEPM	1230	ANZWQ	93.94

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

NEPM - National Environmental Protection Measures 2013, Australia

ANZWQ - Australian and New Zealand - Guidelines for Fresh and Marine Water Quality (online) - 3 x Sediment GV-high

$_t$ Concentrations for 'Regional, Recent' soil group from Background concentrations in Canterbury soils, Tonkin and Taylor, July 2007

Table of Laboratory Results - 10/487 Weedons Road, Rolleston

Date of sampling: 02 December 2024

	Sample Name:	Composite of P1.1, P2.1 & P3.1	Composite of P4.1, P5.1, P6.1 & P7.1	Composite of P8.1, P9.1 & P10.1	Composite of P11.1, P12.1 & SS10.1	Composite of SS9.1, SS12.1, SS13.1 & SS14.1	Composite of SS15.1, SS16.1, SS22.1 & SS23.1	Soil Guideline Values			
Soil Results	Depth	50	50	50	50	50	50	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Background$_2$
	Lab number	3730785.91	3730785.92	3730785.93	3730785.94	3730785.95	3730785.96				
Organochlorine Pesticides (OCPs) in soil											
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
4,4'-DDD	mg/kg dry wt	0.08	< 0.011	< 0.011	< 0.011	0.039	< 0.011	-	-	-	-
4,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	0.011	< 0.011	-	-	-	-
4,4'-DDT	mg/kg dry wt	0.021	< 0.011	< 0.011	< 0.011	0.051	< 0.011	-	-	-	-
Total DDT	mg/kg dry wt	0.1	< 0.07	< 0.07	< 0.07	0.1	< 0.07	70	1,000	NES	0.43 $_2$
Dieldrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	0.173	< 0.011	2.6	160	NES	<LOD

	Sample Name:	Composite of SS15.2, SS16.2, SS22.2 & SS23.2	Composite of SS17.1, SS18.1, SS19.1 & SS25.1	SS23.1	SS23.2	SS24.1	SS24.2	Soil Guideline Values			
Soil Results	Depth	50	50	50	250	50	250	Residential 10% Produce	Commercial/ Outdoor Worker	Reference	Background$_2$
	Lab number	3730785.97	3730785.98	3730785.70	3730785.71	3730785.72	3730785.73				
Organochlorine Pesticides (OCPs) in soil											
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
4,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
4,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
4,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	-	-	-	-
Total DDT	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	70	1,000	NES	0.43 $_2$
Dieldrin	mg/kg dry wt	< 0.011	0.095	< 0.011	< 0.011	0.014	0.023	2.6	160	NES	<LOD

Indicates result exceeds 'Residential 10% Produce' SGV
Indicates result exceeds Ecological Guideline Values
Indicates result exceeds Background

Notes:

This table does not represent the full analytical results, please refer to the laboratory reports for full details.

References:

NES - National Environmental Standard for Assessing and Managing Contaminants in Soils, MfE

$_2$ Concentrations for 'Christchurch Metropolitan' soils from Ambient Concentrations of selected organochlorine in soils, Buckland, Ellis and Salter 1998

Appendix G – Laboratory Reports

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

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mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Momentum Environmental Limited	**Lab No:**	3730785	SPv2
Contact:	Fran Hobkirk	**Date Received:**	03-Dec-2024	
	C/- Momentum Environmental Limited	**Date Reported:**	11-Dec-2024	**(Amended)**
	19 Robertsons Road	**Quote No:**	72157	
	Kirwee 7671	**Order No:**		
		Client Reference:	926 - 10/487 Weedons Road	
		Submitted By:	Fran Hobkirk	

Sample Type: Soil

	Sample Name:	P1.1 02-Dec-2024 8:57 am	P1.2 02-Dec-2024 9:00 am	P2.1 02-Dec-2024 9:07 am	P2.2 02-Dec-2024 9:10 am	P3.1 02-Dec-2024 9:25 am
	Lab Number:	3730785.1	3730785.2	3730785.3	3730785.4	3730785.5
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	2	2	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.13	< 0.10	0.17	< 0.10	0.14
Total Recoverable Chromium	mg/kg dry wt	11	10	10	12	11
Total Recoverable Copper	mg/kg dry wt	21	7	20	8	15
Total Recoverable Lead	mg/kg dry wt	10.4	9.0	11.0	10.0	12.1
Total Recoverable Nickel	mg/kg dry wt	7	8	7	8	8
Total Recoverable Zinc	mg/kg dry wt	65	44	62	48	64

	Sample Name:	P3.2 02-Dec-2024 9:30 am	P4.1 02-Dec-2024 10:06 am	P4.2 02-Dec-2024 10:12 am	P5.1 02-Dec-2024 10:03 am	P5.2 02-Dec-2024 10:08 am
	Lab Number:	3730785.6	3730785.7	3730785.8	3730785.9	3730785.10
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	3	3	7	4
Total Recoverable Cadmium	mg/kg dry wt	0.10	0.15	< 0.10	0.22	0.11
Total Recoverable Chromium	mg/kg dry wt	13	11	12	15	14
Total Recoverable Copper	mg/kg dry wt	6	23	7	27	10
Total Recoverable Lead	mg/kg dry wt	11.9	13.2	12.2	13.0	13.1
Total Recoverable Nickel	mg/kg dry wt	8	8	8	9	10
Total Recoverable Zinc	mg/kg dry wt	53	76	50	92	60

	Sample Name:	P5.3 02-Dec-2024 10:18 am	P6.1 02-Dec-2024 10:41 am	P6.2 02-Dec-2024 10:47 am	P7.1 02-Dec-2024 10:41 am	P7.2 02-Dec-2024 10:45 am
	Lab Number:	3730785.11	3730785.12	3730785.13	3730785.14	3730785.15
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	2	6	3
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.19	< 0.10	0.15	0.11
Total Recoverable Chromium	mg/kg dry wt	14	11	11	13	13
Total Recoverable Copper	mg/kg dry wt	5	19	8	31	12
Total Recoverable Lead	mg/kg dry wt	12.9	13.5	10.9	18.2	13.3
Total Recoverable Nickel	mg/kg dry wt	11	8	8	9	9
Total Recoverable Zinc	mg/kg dry wt	52	78	51	84	60

	Sample Name:	P8.1 02-Dec-2024 11:05 am	P8.2 02-Dec-2024 11:16 am	P9.1 02-Dec-2024 11:02 am	P9.2 02-Dec-2024 11:08 am	P10.1 02-Dec-2024 12:04 pm
	Lab Number:	3730785.16	3730785.17	3730785.18	3730785.19	3730785.20

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Soil						
Sample Name:		P8.1 02-Dec-2024 11:05 am	P8.2 02-Dec-2024 11:16 am	P9.1 02-Dec-2024 11:02 am	P9.2 02-Dec-2024 11:08 am	P10.1 02-Dec-2024 12:04 pm
Lab Number:		3730785.16	3730785.17	3730785.18	3730785.19	3730785.20
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	3	3	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.18	< 0.10	0.22	0.13	0.13
Total Recoverable Chromium	mg/kg dry wt	13	15	13	14	12
Total Recoverable Copper	mg/kg dry wt	22	9	23	13	21
Total Recoverable Lead	mg/kg dry wt	15.7	14.8	13.5	12.9	17.5
Total Recoverable Nickel	mg/kg dry wt	9	11	9	10	9
Total Recoverable Zinc	mg/kg dry wt	90	68	101	71	86

Sample Name:		P10.2 02-Dec-2024 12:12 pm	P11.1 02-Dec-2024 11:18 am	P11.2 02-Dec-2024 11:21 am	P12.1 02-Dec-2024 11:50 am	P12.2 02-Dec-2024 11:54 am
Lab Number:		3730785.21	3730785.22	3730785.23	3730785.24	3730785.25
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	3	7	5
Total Recoverable Cadmium	mg/kg dry wt	0.11	0.15	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	13	13	12	13	14
Total Recoverable Copper	mg/kg dry wt	9	27	7	27	9
Total Recoverable Lead	mg/kg dry wt	17.5	12.9	12.3	21	15.5
Total Recoverable Nickel	mg/kg dry wt	10	9	9	10	10
Total Recoverable Zinc	mg/kg dry wt	62	83	51	84	60

Sample Name:		SS1.1 02-Dec-2024 11:53 am	SS1.2 02-Dec-2024 11:56 am	SS2.1 02-Dec-2024 12:00 pm	SS2.2 02-Dec-2024 12:04 pm	SS3.1 02-Dec-2024 12:39 pm
Lab Number:		3730785.26	3730785.27	3730785.28	3730785.29	3730785.30
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	3	4	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.11	< 0.10	< 0.10	< 0.10	0.13
Total Recoverable Chromium	mg/kg dry wt	11	11	11	11	11
Total Recoverable Copper	mg/kg dry wt	20	9	20	10	25
Total Recoverable Lead	mg/kg dry wt	19.0	19.3	20	16.5	23
Total Recoverable Nickel	mg/kg dry wt	8	8	8	8	8
Total Recoverable Zinc	mg/kg dry wt	81	57	79	54	110

Sample Name:		SS3.2 02-Dec-2024 12:43 pm	SS4.1 02-Dec-2024 12:48 pm	SS4.2 02-Dec-2024 12:52 pm	SS5.1 02-Dec-2024 1:06 pm	SS5.2 02-Dec-2024 1:10 pm
Lab Number:		3730785.31	3730785.32	3730785.33	3730785.34	3730785.35
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	4	3	3	3
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.13	< 0.10	0.11	< 0.10
Total Recoverable Chromium	mg/kg dry wt	11	11	10	11	12
Total Recoverable Copper	mg/kg dry wt	9	25	9	26	8
Total Recoverable Lead	mg/kg dry wt	15.0	25	12.5	28	13.7
Total Recoverable Nickel	mg/kg dry wt	8	8	8	8	9
Total Recoverable Zinc	mg/kg dry wt	62	99	58	97	70

Sample Name:		SS6.1 02-Dec-2024 1:15 pm	SS6.2 02-Dec-2024 1:20 pm	SS7.1 02-Dec-2024 1:41 pm	SS7.2 02-Dec-2024 1:45 pm	SS8.1 02-Dec-2024 1:50 pm
Lab Number:		3730785.36	3730785.37	3730785.38	3730785.39	3730785.40
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	3	4	16	20	7
Total Recoverable Cadmium	mg/kg dry wt	0.13	< 0.10	0.26	0.16	0.24
Total Recoverable Chromium	mg/kg dry wt	11	13	20	18	14
Total Recoverable Copper	mg/kg dry wt	24	10	48	30	19
Total Recoverable Lead	mg/kg dry wt	42	26	34	27	97
Total Recoverable Nickel	mg/kg dry wt	9	9	9	10	9
Total Recoverable Zinc	mg/kg dry wt	106	74	210	181	147

Sample Type: Soil						
Sample Name:		SS8.2 02-Dec-2024 1:55 pm	SS9.1 02-Dec-2024 12:55 pm	SS9.2 02-Dec-2024 12:59 pm	SS10.1 02-Dec-2024 12:35 pm	SS10.2 02-Dec-2024 12:40 pm
Lab Number:		3730785.41	3730785.42	3730785.43	3730785.44	3730785.45
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	8	8	4	4
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.31	0.38	0.11	< 0.10
Total Recoverable Chromium	mg/kg dry wt	13	14	15	14	13
Total Recoverable Copper	mg/kg dry wt	8	31	27	23	11
Total Recoverable Lead	mg/kg dry wt	26	84	84	23	15.4
Total Recoverable Nickel	mg/kg dry wt	9	10	11	10	9
Total Recoverable Zinc	mg/kg dry wt	70	191	171	89	65

Sample Name:		SS11.1 02-Dec-2024 1:23 pm	SS11.2 02-Dec-2024 1:30 pm	SS12.1 02-Dec-2024 1:10 pm	SS12.2 02-Dec-2024 1:14 pm	SS13.1 02-Dec-2024 2:00 pm
Lab Number:		3730785.46	3730785.47	3730785.48	3730785.49	3730785.50
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	4	8	5	17
Total Recoverable Cadmium	mg/kg dry wt	0.21	< 0.10	0.36	0.14	0.38
Total Recoverable Chromium	mg/kg dry wt	13	14	12	13	14
Total Recoverable Copper	mg/kg dry wt	30	9	38	12	47
Total Recoverable Lead	mg/kg dry wt	62	24	78	26	117
Total Recoverable Nickel	mg/kg dry wt	10	10	9	9	10
Total Recoverable Zinc	mg/kg dry wt	159	79	184	90	240

Sample Name:		SS13.2 02-Dec-2024 2:10 pm	SS14.1 02-Dec-2024 2:15 pm	SS14.2 02-Dec-2024 2:20 pm	SS15.1 02-Dec-2024 1:37 pm	SS15.2 02-Dec-2024 1:42 pm
Lab Number:		3730785.51	3730785.52	3730785.53	3730785.54	3730785.55
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	22	5	6	7	7
Total Recoverable Cadmium	mg/kg dry wt	0.41	0.19	0.17	0.18	0.14
Total Recoverable Chromium	mg/kg dry wt	16	15	16	14	13
Total Recoverable Copper	mg/kg dry wt	92	41	32	38	28
Total Recoverable Lead	mg/kg dry wt	113	61	57	22	24
Total Recoverable Nickel	mg/kg dry wt	14	9	10	9	9
Total Recoverable Zinc	mg/kg dry wt	260	130	103	118	102

Sample Name:		SS16.1 02-Dec-2024 2:51 pm	SS16.2 02-Dec-2024 2:56 pm	SS17.1 02-Dec-2024 2:49 pm	SS17.2 02-Dec-2024 2:54 pm	SS18.1 02-Dec-2024 2:13 pm
Lab Number:		3730785.56	3730785.57	3730785.58	3730785.59	3730785.60
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	33	26	11	9	23
Total Recoverable Cadmium	mg/kg dry wt	0.19	0.13	0.28	0.26	0.19
Total Recoverable Chromium	mg/kg dry wt	12	12	13	13	14
Total Recoverable Copper	mg/kg dry wt	35	12	43	22	42
Total Recoverable Lead	mg/kg dry wt	31	26	55	47	63
Total Recoverable Nickel	mg/kg dry wt	8	8	9	9	10
Total Recoverable Zinc	mg/kg dry wt	136	94	220	179	139

Sample Name:		SS18.2 02-Dec-2024 2:22 pm	SS19.1 02-Dec-2024 2:27 pm	SS19.2 02-Dec-2024 2:36 pm	SS20.1 02-Dec-2024 2:15 pm	SS20.2 02-Dec-2024 2:20 pm
Lab Number:		3730785.61	3730785.62	3730785.63	3730785.64	3730785.65
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	40	8	9	4	3
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.27	0.28	0.14	< 0.10
Total Recoverable Chromium	mg/kg dry wt	16	16	16	13	12
Total Recoverable Copper	mg/kg dry wt	28	41	40	25	7
Total Recoverable Lead	mg/kg dry wt	71	56	87	18.8	13.2
Total Recoverable Nickel	mg/kg dry wt	9	10	10	9	8
Total Recoverable Zinc	mg/kg dry wt	121	149	146	107	58

Sample Type: Soil						
Sample Name:		SS21.1 02-Dec-2024 2:01 pm	SS21.2 02-Dec-2024 2:06 pm	SS22.1 02-Dec-2024 12:52 pm	SS22.2 02-Dec-2024 1:02 pm	SS23.1 02-Dec-2024 1:20 pm
Lab Number:		3730785.66	3730785.67	3730785.68	3730785.69	3730785.70
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	-	92
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	4	6	5	93
Total Recoverable Cadmium	mg/kg dry wt	0.18	< 0.10	0.14	< 0.10	0.15
Total Recoverable Chromium	mg/kg dry wt	12	13	12	14	12
Total Recoverable Copper	mg/kg dry wt	29	10	25	10	36
Total Recoverable Lead	mg/kg dry wt	17.4	14.5	17.5	14.3	28
Total Recoverable Nickel	mg/kg dry wt	9	9	8	9	8
Total Recoverable Zinc	mg/kg dry wt	101	67	100	64	132
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.011
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.011
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.011
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.011
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.011
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.011
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.011
2,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.011
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.011
2,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.011
Total DDT Isomers	mg/kg dry wt	-	-	-	-	< 0.07
Dieldrin	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.011
Endrin	mg/kg dry wt	-	-	-	-	< 0.011
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.011
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.011
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.011
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.011
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.011
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.011

Sample Name:		SS23.2 02-Dec-2024 1:35 pm	SS24.1 02-Dec-2024 1:57 pm	SS24.2 02-Dec-2024 2:09 pm	SS25.1 02-Dec-2024 2:24 pm	SS25.2 02-Dec-2024 2:29 pm
Lab Number:		3730785.71	3730785.72	3730785.73	3730785.74	3730785.75
Individual Tests						
Dry Matter	g/100g as rcvd	94	93	94	-	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	192	72	110	16	19
Total Recoverable Cadmium	mg/kg dry wt	0.11	0.25	0.12	0.30	0.26
Total Recoverable Chromium	mg/kg dry wt	12	12	13	12	13
Total Recoverable Copper	mg/kg dry wt	16	68	40	53	46
Total Recoverable Lead	mg/kg dry wt	19.4	51	47	78	80
Total Recoverable Nickel	mg/kg dry wt	8	9	9	7	8
Total Recoverable Zinc	mg/kg dry wt	110	144	93	200	174
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
alpha-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
beta-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
delta-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-

Sample Type: Soil						
Sample Name:		SS23.2 02-Dec-2024 1:35 pm	SS24.1 02-Dec-2024 1:57 pm	SS24.2 02-Dec-2024 2:09 pm	SS25.1 02-Dec-2024 2:24 pm	SS25.2 02-Dec-2024 2:29 pm
Lab Number:		3730785.71	3730785.72	3730785.73	3730785.74	3730785.75
Organochlorine Pesticides Screening in Soil						
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
cis-Chlordane	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
trans-Chlordane	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
4,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
4,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
4,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Total DDT Isomers	mg/kg dry wt	< 0.07	< 0.07	< 0.07	-	-
Dieldrin	mg/kg dry wt	< 0.011	0.014	0.023	-	-
Endosulfan I	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Endosulfan II	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Endrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Endrin aldehyde	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Endrin ketone	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Heptachlor	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-
Methoxychlor	mg/kg dry wt	< 0.011	< 0.011	< 0.011	-	-

Sample Name:		SS26.1 02-Dec-2024 2:30 pm	SS26.2 02-Dec-2024 2:35 pm	BP6.1 02-Dec-2024 10:00 am	BP7.1 02-Dec-2024 10:12 am	BP9.1 02-Dec-2024 10:24 am
Lab Number:		3730785.76	3730785.77	3730785.83	3730785.84	3730785.86
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	6	6	26	3	73
Total Recoverable Cadmium	mg/kg dry wt	0.28	0.21	0.34	< 0.10	0.21
Total Recoverable Chromium	mg/kg dry wt	11	13	16	11	40
Total Recoverable Copper	mg/kg dry wt	43	37	47	390	68
Total Recoverable Lead	mg/kg dry wt	109	96	20	15.2	62
Total Recoverable Nickel	mg/kg dry wt	8	10	6	8	9
Total Recoverable Zinc	mg/kg dry wt	190	156	210	430	154

Sample Name:		DUP1 02-Dec-2024 10:04 am	DUP2 02-Dec-2024 11:54 am	DUP3 02-Dec-2024 2:01 pm	DUP4 02-Dec-2024 2:31 pm	Composite of P1.1, P2.1 & P3.1
Lab Number:		3730785.87	3730785.88	3730785.89	3730785.90	3730785.91
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	-	90
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	3	16	6	-
Total Recoverable Cadmium	mg/kg dry wt	0.19	0.11	0.38	0.30	-
Total Recoverable Chromium	mg/kg dry wt	13	10	13	11	-
Total Recoverable Copper	mg/kg dry wt	26	19	46	40	-
Total Recoverable Lead	mg/kg dry wt	13.0	18.0	105	87	-
Total Recoverable Nickel	mg/kg dry wt	9	7	9	9	-
Total Recoverable Zinc	mg/kg dry wt	88	78	230	181	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.011
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.011
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.011
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.011
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.011
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.011

Sample Type: Soil						
Sample Name:		DUP1 02-Dec-2024 10:04 am	DUP2 02-Dec-2024 11:54 am	DUP3 02-Dec-2024 2:01 pm	DUP4 02-Dec-2024 2:31 pm	Composite of P1.1, P2.1 & P3.1
Lab Number:		3730785.87	3730785.88	3730785.89	3730785.90	3730785.91
Organochlorine Pesticides Screening in Soil						
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.011
2,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.011
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDE	mg/kg dry wt	-	-	-	-	0.080
2,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.011
4,4'-DDT	mg/kg dry wt	-	-	-	-	0.021
Total DDT Isomers	mg/kg dry wt	-	-	-	-	0.10
Dieldrin	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.011
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.011
Endrin	mg/kg dry wt	-	-	-	-	< 0.011
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.011
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.011
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.011
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.011
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.011
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.011

Sample Name:		Composite of P4.1, P5.1, P6.1 & P7.1	Composite of P8.1, P9.1 & P10.1	Composite of P11.1, P12.1 & SS10.1	Composite of SS9.1, SS12.1, SS13.1 & SS14.1	Composite of SS15.1, SS16.1, SS22.1 & SS23.1
Lab Number:		3730785.92	3730785.93	3730785.94	3730785.95	3730785.96
Individual Tests						
Dry Matter	g/100g as rcvd	89	88	89	90	92
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
alpha-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
beta-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
delta-BHC	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
cis-Chlordane	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
trans-Chlordane	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
4,4'-DDD	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
4,4'-DDE	mg/kg dry wt	< 0.011	< 0.011	< 0.011	0.039	< 0.011
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	0.011	< 0.011
4,4'-DDT	mg/kg dry wt	< 0.011	< 0.011	< 0.011	0.051	< 0.011
Total DDT Isomers	mg/kg dry wt	< 0.07	< 0.07	< 0.07	0.10	< 0.07
Dieldrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	0.173	< 0.011
Endosulfan I	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Endosulfan II	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Endosulfan sulphate	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Endrin	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Endrin aldehyde	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Endrin ketone	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Heptachlor	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Heptachlor epoxide	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Hexachlorobenzene	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
Methoxychlor	mg/kg dry wt	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011

Sample Type: Soil			
	Sample Name:	Composite of SS15.2, SS16.2, SS22.2 & SS23.2	Composite of SS17.1, SS18.1, SS19.1 & SS25.1
	Lab Number:	3730785.97	3730785.98
Individual Tests			
Dry Matter	g/100g as rcvd	94	89
Organochlorine Pesticides Screening in Soil			
Aldrin	mg/kg dry wt	< 0.011	< 0.011
alpha-BHC	mg/kg dry wt	< 0.011	< 0.011
beta-BHC	mg/kg dry wt	< 0.011	< 0.011
delta-BHC	mg/kg dry wt	< 0.011	< 0.011
gamma-BHC (Lindane)	mg/kg dry wt	< 0.011	< 0.011
cis-Chlordane	mg/kg dry wt	< 0.011	< 0.011
trans-Chlordane	mg/kg dry wt	< 0.011	< 0.011
2,4'-DDD	mg/kg dry wt	< 0.011	< 0.011
4,4'-DDD	mg/kg dry wt	< 0.011	< 0.011
2,4'-DDE	mg/kg dry wt	< 0.011	< 0.011
4,4'-DDE	mg/kg dry wt	< 0.011	< 0.011
2,4'-DDT	mg/kg dry wt	< 0.011	< 0.011
4,4'-DDT	mg/kg dry wt	< 0.011	< 0.011
Total DDT Isomers	mg/kg dry wt	< 0.07	< 0.07
Dieldrin	mg/kg dry wt	< 0.011	0.095
Endosulfan I	mg/kg dry wt	< 0.011	< 0.011
Endosulfan II	mg/kg dry wt	< 0.011	< 0.011
Endosulfan sulphate	mg/kg dry wt	< 0.011	< 0.011
Endrin	mg/kg dry wt	< 0.011	< 0.011
Endrin aldehyde	mg/kg dry wt	< 0.011	< 0.011
Endrin ketone	mg/kg dry wt	< 0.011	< 0.011
Heptachlor	mg/kg dry wt	< 0.011	< 0.011
Heptachlor epoxide	mg/kg dry wt	< 0.011	< 0.011
Hexachlorobenzene	mg/kg dry wt	< 0.011	< 0.011
Methoxychlor	mg/kg dry wt	< 0.011	< 0.011

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3730785-SPv1' issued on 06-Dec-2024 at 3:04 pm.
Reason for amendment: Additional testing has been added as per clients request.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-77, 83-84, 86-90
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-77, 83-84, 86-90
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	70-73, 91-98
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	70-73, 91-98

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1, 3, 5, 7, 9, 12, 14, 16, 18, 20, 22, 24, 42, 44, 48, 50, 52, 54-58, 60, 62, 68-71, 74

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 04-Dec-2024 and 11-Dec-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Graham Corban MSc Tech (Hons)
Client Services Manager - Environmental

Soil Contamination Risk
Preliminary Site Investigation Report
Revision 1

9/487 Weedons Road,
Rolleston, Canterbury

July 2025

QUALITY CONTROL AND CERTIFICATION SHEET

Client: Your Section Ltd

Date of Issue: 22 July 2025

Revisions: R1 – July 2025 – Minor amendment at the request of the client

Report written by:

Hollie Griffith, Senior Environmental Scientist, BEMP, CEnvP
(9 years contaminated land experience)

Signed: 

Email: hollie@momentumenviro.co.nz
Phone: 027 513 4057

Report reviewed and certified as a Suitably Qualified and Experienced Practitioner by:

Nicola Peacock, Principal Environmental Engineer, NZCE, CEnvP
(16 years contaminated land experience within 32 years environmental experience)

Signed: 

Email: nicola@momentumenviro.co.nz
Phone: 021 132 0321

CONTENTS

APPENDICES

1 Executive Summary

The site is a rural residential lot located at 9/487 Weedons Road in Rolleston, Canterbury. It is proposed to develop the site for residential use. This will involve the subdivision of the site, change of use of the land and disturbance of soils. Therefore, an assessment under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) is required. It is also noted that Momentum Environmental Ltd (MEL) is obligated to consider the requirements of Section 10 (4) of the Health and Safety at Work (Asbestos) Regulations 2016.

The Preliminary Site Investigation (PSI) portion of this investigation identified potential sources of contamination on the site associated with confirmed or likely Hazardous Activities and Industries List (HAIL) activities and determined there may be a risk to human health from contaminated soils. It was recommended that a Detailed Site Investigation (DSI) be undertaken on the identified risk areas. The identified potential sources of contamination are:

- Potential use of persistent pesticides within an orchard (HAIL A10).
- Fuel and chemical storage occurring within the gravelled yard area at the site (HAIL A17).
- Potential heavy metal and asbestos contamination for likely imported fill material to the site as part of the owner/tenants landscaping operation (HAIL G5)
- Heavy metal contamination within potential burn areas and burn drums (HAIL Category I).

In terms of planning status, the PSI has identified evidence of HAIL activities occurring on the site. Therefore, the NESCS does apply, and resource consent may be required for the future subdivision, change of land use and soil disturbance.

Should the DSI identify areas of contamination at the site, it is expected that remediation to a standard suitable for residential use is achievable.

2 Objectives of the Investigation

This report has been prepared in general accordance with the Ministry for the Environment's 'Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand, revised 2021' and the 'New Zealand Guidelines for Assessing and Managing Asbestos in Soils, revised 2024'. This report includes all requirements for a Preliminary Site Investigation report.

The objective of this report is to:

- Collect and assess information from multiple sources to understand previous and current land uses.
- To describe the site's physical and environmental features to understand potential pathways and receptors.
- To establish under the NESCS whether it is more likely than not that an activity or industry described in the Hazardous Activities and Industries List (HAIL) is being, or has been, undertaken on the site.
- To assess whether there is any risk to potential receptors that would warrant further investigation.

3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Obtaining and review of Environment Canterbury (ECan) GIS data including the Listed Land Use Register (LLUR).
- Search of Land Information New Zealand (LINZ) orchard database.
- Review of relevant historical aerial photographs.
- Review of relevant historical certificates of title (CTs).
- Review of Selwyn District Council (SDC) property files.
- Site inspection.
- Preparation of this report in accordance with MfE guidelines.

4 Site Identification

The site is located at 9/487 Weedons Road, Rolleston, Canterbury as shown on the plan in **Figure 1** below. The site is legally described as Lot 5 DP 47839 and has a total area of approximately 4.33ha.

Figure 1 – Location Plan

5 Proposed Site Use

It is proposed to rezone the site to allow residential development. This will enable the future change in land use, subdivision and disturbance of soils.

6 Site Description

6.1 Environmental Setting

Table 1 – Environmental Information

Topography	The site is generally flat land.
Geology	The ECan GIS database describes the soils at the site as Templeton deep silt. Nearby and on-site bore logs indicate that topsoils are underlain by layers of clay, claybound gravels, and sandy gravels.
Soil Trace Elements	According to the ECan GIS database, natural concentrations of trace elements for the site are those of the 'Regional, Recent' soil group.
Groundwater	The site lies over the unconfined and semiconfined gravel aquifer system. Groundwater levels recorded on nearby and on-site bore logs are between 12.8m and 14.85m deep. The direction of groundwater flow is generally south-easterly.
Surface Water	A water race runs along the opposite side of Weedons Road.

6.2 Site Layout and Current Site Uses

The site has a rural residential use. A dwelling with an attached garage and sheds are present at the site. The remainder of the site is divided into paddocks used for grazing.

6.3 Surrounding Land Uses

The surrounding land is similar rural residential land.

6.4 Geotechnical Investigations

At the time of writing no geotechnical investigations were made available to Momentum Environmental Ltd (MEL).

7 Historical Site Use

7.1 Previous Site Ownership and Use

Historical Certificates of Title (CTs) were reviewed and the following ownership information obtained. Potentially contaminating activities are shown in bold and discussed further in latter sections of the report.

03 August 1897	George Troll, farmer
26 May 1903	William McMeekan, farmer
27 March 1907	Ellen Page, spinster
06 July 1909	Walter Wright, farmer
01 July 1922	William Henry Peter Sowden, farmer
19 June 1933	Duncan Gillanders, farmer
22 November 1945	Ian Thomas Reid, farmer
11 February 1977	Ian Thomas Reid, farmer, John Walker Allan, farmer and The Trustees Executors and Agency Company of New Zealand
11 September 1984	**Northern Spy Orchards Ltd, Target Orchard Ltd, Green Leaf Orchard Ltd, City Side Orchard Ltd, Ellesmere Orchard Ltd, Paparua Orchard Ltd,**

	Export Apples Ltd, Orchard Ride Ltd, Long Acre Orchard Ltd, Big Pick Orchard Ltd and Red Apple Orchard Ltd
22 October 1985	**Paparua Orchard Ltd**
02 December 1999	Northwest Farm Ltd
13 April 2000	Douglas Eric Adams, Julia Margaret Adams and Craig Alan Hastie
06 November 2020	Douglas Eric Adams and Julia Margaret Adams
30 April 2021	Sang Hyun Lee

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed. Copies of the historical CTs are included in **Appendix A.**

7.2 District Authority Records

The site is currently zoned Inner Plains in the operative Selwyn District Plan and General Rural Zone in the proposed Selwyn District Plan.

Property files were provided by Selwyn District Council (SDC) and reviewed on 01 July 2025. The files included the following permits and consents:

- A building consent application for a farm shed, dated 11 May 2001.
- A building consent application for a septic tank, dated 22 October 2002.
- A building consent application for a domestic dwelling, dated 06 January 2003.

7.3 Regional Council Records

The site is listed on the Listed Land Use Register (LLUR) as part of a larger area of land for activities and industries as per the 'Hazardous Activities and Industries List' (HAIL). Site 118904, which includes the current site, is listed for 'HAIL A10 – persistent pesticide bulk storage or use'. The LLUR statement notes that an orchard was developed around 1984, with 1994 aerial photographs used to define the extent of planting. Site 118904 is categorised as 'Verified HAIL, has not been investigated'.

Two nearby properties are also listed:

- 6/487 Weedons Road is listed as 'Site 235788', also for 'HAIL A10 – persistent pesticide bulk storage or use' and was part of the same orchard as Site 118904. This part of the orchard is listed as 'yet to be reviewed' as investigations have been undertaken but not yet reviewed by ECan. Part of Site 235788 was investigated by Pattle Delamore Partners Ltd (PDP) in June 2019 and later by MEL in March 2024. The investigations found no heavy metal or organochlorine pesticide (OCP) contamination that would pose a risk to human health or the environment from the former orchard use. A burn area contaminated with heavy metals above 'residential 10% produce' soil guideline values (SGVs) was identified and broadly delineated. The identified contaminated area is approximately 240m north-west of the site.
- 10/487 Weedons Road is listed as 'Site 412187' also for 'HAIL A10 – persistent pesticide bulk storage or use' and was part of the same orchard as Site 118904. A Preliminary and Detailed Site Investigation Report (PSI/DSI) was prepared by MEL in December 2024 and identified four areas of contamination associated with a former livestock dip, a former shed and burn areas. There was no contamination identified in relation to the former horticultural use of Site 412187. The PSI/DSI report recommended remediation of the identified areas of contamination.

The ECan GIS database shows one active bore on the site, used for domestic and stockwater supply. Several wells are located on land within a 100m radius of the site, also used for domestic and stockwater supply.

The ECan GIS database does not show any active resource consents for the site. Active resource consents for land within the surrounding area permit the discharge of domestic sewage tank effluent into ground.

7.4 LINZ Records

The LINZ Orchard layer shows there is a listed orchard on part of the site. There are other nearby orchards as shown in blue on the plan below.

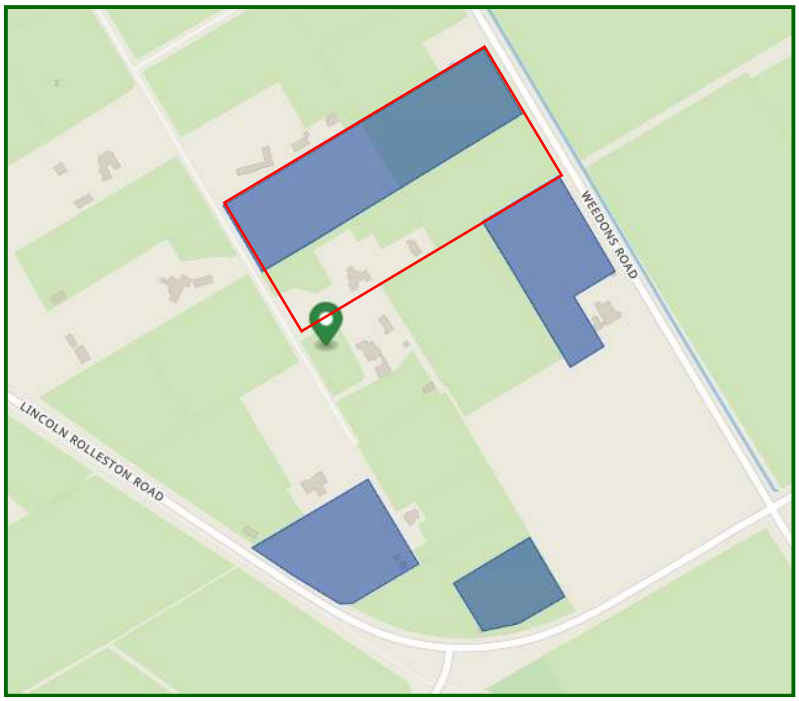


Figure 2 – LINZ Plan showing the listed orchards (blue) in relation to the site (red)

7.5 Review of Historical Aerial Photographs

A total of ten historical aerial photographs have been sourced from ECan GIS database to assess the historical use of the site. Copies of the aerial photographs used are included in **Appendix C.**

- The earliest available aerial photograph is from **1942** and shows the site is vacant pastoral land. Farm sheds and a dwelling are present on land to the south of the site. A gravel pit is present further south of the site. The remaining surrounding land is vacant pastoral land.
- The next available aerial photograph is from **1961** and shows no significant changes to the site. A dwelling and shed are present on land to the north of the site.
- The **1974** aerial photograph shows no significant changes to the site. A possible livestock dip is present within the farmyard area of land to the south of the site. There are no other significant changes to the surrounding area.
- The **1982** aerial photograph shows no significant changes to the site or surrounding area.

- The **1994** aerial photograph shows an orchard has been planted across the site and most of the surrounding land. All the previously noted structures have been removed from land to the south of the site. There are no other significant changes to the surrounding area.
- The **1995** aerial photograph shows no significant changes to the site or surrounding land.
- The **2000** aerial photograph shows no significant changes to the site or surrounding land.
- The **2004-2010** aerial photograph shows the orchard has been removed from the south-west paddock and a dwelling and shed constructed. The orchard is still present in the remaining three paddocks. A dwelling and sheds are present on land to the north, north-west and south.
- The **2016** aerial photograph shows the orchard has been removed from the south-east paddock. A pump shed and water tank are present in the south-east paddock. Two areas of soil disturbance or potential burn areas are present in the south-east and north-east paddocks. The dwelling has an established curtilage area with patio and vegetable garden. There are no significant changes to the surrounding area.
- The latest aerial photograph is dated **2020** and shows the orchard has been removed from the north-east paddock. A potential burn area is present in the north-east paddock. The two previously noted potential burn areas are no longer visible. There are no other significant changes to the site or surrounding area.

8 Site Inspection

A site inspection was conducted on 02 July 2025 to identify any potential sources of contamination. A Site Inspection Plan, detailing potential sources of contamination identified during the site inspection is included in **Appendix D**.

The residential curtilage area contains a two-storey dwelling with an attached garage, lawn area and vegetable garden. The dwelling and attached garage are a brick clad modern structure with no visible asbestos containing materials (ACM) on the exterior of the structure and no risk from lead-based paint use. Burn drums are present in the gravelled driveway on the western side of the house and in a soil garden bed on the northern side of the house. The burn drums contain general household rubbish as well as minor timber offcuts. There were no obvious signs of ash or discoloured soils surrounding the burn drums. A garden shed and domestic greenhouse are present adjacent to the vegetable garden.

Photo 1 – Dwelling

Photo 2 – Burn drum in gravelled driveway

Photo 3 – Burn drum in garden bed

Photo 4 – Vegetable garden, greenhouse and shed

To the east of the residential curtilage area is a gravelled yard area containing a two-bay storage shed and concrete base garage. The yard area appears to be used by the tenant/current owner as part of his landscaping business. The garage and storage shed contain tools, construction materials and equipment. There is a burn drum at the entrance of the gravelled two-bay storage shed. The burn drum contains general household rubbish and treated timber offcuts. There were no obvious signs of ash or discoloured soils surrounding the burn drum. Also within the yard area is a diesel aboveground storage tank (AST) situated on a gravel base. There were no obvious spills or leaks however there was a strong hydrocarbon odour. An intermediate bulk container (IBC) is present in this general area. The IBC was empty however appears to be set up to pump out either collected rainwater or an unknown chemical. A chemical storage shed is present along the treeline in the yard. The shed contained containers of concrete sealer and hydrochloric acid among other containers with unknown substances. The chemical shed had a timber floor. Throughout the yard area are multiple small stockpiles of visually clean topsoils and gravels, likely sourced from on-site or imported to the site from other properties as part of the landscaping business.

Photo 5 – Storage shed and garage within yard

Photo 6 – Burn drum

Photo 7 – Diesel AST

Photo 8 – IBC

Photo 9 & 10 – Chemical storage shed

Photo 11 – Example of soil stockpiles

Photo 12 – General storage area

To the east of the yard area stockpiles or soil, broken concrete foundations, a stockpile of asphalt, bark, decorative gravels and astroturf are present. One stockpile of soil appeared to contain demolition rubble. There was no visible ACM present in the stockpiles.


Photo 13 & 14 – Foundation rubble and soil stockpiles


Photo 15 & 16 – Asphalt pile and soil stockpiles

In the south-east paddock is a large stockpile of green waste with some treated timber present. The stockpile appears to be for burning. There was no access to underlying soils to assess whether burning had already occurred in this location however there was no burnt materials visible on the surface soils. A pump shed and water tank are also present along the treeline in the south-east paddock.


Photo 17 – Green waste and timber posts stockpile **Photo 18 – Pump shed and tank**

A second stockpile of green waste, timber offcuts and treated timber posts is present in the north-east paddock. Again, there was no access to underlying soils to assess whether burning had already occurred in this location however there was no burnt materials visible on the surface soils. This potential burn area is consistent with that seen on recent aerial photographs. The two other potential burn areas noted on the 2016 aerial photograph were not visible during the site inspection and no remnants of burning were present in these locations.

An olive orchard is present in the north-west paddock. The olive trees do not appear to be currently maintained.


Photo 19 & 20 - Green waste and timber posts stockpile

Photo 21 – Olive orchard

9 Preliminary Risk Assessment

9.1 Potential HAIL Uses

The Hazardous Activities and Industries List (HAIL) compiled by the Ministry for the Environment includes the following categories (*in italics*) that could be associated with the historical uses of the subject site, with a summary of the risk of these activities having been carried out on the subject site.

A – Chemical manufacture, application and bulk storage

10. Persistent pesticide bulk storage or use, including sport turfs, market gardens, orchards, glasshouses or spray sheds

The owners of the site between 1984 and 1999 were apple orchard companies. Aerial photographs show the site was planted as orchard from at least 1994. The orchard was progressively removed from the site from the early 2000's onwards. The north-west paddock currently contains an olive orchard. Given the era of the orchard, the use of organochlorine pesticides (OCPs) is considered highly unlikely, however, has been included as a contaminant of concern out of an abundance of caution.

Contaminants of concern include heavy metals, OCPs and organonitrogen and organophosphate (ONOPs).

17. Storage tanks and drums for fuel, chemicals and liquid waste

An AST containing diesel is present within the yard area at the site. Small amounts of chemical storage are occurring in areas across the site, including in the chemical storage shed, two-bay storage shed and potentially in the IBC.

Contaminants of concern include heavy metals, hydrocarbons and various others depending on chemical storage occurring.

G – Cemeteries and waste recycling, treatment and disposal

5. Waste disposal to land

The tenant/current owner appears to work as a landscaper and multiple stockpiles or soils and gravels, including a stockpile of broken concrete foundations, a stockpile of asphalt, bark, decorative gravels and astroturf are present. One stockpile of soil appeared to contain demolition rubble. As the source of the material is unknown, there is a potential risk of soil contamination.

Contaminants of concern include heavy metals and asbestos.

H - Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment

The orchard present on the site also extended onto adjacent land. It is considered highly unlikely that migration of contaminants to the site from other parts of the orchard area would be distinguishable from any contamination on the site from its own orchard use.

I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

Multiple possible burn areas were observed on aerial photographs from 2016 and 2020 onwards. Two potential burn piles were observed during the site inspection. The burn piles contain green waste and treated timber offcuts and fenceposts. The site also contains three burn drums with household waste and treated timber offcuts. While impacts to the underlying soils were not visible in any of the burn piles or drums at the site, full visual assessment of the underlying soils was not possible at the time of the inspection and therefore contamination of the underlying soils from previous burning of anthropogenic waste materials cannot be ruled out.

Contaminants of concern include heavy metals.

9.2 Preliminary NESCS Assessment

In relation to the NESCS, Regulation 5(7) states that land is considered to be covered if an activity or industry described in the HAIL is being undertaken; has been undertaken; or is more likely than not to have been undertaken on it. Regulation 6 describes the methods for determining this. Method 6(3) is to rely on a Preliminary Site Investigation. The 'NESCS Users Guide' indicates the test for 'more likely than not' is whether there is more than a 50 percent likelihood of the HAIL having occurred.

The table below states the likelihood of each HAIL identified in **Section 9.1** above.

Table 2 – Preliminary NESCS Assessment

HAIL Category	6(3)a - Is being undertaken	6(3)b – has been undertaken	6(3)c – likelihood of having been undertaken (if not confirmed)
A10 – Persistent pesticide bulk storage or use	-	-	More likely than not
A17 – Fuel and chemical storage	Yes	-	-
G5 – Waste disposal to land	Yes	-	-
H – migration of contaminants	-	-	Highly unlikely
I – Any other land	-	-	More likely than not

9.3 Conceptual Site Model

The following preliminary conceptual site model (CSM) indicates potentially complete exposure pathways associated with the identified risks at the site. The locations of the risk areas are shown on **Figure 3** below.

Table 3 – Conceptual Site Model

Conceptual Site Model				
Source	**Pathways**		**Receptor**	**Exposure Pathway Status**
• Potential use of persistent pesticides on orchard. • Potential heavy metal and hydrocarbon contamination from fuel and chemical storage. • Potential heavy metal contamination within current and possible former burn areas. • Potential heavy metal and/or asbestos contamination from imported fill material.	**Human**	Dermal contact, ingestion and inhalation through soil contact	Current and future site occupiers and workers involved in soil disturbance activities.	Potentially complete
	Ecological	Infiltration through soils to groundwater	Groundwater is expected to be 12.8-14.85m deep at the subject site.	Likely incomplete due to depth to groundwater.
		Surface runoff to waterways	Water race on opposite side of Weedons Road	Likely incomplete due to separation distance and shelterbelts preventing spray drift.

Based on the NESCS assessment and the preliminary CSM above, the NESCS does apply to the site. It is recommended that a Detailed Site Investigation, in terms of the Ministry for the Environments Contaminated Land Management Guidelines, be undertaken on the identified risk areas prior to development. These areas are shown on the Risk Area Plan below. Due to their small sizes, the approximate locations of the potential/known burn areas are simply marked with a yellow cross and the imported fill marked with a green cross.

Figure 3 – Risk Area Plan (yellow 'X' for potential former and current burn areas green 'X' for imported fill stockpiles)

10 Conclusion

This PSI has shown that the site has been used for genera pastoral purposes until converted to an orchard from at least 1994. The orchard was progressively removed from the site from the early 2000's onwards, during which time the south-west paddock was developed for rural residential purposes. The north-west paddock currently contains an olive orchard. The following potential sources of contamination have been identified for the site and are shown on the Risk Areas Plan in **Figure 3** above.

- Potential use of persistent pesticides within an orchard (HAIL A10).
- Fuel and chemical storage occurring within the gravelled yard area at the site (HAIL A17).
- Potential heavy metal and asbestos contamination for likely imported fill material to the site as part of the owner/tenants landscaping operation (HAIL G5)
- Heavy metal contamination within potential burn areas and burn drums (HAIL Category I).

In terms of planning status, the Preliminary Site Investigation has identified evidence of HAIL activities occurring on the site. Therefore, the NESCS does apply, and resource consent may be required for the future subdivision, change of land use and soil disturbance.

11 Limitations

Momentum Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is

supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Momentum Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Momentum Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

No part of this report may be reproduced, distributed, publicly displayed, or made into a derivative work without the permission of Momentum Environmental Ltd, other than the distribution in its entirety for the purposes it is intend

Appendix A – Historical Certificates of Title

CANCELLED

Land and Deeds 69

No. 168/949

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 22.6624 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4296

DISTRICT LAND REGISTRAR CANTERBURY N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 14.12.1977 at 9.33 am.

DISCHARGED

A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

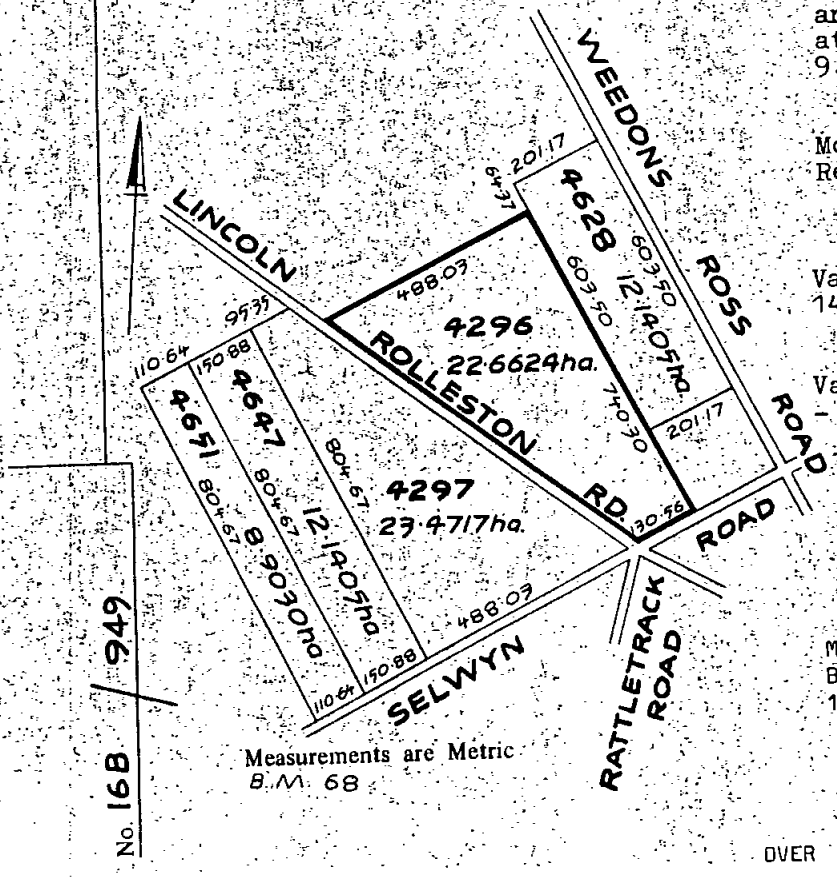
DISCHARGED

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11-12-1981 at 9.40a.m.

DISCHARGED

for A.L.R.



Measurements are Metric
S.M. 68

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority Making Mortgages 384123/1 and 116057/2 first and second Mortgages respectively - 11-12-1981 at 9.40a.m.

for A.L.R.

DISCHARGED

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

for A.LR.

PLAN No. 47504 LODGED 3/6/1984 AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984
AND DEPOSITED 16/10/1984

Pursuant to Section 306 (3) of the Local Government Act 1974 Lot 19 Plan 47504 is vested in the Ellesmere County Council as Road

A.L.R.

No.502775/1 Compliance Certificate pursuant to Section 306 (1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

O.C.T.512483/2) 16.10.1984)

Cancelled and CsT.26F/951-953 issued for Lots 16-18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

Land and Deeds 69

No. 168 951

References
Prior C/T 207/200

Transfer No.
N/C. Order No. 77158/1

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 26th day of April one thousand nine hundred and seventy six under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that IAN THOMAS REID of Springston, Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 12.1405 hectares or thereabouts situated in Block IV of the Leeston Survey District, being Rural Section 4628

DISTRICT LAND REGISTRAR CANTERBURY, N.Z.

Assistant Land Registrar

Transfer 116057/1 to Ian Thomas Reid, of Springston, Farmer, John Walker Allan of Dunsandel, Farmer and The Trustees Executors and Agency Company of New Zealand at Dunedin - 11.2.1977 at 9.39 a.m.

A.L.R.

Mortgage 116057/2 to Ian Thomas Reid - 11.2.1977 at 9.39 a.m.

DISCHARGED 11.12.1981 A.L.R.

A.L.R.

Variation of Mortgage 116057/2 14.12.1977 at 9.33 am.

DISCHARGED

for A.L.R.

Variation of Mortgage 116057/2 - 24.10.1978 at 10.36 am.

DISCHARGED

for A.L.R.

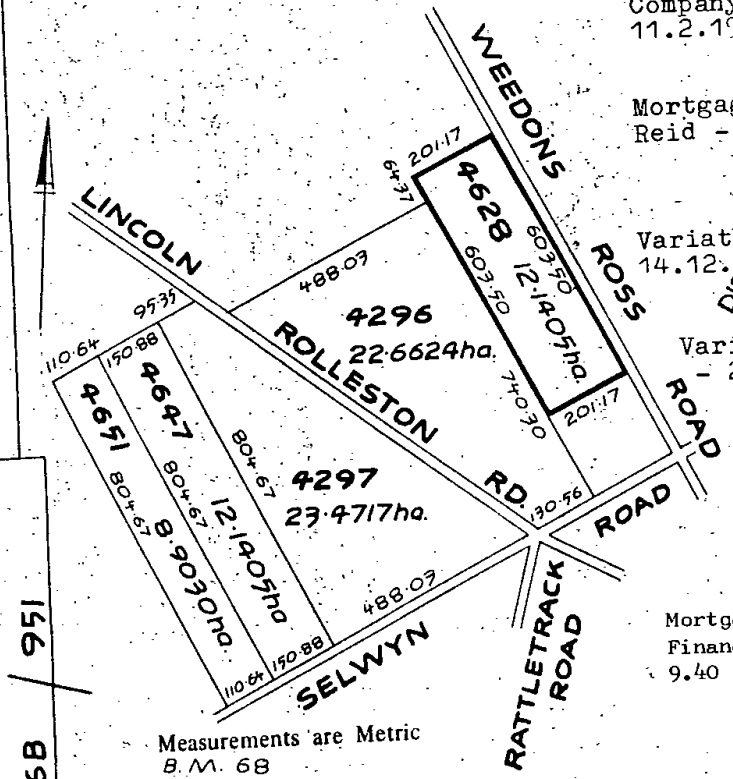
Variation of Mortgage 116057/2 - 4.2.1980 at 9.53 am.

DISCHARGED 11.12.1981

for A.L.R.

Mortgage 359857/1 to The Rural Banking and Finance Corporation - 11.12.1981 at 9.40 a.m.

for A.L.R.



OVER...

Register copy for L. & D. 69, 71, 72

No. 359857/2 Memorandum of Priority making Mortgages 359857/1 and 116057/2 first and second mortgages respectively - 11.12.1981 at 9.40 a.m.

for A.L.R.

Variation of Mortgage 116057/2 - 28-5-1982 at 9.08a.m.

for A.L.R.

Mortgage 384123/2 to The Bank of New South Wales - 28-5-1982 at 9.09a.m.

for A.L.R.

Variation of Mortgage 359857/1 - 10.12.1982 at 9.28 a.

for A.L.R.

Variation of Mortgage 359857/1 - 15.9.1983 at 9.20 am.

for A.L.R.

PLAN No. 47504 LODGED 5/6/84
AND DEPOSITED

Northern Spy Orchards Limited, Transfer 507081/4 to Target Orchard Limited, Green Leaf Orchard Limited, City Side Orchard Limited, Ellesmere Orchard Limited, Paparua Orchard Limited, Export Apples Limited, Orchard Ride Limited, Long Acre Orchard Limited, Big Pick Orchard Limited and Red Apple Orchard Limited all at Timaru as tenants in common in equal shares - 11.9.1984 at 11.45 a.m.

for A.L.R.

Mortgage 507081/5 to Raymond Sullivan Solicitors Nominee Company Limited - 11.9.1984 at 11.45 a.m.

for A.L.R.

PLAN No. 47839 LODGED 3/10/1984
AND DEPOSITED 16/10/84

No.502775/1 Compliance Certificate pursuant to Section 306(1)(f)(i) Local Government Act 1974 - 15.8.1984 at 2.30pm.

A.L.R.

OCT 512483/2) 16.10.1984) Cancelled and CsT.26F/952 and 953 issued for Lots 17 and 18 D.P.47504.

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

CANCELLED Land and Deeds 69

REGISTER

No. 28A/420

References
Prior C/T 26F/952,953

Transfer No.
N/C. Order No. 572825/3

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

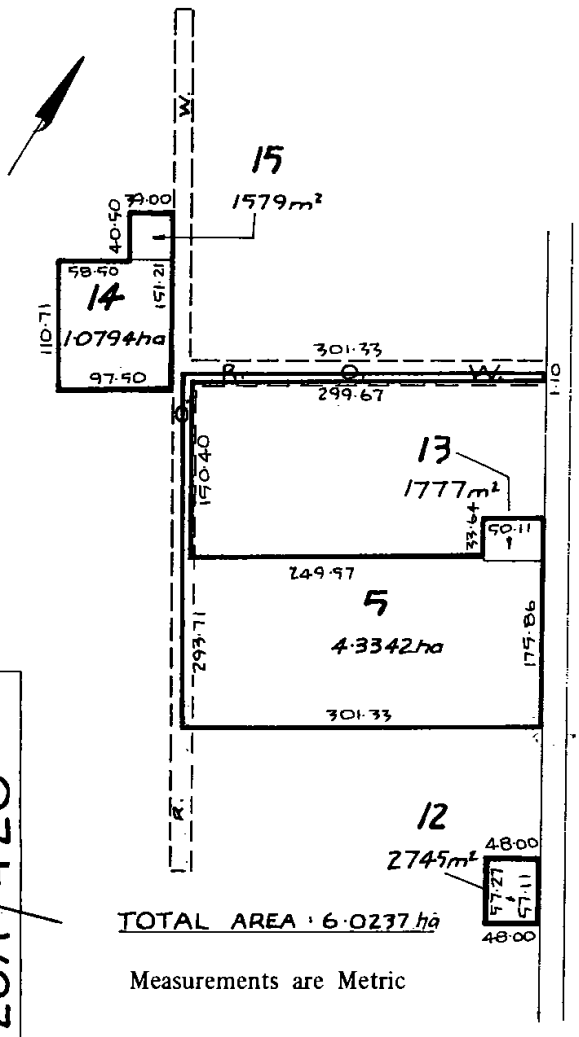
This Certificate dated the 22nd day of October one thousand nine hundred and eighty-five under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that NORTHERN SPY ORCHARDS LIMITED, TARGET ORCHARD LIMITED, GREEN LEAF ORCHARD LIMITED, CITY SIDE ORCHARD LIMITED, ELLESMERE ORCHARD LIMITED, PAPARUA ORCHARD LIMITED, EXPORT APPLES LIMITED, ORCHARD RIDE LIMITED, LONG ACRE ORCHARD LIMITED, BIG PICK ORCHARD LIMITED AND RED APPLE ORCHARD LIMITED all at Timaru as tenants in common in equal shares are ------

FIRSTLY

~~is~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3342 hectares or thereabouts being Lot 5 on Deposited Plan 47839 AND SECONDLY an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.6895 hectares or thereabouts being Lots 12,13 14 and 15 on Deposited Plan 47839 ——

Ellesmere County



Measurements are Metric

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

ASSISTANT LAND REGISTRAR

Subject to:

i. No. 572825/2 Resolution pursuant to Section 321 (3)(b) Local Government Act 1974 in respect of Lots 14 and 15 herein - 22.10.1985 at 12.10 p.m.

DISCHARGED 29 APR 1986

ii. Mortgage 557632/2 to Templeton Nominee Company Limited - 23.7.1985 at 10.47 a.m.

A.L.R.

Mortgage 557632/3 of Mortgage 557632/2 to Development Finance Corporation of New Zealand - 23.7.1985 at 10.47a.m.

DISCHARGED 29 APR 1986

A.L.R.

OVER...

No. 28A/420

CERTIFICATE OF TITLE No. 28A / 420

No. 572825/4 Easement Certificate specifying intended easements on DP 47839

Nature	Servient Tenement	Dominant Tenement
Right of Way Right to drain water and sewage, right to convey electric power, telephonic communications and water	5J(herein)	1-4,6-11, 14 & 15 (28A/416-419,421-426)
" "	1C,2B,3A, 4K,6I,7H, 8G,9F,10E, 11D	5,14 & 15

- 22.10.1985 at 12.10 p.m.

A.L.R.

The easements specified in Easement Certificate 572825/4 above, when created, will be subject to Section 309 (1)(a) Local Government Act 1974

A.L.R.

Transfer 572825/9 to Paparua Orchard Limited at Christchurch - 22.10.1985 at 12.10p.m.

A.L.R.

CAVEAT 572825/16 BY SELWYN COUNTY COUNCIL - 22.10.1985 at 12.10p.m.

WITHDRAWN

A.L.R.

Mortgage 599926/20 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1986

for A.L.R.

Mortgage 599926/21 to Mortgage 599926/20 to Development Finance Corporation of New Zealand - 29.4.1986 at 11.03a.m.

DISCHARGED 3 JUL 1986

for A.L.R.

Mortgage 599926/22 to Templeton Nominee Company Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 519 1986 A.L.R. A6.752101

for A.L.R.

Mortgage 599926/23 to Mortgage 599926/22 to The National Bank of New Zealand Limited - 29.4.1986 at 11.03a.m.

DISCHARGED 519 1986 A.L.R. A6.752101

for A.L.R.

Mortgage A2555/3 to ASB Bank Limited - 3.7.1992 at 11.35am

A.L.R.

OCT A57248/1&/6 - 22.6.1993 Cancelled and NCT 37B/612, 37B/605 issued for Lot 12 DP 47839 and the balance herein respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED

9577E—50,000/12/83MK

References
Prior C/T 28A/ 420

Transfer No.
N/C. Order No. A57248/ 6

Land and Deeds 69

REGISTER

CANCELLED

No. 37B/605

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 22nd day of June one thousand nine hundred and ninety three under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that PAPARUA ORCHARD LIMITED at Christchurch ---

is seised ~~of an estate~~ Firstly in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3342 hectares or thereabouts being Lot 5 Deposited Plan 47839 and Secondly an estate in fee simple as to an undivided one-eleventh share in all that parcel of land containing 1.4150 hectares or thereabouts being Lots 13,14 and 15 Deposited Plan 47839.

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR

Lots 14 and 15 DP 47839 are subject to:

Certificate 572825/2 pursuant to Section 321(3)(b) Local Government Act 1974 - 22.10.1985 at 12.10pm

Subject to:

Right of Way marked J on DP 47839, right to drain water and sewage, right to convey water, electric power and telephonic communications over part herein appurtenant to Lots 1-4,6-11,14&15 on DP 47839 (37A/601-604,606-611) as specified in Easement Certificate 572825/4

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

Mortgage A2555/3 ASB Bank Limited - 3.7.1992 at 11.05am

DISCHARGED 9/1 for RGL

Appurtenant hereto:

Rights of Way marked C,B,A,K,I,H,G,F,E&D respectively on DP 47839, rights to drain water and sewage and rights to convey electric power, telephonic communications and water over part Lots 1-4, 6-11 DP 47839 (37B/601-604, 606-611) as specified in Easement Certificate 572825/4

Measurements are Metric

The easements specified in Easement Certificate 572825/4 are subject to (now) Section 243(a) Resource Management Act 1991

A.L.R.

The within land has the benefit of a land covenant over Lot 12 DP 47839 (37B/612) contained in Transfer A69509/13 - 6.9.1993 at 11.13am

for A.L.R.

Mortgage A277254/5 to The Trustees Executors and Agency Company of New Zealand Limited

DISCHARGED 9/1 for RGL

No. A277254/11 Memorandum of Priority making Mortgages A277254/5 and A2555/3 first and second mortgages respectively both on 14.1.1997 at 2.41pm

for A.L.R.

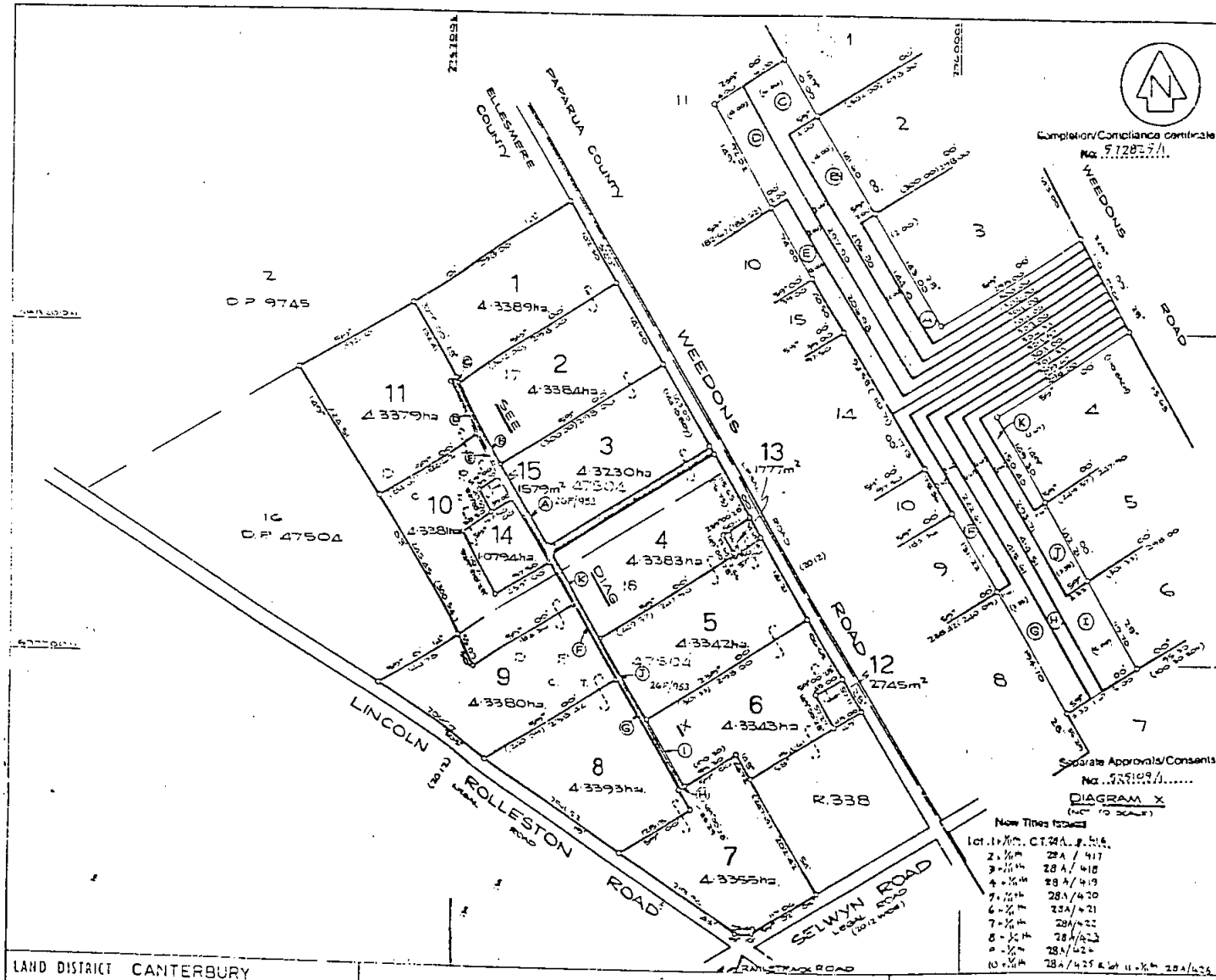
A414880.23 Transfer to Northwest Farm Limited

A414880.24 Mortgage to Bank of New Zealand

all 9.7.1999 at 12.34

for RGL

No. 37B/605



Completion/Compliance certificate No. 572827/1

Separate Approvals/Consents No. 575109/1

DIAGRAM X (NOT TO SCALE)

New Titles Issued

Lot	Area	C.T.
2	4·3389	28A / 417
3	4·3384	28A / 418
4	4·3230	28A/419
5	4·3383	28A/420
6	4·3342	28A/421
7	4·3343	28A/422
8	4·3365	28A/423
9	4·3393	28A/424
10	4·3380	28A/425 & Lot 11 4·3379 28A/426

APPROVED

Registered Proprietor

NOTE: LOTS 12 & 13 HAVE NO FRONTAGE TO A PUBLIC ROAD.

MEMORANDUM OF EASEMENTS

NATURE	SERVIENT TENEMENT LOT NO	SERVIENT TENEMENT SUBN	DOMINANT TENEMENT
RIGHT TO CONVEY WATER	2	A	1
	3	A	2
	4	A	3
	5	A	4
	6	A	5
	7	A	6
	8	A	7
	9	A	8
	10	A	9
	11	A	10
	12	A	11
	13	A	12
	14	A	13
	15	A	14

Pursuant to a resolution under Section 305 Local Government Act 1974 dated 19th day of November 1984 the Ellesmere County Council has approved this plan of subdivision conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifies that the plan is in accordance with the requirements and provisions of the operative district scheme The common seal of the Ellesmere County Council was affixed hereto in the presence of

Chairman

County Clerk

Total Area 49·8854ha.

Comprised in C.T. 2GF/952 & C.T. 2GF/953.

I BRIAN ROBERT FOOTE, CHRISTCHURCH Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at CHRISTCHURCH this 25th day of Sept 1984 Signature B.R. Foote

Field Book — Traverse Book —

Reference Plans DP 9745, 29901, 47504 SO SRGP 5870

Examined [illegible] Cancelled [illegible]

Approved as to Survey

15 : 1 : 85 Chief Surveyor

Deposited this 22nd day of October 1985

District Land Registrar

DP 47839

LAND DISTRICT CANTERBURY
SURVEY BLK.& DIST. IV LEESTON
NZMS 261 SHEET No. M36 - 10000/3-1

LOTS 1—15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504

TERRITORIAL AUTHORITY Ellesmere County
Surveyed by McCaskill, Gammack & Associates
Scale 1 : 4000 Date July 1984

T

37B/605

A436549.1 CT 47C/33 issued for Lot 13 DP 47839 & CT 47C/34 & 39 issued for Lots 5, 14 & 15 DP 47839 - 2.12.1999 at 1.57

For RGL

CANCELLED
DUPLICATE DESTROYED

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier **CB47C/34**

Land Registration District **Canterbury**

Date Issued 02 December 1999

Prior References
CB37B/605

Estate Fee Simple

Area 4.3342 hectares more or less

Legal Description Lot 5 Deposited Plan 47839

Original Registered Owners

Douglas Eric Adams, Julia Margaret Adams and Craig Alan Hastie

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Interests

572825.4 Easement Certificate specifying the following easements - 22.10.1985 at 12.10 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 1 Deposited Plan 47839	C DP 47839	Lot 5 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 2 Deposited Plan 47839	B DP 47839	Lot 5 Deposited Plan 47839 - herein	
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 3 Deposited Plan 47839	A DP 47839	Lot 5 Deposited Plan 47839 - herein	

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 4 Deposited Plan 47839	K DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 6 Deposited Plan 47839	I DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 7 Deposited Plan 47839	H DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 8 Deposited Plan 47839	G DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 9 Deposited Plan 47839	F DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 10 Deposited Plan 47839	E DP 47839	Lot 5 Deposited Plan 47839 - herein
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 11 Deposited Plan 47839	D DP 47839	Lot 5 Deposited Plan 47839 - herein

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 1 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 2 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 3 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 4 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 6 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 7 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 8 Deposited Plan 47839

Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 9 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 10 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 11 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 14 Deposited Plan 47839
Right of way, right to drain water and sewage, right to convey water, electric power and telephonic communications	Lot 5 Deposited Plan 47839 - herein	J DP 47839	Lot 15 Deposited Plan 47839

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Land Covenant in Transfer A69509.13 - 6.9.1993 at 11.13 am

Land Covenant in Transfer A436549.2 - 2.12.1999 at 1.57 pm

A454274.3 Mortgage to Southland Building Society - 13.4.2000 at 10.59 am

11911585.1 Discharge of Mortgage A454274.3 - 6.11.2020 at 3:15 pm

11911585.2 Transfer to Douglas Eric Adams and Julia Margaret Adams - 6.11.2020 at 3:15 pm

12089566.1 Transfer to Sang Hyun Lee - 30.4.2021 at 2:29 pm

12089566.2 Mortgage to ANZ Bank New Zealand Limited - 30.4.2021 at 2:29 pm

13055587.1 Revocation of Land Covenant created by Transfer A436549.2 - 30.10.2024 at 2:29 pm

LT69

Reference:
Prior CT: 37B/605
Document No.: A436549.1

REGISTER

47C/34

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT 1952

This Certificate dated the 2nd day of December One Thousand Nine Hundred and Ninety Nine under the seal of the Registrar-General of Land, New Zealand, for the Land Registration District of CANTERBURY

WITNESSETH that **NORTHWEST FARM LIMITED**

is seised of an estate in **fee simple** (subject to such reservations, restrictions, encumbrances and interests as are notified by memorial endorsed hereon) in the land hereinafter described, delineated on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 4.3342 hectares, more or less being **LOT 5 DEPOSITED PLAN 47839**

REGISTRAR-GENERAL OF LAND NEW ZEALAND

for Registrar-General of Land

Appurtenant hereto is a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part Lots 1-4, 6-11 marked C, B, A, K, I, H, G, F, E & D respectively on DP 47839 CsT 47C/30-33, 35-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

Subject to a right of way, right to drain water & sewage, right to convey water, electric power & telephonic communications over part herein marked J on DP 47839 appurtenant to Lots 1-4, 6-11, 14 & 15 DP 47839 CsT 47C/30-33, 35-40 as specified in Easement Certificate 572825.4

The easements specified in Easement Certificate 572825.4 are subject to Section 309(1)(a) Local Government Act 1974

All 22.10.1985 at 12.10

Land covenant in Transfer A69509.13 - 6.9.1993 at 11.13

A414880.24 Mortgage to Bank of New Zealand - 9.7.1999 at 12.34

DISCHARGED 31/3/2000 for RGL

A436549.2 Transfer to Northwest Farm Limited

Land covenant in Transfer A436549.2

All 2.12.1999 at 1.57

For RGL

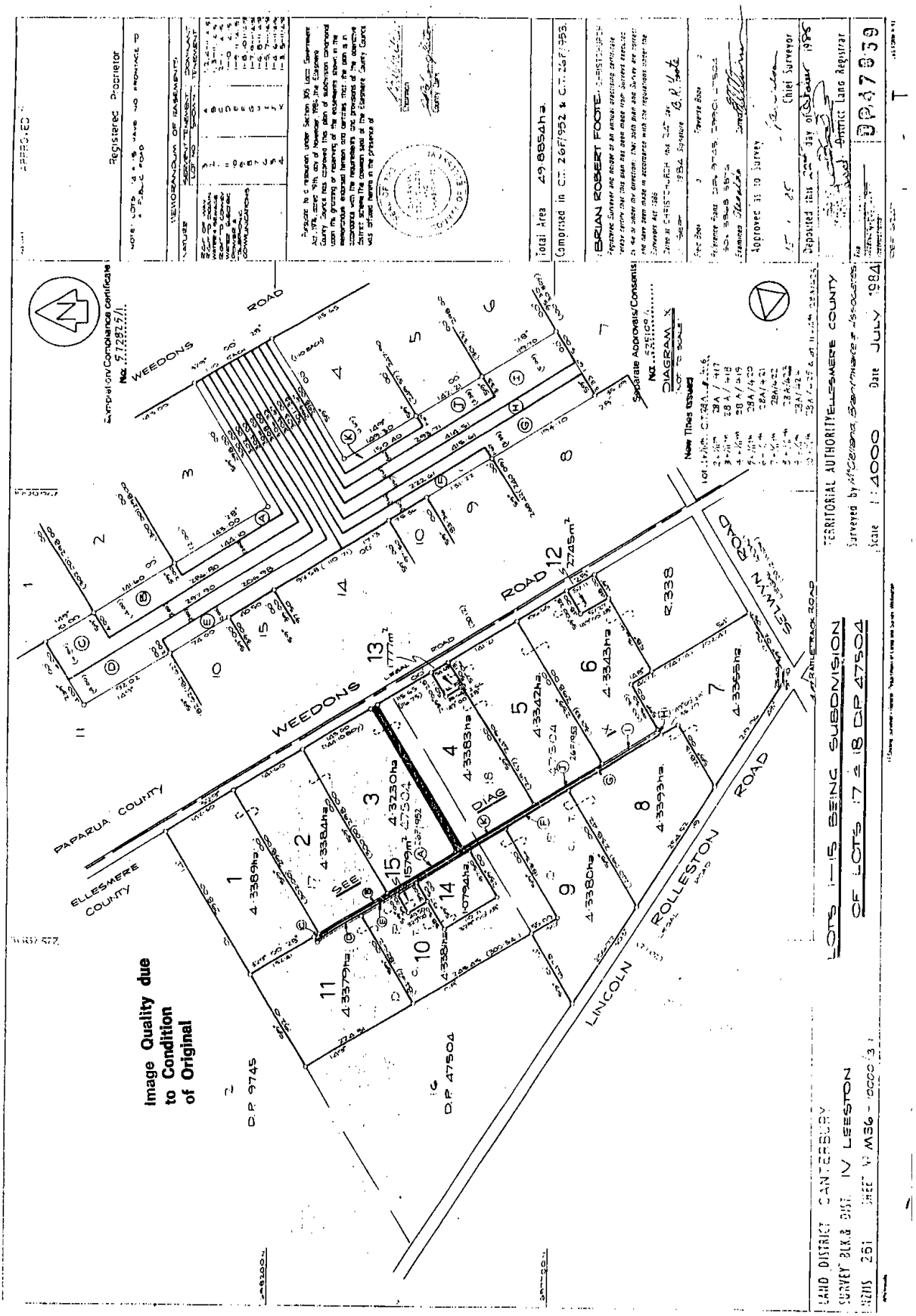
A454274.2 Transfer to Douglas Eric Adams, Julia Margaret Adams and Craig Alan Hastie

A454274.3 Mortgage to Southland Building Society

all 13.4.2000 at 10.59

for RGL

47C/34


Registered Proprietor
MEMORANDUM OF EASEMENTS
Total Area 49.8854ha.
Comprised in C.T. 26F/952 & C.T. 26F/955
BRIAN ROBERT FOOTE
Approved as to Survey
Deposited this 26th day of January 1984
Chief Surveyor
Land Registrar
DP 17839
Completion/Compliance certificate No. 5/1282/84
Separate Approvals/Consents No. 525/84
DIAGRAM X
NOT TO SCALE
New Titles Issued
WEEDONS ROAD
ROAD 12
ROAD 13
ROAD 14
ROAD 15
PAPARUA COUNTY
ELLESMERE COUNTY
LINCOLN ROLLESTON ROAD
D.P. 9745
D.P. 47504
R.338
LOTS 1-15 BEING SUBDIVISION OF LOTS 17 & 18 DP 47504
TERRITORIAL AUTHORITY ELLESMERE COUNTY
Surveyed by McCaskey, Spencer & Associates
Scale 1:4000 Date JULY 1984
LAND DISTRICT CANTERBURY
SURVEY BLK & DIST. IV LEESTON
SHEET No M36 - 12000/3
Image Quality due to Condition of Original

[Form B.

174/27

NEW ZEALAND.

Reference: Vol. 2 3, folio 69 112
~~Substituted~~
~~Transfer No.~~
~~Application No 8074.~~

Register-book, Vol. 174 folio 27

(2,000/10/96—3008

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

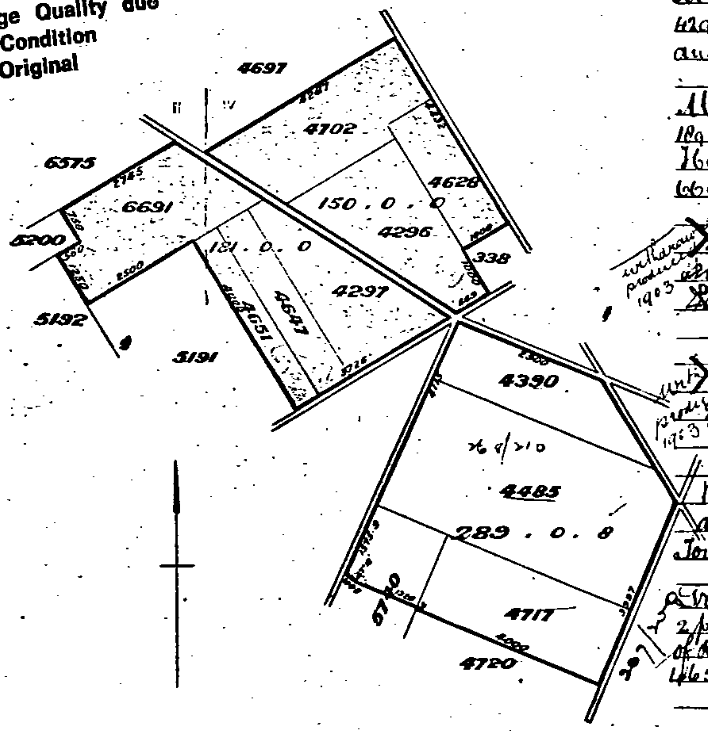
This Certificate, dated the *third* day of *August*, one thousand eight hundred and ninety-*seven*, under the hand and seal of the District Land Registrar of the Land Registration District of *Canterbury* **Witnesseth** that *George Troll of Springston Farmer*

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered *green*, be the several admeasurements a little more or less, that is to say: All ~~that~~ those parcels of land containing *together Six hundred and twenty acres and eight perches or thereabouts situated in Block IV of the Leeston Survey District comprising Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651. 4702. 4717 and 6691 and part of Rural Section 5740.*

[signature]
District Land Registrar

CANCELLED
AS TO PART COLOURED RED.

Image Quality due to Condition of Original



Scale 20 chains to an inch

Outstanding Mortgage Registered No 9154? George Troll to George Henry Moore affecting Rural Sections 4296. 4297. 4390. 4485. 4628. 4647. 4651. and 4702 and part of 5740
DISCHARGED 26.5.1903. D.L.A. *[signature]* D.L.R.

Mortgage 37606 produced 10th June 1897 at 2.45 p.m. George Troll to George Henry Moore affecting Rural Sections 4717 and 6691.
DISCHARGED 26.5.1903. D.L.A. *[signature]* D.L.R.

~~X 7??? produced 26 January 1898 at ?? p.m. against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691.~~ *[signature]* *(withdrawn produced 1903)*

~~X 12237 produced 31 July 1900 at ?? p.m. against R.S. 4296. 4297. 4628. 4647. 4651. 4702 and 6691.~~ *[signature]*

Mortgage 51269 produced 21 May 1903 at 2 p.m. George Troll to Annie Quayle Townsend *[signature]* *D.L.R.*

Transfer 59776 produced 21 May 1903 at 2 p.m. George Troll to William McMeekan of Rural Sections 4296. 4297. 4628. 4647. 4651. 4702 and 6691. *[signature]* *D.L.R.*

[signature]

174/27

174/27

Mortgage 20059 produced 5th March 1911 at 1.56 pm
George Trott to Arthur Edgar Gravenor Rhodes
and Arthur Llewellyn Bartlam Jones
Matthias Barker and Robert Peter Rhodes
and Robert Heaton Rhodes and Arthur
Edgar Gravenor Rhodes. [illegible] at [illegible]

Mortgage 20060 produced 15 March 1911 at
1.56 pm George Trott to Arthur Edgar
Gravenor Rhodes. DISCHARGED [illegible] at [illegible]

268/210 Transfer 91775 produced 10 October 1911 at 3 pm
George Trott to David Marshall of Ivanhoe
[illegible]

Cancelled

174/27

174/27

CERTIFICATE OF TITLE,

Vol. , folio

207/200

NEW ZEALAND. CANCELLED [Form B.

Reference: Vol. 174, folio 27
Transfer No. 59776

Register-book, Vol. 207, folio 200

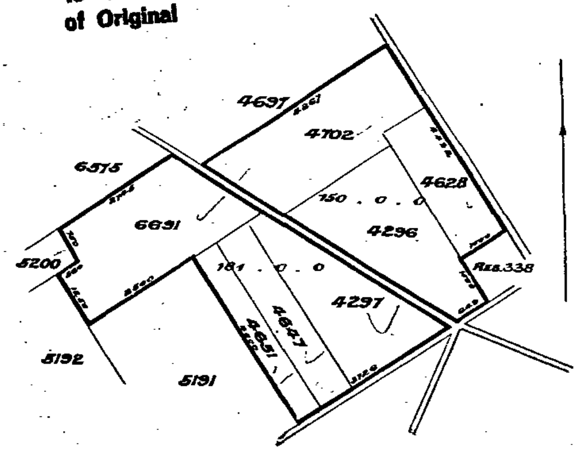
CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the twenty sixth day of May, one thousand nine hundred and three, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, Witnesseth that William McMeekan of Springston Farmer

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All ~~that~~ those parcels of land containing together three hundred and thirty one acres or thereabouts situated in Block IV of the Leeston Survey District comprising rural sections 4296, 4297, 4628, 4647, 4651, 4702 and 6691

G. G. Bridges
District Land Registrar

Image Quality due to Condition of Original



Scale, 20 chains to an inch.

Mortgage 51269 produced 26 May 1903 at 2 pm George Trott to Annie Quinn DISCHARGED 31.5.1907

G. G. Bridges DLR

Mortgage 51270 produced 26 May 1903 at 2 pm William McMeekan to Joseph Gould and George Gould DISCHARGED 27.3.1907

G. G. Bridges DLR

Transfer 74002 produced 27th March 1907 at 2.52 pm William McMeekan to Ellen Page of Christchurch Spinster

DLR

Mortgage 64656 produced 21 May 1907 at 2.10 pm Ellen Page to Annie Quinn DISCHARGED

DLR

Certificate of Marriage 718 of Ellen Page with Andrew Badock of Springston Farmer at Christchurch on 19 June 1907 produced 6 August 1907 at 2.15 pm

DLR

Transfer of all 82973 produced 6 July 1909 at 11.31 am Ellen Badock to Walter Wright of Springston Farmer

DLR

Mortgage 85724 produced 17 May 1912 at 3.15 pm Walter Wright to Annie [illegible] DISCHARGED

DLR

Transmission 9617 of Mortgage 85724 to Alfred Arnaud Morris McKellar, Cecil George McKellar, Norman Lindsay Macbeth and Frederick Henry Pyne. Entered 22nd March, 1915 at 11.49 am DISCHARGED

L.R.

207/200

207/200

Transmission 12233 of Mortgage 85724 to the above named Alfred Arnaud Morris McKellar, Cecil George McKellar and Norman Lindsay Macbeth. Entered 21 December, 1915, at 11 a.m. DISCHARGED

Extension of Mortgage 85724 and Increase of Rate of Interest produced 21st Sept 1917 at 11.5 a.m. DISCHARGED

Transmission No 14451 of Mortgage No 85724 to Cecil George McKellar and Norman Lindsay McKellar Entered 27/1/20 at 12 o'c DISCHARGED

Transfer 146952 produced 1st July 1922 at 11.20 a.m. Walter Wright to William Henry Peter Bowden of Springston Farmer

Variation of the terms of Mortgage 85724 produced 27th DISCHARGED 1922 at 11.15 a.m.

Variation of the terms of Mortgage 85724 produced 30 June 1930 at DISCHARGED p.m.

Transmission 23116 of Mortgage 85724 to Cecil George McKellar entered 3 November 1931 DISCHARGED p.m.

Transfer 200583 of Mortgage 85724 Cecil George McKellar to Frank Sturmer Wilding and George McKellar produced 3 December 1931 at 3 p.m. DISCHARGED

Transfer 204594 produced 19th June 1933 at 11.56 a.m. William Henry Peter Bowden to Duncan Gillanders of Springston Farmer

Mortgage 184635 produced 19 June 1933 at 11.56 a.m. DISCHARGED Duncan Gillanders to Godfrey Rosanbye Gracie McMillan

Mortgage 184636 produced 19 June 1933 at 11.57 a.m. Duncan Gillanders to William Henry Peter Bowden DISCHARGED

Mortgage 184637 produced 19 June 1933 at 11.58 a.m. Duncan Gillanders to Donald Gillanders DISCHARGED

Mortgage 198205 produced 16th June 1938 at 2.22 p.m. Gillanders to Godfrey Rosanbye Gracie McMillan and Douglas Rowden McKinlay and Edmund Wellesley Reeves as chattels DISCHARGED 22-11-1945

Mortgage 198206 produced 16th June 1938 at 2.23 p.m. Duncan Gillanders to Donald Gillanders DISCHARGED

Transfer 45888 produced 22 November 1945 at 11.49 a.m. Duncan Gillanders to Jean Thomas Reid a member of H.M. Armed Forces

Mortgage 223001 produced 22 November 1945 at 11.51 a.m. Jean Thomas Reid to The State Advances Corporation of New Zealand DISCHARGED

Mortgage [illegible] Transfer Douglas Endell Dunlop and Ernest Everest England to Ida Cattle Edgecombe produced 24th October 1953 at 11.27 a.m. Errors in

THIS REPRODUCTION (ON A REDUCED SCALE) IS CERTIFIED TO BE A TRUE COPY OF THE [illegible] FOR THE PURPOSES OF [illegible] TRANSFER ACT 1952.

A.L.R.

OCT 77158/1) Cancelled and
26.4.1976) C.T.'s 16B/949-
) 955 issued for
) R.S.'s 4296, 4297,
) 4628, 4647, 4651
) 4702 and 6691

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CERTIFICATE OF TITLE,

Vol. , folio

207/200

Approvals. APPROVED

Registered Proprietor

NOTE: LOTS 14 & 15 HAVE NO FRONTAGE TO A PUBLIC ROAD.

Completion/Compliance certificate No. 572825/1.

Separate Approvals/Consents No. 525109/1

DIAGRAM X (NOT TO SCALE)

MEMORANDUM OF EASEMENTS

NATURE	SERVIENT TENEMENT LOT NO	SERVIENT TENEMENT SHOWN	DOMINANT TENEMENT
RIGHT OF WAY RIGHT TO DRAIN WATER & SEWAGE RIGHT TO CONVEY WATER, ELECTRIC POWER & TELEPHONIC COMMUNICATIONS	3	A	1, 2, 4-11, 14, 15
	2	B	1, 3-11, 14, 15
	1	C	2-11 14, 15
	11	D	1-10 14, 15
	10	E	1-9, 11, 14, 15
	9	F	1-8, 10, 11, 14, 15
	8	G	1-7, 9-11, 14, 15
	7	H	1-6, 8-11, 14, 15
	6	I	1-5, 7-11, 14, 15
	5	J	1-4, 6-11, 14, 15
	4	K	1-3, 5-11, 14, 15

Pursuant to a resolution under Section 305 Local Government Act, 1974, dated 19th. day of November, 1984, the Ellesmere County Council has approved this plan of subdivision conditional upon the granting or reserving of the easements shown in the memorandum endorsed hereon and certifies that the plan is in accordance with the requirements and provisions of the operative district scheme. The common seal of the Ellesmere County Council was affixed hereto in the presence of

SEAL OF THE CHAIRMAN COUNCILLORS AND INHABITANTS COUNTY OF ELLESMERE

Chairman

County Clerk

Total Area 49.8854ha.

Comprised in C.T. 26F/952 & C.T. 26F/953.

I, BRIAN ROBERT FOOTE of CHRISTCHURCH Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at CHRISTCHURCH this 24th day of SEPT 1984 Signature B.R. Foote

Field Book p. Traverse Book p.

Reference Plans DPs 9745, 29901, 47504 SOs 5868, 5876

Examined Gleyalde Correct

Approved as to Survey

15/1/85 Chief Surveyor

Deposited this 22nd day of October 1985

District Land Registrar

File

Received 26 NOV 1985 CANTERBURY N.Z.

Instructions

DP 47839

REF 6247

T

L&S FORM N 93

New Titles Issued

Lot 1 + 1/11th	C.T. 28A / 416
2 + 1/11th	28A / 417
3 + 1/11th	28A / 418
4 + 1/11th	28A / 419
5 + 1/11th	28A / 420
6 + 1/11th	28A / 421
7 + 1/11th	28A / 422
8 + 1/11th	28A / 423
9 + 1/11th	28A / 424
10 + 1/11th	28A / 425 & lot 11 + 1/11th 28A / 426

LAND DISTRICT CANTERBURY

SURVEY BLK.& DIST. IV LEESTON

NZMS 261 SHEET No. M36 ~ 10000/3·1

LOTS 1—15 BEING SUBDIVISION OF LOTS 17 & 18 D.P. 47504

TERRITORIAL AUTHORITY ELLESMERE COUNTY

Surveyed by McClelland, Branthwaite & Associates

Scale 1:4000 Date JULY 1984

L.F. Stirling, Surveyor-General, Department of Lands and Survey, Wellington

Whitcoulls

Appendix B – LLUR Statement

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry from our Listed Land Use Register (LLUR). The LLUR holds information about sites that have been used or are currently used for activities which have the potential to cause contamination.

The LLUR statement shows the land parcel(s) you enquired about and provides information regarding any potential LLUR sites within a specified radius.

Please note that if a property is not currently registered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR database is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; additional relevant information may be held in other files (for example consent and enforcement files).

Please contact Environment Canterbury if you wish to discuss the contents of this property statement.

Yours sincerely

Contaminated Sites Team

Property Statement
from the Listed Land Use Register

Visit ecan.govt.nz/HAIL for more information or
contact Customer Services at ecan.govt.nz/contact/ and quote ENQ419589

Date generated: 25 June 2025
Land parcels: Lot 5 DP 47839

The information presented in this map is specific to the area within a 100m radius of property you have selected. Information on properties outside the serach radius may not be shown on this map, even if the property is visible.

Sites at a glance

Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
118904	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 11/487 Weedons Rd	503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 11/487 Weedons Rd	A10 - Persistent pesticide bulk storage or use;	Not Investigated

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry only.

Nearby sites

Site number	Name	Location	HAIL activity(s)	Category
235788	6/487 Weedons Road, Rolleston	6/487 Weedons Road, Rolleston	A10 - Persistent pesticide bulk storage or use;	Yet to be reviewed
412187	10/487 Weedons Road, Rolleston	10/487 Weedons Road, Rolleston	A10 - Persistent pesticide bulk storage or use;	Verified HAIL

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry within a 100m buffer.

More detail about the sites

Site 118904: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 11/487 Weedons Rd

(Intersects enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: 503, 1/487, 2/487, 3/487, 4/487, 6/487, 503, 7/487, 8/487, 9/487, 11/487 Weedons Rd
Legal description(s): Lot 1 DP 427521,Lot 1 DP 47839,Lot 10 DP 47839,Lot 11 DP 47839,Lot 14 DP 47839,Lot 15 DP 47839,Lot 2 DP 427521,Lot 2 DP 47839,Lot 3 DP 47839,Lot 4 DP 47839,Lot 5 DP 47839,Lot 6 DP 47839,Lot 8 DP 47839,Lot 9 DP 47839,Part Lot 7 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

5 Nov 2014 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

5 Nov 2014 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 383544 **Soil Contamination Risk Detailed Site Investigation Report & Remediation Action Plan 148, 156, 178 Lincoln Rolleston Rd & 6/487 Weedons Rd, Rolleston**
Momentum Environmental Limited - Detailed Site Investigation
26 Mar 2024

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Site 235788: 6/487 Weedons Road, Rolleston (Within 100m of enquiry area.)

Category: Yet to be reviewed
Definition: Investigation reports have been received for this site, but we have not yet reviewed them.

Location: 6/487 Weedons Road, Rolleston
Legal description(s): Lot 10 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

7 Jun 2019 This record was created as part of the Selwyn District Council 2015 HAIL identification project.

7 Jun 2019 Orchard developed around 1984. Extent of planting seen on Canterbury Maps historical imagery 1994

Investigations:

INV 235786 **Detailed Site Investigation - 6/487 Weedons Road, Rolleston**
Pattle Delamore Partners Ltd - Detailed Site Investigation
4 Jun 2019

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Site 412187: 10/487 Weedons Road, Rolleston (Within 100m of enquiry area.)

Category: Verified HAIL
Definition: The land-use / HAIL history has been confirmed.

Location: 10/487 Weedons Road, Rolleston
Legal description(s): Lot 6 DP 47839

HAIL activity(s):

Period from	Period to	HAIL activity
1994	Present	Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds

Notes:

Investigations:

INV 412165 **Soil Contamination Risk Preliminary and Detailed Site Investigation Report 10/487 Weedons Road, Rolleston, Canterbury**
Momentum Environmental Limited - Detailed Site Investigation
17 Dec 2024

Summary of investigation(s):

Environment Canterbury has received a Detailed Site Investigation report that includes all or part of the property you have selected.

A DSI seeks to identify the type, extent and level of contamination (if any) in an area. Soil, soil-gas or water samples will have been collected and analysed.

This investigation has not been summarised.

Nearby investigations of interest

There are no investigations associated with the area of enquiry.

Disclaimer

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Listed Land Use Register

What you need to know

Everything is connected

What is the Listed Land Use Register (LLUR)?

The LLUR is a database that Environment Canterbury uses to manage information about land that is, or has been, associated with the use, storage or disposal of hazardous substances.

Why do we need the LLUR?

Some activities and industries are hazardous and can potentially contaminate land or water. We need the LLUR to help us manage information about land which could pose a risk to your health and the environment because of its current or former land use.

Section 30 of the Resource Management Act (RMA, 1991) requires Environment Canterbury to investigate, identify and monitor contaminated land. To do this we follow national guidelines and use the LLUR to help us manage the information.

The information we collect also helps your local district or city council to fulfil its functions under the RMA. One of these is implementing the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil, which came into effect on 1 January 2012.

For information on the NES, contact your city or district council.

How does Environment Canterbury identify sites to be included on the LLUR?

We identify sites to be included on the LLUR based on a list of land uses produced by the Ministry for the Environment (MfE). This is called the Hazardous Activities and Industries List (HAIL)[1]. The HAIL has 53 different activities, and includes land uses such as fuel storage sites, orchards, timber treatment yards, landfills, sheep dips and any other activities where hazardous substances could cause land and water contamination.

We have two main ways of identifying HAIL sites:

- We are actively identifying sites in each district using historic records and aerial photographs. This project started in 2008 and is ongoing.
- We also receive information from other sources, such as environmental site investigation reports submitted to us as a requirement of the Regional Plan, and in resource consent applications.

[1] The Hazardous Activities and Industries List (HAIL) can be downloaded from MfE's website www.mfe.govt.nz, keyword search HAIL

How does Environment Canterbury classify sites on the LLUR?

Where we have identified a HAIL land use, we review all the available information, which may include investigation reports if we have them. We then assign the site a category on the LLUR. The category is intended to best describe what we know about the land use and potential contamination at the site and is signed off by a senior staff member.

Please refer to the Site Categories and Definitions factsheet for further information.

What does Environment Canterbury do with the information on the LLUR?

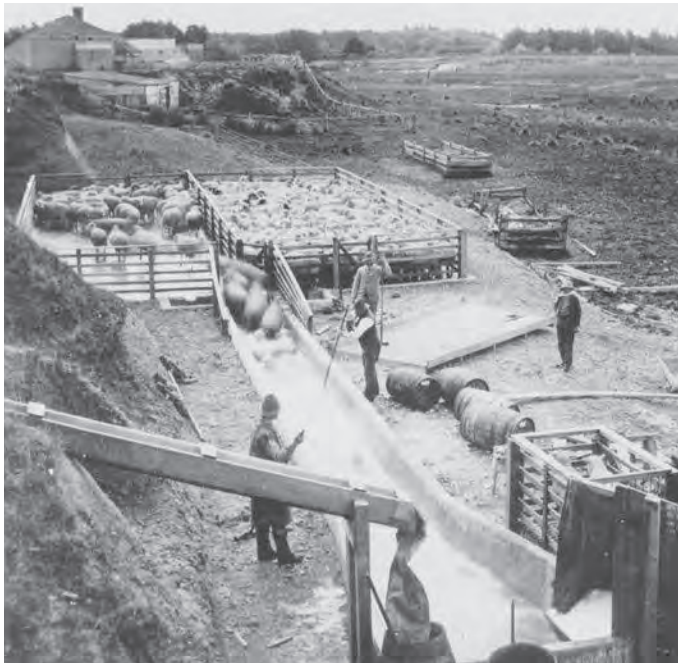
The LLUR is available online at www.llur.ecan.govt.nz. We mainly receive enquiries from potential property buyers and environmental consultants or engineers working on sites. An inquirer would typically receive a summary of any information we hold, including the category assigned to the site and a list of any investigation reports.

We may also use the information to prioritise sites for further investigation, remediation and management, to aid with planning, and to help assess resource consent applications. These are some of our other responsibilities under the RMA.

If you are conducting an environmental investigation or removing an underground storage tank at your property, you will need to comply with the rules in the Regional Plan and send us a copy of the report. This means we can keep our records accurate and up-to-date, and we can assign your property an appropriate category on the LLUR. To find out more, visit www.ecan.govt.nz/HAIL.

IMPORTANT!

The LLUR is an online database which we are continually updating. A property may not currently be registered on the LLUR, but this does not necessarily mean that it hasn't had a HAIL use in the past.



Sheep dipping (ABOVE) and gas works (TOP) are among the former land uses that have been identified as potentially hazardous. (Photo above by Wheeler & Son in 1987, courtesy of Canterbury Museum.)

My land is on the LLUR – what should I do now?

IMPORTANT! Just because your property has a land use that is deemed hazardous or is on the LLUR, it doesn't necessarily mean it's contaminated. The only way to know if land is contaminated is by carrying out a detailed site investigation, which involves collecting and testing soil samples.

You do not need to do anything if your land is on the LLUR and you have no plans to alter it in any way. It is important that you let a tenant or buyer know your land is on the Listed Land Use Register if you intend to rent or sell your property. If you are not sure what you need to tell the other party, you should seek legal advice.

You may choose to have your property further investigated for your own peace of mind, or because you want to do one of the activities covered by the National Environmental Standard for Assessing and Managing Contaminants in Soil. Your district or city council will provide further information.

If you wish to engage a suitably qualified experienced practitioner to undertake a detailed site investigation, there are criteria for choosing a practitioner on www.ecan.govt.nz/HAIL.

I think my site category is incorrect – how can I change it?

If you have an environmental investigation undertaken at your site, you must send us the report and we will review the LLUR category based on the information you provide. Similarly, if you have information that clearly shows your site has not been associated with HAIL activities (eg. a preliminary site investigation), or if other HAIL activities have occurred which we have not listed, we need to know about it so that our records are accurate.

If we have incorrectly identified that a HAIL activity has occurred at a site, it will be not be removed from the LLUR but categorised as Verified Non-HAIL. This helps us to ensure that the same site is not re-identified in the future.

Contact us

Property owners have the right to look at all the information Environment Canterbury holds about their properties.

It is free to check the information on the LLUR, online at www.llur.ecan.govt.nz.

If you don't have access to the internet, you can enquire about a specific site by phoning us on (03) 353 9007 or toll free on 0800 EC INFO (32 4636) during business hours.

Contact Environment Canterbury:

Email: ecinfo@ecan.govt.nz

Phone:
Calling from Christchurch: (03) 353 9007
Calling from any other area: 0800 EC INFO (32 4636)

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Everything is connected

Promoting quality of life through balanced resource management.

www.ecan.govt.nz E13/101

Listed Land Use Register

Site categories and definitions

When Environment Canterbury identifies a Hazardous Activities and Industries List (HAIL) land use, we review the available information and assign the site a category on the Listed Land Use Register. The category is intended to best describe what we know about the land use.

If a site is categorised as **Unverified** it means it has been reported or identified as one that appears on the HAIL, but the land use has not been confirmed with the property owner.

If the land use has been confirmed but analytical information from the collection of samples is not available, and the presence or absence of contamination has therefore not been determined, the site is registered as:

Not investigated:

- A site whose past or present use has been reported and verified as one that appears on the HAIL.
- The site has not been investigated, which might typically include sampling and analysis of site soil, water and/or ambient air, and assessment of the associated analytical data.
- There is insufficient information to characterise any risks to human health or the environment from those activities undertaken on the site. Contamination may have occurred, but should not be assumed to have occurred.

If analytical information from the collection of samples is available, the site can be registered in one of six ways:

At or below background concentrations:

The site has been investigated or remediated. The investigation or post remediation validation results confirm there are no hazardous substances above local background concentrations other than those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterise the site.

Below guideline values for:

The site has been investigated. Results show that there are hazardous substances present at the site but indicate that any adverse effects or risks to people and/or the environment are considered to be so low as to be acceptable. The site may have been remediated to reduce contamination to this level, and samples taken after remediation confirm this.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Managed for:

The site has been investigated. Results show that there are hazardous substances present at the site in concentrations that have the potential to cause adverse effects or risks to people and/or the environment. However, those risks are considered managed because:

- the nature of the use of the site prevents human and/or ecological exposure to the risks; and/or
- the land has been altered in some way and/or restrictions have been placed on the way it is used which prevent human and/or ecological exposure to the risks.

Partially investigated:

The site has been partially investigated. Results:

- demonstrate there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment; or
- do not adequately verify the presence or absence of contamination associated with all HAIL activities that are and/or have been undertaken on the site.

Significant adverse environmental effects:

The site has been investigated. Results show that sediment, groundwater or surface water contains hazardous substances that:

- have significant adverse effects on the environment; or
- are reasonably likely to have significant adverse effects on the environment.

Contaminated:

The site has been investigated. Results show that the land has a hazardous substance in or on it that:

- has significant adverse effects on human health and/or the environment; and/or
- is reasonably likely to have significant adverse effects on human health and/or the environment.

If a site has been included incorrectly on the Listed Land Use Register as having a HAIL, it will not be removed but will be registered as:

Verified non-HAIL:

Information shows that this site has never been associated with any of the specific activities or industries on the HAIL.

Please contact Environment Canterbury for further information:

(03) 353 9007 or toll free
on 0800 EC INFO (32 4636)
email ecinfo@ecan.govt.nz

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

E13/102

Appendix C – Historical Aerial Photographs

canterbury maps

1942 Historical Aerial Photograph

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:2,900 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:06 PM

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1961 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:06 PM

canterbury maps

1974 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:07 PM

canterbury maps

1982 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:07 PM

canterbury maps

1994 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:08 PM

Land Information New Zealand, Environment Canterbury, Ministry for Primary Industries, Environment Canterbury, Canterbury Maps Partners, DPMC, LINZ, StatsNZ, NIWA, Ministry of Education, © OpenStreetMap contributors.

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1995 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:09 PM

Land Information New Zealand, Ministry for Primary Industries, Environment Canterbury, Environment Canterbury, Canterbury Maps Partners, DPMC, LINZ, StatsNZ, NIWA, Ministry of Education, © OpenStreetMap contributors.

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2000 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:09 PM

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2004-2010 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:10 PM

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2016 Historical Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:11 PM

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2020 (Latest) Aerial Photograph

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N

0 0 0.1 0.1 0.1 Kilometres

Scale: 1:3,000 @A4

Map Created by Canterbury Maps on 1/07/2025 at 4:12 PM

Appendix D – Site Inspection Plan

MOMENTUM ENVIRONMENTAL LTD.

Specialist soil contamination experts, keeping your project moving.

www.momentumenviro.co.nz

LEGEND

text	Potential HAIL activity / source of contamination
X	Approx. location of visible burn areas or burn drums
X	Approx. location of potentially imported fill material
text	Description of structures/areas not considered to pose a risk
	Approx. extent of risk area identified during site inspection

Graphic scale is approximate only

0 25 50 75 100 125m

Date: 03 July 2025 **Drawing No:** 986/1

9/487 Weedons Road, Rolleston, Canterbury

Site Inspection Plan

Notes:

1. This plan has been prepared for soil contamination risk assessment purposes only. No liability is accepted if the plan is used for any other purposes.
2. Any measurements taken from this plan which are not dimensioned on the electronic copy are at the risk of the user.
3. Soil sample locations are approximate only