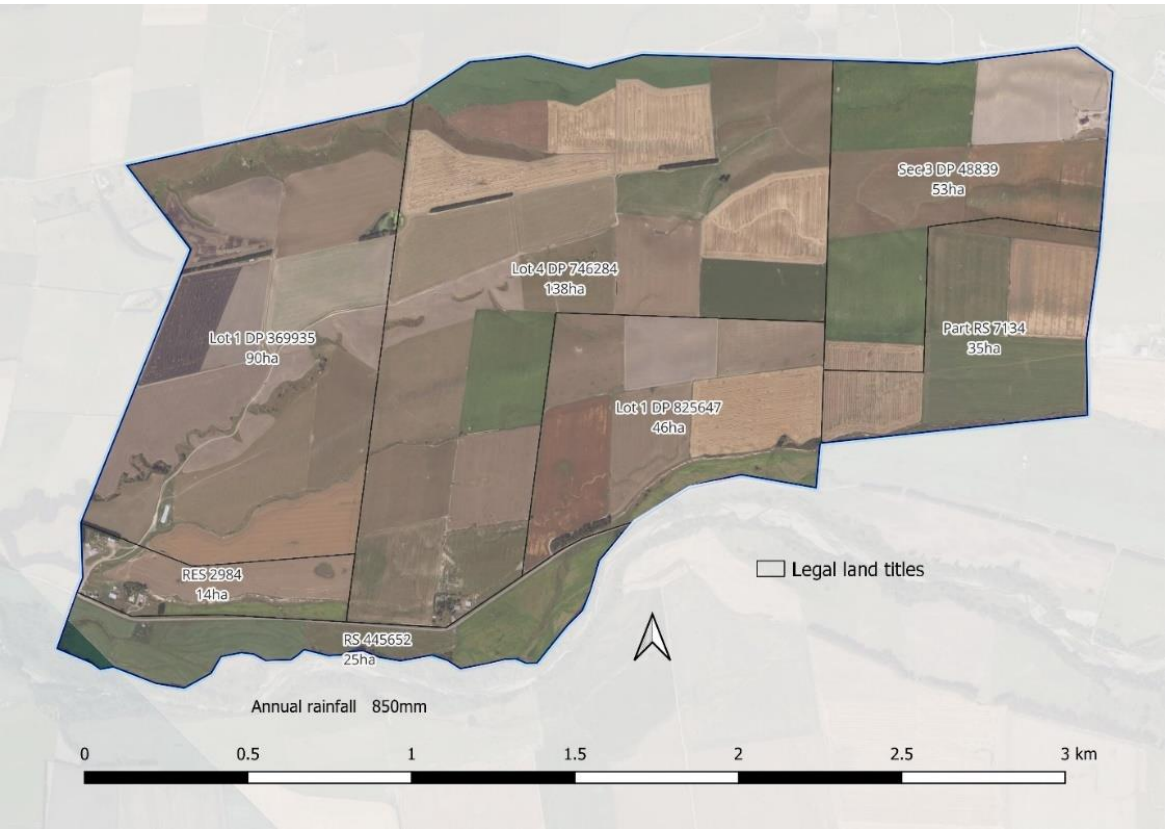
Example Freshwater Farm Plan



* ***Disclaimer:*** *The information below is provided as an example for illustrative purposes only. Identifying details have been removed to protect the privacy of the farmer on whose plan this example is based.*

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1. Farm Story

This section is not a certification requirement.

In this section, the farmer can highlight your achievements so far and set out key principles, goals and objectives for the future of the property.

Farm history
XXXX Farm is a 401 hectare (approximately 375 ha effective) property. The farm is a mixed cropping, dairy support grazing and sheep and beef grazing enterprise, that runs alongside part of the XXXX River, in Canterbury. The farm has been irrigated since 1992, with focus on speciality crops which provide the main income. XXXX Farm has been part of the XXXX family for many generations, with the rolling hills originally a sheep, beef and mixed cropping farm. Dairy support grazing has been implemented into the farm system in efforts to diversify income. Approximately 160 - 205 ha of land is cropped annually, predominantly with wheat, barley and higher value cash crops. Sheep and beef grazing occurs over an area of up to 160 - 220 ha on permanent pasture and between rotation cropping land. Dairy support grazing occurs on approximately 75 ha.
Key challenges
The main challenges seen on the farm are: • heavy soils at risk of pugging, compaction and run-off • drought risk on dryland areas.

2. Administrative details

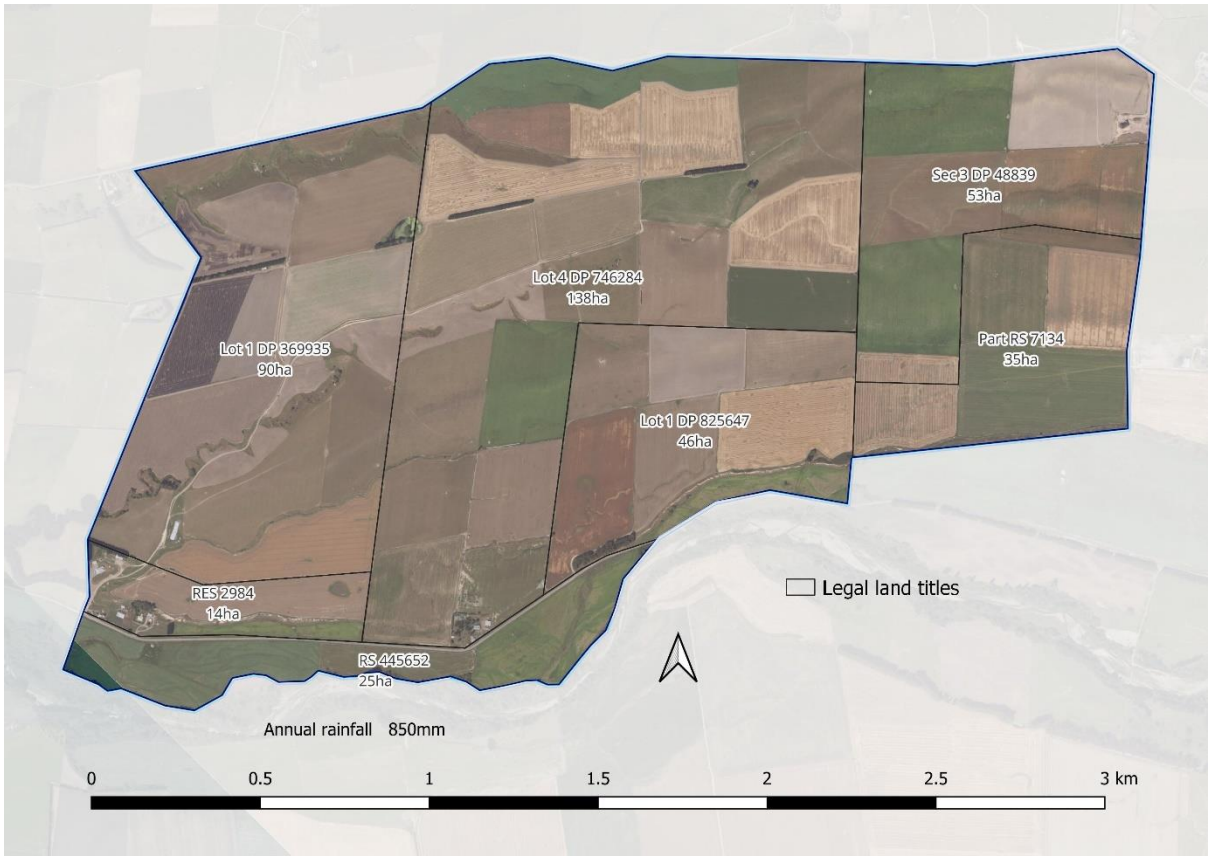
Business Details			
Name of Farm Operator	Luke Farmer	**Contact Details**	XXXXfarm@xtra.co.nz
Name(s) of owner, lease, or license holder (if different to farm operator)	-	**Contact details**	-
New Zealand Business Number (if applicable)	XXXX XXX XXX XXX		
Name of person who has prepared this plan	XXX XXXXXX		
Farm address	113 XXX River road, XXXXXX XX		
Legal land titles and parcels	RES 2984, RS 445652, Lot 1 DP 369935, Lot 1 DP 825647, Lot 4 DP 746284, Sec 3 DP 48839, Part RS 7134		

Farm Details	
Total farm area (ha)	401
Leased or licensed area if any (ha)	Nil
Any current resource consents held in respect of the farm that are relevant to the preparation of the freshwater farm plan	RMAXXXXXX – Surface water take for irrigation IWGXXXXXX – Intensive winter grazing
Land use(s)*	Arable cropping (predominant land use) Dairy support grazing Sheep and beef grazing

3. Maps

Mapping requirements	Map No.
Features related to inherent vulnerabilities	
1. farm boundaries, indicating any leased or licensed land	1
2. areas of land use, if the farm is spilt into distinctly different land uses	n/a
3. location of land unit	2
4. surface freshwater bodies	5
5. artificial freshwater bodies	n/a
6. soil	3
7. landform, including slope	4
8. potential areas of intensive winter grazing and critical source areas within areas of intensive winter grazing	4
9. critical source areas that are not within areas of intensive winter grazing	5
10. drainage systems and areas	n/a
11. irrigation and frost protection.	2
Features related to farming/growing activities	
1. fencing to exclude stock from freshwater bodies	5
2. planted riparian areas	5
3. soil erosion control plantings or works	n/a
4. effluent systems and application areas	n/a
5. water-take bores and surface water abstraction points or intakes including fish screens	5
6. freshwater crossings, including formed crossings, such as bridges, culverts, and fords and unformed crossings	5
7. stock-holding areas, including feed pads, winter pads, stand-off pads, and loafing pads	n/a
8. other livestock-related infrastructure, including milking sheds, wintering barns and shelters, and stock yards	5

Mapping requirements	Map No.
9. farm accessways such as formed roads, tracks, races, and underpasses	5
10. point source discharges including, rubbish dumps, offal pits, silage pits, feed storage bunkers or sheds, agrichemical, fertiliser, and fuel storage sites, and agrichemical washdown areas	5
11. private drinking water supply points.	n/a
Catchment context information	
1. Significant indigenous freshwater biodiversity and habitat	n/a
2. Identified fish spawning areas*	n/a
3. Identified sites of cultural significance such as mahinga kai or wāhi tapu sites*	n/a
4. Any identified recreational sites of significance associated with waterways*	n/a
New physical works	
	n/a



Map 1. Farm boundary – Property boundaries and legal titles

4. Catchment challenges, values and context

Written summary of any identified risks that related to catchment context (if applicable)

Catchment values or priorities

The farm is within the XXXX Area, which is part of the XXXX region. Plan Change 3 of the Land and Water Region Plan (LWRP) addresses the priorities and values of the region.

In the last 30 years, water use and irrigation have increased substantially in the XXXX region. In general, water quality has declined and in-catchment water use is at or beyond sustainable limits for both surface and groundwater.

For the XXXX Area, the LWRP aims to improve freshwater flows and habitat over time, while maintaining freshwater nitrate-nitrogen concentrations at a level where there is No Observable Effect on 90% of species, and providing for development at good farm practice.

Cultural significance of the catchment

The XXXX River, flows from the XXXX Hills towards the coastline. The name of the river originates from a passenger on the Ārai-te-uru waka, which capsized off Matakaea (Shag Point) on the Otago coastline. Local kaumātua have recorded the XXXX River as a kāinga mahinga kai (food-gathering place), where aruhe (bracken fernroot), kāuru (tī kouka/cabbage tree root), and tuna (eels) were gathered.

Information sourced from Ngāi Tahu Atlas.

Regional regulatory requirements

Plan Change 3 applies to the farm. Relevant objectives/policies include:

- improving river flows, by:
    - capping current water allocation and phasing out over-allocation over time by reducing the quantum of water able to be abstracted from over-allocated resources and enabling access to alternative supplies such as new irrigation scheme water, on-farm storage and, where appropriate, deep groundwater
- improving freshwater habitats
- restricting nitrogen load losses from the catchment, by requiring:
    - individual farming activities to comply with the nitrogen baseline, flexibility cap and maximum cap loss rate conditions in Rule XXX.X.X to be a permitted activity
- reduce losses of microbial contaminants, phosphorus and sediment, through:
    - the use of Farm Environment Plans
    - and Region-wide stock exclusion provisions
- enable local iwi to exercise kaitiakitanga and enhance mahinga kai through:

- minimising the discharge of any contaminants into water, protecting natural wetlands and springheads, and improving flows and water quality of spring-fed streams over time.

Secondary legislation requirements:

- Intensive winter grazing

Sites of cultural or community significance

The XXXX River is a kāinga mahinga kai (food-gathering place), where aruhe (bracken fernroot), kāuru (tī kouka/cabbage tree root) and tuna (eels) are gathered.

A coastal trail is near the property and is used by walkers, runners and cyclists.

Species or ecosystems of cultural or community significance

The XXXX river continues to provide important habitat for culturally significant indigenous species that are threatened and at risk, including tuna (eels), trout, salmon and inanga (whitebait). The XXXX river and some of the larger tributaries also provide important habitat for braided river birds and the headwaters provide habitat for threatened species such as the blue duck.

Catchment fisheries are particularly important to Ngāi Tahu due to the practice of catching tuna and inanga in the narrows during their migration between the river and coastal water.

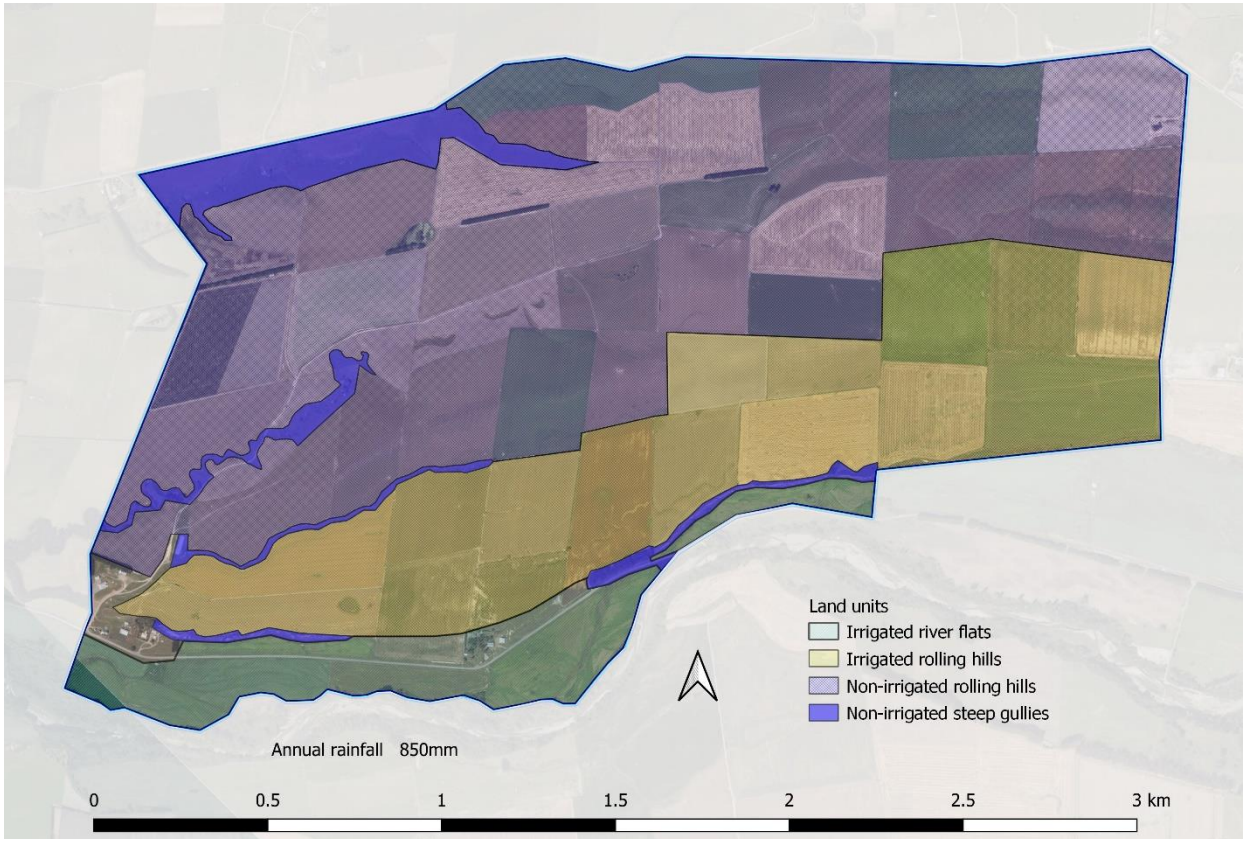
Priority contaminants

Nitrogen has been identified as the priority contaminant of the catchment in Plan Change 3, LWRP.

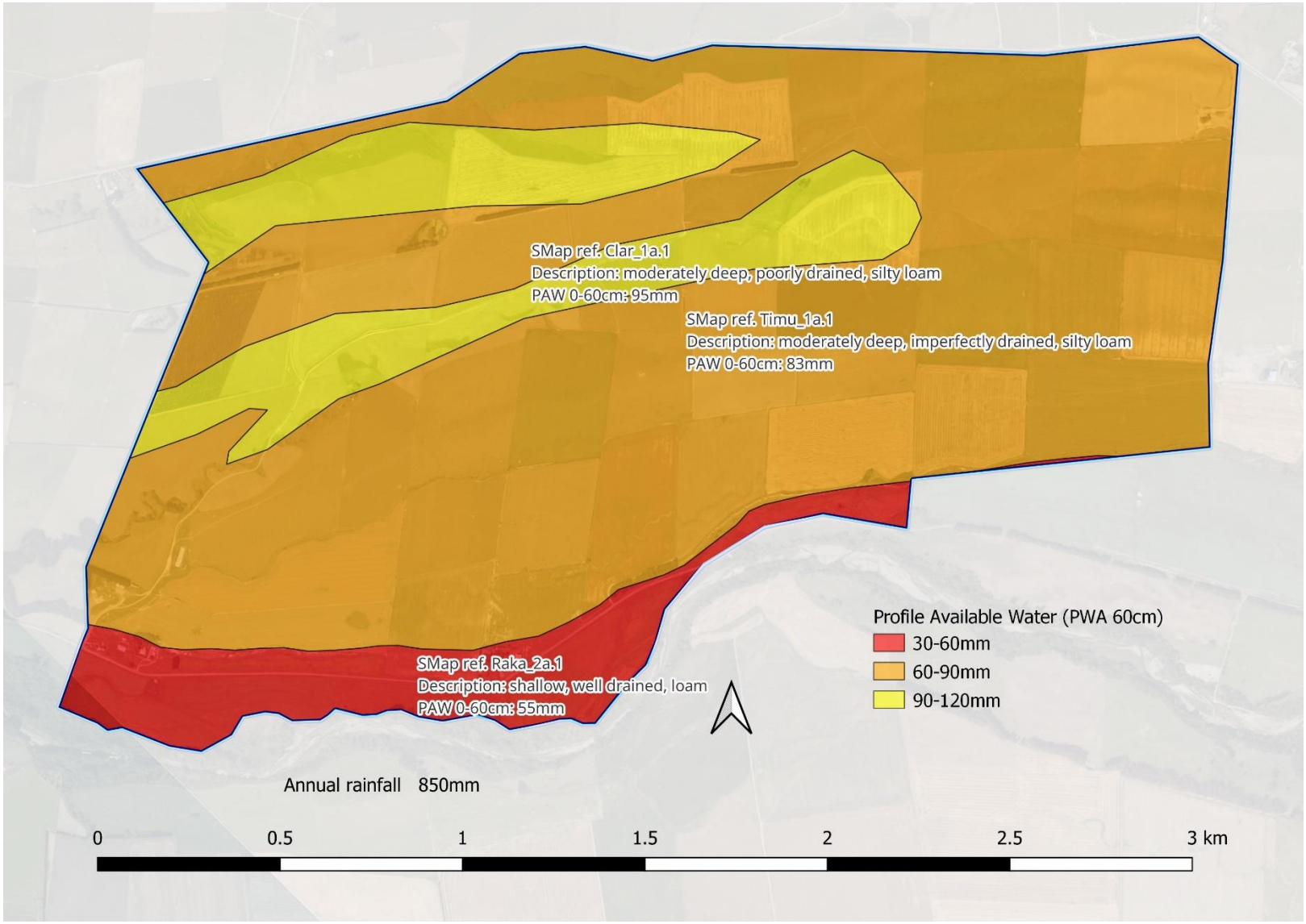
5. Land Units

XXXX Farm – Land unit maps

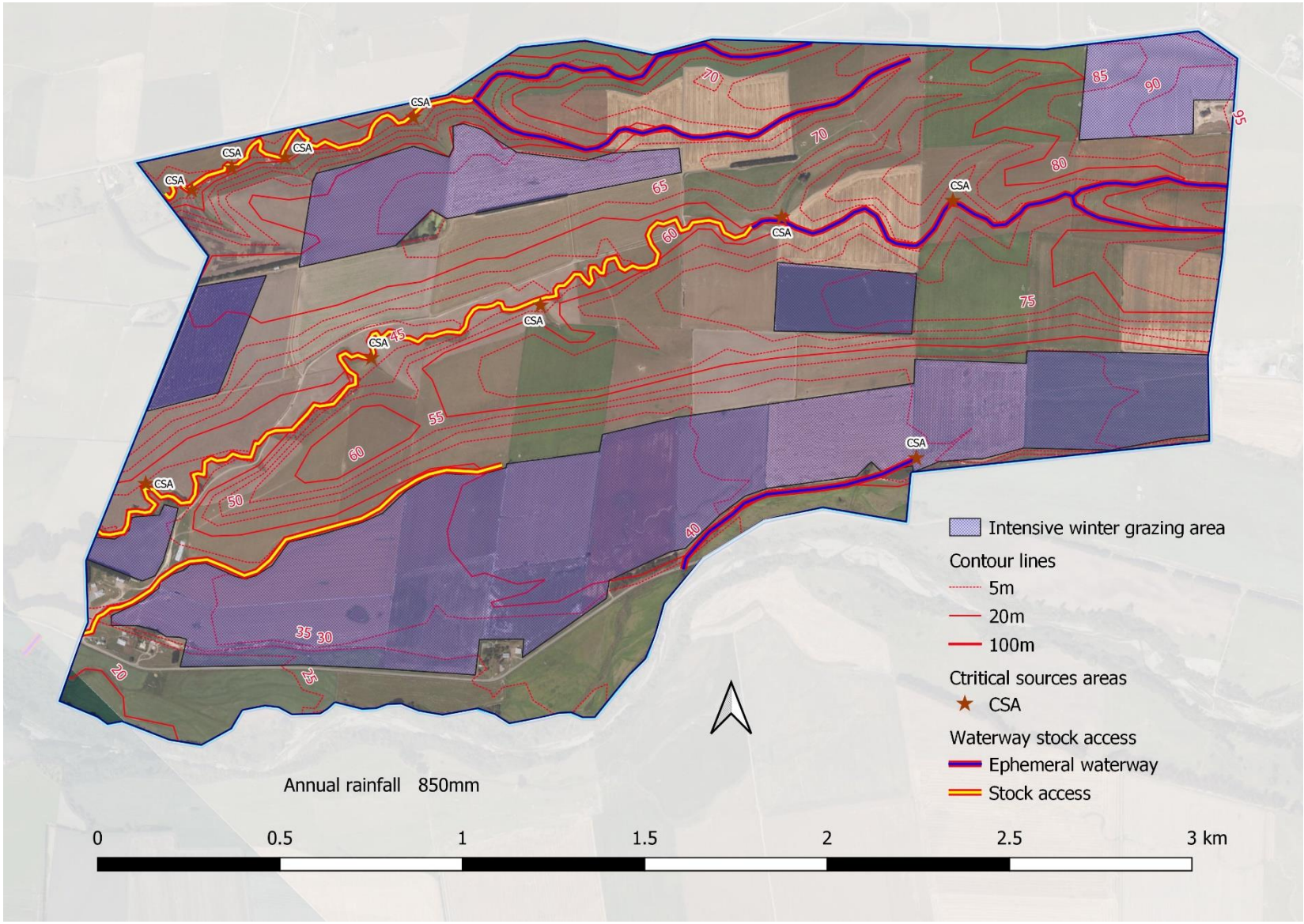
There are four land units on XXXX Farm. These are shown in Map 2 and described below. Map 3 sets out the main soil types on the property and Map 4 shows the contour of the property and possible areas of intensive winter grazing.



Map 2. Land units



Map 3. Soil types



Map 4: Contour slope and possible areas of intensive winter grazing

XXXX Farm–- Land unit and inherent vulnerabilities

Inherent vulnerabilities are risks to freshwater and freshwater ecosystems from the biophysical features of the land including from irrigation and/or drainage.

To meet certification requirements, a famer must identify the inherent vulnerabilities in each land unit.

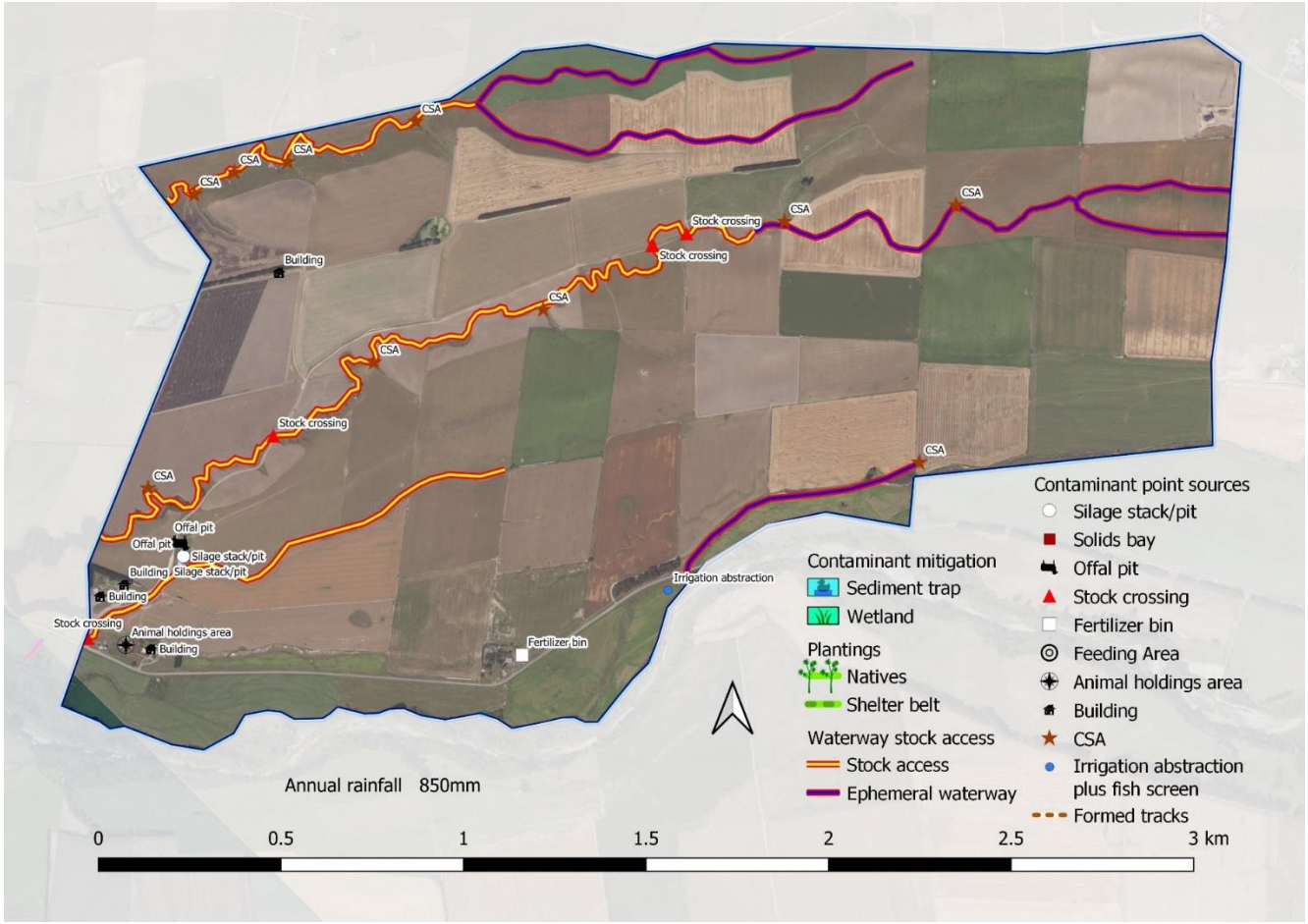
LU Number	Land Unit name	Map No.	Land unit description	Inherent Vulnerabilities
A	Irrigated river flats	2	A 22 ha free draining river flat area with good access and irrigated via guns. The land uses undertaken on the unit are mixed cropping and pastoral grazing by sheep, beef and dairy support cattle. The land unit runs alongside the XXXX River, which has high community and cultural value (see Section 4 above). The Rakaia Stony Loam soil (Raka_2a.1) within the unit is very shallow, well drained stoney silt and sand, with a PAW of 55 mm at 60 cm depth.	High nutrient leaching risk due to the free draining nature of the soils and potential over-watering from irrigation. High drought risk without irrigation due to the free draining nature of soils and drought prone climatic conditions. A low probability, but high impact, flooding risk associated with the proximity to the XXXX River and the low-lying land, which would result in high nutrient and sediment loss.
B	Irrigated rolling hill	2	A 38 ha rolling hills area that is irrigated via guns. The land unit is used for mixed cropping and pastoral grazing by sheep, beef and dairy support cattle. Sites of significance within the land unit include multiple intermittent streams and a wetland. The dominant soil is Timaru (Timu_1a.1), a moderately deep silt that is poorly drained. The soil fertility is suitable for cropping and the water holding capacity reduces irrigation requirements when managed well.	High water logging, pugging and compaction risk, especially with winter grazing, due to the heavy soils. High run-off risk associated with irrigation management, heavy soils and topography (eg, slopes).

C	Non-irrigated rolling hills	2	A 311 ha dryland rolling hills area used for mixed cropping and pastoral grazing by sheep, beef and dairy support cattle. Sites of significance within the land unit include multiple intermittent streams and a wetland. The two predominant soils, Claremont (Clar_1a.1) and Timaru, are heavier, deep silts that are poorly and imperfectly drained. The soils fertility is suitable for cropping and the water holding capacity reduces rainfall requirements.	High water logging, pugging and compaction risk, especially with winter grazing, due to the heavy soils. Moderate nutrient run-off risk associated with rainfall, heavy soils and topography (slope).
D	Non-irrigated gullies	2	A 30 ha dryland gullies area. Ineffective gullies with regenerating bush/scrub and steeper edges of intermittent waterways, which are sites of significance, are fenced off. Remaining areas in the land unit are lightly grazed. Claremont and Timaru are the two predominant soils in the land unit.	Moderate nutrient and sediment run-off and erosion risk associated with rainfall (eg, heavy rain), topography (eg, steep edges of waterways and/or gullies) and/or stocking rates (eg, heavy stocking, especially in adverse weather).

6. Identifying Risk

A farmer must demonstrate identify risks to freshwater from both the inherent vulnerabilities and the farming/growing activity occurring in a land unit

A farmer must consider any relevant catchment context factors when identifying and assessing each risk.



Map 5. Farm infrastructure features

Land unit no.	Farming/growing activity group	Farming/growing activity sub-group(s)	Farming/growing activity description	Inherent vulnerabilities	Catchment context	Risk group(s)	Risk
A & B	Irrigation	Application management	A hard hose and soft hose gun are used to irrigate 60 ha during the season. Irrigation priority is given to high value crops, with fodder crops and pasture being irrigated only if there is adequate irrigation water.	Close proximity to water bodies Presence of irrigation Soil characteristics Topography: Slopes	Improving river flows Restricting nitrogen losses Reduce losses of microbial contaminants, phosphorus and/or sediment XXXX River and inhabitant species have cultural and community significance	Nitrogen – Groundwater and surface water Sediment Phosphorus – Groundwater and surface water Pathogen – Groundwater and surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Due to high application rates (mm/hr), there is a high risk of nutrient leaching through the soil profile on free draining soils or sediment and particulate P runoff on heavier soils, if irrigation is not carefully managed.
A & B	Irrigation	Take and application infrastructure	All irrigation on farm is taken from a surface water abstraction point (SWAP) on the XXXX River and distributed to the guns through an underground mainline connected to above ground irrigation hoses.	Close proximity to water bodies Erosion risk Presence of irrigation Soil characteristics Topography: Slopes	Restricting nitrogen losses Reduce losses of phosphorus Improving river flows	Sediment Nitrogen – Groundwater and surface water Phosphorus – Groundwater and surface water	Old irrigation infrastructure on farm (30+ years), including worn infrastructure, and leaky camlocks and irrigation lines, can lead to water losses and pressure reductions along the system, causing irrigation spread pattern issues. This results in a medium risk of water and nutrient leaching and/or runoff.

Land unit no.	Farming/growing activity group	Farming/growing activity sub-group(s)	Farming/growing activity description	Inherent vulnerabilities	Catchment context	Risk group(s)	Risk
A & B	Irrigation	Take and application infrastructure	All irrigation on farm is taken from a surface water abstraction point (SWAP) on the XXXX River and distributed to the guns through an underground mainline connected to above ground irrigation hoses.	Presence of irrigation Climate: Drought risk	Improving river flows XXXX River and inhabitant species have cultural and community significance	Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Water abstraction from river at times of low environmental flows may result in moderate risk to the health and habitats of sites and species of significance.
All	Nutrients	Nutrient management, nutrient application	Phosphate and nitrogen fertilisers are applied over majority of the farm.	Close proximity to water bodies Soil characteristics Topography: Slopes	Restricting nitrogen losses Reduce losses of phosphorus XXXX River and inhabitant species have cultural and community significance	Nitrogen – Groundwater and surface water Phosphorus – Groundwater and surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Fertiliser is applied to land at rates and/or times that do not match optimal plant growth and/or feed budget requirements, resulting in a high risk of nutrient leaching and/or runoff.
All	Nutrients	Nutrient application	Application of nutrients to land.	Close proximity to water bodies	Restricting nitrogen losses Reduce losses of phosphorus XXXX River and inhabitant species have cultural and community significance	Nitrogen – Surface water Phosphorus – Surface water	Low risk for direct application of nutrients to water.

Land unit no.	Farming/growing activity group	Farming/growing activity sub-group(s)	Farming/growing activity description	Inherent vulnerabilities	Catchment context	Risk group(s)	Risk
C	Nutrients	Nutrient storage and loading	Bulk nutrient storage on farm.	Close proximity to water bodies	Restricting nitrogen losses Reduce losses of phosphorus	Nitrogen – Surface water Phosphorus – Surface water	Fertiliser losses from storage facilities resulting in low risk of nutrient runoff to freshwater.
A, B & C	Land and soil	Cultivation	Cultivation of paddocks on soils ranging from light river flats to heavy rolling downs prior to re-grassing or cropping. Direct drilling and minimum tillage are the predominant cultivation techniques.	Close proximity to water bodies Erosion risk Soil characteristics Topography: Slopes	Reduce losses of microbial contaminants, phosphorus and/or sediment Cultural and/or community significance: • XXXX River and inhabitant species • Wetlands • Intermittent streams.	Sediment Phosphorus –Surface water Pathogen – Surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	High sediment and nutrient runoff risk to waterbodies from cultivated paddocks, especially on rolling heavy soils.
B, C & D	Land and soil	Pasture and grazing management	Stock grazing pasture on steeper areas of farm and grazing at environmentally high-risk times of year.	Close proximity to water bodies Erosion risk Presence of irrigation Soil characteristics Topography: Slopes	Restricting nitrogen losses Reduce losses of microbial contaminants, phosphorus and/or sediment Cultural and/or community significance: • XXXX River and inhabitant species • Wetlands • Intermittent streams.	Sediment Phosphorus – Groundwater and surface water Nitrogen – Groundwater and surface water Pathogen – Groundwater and surface water Impact on site(s) significant to tangata whenua	Medium sediment and nutrient runoff risk to waterways as a result of soil disturbance, including compaction, soil pugging and bare land.

Land unit no.	Farming/growing activity group	Farming/growing activity sub-group(s)	Farming/growing activity description	Inherent vulnerabilities	Catchment context	Risk group(s)	Risk
						Impact on species significant to tangata whenua	
A, B & C	Intensive winter grazing	Site selection	Approximately 56 ha of brassica crops are planted from October-December for winter grazing (late May to mid-August) by mixed aged dairy cows.	Close proximity to water bodies Erosion risk Presence of irrigation Soil characteristics Topography: Slopes Wetlands	Reduce losses of microbial contaminants, phosphorus and/or sediment. Cultural and/or community significance: • XXXX River and inhabitant species • Wetlands • Intermittent streams.	Sediment Phosphorus – Groundwater and surface water Nitrogen – Groundwater and surface water Pathogen – Groundwater and surface water	Poor site selection can lead to a medium risk of sediment and/or nutrient runoff to waterbodies from paddocks during crop establishment, grazing and post-grazing.
B & C	Intensive winter grazing	Grazing management	Approximately 56 ha of brassica crops are planted from October-December for winter grazing (late May to mid-August) by mixed aged dairy cows.	Close proximity to water bodies Erosion risk Presence of irrigation Soil characteristics Topography: Slopes	Reduce losses of microbial contaminants, phosphorus and/or sediment Cultural and/or community significance: • XXXX River and inhabitant species • Wetlands • Intermittent streams.	Sediment Pathogen – Groundwater and surface water Phosphorus – Groundwater and surface water Nitrogen – Groundwater and surface water	Intensive grazing of winter crops increases soil damage/degradation risk, including soil pugging and compaction. Intensive winter grazing has a high risk of sediment, pathogen and nutrient losses to waterbodies.
B & C	Intensive winter grazing	Post grazing management	Post grazing soil and paddock management.	Erosion risk Presence of irrigation Soil characteristics Topography: Slopes	Reduce losses of microbial contaminants, phosphorus and/or sediment. Cultural and/or community significance: • XXXX River and inhabitant species	Sediment Phosphorus – Groundwater and surface water Pathogen – Groundwater and surface water	High risk of sediment, pathogen and nutrient losses and/or runoff into surrounding critical source areas and/or waterways.

Land unit no.	Farming/growing activity group	Farming/growing activity sub-group(s)	Farming/growing activity description	Inherent vulnerabilities	Catchment context	Risk group(s)	Risk
					• Wetlands • Intermittent streams.	Nitrogen – Groundwater and surface water	
All	Waterbodies and wetlands	Critical source areas (CSA's)	CSAs are found throughout the farm and require appropriate management.	Close proximity to water bodies Erosion risk Presence of irrigation Soil characteristics Topography: Slopes Wetlands	Cultural and/or community significance: • XXXX River and inhabitant species • Wetlands • Intermittent streams / CSA's • Natural spring in paddock HHH.	Sediment Impact on site(s) significant to tangata whenua Impact on area of indigenous biodiversity	CSA's not being identified and/or being poorly managed, resulting in a high risk of damage to the function and character of CSA's, including wetlands.
B	Point source	Silage pits and feed bunker	Silage pit is located close to the track on heavy clay soils and above a gully on the farm that has intermittent water flows.	Close proximity to water bodies Topography: Slope	Reduce losses of microbial contaminants, phosphorus and/or sediment	Nitrogen – Groundwater and surface water Phosphorus – Groundwater and surface water Pathogen – Groundwater and surface water	The unbunded sloping nature of the silage pit leads to a low to medium risk of leachate runoff to the gully during periods of wet weather.
C	Point source	Offal pit	Dead stock are buried in the offal pit on farm, which is located in paddock AAA.	Soil characteristics	Reduce losses of microbial contaminants, phosphorus and/or sediment.	Pathogen – Groundwater and surface water	Low risk of contaminant runoff into waterways/ groundwater if offal pit is not well managed.

7. Action plan

To meet certification requirements a freshwater farm plan must include an action plan outlining what the farmer will do to manage the identified risks

Risk			Activity		Action							
Land unit no.	Risk group	Overall risk	Activity group	Activity sub-group	Specific action	Map no.	Category	New or existing	Using FWFP to meet other regulations	Implementation date	Date detail	Evidence
A & B	Nitrogen: Groundwater & surface water Sediment Phosphorus: Groundwater & surface water Pathogen: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Due to high application rates (mm/hr), there is a medium to high risk of nutrient leaching through the soil profile on free draining soils or sediment and particulate P runoff on heavier soils, if irrigation is not carefully managed.	Irrigation	Application management	Irrigation system has application depth and uniformity test (bucket test) completed at least every three years. This test also measures instantaneous application (mm/hr) of the system. Bucket testing results are kept. By understanding the rate, depth, and uniformity of irrigation applications to land, decisions can be made as to how adequate the current irrigation application system is for the soils on the property.	-	Catchment	Existing	N/A	28 February 20XX	Ongoing from	Evidence: Bucket test results kept.
A & B	Nitrogen: Groundwater & surface water Sediment Phosphorus: Groundwater & surface water Pathogen: Groundwater and surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Due to high application rates (mm/hr), there is a medium to high risk of nutrient leaching through the soil profile on free draining soils or sediment and particulate P runoff on heavier soils, if irrigation is not carefully managed.	Irrigation	Application management	If bucket test results show application rates (mm/hr) and depths (mm) that are too high for receiving soil infiltration, application depth of irrigation system (guns) will be adjusted by either speeding up and/or changing nozzles to ensure that application depths and rates are suitable for soil types and slopes over which they are being applied. Redo bucket test after adjustments made to assess if system changes meet intended purpose.	-	Catchment	New	N/A	28 February 20XX	Ongoing from	Evidence: Updated bucket test results. Records of adjustments made to system.

A & B	Nitrogen: Groundwater & surface water Sediment Phosphorus: Groundwater & surface water Pathogen: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Due to high application rates (mm/hr), there is a medium to high risk of nutrient leaching through the soil profile on free draining soils or sediment and particulate P runoff on heavier soils, if irrigation is not carefully managed.	Irrigation	Application management	Understanding the soil moisture status of irrigated land allows better decision making as to when to apply irrigation, reducing the risk of excessive irrigation, nutrient leaching and/or sediment runoff. Upgrade the approach to irrigation scheduling by installing soil moisture monitoring technology and/or develop and keep up to date soil water budgets on land units A and B.	-	Catchment	New	N/A	28 February 20XX	Ongoing from	Evidence: Soil moisture monitoring over time, and farmer understanding of thresholds for refill and field capacity points.

A & B	Sediment Nitrogen: Groundwater & surface water Phosphorus: Groundwater & surface water	Old irrigation infrastructure on farm (30+ years), including worn infrastructure, and leaky camlocks and irrigation lines, can lead to water losses and pressure reductions along the system, causing irrigation spreading pattern issues. This results in a medium risk of water and nutrient leaching and/or runoff.	Irrigation	Take and application infrastructure	Have accredited irrigation engineer complete full system assessment, from pump to dispersal, to assess where losses are occurring in system and what corrective actions are to be taken to have the system working at a satisfactory level (as determined by irrigation engineer).	-	Catchment	New	N/A	28 February 20XX	Completed by	Evidence: Assessment report with recommendations and actions implemented as a result of the report.
A & B	Sediment Nitrogen: Groundwater & surface water Phosphorus: Groundwater &surface water	Old irrigation infrastructure on farm (30+ years), including worn infrastructure, and leaky camlocks and irrigation lines, can lead to water losses and pressure reductions along the system, causing irrigation spreading pattern issues. This results in a medium risk of water and nutrient leaching and/or runoff.	Irrigation	Take and application infrastructure	Implement any corrective actions (system changes) identified as necessary in system assessment report to bring the system function up to a satisfactory level.	-	Catchment	New	N/A	30 November 20XX	Completed by	Evidence: Assessment report with recommendations and actions implemented as a result of the report.
A & B	Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Water abstraction from river at times of low environmental flows may result in moderate risk to the health and habitats of sites and species of significance.	Irrigation	Take and application infrastructure	Electronically measure water use every 15 minutes. Submit records to the regional council as required by the Resource Management (Measurement and Reporting of Water Takes) Amendment Regulations 2020, to ensure takes are within permitted limits at all		Regulated	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Recorded data and telemetry reports to regional council.

					times, with any Low Flow restrictions that may be implemented on river in accordance with water take consent. Fish screen is installed at intake point.							
All	Nitrogen: Groundwater &surface water Phosphorus: & Groundwater and surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Fertiliser is applied to land at rates and/or times that do not match optimal plant growth and/or feed budget requirements, resulting in a high risk of nutrient leaching and/or runoff.	Nutrients	Nutrient management	On cropping blocks, deep soil N tests are completed to determine plant available mineralised N in soil. Soil testing is completed annually on particular crop paddocks. This regime ensures that each paddock is tested every 3 to 5 years. Records are kept, to identify if paddocks are increasing, decreasing or maintaining Olsen P and other nutrient levels. Herbage tests are completed on specific crops prior to fertiliser applications to help determine nutrient requirements.	-	Catchment	Existing	N/A	30 May 20XX.	Ongoing from	Evidence: Soil test results and herbage test results.
All	Nitrogen: Groundwater &surface water Phosphorus: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Fertiliser is applied to land at rates and/or times that do not match optimal plant growth and/or feed budget requirements, resulting in a high risk of nutrient leaching and/or runoff.	Nutrients	Nutrient management	To best utilise nutrient applications on farm, recommendations are based on soil and herbage test results, as well as known plant specific nutrient requirement data.	-	Catchment	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Fertiliser recommendations, proof of placement records and fertiliser purchase records.
All	Nitrogen: Groundwater & surface water Phosphorus: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	Fertiliser is applied to land at rates and/or times that do not match optimal plant growth and/or feed budget requirements, resulting in a high risk of nutrient leaching and/or runoff.	Nutrients	Nutrient management	When soil moisture monitoring (see irrigation action) is implemented (by 28 February 20XX), utilise moisture and temperature data for fertiliser applications. Fertiliser is applied to land when soil temperature is above 8°C and rising.	-	Catchment	New	N/A	28 February 20XX.	Ongoing from	Evidence: Soil temperature records and fertiliser application proof of placement records.
All	Nitrogen: Groundwater & surface water	Fertiliser is applied to land at rates and/or times that do not match optimal plant growth	Nutrients	Nutrient application	Phosphate and nitrogen fertilisers are not applied to land during high-risk months (May to	-	Catchment	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Time stamped proof of placement application records,

	Phosphorus: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	and/or feed budget requirements, resulting in a high risk of nutrient leaching and/or runoff.			July)leaching or , with fertiliser records kept. Fertiliser timings are based on plant growth requirements (eg, high growth periods), soil conditions (eg, not applied when waterlogged) and climatic conditions (eg, no application prior to heavy rainfall or during high winds) to reduce the risk of excess nutrient runoff.							fertiliser purchase records and fertiliser plans.
All	Nitrogen: Surface water Phosphorus: Surface water	Low risk for direct application of nutrients to water.	Nutrients	Nutrient application	All nutrients on farm are self-applied through a VICON RotaFlow ROM, which utilises TrimFLow for boundary spreading to minimise the risk of uneven fertiliser applications and fertiliser being applied over waterways.	-	Catchment	Existing	N/A	30 July 20XX	Ongoing from	Evidence: GPS proof of nutrient placement records, as well as machine calibration records.
C	Nitrogen: Surface water Phosphorus: Surface water	Fertiliser losses from storage facilities resulting in low risk of runoff to freshwater.	Nutrients	Nutrient storage and loading	Fertiliser is stored in a bunded shed, with a concrete floor. Located in yard area away from any waterways.	-	Catchment	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Visual inspection.
A, B & C	Sediment Phosphorus: Surface water Pathogen: Surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	High sediment and nutrient runoff risk to waterbodies from cultivated paddocks, especially on rolling heavy soils.	Land and soil	Cultivation	Direct drilling and minimum tillage are the predominant cultivation techniques used on farm to minimise the risk of soil erosion and nutrient run-off. Full cultivation is only used when absolutely necessary.	-	Supplementary	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Photos, records of when, where and what type of cultivation was used on farm. If full cultivation used, reasons why.
A, B & C	Sediment Phosphorus: Surface water Pathogen: Surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	High sediment and nutrient runoff risk to waterbodies from cultivated paddocks, especially on rolling heavy soils.	Land and soil	Cultivation	When cultivation is undertaken on farm, the contour of the sloping ground is followed to minimise the potential for soil erosion and nutrient losses.	-	Supplementary	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Records of cultivation, timing, paddocks and GPS if available.
B, C & D	Sediment Phosphorus: Groundwater & surface water	Medium sediment and nutrient runoff risk to waterways as a result of soil disturbance, including	Land and soil	Pasture and grazing	Reduce the risk of sediment runoff by leaving high residual grazing levels on land steeper than 10 degrees. Cattle are not grazed on	-	Supplementary	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Photographic records and stock grazing rotation records.

	Nitrogen Groundwater & surface water Pathogen: Groundwater & surface water Impact on site(s) significant to tangata whenua Impact on species significant to tangata whenua	compaction, soil pugging and bare land.		managem ent	land steeper than 10 degrees during times when soil moisture volumes are high.							
A, B & C	Sediment Phosphorus: Groundwater & surface water Nitrogen: Groundwater & surface water Pathogen: Groundwater & surface water	Poor site selection can lead to a medium risk of sediment and/or nutrient runoff to waterbodies from paddocks during crop establishment, grazing and post-grazing.	Intensiv e winter grazing	Site selection	Intensive winter grazing sites are selected based on a number of environmental risk factors, including paddock topography, proximity to waterways, and soil susceptibility to damage at grazing. Management practices considered include paddock and cropping history, and ability to irrigate. Site selection and contributing risk factors will be identified annually in the IWG plan as part of consent conditions.	4	Regulator y	Existin g	No	30 July 20XX	Ongoing from	Evidence: Paddock selection criteria checklist, intensive winter grazing paddock history and maps of intensive winter grazing paddocks.
A, B & C	Sediment Phosphorus: – Groundwater & surface water Nitrogen: Groundwater & surface water Pathogen: Groundwater &surface water	Intensive grazing of winter crops increases soil damage/degradation risk, including soil pugging and compaction. This can lead to a medium risk of sediment and/or nutrient runoff to waterbodies from paddocks during crop establishment.	Intensiv e winter grazing	Site selection	During preparation of paddocks for crop establishment, cropped areas have adequate nutrient and sediment buffer zones along drains (minimum 5 m on flats, greater than 10 m on rolling), near critical source areas and tops of gullies to minimise risk of sediment and nutrient runoff to waterways.	-	Regulator y	Existin g	No	30 July 20XX	Ongoing from	Evidence: Photographs of setback buffer zones and visual inspection during audit of crop paddocks.
B & C	Sediment Pathogen: Groundwater & surface water Phosphorus: Groundwater & surface water Nitrogen: Groundwater & surface water	Intensive grazing of winter crops increases soil damage/degradation risk, including soil pugging and compaction. Intensive winter grazing has a high risk of sediment, pathogen and nutrient losses to waterbodies.	Intensiv e winter grazing	Grazing managem ent	Winter crops on sloped land are grazed along the contour, with breaks starting at top of slopes and moving downwards each day, reducing the likelihood of sediment runoff through buffer zones into potentially sensitive areas. To reduce the risk of high stock concentrations and urine patches, break feeding areas are sufficiently	-	Regulator y	Existin g	No	30 July 20XX	Ongoing from	Evidence: Intensive winter grazing management plan and photos of grazing.

					sized, with back fencing used where possible, and supplementary feed is spaced appropriately.							
B & C	Sediment Pathogen: Groundwater & surface water Phosphorus: Groundwater & surface water Nitrogen: Groundwater & surface water	Intensive grazing of winter crops increases soil damage/degradation risk, including soil pugging and compaction. Intensive winter grazing has a high risk of sediment, pathogen and nutrient losses to waterbodies.	Intensive winter grazing	Grazing management	To minimise soil disturbance and crop damage, During periods of continued wet weather, stock are moved from break fenced crops to pasture in neighbouring paddocks. Known wetter areas are also grazed according to climatic conditions.	-	Regulatory	Existing	No	30 July 20XX	Ongoing from	Evidence: Maps of cropped paddocks and proximity of pastoral paddocks, and intensive winter grazing management plan, grazing records and photos.
B & C	Sediment Phosphorus: Groundwater & surface water Nitrogen: Groundwater & surface water Pathogen: Groundwater & surface water	High risk of sediment, pathogen and nutrient losses and/or runoff into surrounding critical source areas and/or waterways.	Intensive winter grazing	Post grazing management	Minimise the amount of time paddocks are fallow after grazing and prior to replanting. Ensure the intensive winter grazing management plan for the property contains a section detailing post grazing/harvest management options. Update annually for different crop types to ensure that paddocks are replanted within a timely manner.	-	Regulatory	New	No	30 July 20XX	Ongoing	Evidence: Review of intensive winter grazing management plan to ensure correct crops on farm are identified and crop cycle time frames (planting - grazing) are accurate and realistic for ensuring fallow paddocks are replanted as soon as practicable.
B & C	Sediment Phosphorus: Groundwater & surface water Nitrogen: Groundwater & surface water Pathogen: Groundwater & surface water	High risk of sediment, pathogen and nutrient losses and/or runoff into surrounding critical source areas and/or waterways.	Intensive winter grazing	Post grazing management	Dependant on the timing of when a crop has been harvested or grazed and climatic conditions at those times. Later autumn grazed fodder crops (April - May) are followed with a crop of forage oats to capture excess nutrients left over from animal urine and dung, and decaying plant stover. Oats actively grow to a low ground temperature and will utilise nutrients when other species cannot.	-	Regulatory	Existing	No	30 July 20XX	Ongoing from	Evidence: Records on ProductionWise of when crops planted, grazing/harvest records and drilling records of crops.
All	Sediment Impact on site(s) significant to tangata whenua Impact on area of indigenous biodiversity	CSA's not being identified and/or being poorly managed, resulting in a high risk of damage to the function and character of CSA's, including wetlands.	Waterbodies and wetlands	Critical source areas	All permanent flowing waterways on property are fenced with a minimum set back distance of 3 metres and with a berm of grass to slow any potential sediment and/or nutrient runoff.	5	Catchment	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Visual inspection of fences.

All	Sediment Impact on site(s) significant to tangata whenua Impact on area of indigenous biodiversity	CSA's not being identified and/or being poorly managed, resulting in a high risk of damage to the function and character of CSA's, including wetlands.	Waterbodies and wetlands	Critical source areas	During times when intermittent waterways are flowing, ensure that all stock are excluded from any flowing areas by either erecting permanent or temporary fencing with a minimum set back distance of 3 metres, or moving stock to another paddock.	5	Catchment	New	N/A	30 April 20XX	Completed by	Evidence: Visual inspection of newly fenced areas and areas where temporary exclusion is placed during flow. Proof of temporary exclusion measures (eg, time stamped photographs).
All	Sediment Impact on site(s) significant to tangata whenua Impact on area of indigenous biodiversity	CSA's not being identified and/or being poorly managed, resulting in a high risk of damage to the function and character of CSA's, including wetlands.	Waterbodies and wetlands	Critical source areas	Critical source areas on farm are not well identified. As part of FWFP certification process, all CSAs on farm must be identified and mapped	5	Catchment	New	N/A	30 July 20XX	Completed by	Evidence: Maps showing all identified CSAs on farm.
B	Nitrogen: Groundwater & surface water Phosphorus: Groundwater & surface water Pathogen: Groundwater & surface water	The unbunded sloping nature of the silage pit leads to a low to medium risk of leachate runoff to the gully during periods of wet weather.	Point source	Silage pits and feed bunkers	Ensure that silage dry matter % when harvested is within optimal range (30-35%) to minimise risk of leachate.	-	Supplementary	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Dry matter test records from harvest.
B	Nitrogen: Groundwater & surface water Phosphorus: Groundwater & surface water Pathogen: Groundwater & surface water	The unbunded sloping nature of the silage pit leads to a low to medium risk of leachate runoff to the gully during periods of wet weather.	Point source	Silage pits and feed bunkers	Establish options for runoff capture and/or diversion. The two options used will be: 1. Build bund around entry/exit of silage pit to divert any water and/or leachate away from gully and towards pastural areas. 2. Have sawdust pile in place that can be used if needed to absorb any leachate on land surface.	5	Catchment	New	N/A	30 September 20XX	Completed by	Evidence: Photographs of bunded silage pit and sawdust pile, as well as visual inspection of pit and gully areas.
C	Pathogen: Groundwater & surface water	Low risk of contaminant runoff into waterways/ groundwater if offal pit is not well managed.	Point source	Offal pit	Offal pit on farm is kept small (3m*3m*2m), filled in and moved every year and animals buried immediately when they are placed in the pit. The pit is located on heavier clay soils to minimise any risk of contaminant leaching, fenced off from stock and located at least 100 m from nearest waterway and drain on farm.	5	Supplementary	Existing	N/A	30 July 20XX	Ongoing from	Evidence: Offal pit locations are recorded on a map and photos are taken of the pit once it has been filled in.