AgriMagic

SUPPORTING YOUR FARMING FUTURE

FARM ENVIRONMENT PLAN

Wakaepa, Cairnridge & Valley

181 Whitecliffs Road, Coalgate 7673

Sheep, Beef and Deer Farm

CONTENTS

1. Property Details

Property name	Wakaepa, Cairnridge & Valley
Owner/Leasee:	Andy and Janeen Keating
Address:	
Owner Contact Details:	**Phone:** **Email:**
Property Size:	**Total Area:** 1031.1ha
Legal Description:	RS 39304, RS 39306, RS 39308, RS 39312, Part Lot 1 DP 6067, Lot 2 DP 45645, Lot 1 DP 7866, Part Lot 2-3 and Part Lot 5 DP 6591, Survey Office Plan 19152, RS 38762, RS 14532X, RS 14756x, RS 14760x RS 14959x, RS 14959w, Part RS 14532, Part RS 14758, Part RS 14757, Part RS 14760, Part RS 14959, Lot 1 DP 4430, Lot 1 DP 6591, Part Lot 3 DP 52501, Part RS 39313, Lot 4 DP 11125, Part Lot 2 DP 11125, Part RS 27366, RS 27367, RS 23893, Lot 2 DP 74116
Nutrient Allocation Zone:	Selwyn Te Waihora Catchment – Phosphorus Sediment Risk Zone

Nutrient Related Constraints	Overseer v6.3.1	Resource Consents Held	Consent Number	Expiry date
Nitrogen Baseline	10 kg N/ha/yr	Discharge Permit– Held by Bathurst Coal Limited	CRC173823	5/2/2032
Risk of Phosphate loss to second order streams	0.5 kg P/ha/yr	Discharge Permit– Held by Bathurst Coal Limited	CRC170540	1/24/2032
Required % reduction (Selwyn)	*N/A*	To Use Land for Excavation – Held by Bathurst Coal Limited	CRC190172	5/2/2032
		To take groundwater - Held by Bathurst Coal Limited	CRC175281	02 May 2032

2. Brief Description of the Farm Operation

The dryland property includes three blocks, Cairnridge, Valley & Wakaepa which are run as one operating unit and equate to a total of 1031.1 ha. The property runs a mix of predominantly breeding stock including sheep, cattle, and deer with the majority of the youngstock finished off farm on irrigated properties closer to Darfield. Areas of Oats for summer feed, and rape for winter feed are sometimes grown.

There are a number of waterways flowing through the property, areas associated with tree blocks are fenced off (as trees are fenced off).

The property is located partically in a Phosphorus Sediment risk area

There are no Significant indigenous biodiversity areas identified in the Selwyn district plan

There are ten soil types associated with the property, as identified by Landcare Research's S Maps including:

- Riverbed (River_1a.1) – Raw, well drained (PAW_{60} = 30mm)
- Kauru (Kaur_2a.2) – Pallic, moderately well drained (PAW_{60} = 93mm)
- Chastelton (Chas_2a.1) – Brown, moderately well drained (PAW_{60} = 114mm)
- Claremont (Clar_1a.1) – Pallic, poorly drained (PAW_{60} = 93mm)
- Kakahu (Kaka_4a.1) – Brown, moderately well drained (PAW_{60} = 114mm)
- Hurunui (Huru_5a.2) – Brown, well drained (PAW_{60} = 57mm)
- Timaru (Timu_1a.2) – Pallic, imperfectly drained (PAW_{60} = 90mm)
- Timaru (Timu_1a.1) – Pallic, imperfectly drained (PAW_{60} = 93mm)
- Kakahu (Kaka_2a.1) – Brown, moderately well drained (PAW_{60} = 114mm)
- Ruapuna (Ruap_2a.1) – Brown, well drained (PAW_{60} = 69mm)

PAW_{60} = Profile available water to 60 cm

Climate data for the property has been sourced from Overseer's climate station tool and input as:
Rainfall = 966 mm/yr,
PET = 839 mm
Average temperature = 10.7°C.

3. Responsibility for Implementing the Farm Environment Plan

This Farm Environment Plan has been prepared with the assistance of: Agri Magic Limited

For: ***Wakaepa, Cairnridge and Valley – Wakaepa Farm Limited***

As the people responsible for implementing this plan, we confirm that the information provided is correct:

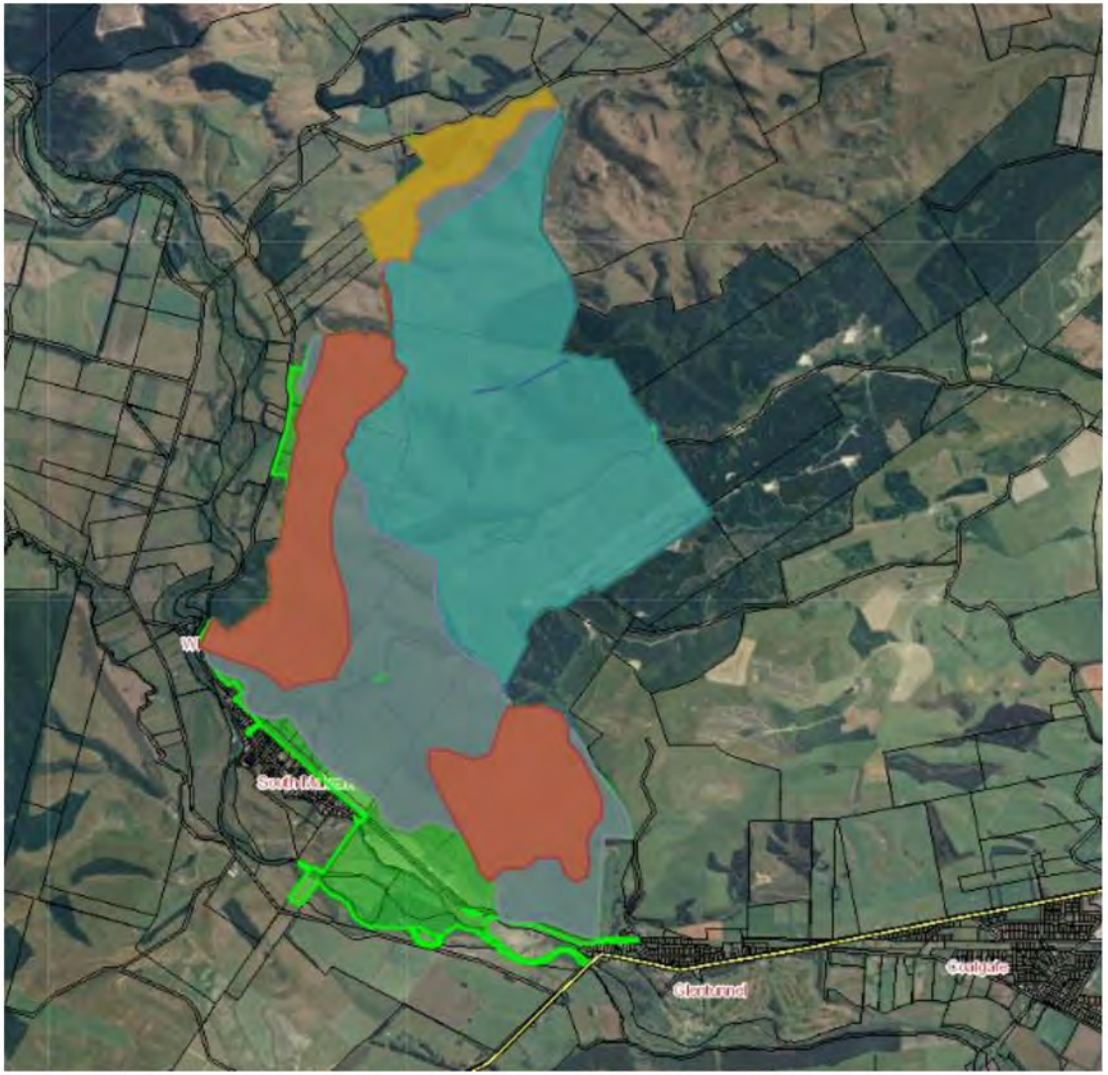
Name (plan implementers): **Andy and Janeen Keating**

Signature: _____

Position (e.g. owner/manager): **Manager and Part Owner**

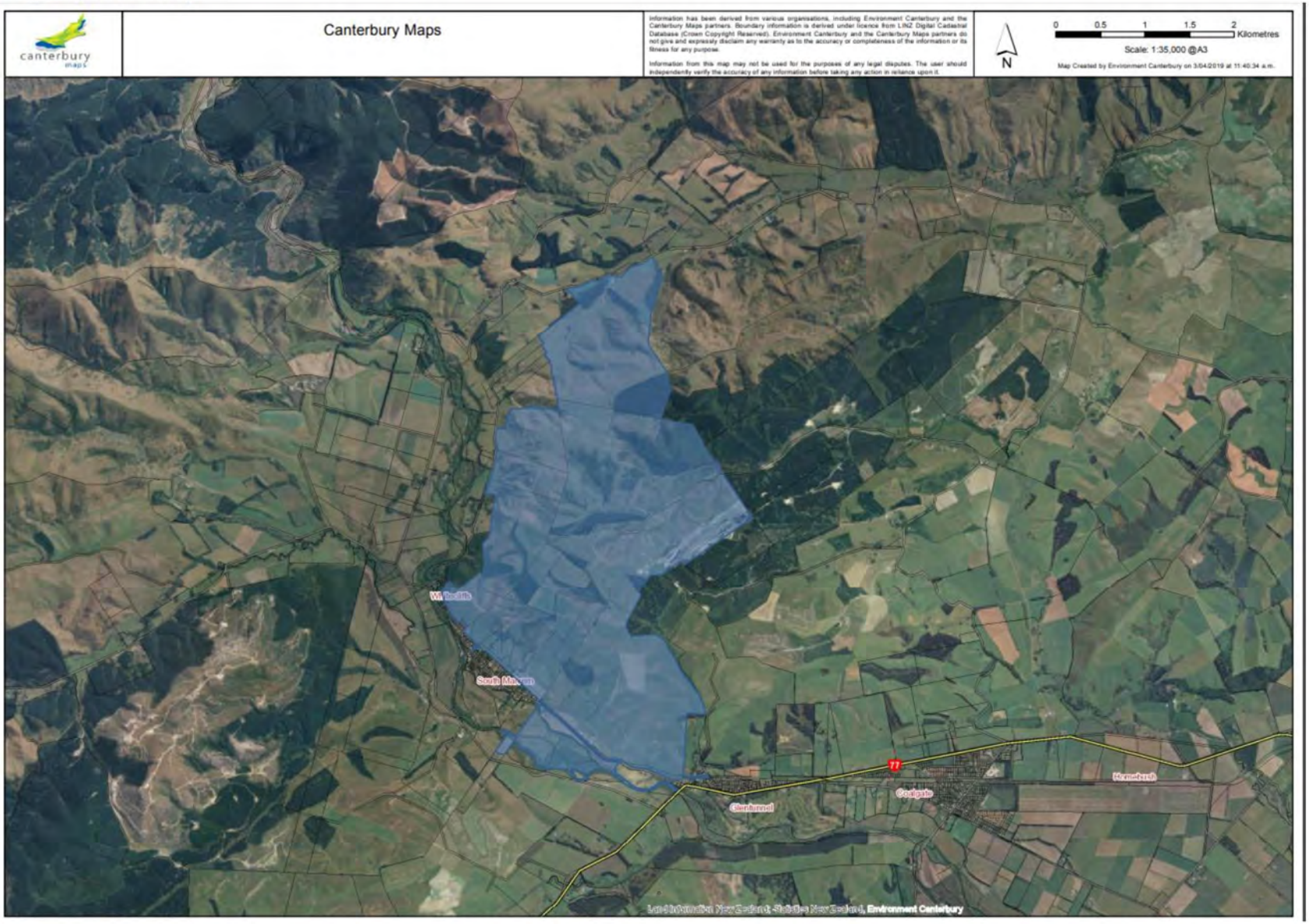
Date: 8 April 2019 **April 2019**

4. Management Blocks

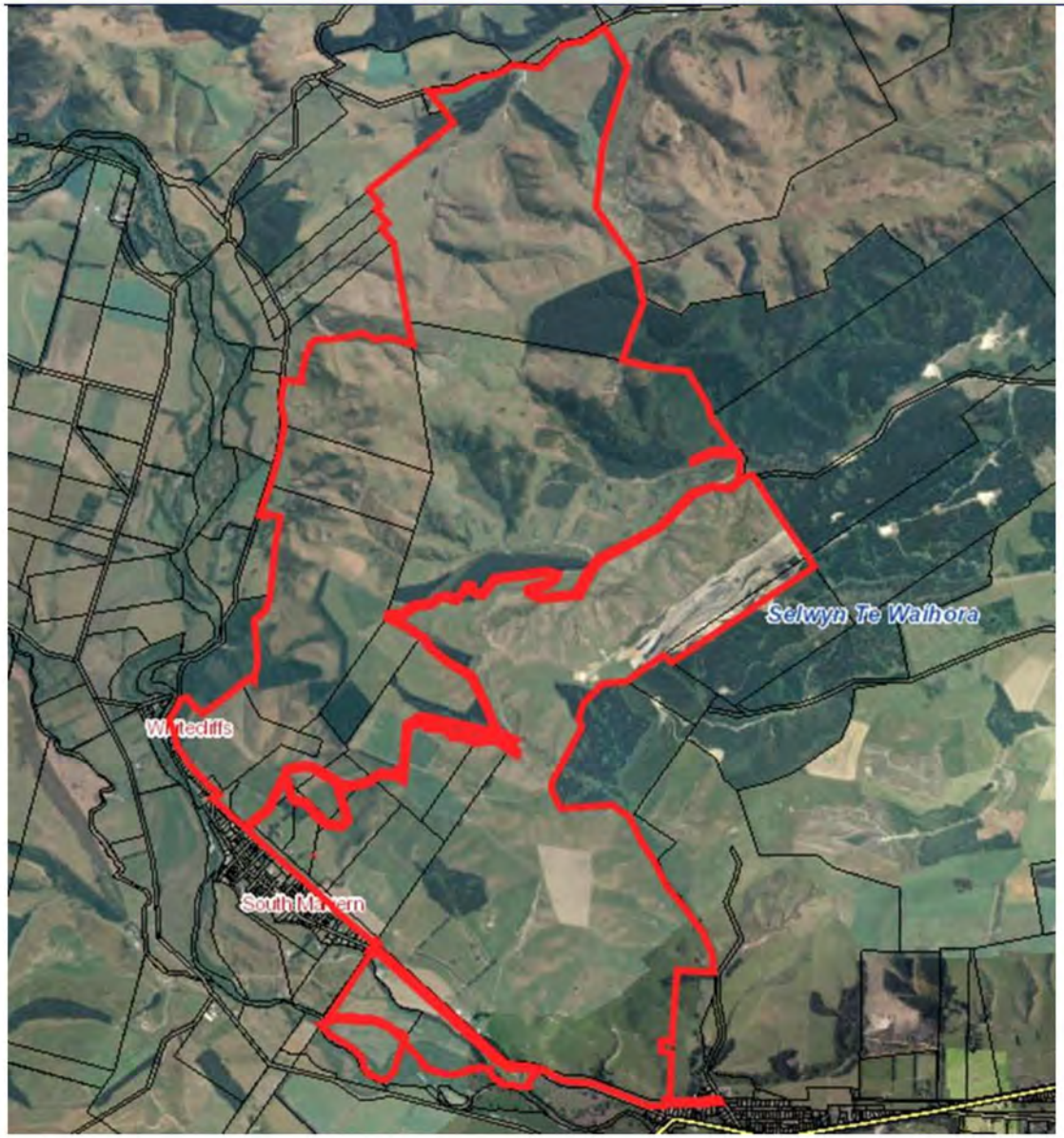


5. Farm Maps

Property Boundary:



6. Nutrient Allocation Zones – *Selwyn Te Waihora Catchment*



7. Soil Management

Objective:

- *The physical and biological condition of soils is maintained or improved in order to minimise the movement of sediment, phosphorous and other contaminants to waterways.*

Targets:

(1) Farming activities are managed so as not to exacerbate erosion
(2) Farming practices are implemented that optimise infiltration of water into the soil profile and minimise run-off water, sediment loss and erosion

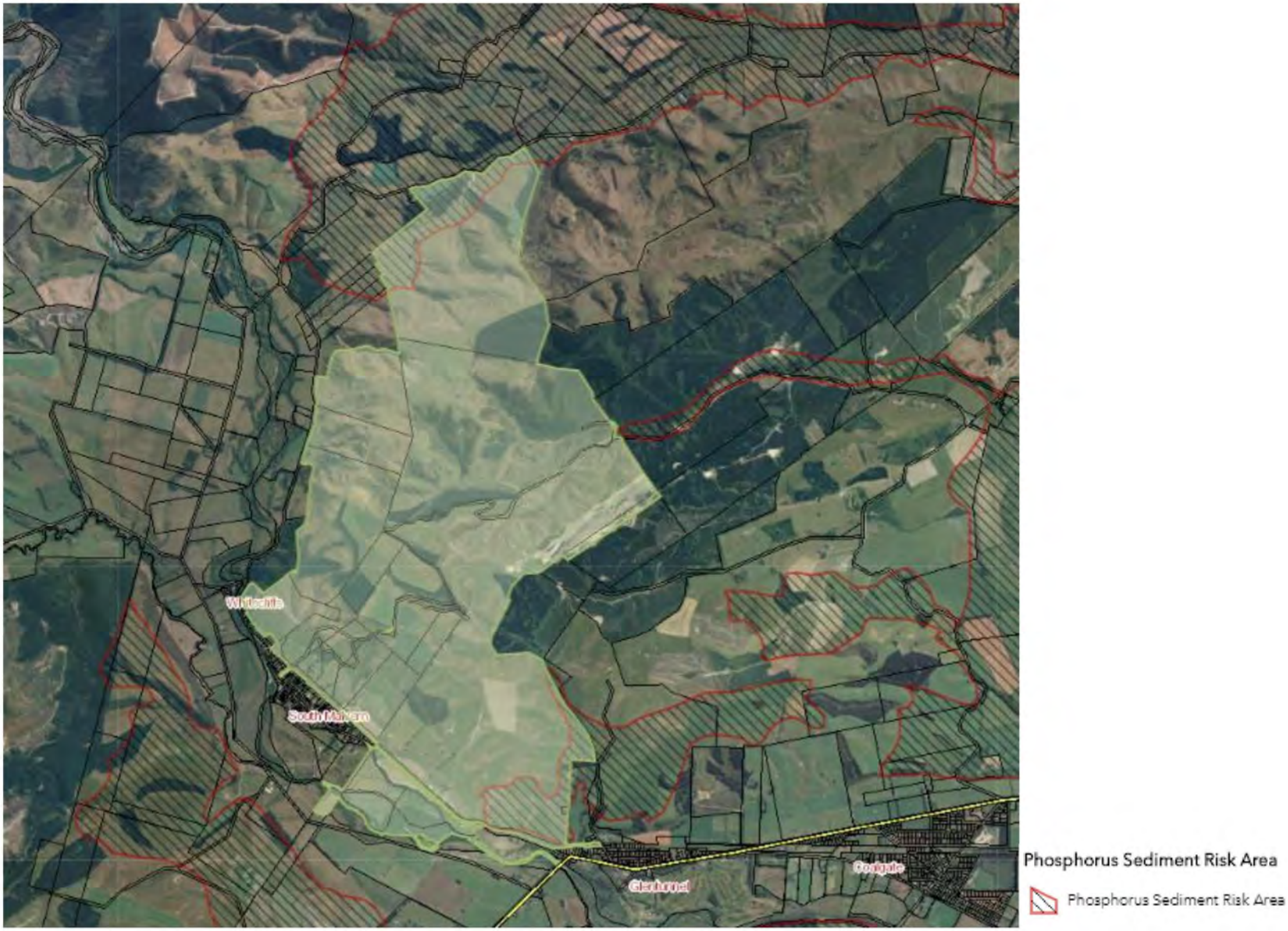
Industry Agreed Good Management Practices:

- *Manage farming operations to minimise direct and indirect losses of sediment and nutrients to water, and maintain or enhance soil structure, where agronomically appropriate.*
- *Manage periods of exposed soil between crops/pasture to reduce risk of erosion, overland flow and leaching.*
- *Identify risk of overland flow of sediment and faecal bacteria on the property and implement measures to minimise transport of these to waterbodies.*
- *Locate and manage farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other sources of run-off to minimise risks to water quality.*
- *To the extent that is compatible with land form, stock class and intensity, exclude stock from waterways.*
- *Monitor soil phosphorous levels and maintain them at or below the agronomic optimum for the farm system.*

Key Risks Identified:

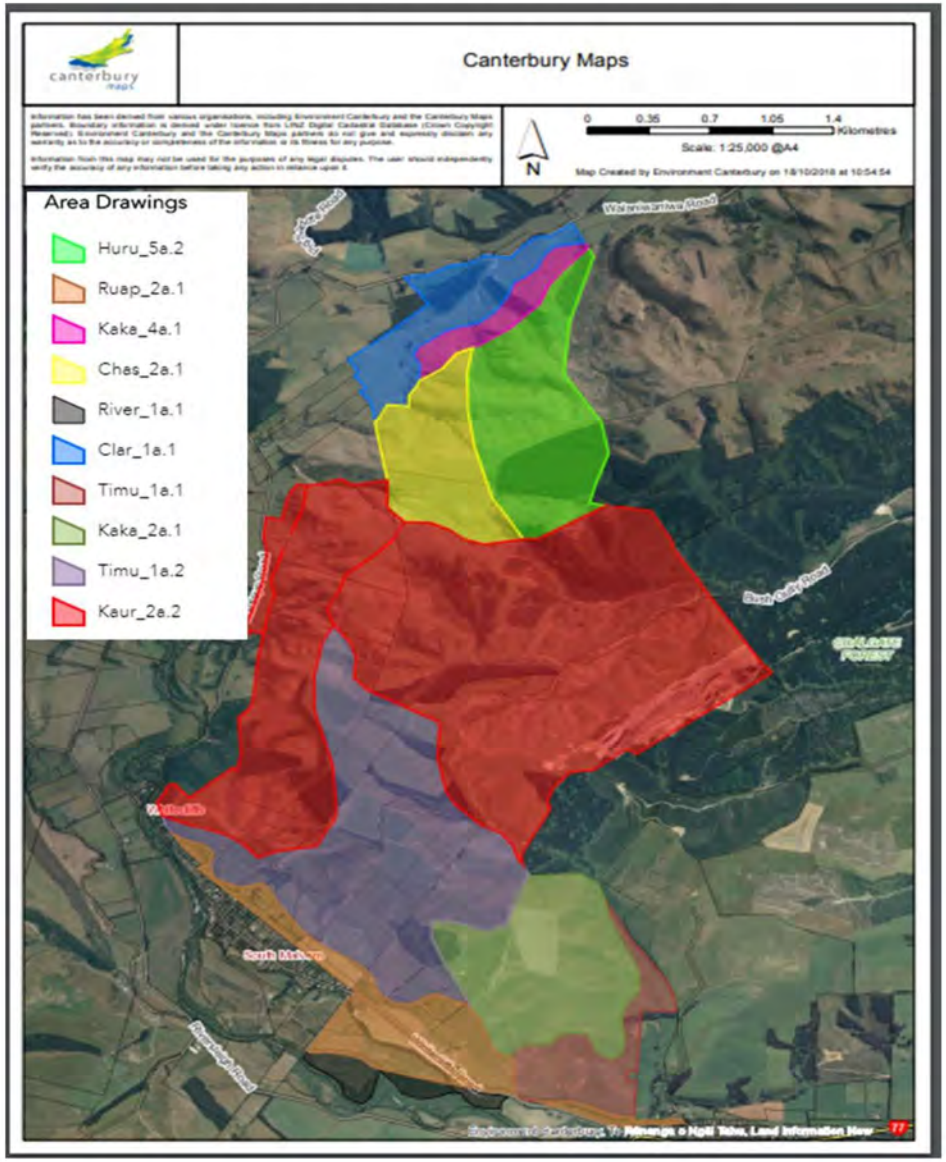
- *Large areas of heavy (high water holding) soils, including areas within the Phosphorus Sediment Risk Area*
- *Livestock are wintered on the property on grass and crop*
- *Cultivation timing important, due to wind erosion risk*
- *Wallowing areas resulting in overland water flow to waterways*

Phosphorous Sediment Risk Area



Soil Map

(Source: Canterbury Maps and Landcare Research's S-maps)



Good Management Practices currently employed to meet the objective:

Practice	When used	Evidence of practice	Auditor note
Cultivation is timed to reduce the risk of soil damage. Soil moisture, weather and wind are all considered so as to cultivate at the best time to maintain soil structure (also avoiding very dry soil where possible which is prone to wind erosion).	When cultivating	Paddock records, discuss Record of cultivation practices	
Soil tests are carried out as required to ensure a good understanding of soil fertility and fertiliser requirements.	As required	See recent soil test results	
Cultivation is carried out using practices to minimise erosion. Direct drilling and minimum tillage are used when possible.	As required	Cultivation records, discuss	
Wet weather management practices are in place to minimise pugging and phosphorus and sediment losses from the property – ie. animals are kept fully fed, back fenced where possible, and kept off wetter paddocks.	Wet conditions	Discussion/Photos/diary entry, farm policies	
Area that is harvested or crops grazed are re-sown as soon as practical to minimise periods of exposed soil.	Always	Paddock records, discuss	
Stock (and in particular deer) are well feed to reduce stress and risk of fence pacing and therefore minimise soil compaction.	During risk periods for soil damage	Diary entries of extra feeding if required when wet, annual feed budgets/site observation	
Location of wallowing holes considered to minimise risk of overland flow in to waterways.	Always	Photographs, farm maps of wallowing areas	
Consideration is given to location of waterways and direction of runoff flow when choosing paddocks for winter feed	Always	Discussion, Records, grazing plan	

Key Actions that will be undertaken or considered to meet the objective:

Practice	When by?	Who?	Evidence	Completed?	Auditor note
Ensure temporary fencing is used if intensively grazed stock are next to waterways. Note intensively grazed stock includes: cattle/deer being break fed on crop/pasture, dairy cattle (MA), farmed pigs	As required	Andy	Photos, Paddock records		
Take some photos of your wet weather management practices to show you are minimising environmental risk.	During Winter	Andy	Photos		
Continue to keep paddock records of your management including cultivation methods and cropping rotations.	All year	Andy	Diary, paddock records		

8. Irrigation Management

Objective:

- *The amount and timing of irrigation is managed to meet plant demands, minimise risk of leaching and run-off and ensure efficient water use.*

Targets:

(1) New irrigation systems are designed and installed in accordance with industry codes of practice and standards
(2) The performance of irrigation systems is assessed annually, and irrigation systems are maintained and operated to apply irrigation water at their optimal efficiency.
(3) The timing and depth of irrigation water applied takes account of crop requirements and is justified through soil moisture monitoring or soil water budgets and climatic information
(4) Staff are trained in the operation, maintenance and use of irrigations systems.

Good Management Practices listed:

- *Manage the amount and timing of irrigation inputs to meet plant demands and minimise risk of leaching and run-off.*
- *Design, calibrate and operate irrigation systems to minimise the amount of water needed to meet production objectives.*

Key Risks Identified:

- *Property is dryland*

9. Water use (excluding irrigation water)

Objective:

- *To use water efficiently ensuring that actual use of water is monitored and efficient.*

Targets:

(1) Actual water use is efficient for the end use

Industry Agreed Good Management Practices:

- *All water use on farm is measured and monitored*
- *Reticulated water system is managed and maintained to avoid wasted water*

Key Risks Identified:

- *Portable water troughs are used on the property*

Good Management Practices currently employed to meet the objective:

Practice	When used	Evidence of practice	Auditor note
All water takes are metered to ensure all water use us accounted for.	As required	Site observation	
Water systems are managed and maintained to avoid wasted water.	Always	Site observation – no leaking troughs	
Portable troughs are used and when stock are moved, troughs are turned off and shifted to next paddock with stock.	Always	Site observation/discussion	
Any leaks are repaired as soon as possible.	As required	Discussion/workshop of parts	

Key Actions that will be undertaken or considered to meet the objective:

Practice	When by?	Who?	Evidence	Completed?	Auditor note

10. Effluent Management

Objective:

- *Animal effluent and solid animal waste is managed to minimise nutrient leaching and run off.*

Targets:

(2) Effluent systems meet industry Codes of Practice or an equivalent standard.
(3) The timing and rate of application of effluent and solid animal waste to land is managed so as to minimise the risk of contamination of groundwater or surface water bodies.
(4) Sufficient and suitable storage is available to enable animal effluent and wash-down water to be stored when soil conditions are unsuitable for application.
(5) Staff are trained in the operation, maintenance and use of effluent storage and application.

Industry Agreed Good Management Practices:

- *Ensure the effluent system meets industry specific Code of Practice or equivalent standards.*
- *Have sufficient, suitable storage available to enable farm effluent and wastewater to be stored when soil conditions are unsuitable for application.*
- *Ensure equipment for spreading effluent and other organic manures is well maintained and calibrated.*
- *Apply effluent to pasture and crops at depths, rates and times to match plant requirements and minimise risk to waterbodies.*

Key Risks Identified:

- *No effluent is stored or spread on the property*

11. Nutrient Management

Objective:

- *Use nutrients efficiently and minimise nutrient losses to water*
- *Nutrient losses should not exceed consented nitrogen loss limits*

Targets:

(1) Nitrogen losses from farming activities are at or below the:
  a) Baseline GMP Loss Rate or Good Management Practice Loss Rate (whichever is the lesser) or
  b) Consented nitrogen loss limits

(1A) Available nitrogen loss mitigation measures (excluding those associated with irrigation, fertiliser or effluent management) are implemented.

(2) Phosphorous and sediment losses from farming activities are minimised

(3) Manage the amount, timing and application of fertiliser inputs to match the predicted plant requirements and minimise nutrient losses

(4) Store and load fertiliser to minimise the risk of spillage, leaching and loss into water bodies.

Industry Agreed Good Management:

- *Monitor soil phosphorus levels and maintain them at or below the agronomic optimum for the farm system.*
- *Manage the amount and timing of fertiliser inputs, taking account of all sources of nutrients, to match plant requirements and minimise risk of losses*
- *Store and load fertiliser to minimise risk of spillage, leaching and loss into waterbodies.*
- *Ensure equipment for spreading fertilisers is well maintained and calibrated.*

Key Risks Identified:

- *Fertilisers applied to meet pasture and crop requirements*

Good Management Practices currently employed to meet the objective:

Practice	When used	Evidence of practice	Auditor note
Baseline and current nutrient budgets are in place to calculate past and predict future nutrient requirements and losses and completed by a Certified Nutrient Management Advisor	Always	Overseer Baseline	
Annual nitrogen losses do not exceed the nitrogen discharge allowance based on the scenario consented	Checked when significant farm system changes proposed	Nutrient budgets	
Fertiliser recommendations are made specifically to different nutrient management blocks, including specialised recommendations for crops	Always	Fertiliser recommendations	
Specific crop requirements are taken into consideration when making fertiliser decisions.	Always	See paddock records	
Fertiliser is applied by a Spreadmark certified contractor.	When contractors used	See invoice	
Fertiliser records are kept showing when, where and how much fertiliser was applied.	Always	See GPS proof of placement records	

Key Actions that will be undertaken or considered to meet the objective:

Practice	When by?	Who?	Evidence	Completed?	Auditor note
Ensure Fertiliser records are kept showing when, where and how much fertiliser was applied (including any applications of compost)	Ongoing	Andy	Fertiliser records		
Continue to maintain accurate and auditable records of annual farm inputs, outputs and management practices.	Always	Andy	Records		
Ensure fertiliser spreaders are aware of waterways and wallow holes on property when spreading fertiliser to minimise the risk of fertiliser applications directly to waterways. Speak to top-dressing pilot to ensure he is notapplying fertiliser directly to water bodies.	Always	Andy	Diary Entry		

12. Wetland and Waterway Management

Objective:

- *Wetlands, riparian areas and the margins of surface waterbodies are managed to avoid damage to the bed and margins of the water body, and to avoid the direct input of nutrients, sediment, and microbial pathogens.*

Targets:

(1) Stock are excluded from waterbodies in accordance with regional council rules or any granted resource consent
(2) Vegetated riparian margins of sufficient width are maintained to minimise nutrient, sediment and microbial pathogen losses to waterbodies.
(3) Farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other farming activities that are potential sources of sediment, nutrient and microbial loss are located so as to minimise the risks to surface water quality.
(4) Mahinga Kai values are protected as a result of measures taken to protect and enhance water quality and stream health.

Land and Water Regional Plan
Policies

Livestock Exclusion from Water Bodies

4.31 Damage to the bed or banks of water bodies, sedimentation and disturbance of the waterbody, direct discharge of contaminants, and degradation of aquatic ecosystems is avoided by:
(a) excluding intensively farmed stock from lakes, rivers and wetlands; and
(b) excluding stock from swimming, salmon spawning and other sensitive waterbody areas and the waterbody bed and banks closely upstream of these areas; and
(c) limiting access to wetlands, and the banks or beds of lakes and rivers to stock species that prefer to avoid water and at stocking rates that avoid evident damage.

4.3.2 Adverse effects arising from stock access occurring under Policy 4.31 (c) on water clarity and colour, bank stability, or riparian vegetation cover are minimised through the design and construction of stock crossing points and the management of stock grazing and stock movements across water bodies.

Rules:

5.68 – 5.71

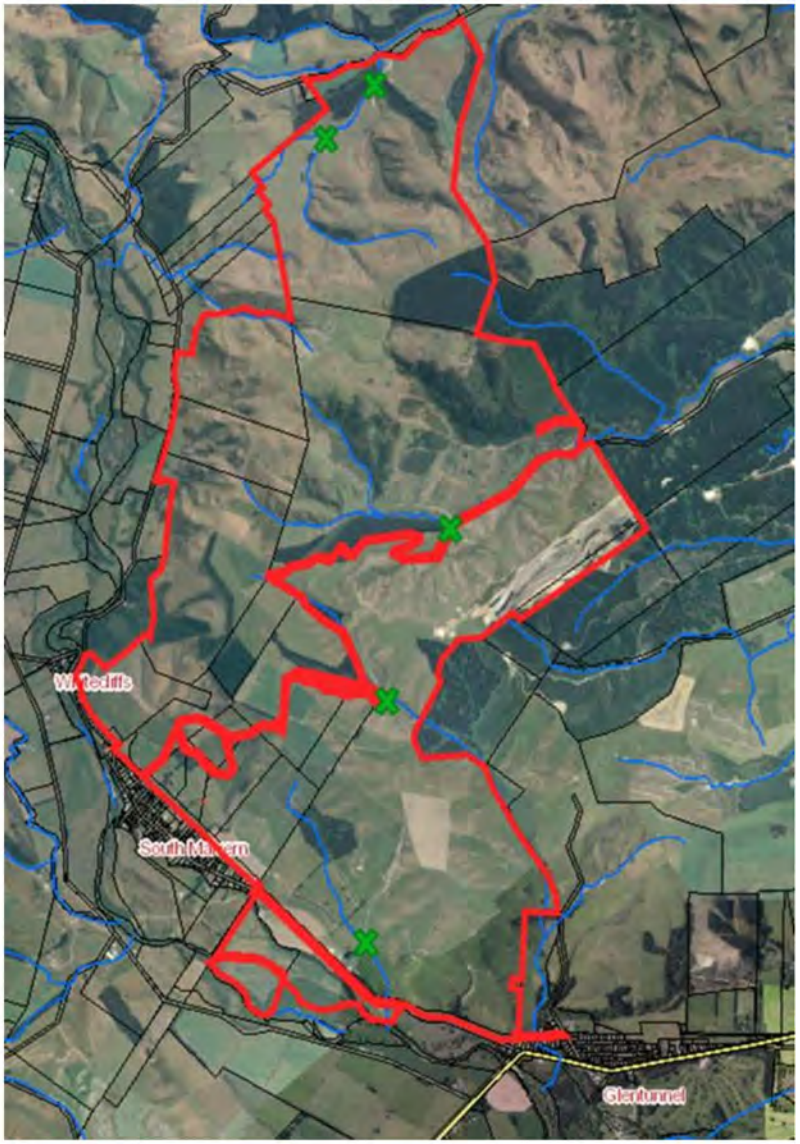
Industry Agreed Good Management Practices:

- *To the extent that is compatible with land form, stock class and intensity, exclude stock from waterways.*
- *Locate and manage farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other sources of run-off to minimise risks to water quality*
- *Identify risk of overland flow of sediment and faecal bacteria on the property and implement measures to minimise transport of these to waterbodies.*

Key Risks Identified:

- *Waterways on property*

Waterways – Fenced Areas, Riparian Planting and Stock Crossing Points

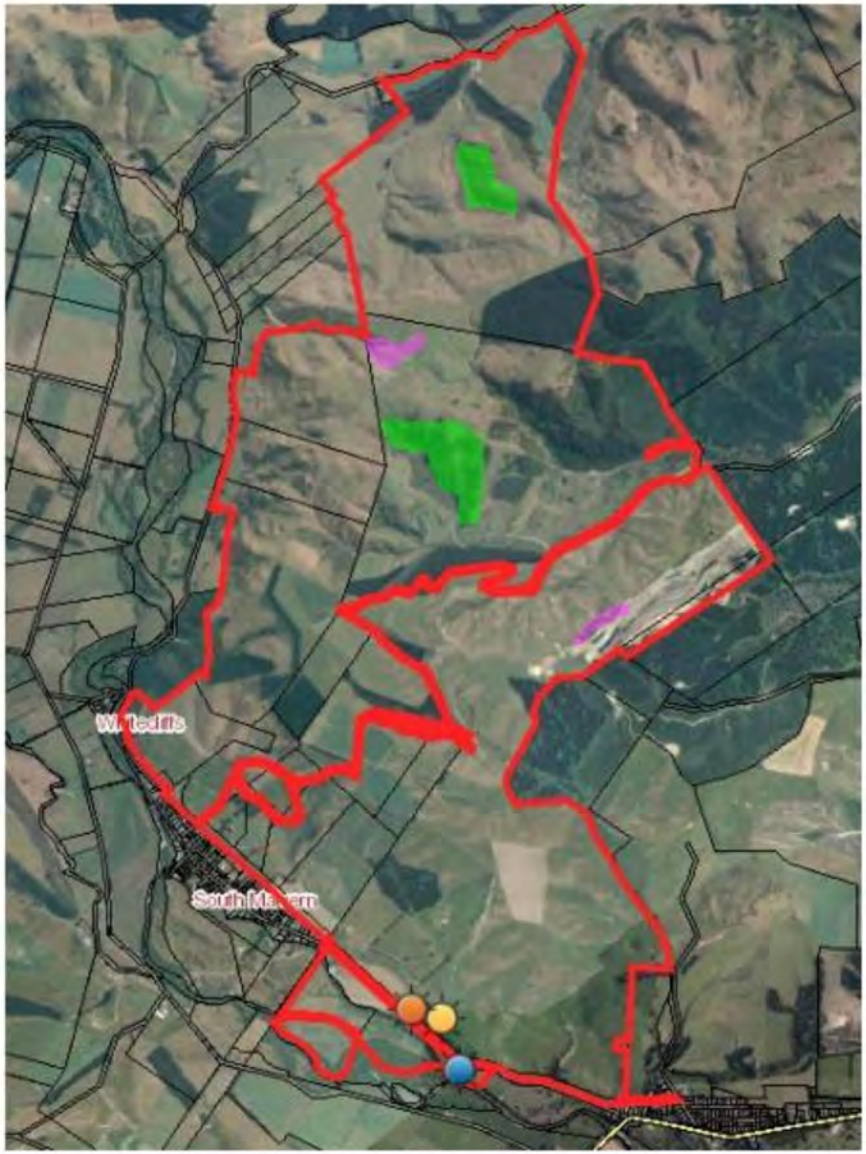


Note

Areas of waterways flowing through tree blocks are fenced off (as trees are fenced off).

Areas to be fenced off in the future have been identified on the map below

Stock crossing points: ✖



Silage Pit

Offal Pit/Rubbish Hole

Silage Stack

- Potential areas to be fenced and planted into trees
- Potential areas to be fenced and planted with natives

Good Management Practices currently employed to meet the objective:

Practice	When used	Evidence of practice	Auditor note
Intensively farmed stock are excluded from waterways on farm with use of temporary fencing	As required	Site visit, photographs, discussion	
Truck drivers, sprayers and fertiliser spreaders are aware as to the sensitive areas such as adjacent to waterways and relevant buffer zones to be aware of and avoid when spreading.	Always	Site observation	
Runoff from stock tracks, water troughs, stock feeding areas, stock yards and gateways are directed away from waterways or filtered through riparian buffers	Always	Site observation	

Key Actions that will be undertaken or considered to meet the objective:

Action	When by?	Who?	Evidence	Completed?	Auditor note
Continue to fence off and plant areas into natives as time and budget allows	Ongoing	Andy	Site visit, quotes, invoices for plants		
Retire areas of Top Mervs and No.6(Valley) and plant into pine trees as time and budget allows	Ongoing	Andy	Map of plans, quotes, Discussion, invoices		

13. Manage Point Sources for Nutrient Losses

Objective:

- *The number and location of pits are managed to minimise risks to health and water quality*

Target:

(1) All on-farm silage, offal pit and rubbish dump discharges are managed to avoid direct discharges of contaminants to groundwater or surface water

Land and Water Regional Plan Rules: 5.24 – 5.28

5.24 The use of land for an offal pit and the associated discharges onto or into land in circumstances where a contaminant may enter water are permitted activities, provided the following conditions are met:

1. The discharge is to a pit that:
   (a) has a volume of less than 50 m3; and
   (b) is sited and designed to prevent surface runoff entering the pit; and
   (c) is designed to prevent animals from gaining access to the pit; and
2. The discharge is only of dead animals or animal parts produced on the property where the pit is located; and
3. No more than one pit is constructed or used per 100 hectares of property area per annum; and
4. When any pit is filled to within 0.5 m of the original land surface, or is no longer used, the contents are covered with soil to a depth of at least 0.5 m or the pit is covered with an impermeable lid; and
5. No discharge occurs:
   (a) within 100m of a surface water body, a bore used for water abstraction, the boundary of the site, or the Coastal Marine Area; or
   (b) within a Group or Community Drinking-water Protection Zone as set out in Schedule 1; or
   (c) unless there is at least 3 m of soil or sand between the point of discharge and the seasonal high water table level or
   (d) within the Christchurch Groundwater Protection Zone as shown on the Planning Maps; or
   (e) onto or into land listed as an archaeological site; or
   (f) within any area or zone identified in a proposed or operative district plan for residential, commercial or industrial purposes.

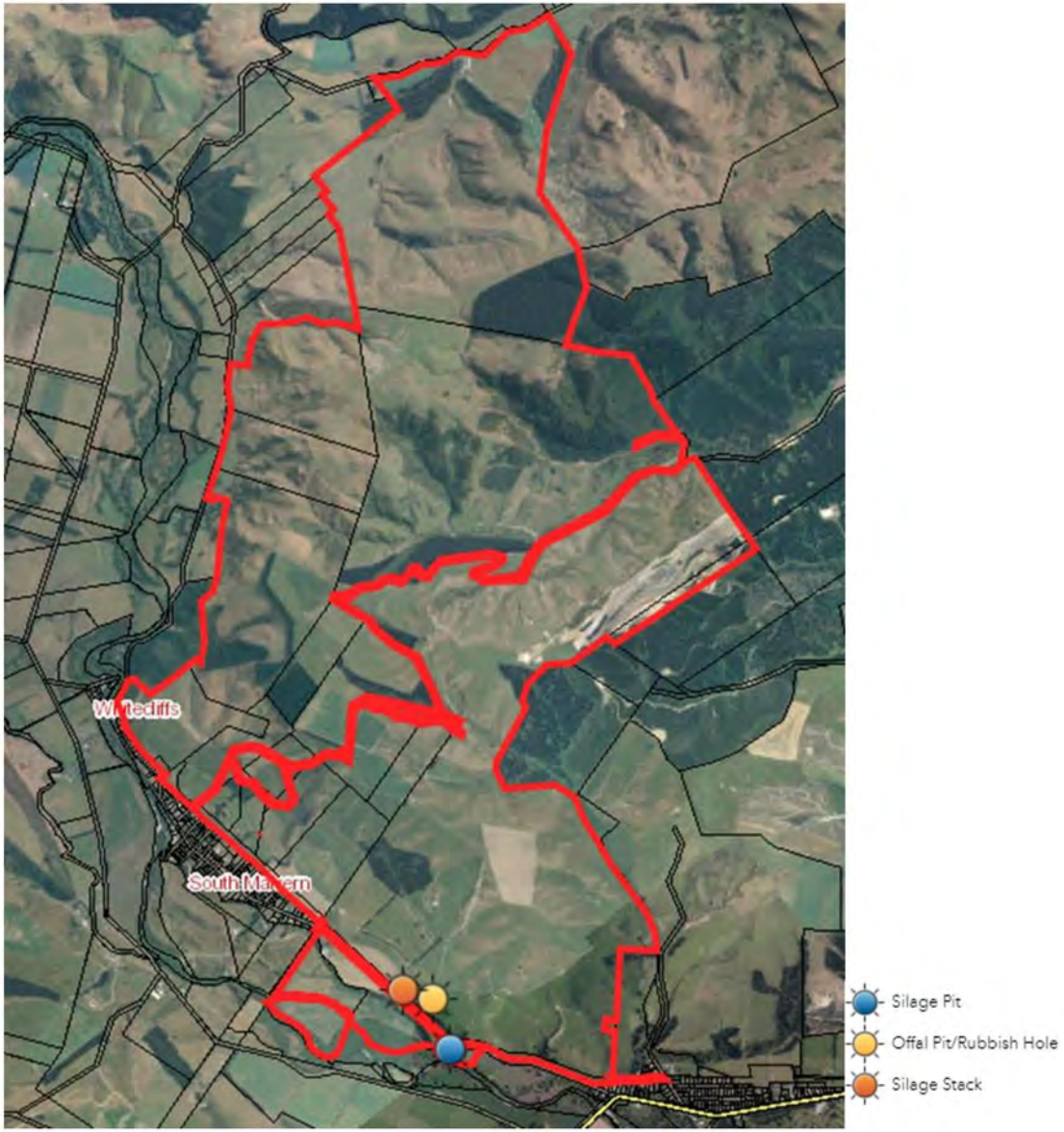
Industry Agreed Good Management Practices:

- *Store, transport and distribute feed to minimise wastage, leachate and soil damage.*
- *Select appropriate paddocks for intensive grazing, recognising and mitigating possible nutrient and sediment loss from critical source areas.*
- *Manage grazing to minimise losses from critical source areas.*

Key Risks Identified:

- *General farm waste*

Key Identifying Map:



Good Management Practices currently employed to meet the objective:

Practice	When used	Evidence of practice	Auditor note
Dead animals are disposed of in offal hole that meets the LWRP specified rules Offal pits are fenced are located 100m away from waterways (volume must be less than 50 cubic metres and sited and designed to prevent surface runoff entering the pit and no more than one pit is constructed or used per 100 hectares of property are per annum)	Always	Discussion	
Plastics and chemical containers are recycled and removed from the farm.	As required	Site observation	
Farm waste is minimised and where possible all steps are taken to recycle materials.	As required	Site Observation/discussion	

Key Actions that will be undertaken or considered to meet the objective:

Practice	When by?	Who?	Evidence	Completed?	Auditor note

14. Mahinga Kai

Objective:

- *To protect Mahinga Kai and manage waterways and drains recognising their cultural and ecological sensitivity to discharges of contaminants.*
- *To avoid damage to the beds and margins of water bodies.*
- *To avoid the direct input of nutrients, sediment and microbial pathogens to water bodies*

Land and Water Regional Plan Policy:
Targets:

(1) Mahinga Kai values are protected by implementing all other FEP objectives and Targets taking Mahinga Kai values into account
(2) Mahinga Kai species and habitats are protected when waterway (including drain) management and vegetation clearance occurs
(3) Mahinga kai habitats and species are sustained through management of remnant native vegetation and wetlands
(4) Properties are within the Selwyn District Council Drainage Scheme comply with and District Council discharge of land drainage water resource consent

Industry Agreed Good Management Practices:

- *Demonstrate an understanding of Mahinga Kai values and species present on the property and what aspects of their habitat need to be nurtured in order to allow appropriate species to flourish*
- *Help ensure Mahinga Kai is safe to eat*
- *Map waterways drains, wetlands, springs, riparian areas and areas of native vegetation on the property*
- *Assess the risk of land use on water quality, lake health, Mahinga Kai habitat. Including actions that may exacerbate or result in discharge of sediment, effluent and nutrients to water (particularly in wet seasons)*
- *Locate and manage farm tracks, gateways, water troughs, self-feeding areas, stock camps, wallows and other sources of run-off to minimise risks to water quality*
- *Identify risk of overland flow of sediment and faecal bacteria on the property and implement measures to minimise transport of these to waterbodies.*

Mahinga Kai values are protected by implementing all other FEP Objectives and Targets taking Mahinga Kai values into account.

15. Supporting Documents

Documents to collect as evidence for audit:

- *Farm diary*
- *Fertiliser records*
- *Nutrient budget*
- *Paddock records of cultivation and crops*
- *Photos of wet weather management*
- *Repair & Maintenance records*
- *Soil test results*
- *Fertiliser recommendations*
- *GPS proof of placement maps – Aerial and bulky applications*

16. Risk Assessment

Land Management Unit	Area (ha)	Soil type	Drainage	Waterbodies present	Risks
Undulating	37	Clar_1a.1	Poorly Drained	Streams	Heavy Soil: • Phosphorous and sediment losses from overland flow • Soil Pugging and compaction damage
Flat	406.5	Ruap_2a.1, Kaur_2a.2, River_1a.1	Well Drained	Streams	Heavy Soil: • Phosphorous and sediment losses from overland flow • Soil Pugging and compaction damage Light Soil: • High Nitrogen leaching relating to timing and intensity of grazing • Wind erosion
Moderately Steep	186.4	Kaur_2a.2, Chas_2a.1, Huru_5a.2	Well Drained/Moderately Well Drained	Streams	Heavy Soil: • Phosphorous and sediment losses from overland flow Light Soil: • High Nitrogen leaching relating to timing and intensity of grazing • Wind erosion
Strongly Rolling	215.3	Kaka_2a.1, Kaur_2a.2	Moderately Drained/ Moderately Well Drained	Streams	Heavy Soil: • Phosphorous and sediment losses from overland flow • Soil Pugging and compaction damage
Rolling	59.6	Ruap_2a.1, Timu_1a.2, Kaka_4a.1, Timu_1a.1	Well Drained/Imperfectly Drained/Moderately Well Drained	Streams	Heavy Soil: • Phosphorous and sediment losses from overland flow • Soil Pugging and compaction damage Light Soil: • High Nitrogen leaching relating to timing and intensity of grazing • Wind erosion
Unproductive Area	126.3	-	-	-	-

17. List of Maps Included

Map showing:	(Yes/No/NA)
Boundary of the property	Yes
Boundaries of the main land management units – e.g soils, irrigation, effluent	Yes
Location of permanent or intermittent rivers, streams, lakes, drains, ponds or wetlands	Yes
Location of riparian vegetation and fencing adjacent to water bodies	Yes
Location of all waterways where stock access or crossing occurs	Yes
Location of property within Cultural Landscape/Values Management Area	No
Location of any areas within or adjoining the property that are identified in a District Plan as " significant indigenous biodiversity"	No
Location of any critical source areas for Phosphorous or sediment (high runoff risk)	Yes
Location of flood protection or erosion control assets, including flood protection vegetation	N/A
Public access routes or access routes used to maintain the rivers, streams or drains	N/A