

# CULTURAL IMPACT ASSESSMENT –SILVER FERN FARMS LIMITED DISCHARGE CONSENT RENEWAL PROJECT



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Silver Fern Farms Limited Pareora  
Discharge Project

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SILVER FERN FARMS LIMITED PAREORA DISCHARGE PROJECT

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*This report provides input and feedback on the cultural impacts of the Pareora Ocean Outfall Structure project.*

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## EXECUTIVE SUMMARY

Silver Fern Farms Limited (“Applicant”) have commissioned Aoraki Environmental Consultancy Limited (“AEC”) to prepare a Cultural Impact Assessment (“CIA”) report on behalf of Te Rūnanga o Arowhenua (“Arowhenua”) to assist in the preparation of a suite of resource consent applications for the continued use of an ocean outfall structure and the discharge of treated wastewater to land. This CIA will provide assistance to the Applicant and Environment Canterbury (“ECan”) in a way that enables them to meet their statutory obligations under various legislation including the Resource Management Act 1991 (“RMA”) and the Local Government Act 2002.

The purpose of this CIA report is to identify culturally significant sites that may be affected by the proposed works and assess the values and potential impacts in accordance with statutory requirements.

This CIA includes:

- A description of the site and a summary of the technical aspects of the proposal;
- A brief Whakapapa (history) of the site and surrounds;
- Identifications of areas of cultural significance and mana whenua/tangata whenua values;
- An assessment of the nature and scale of any impacts of the proposal on mana whenua/tangata whenua values;
- An assessment of whether Iwi are considered to be adversely affected by the proposal; and
- Recommendations to avoid, remedy or mitigate any impacts to provide for the protection of Maori/Iwi values.

This CIA is based on a consultative process aimed at Arowhenua providing input the assessment of the consent application and to collate feedback on the cultural impacts of the proposal. The CIA provides a set of recommendations to the Applicant arising from the assessment and the review of the supporting documentation supplied.

Feedback will be sought by AEC from the Applicant outlining how they propose to incorporate the CIA recommendations into the resource consent applications including through proposed conditions and/or joint agreements.

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# 1. INTRODUCTION AND PURPOSE OF THE CULTURAL IMPACT ASSESSMENT REPORT

## 1.1. Introduction

### 1.1.1. Site History

The Pareora site (*the Operating Site*) was originally opened by Canterbury Frozen Meats Limited (CFM) in 1904. It is understood proximity to Timaru (but far enough out of town), the Pareora River, and the coast were the main reasons for building the operation where it is. Besides being close to the livestock supply catchment, this location provided a readily available labour source, easy access to water for processing, and drainage to the open sea for liquid wastes.

CFM was amalgamated with PPCS in 1982 with the rebranding and business transformation to Silver Fern Farms occurring in 2008.

Untreated wastewater historically discharged to sea through three open wooden flume structures both into the waterbody and onto the shingle beach foreshore at low tide. Each flume carried different wastewater streams in line with the part of the operation it serviced.

These flumes were initially replaced by a single discharge pipe into the surf, then by the existing raised outfall that extends beyond the surf break in 1987.

Since 2008, Silver Fern Farms Pareora has progressively been developing land-based wastewater disposal. This is based on a cut-and-carry operation where wastewater is spray irrigated over land, providing both a nutrient and source of moisture for the year round growing of crops, which are subsequently harvested and removed from the site to provide feed. Wastewater is preferentially discharged to land with the remaining volume being discharged to sea as required.

## 1.2. Purpose of this Report

The purpose of this Cultural Impact Assessment ("CIA") is to provide assistance to Silver Fern Farms in a way that enables them to meet their statutory obligations under various legislation including the Resource Management Act 1991 ("RMA"). The CIA includes:

- A description of the site and a summary of the technical aspects of the proposal;
- A brief Whakapapa (history) of the site and surrounds;
- Identifications of areas of cultural significance and mana whenua/tangata whenua values;
- An assessment of the nature and scale of any impacts of the proposal on mana whenua/tangata whenua values;
- An assessment of whether Iwi are considered to be adversely affected by the proposal; and
- Recommendations to avoid, remedy or mitigate any impacts to provide for the protection of Maori/Iwi values.

This CIA is based on a consultative process aimed at Arowhenua providing input into the assessment of the consent application and to collate feedback on the cultural impacts of the proposal. The CIA provides a set of recommendations to the Applicant arising from the assessment and the review of the supporting documentation supplied.

It is anticipated that a summary of this CIA report, including key values, impacts and recommendations will be included in the final resource consent application.

## 2. MANA WHENUA

Manawhenua refers to the mana or ‘authority’ held by an iwi, hapū or whanau over the land or territory (and associated resources) of a particular area. This authority is passed down through whakapapa (genealogy) and is based on occupation and continued use and control of natural resources within an area. Manawhenua is also used to describe the people who hold this authority, and who are also considered the kaitiaki of their particular area or takiwā.

### 2.1. Ngāi Tahu Whānui

Ngāi Tahu Whānui are the iwi (Māori tribe) who hold manawhenua over a large proportion of Te Waipounamu – the South Island. The modern iwi originates from three main tribal strands; Waitaha, Ngāti Mamoe and Ngāi Tahu. Through intermarriage, warfare and alliances, these tribal groups migrated, settled, occupied and amalgamated and established manawhenua over their tribal area prior to European arrival. Specific hapū or sub-tribes established control over distinct areas of the island and have maintained their mana over these territories to this day.

Te Rūnanga o Ngāi Tahu is the mandated iwi authority established by Ngāi Tahu Whānui under Section 6 of the Te Rūnanga o Ngai Tahu Act 1996 to protect the beneficial interests of all members of Ngāi Tahu Whānui, including the beneficial interests of the Papatipu Rūnanga of those members. Te Rūnanga o Ngāi Tahu is governed by elected representatives from each of the 18 Papatipu Rūnanga and has an administrative office as well as a number of commercial companies.

### 2.2. Papatipu Rūnanga

Papatipu Rūnanga are the administrative councils of traditional Ngāi Tahu hapū (sub-tribes) based around their respective kāinga / marae-based communities and associated Māori reserves, pā, urupā and mahinga kai areas. The takiwā (jurisdiction) of each Papatipu Rūnanga is set out in Schedule 1 of the Te Rūnanga o Ngai Tahu Act 1996.

Accordingly, the key Ngāi Tahu hapū/Papatipu Rūnanga who have traditional associations with the areas affected by this application include:

- Te Rūnanga o Arowhenua

The Takiwā of Arowhenua centres on Temuka and extends from the Rakaia River in the north and the Waitaki River in the south, sharing an interest with Te Taumutu Rūnanga north of the Rakaia River and Te Waihao Rūnanga south of the Waitaki, and thence inland to the Main Divide.

### 2.3. Iwi Environmental Management Plan

There is only one Iwi Environmental Plan that has been prepared for Arowhenua and that is the Iwi Management Plan of Kati Huirapa (1992).

The Iwi Management Plan of Kati Huirapa contains a section outlining Kati Huirapa’s history with the land, which goes back to 850 AD.

According to tradition, Rakaihautu came to Te Wai Pounamu (the South Island) from Hawaiki in the canoe “Uruao”. The canoe landed at the boulder bank at Whakatu (Nelson). While his son Te Rakihouia took some of the party down the east coast, Rakaihautu led the remainder through the interior to Te Ara a Kiwa (Foveaux Strait). With his ko (digging stick) Rakaihautu dug Te Kari Kari O Rakaihautu (the southern lakes). Te Rakihouia proceeded south in Uruao down the Canterbury Coast where he placed eel weirs at the mouths of the rivers. The posts he left behind



became known as Nga Pou o Rakihouia. The two parties met up at Waihao, then proceeded up the coast, making their headquarters at Akaroa. Rakaihautu was buried at Wai Kakahi (near Lake Forsyth). Te Uruao lies as part of the Waitaki Riverbed near Wai Kakahi (near Glenavy).

It was the natural resources that attracted Maori people to Te Wai Pounamu, and the enjoyment of these is what kept them there. The distinctive flavours of bird, eel, shellfish, fish and other wildlife bound the people to the land and to the waters and strengthened their will to hold on to them.

For Kati Huirapa people, a way of life developed, which was closely related to the natural environment. Natural resources were used to feed, clothe and equip people. Physical landmarks were often associated with atua (gods) and with the births, lives and deaths of tipuna (forebears). Within the Timaru and Mackenzie Districts every mountain, hill, river and stream were owned and named. Natural resources were managed by strict kawa (resource management protocols and practices) and observance to atua. Today knowledge of these traditional resource management techniques is maintained by kaumatua (elders) and whanau of Kati Huirapa hapū.

The remainder of the Iwi Management Plan of Kati Huirapa contains objectives and policies that promote the sustainable management of Arowhenua's rohe, with the key focus areas being:

- Water quality and quantity
- Mahika Kai quality and quantity
- Habitat Integrity; and
- Provision for customary practices, including access.

Key objectives of relevance to this application require that water bodies are healthy and maintained to a level sufficient to:

- Preserve and restore the life supporting capacity of natural water bodies and waterways;
- Provide for cultural and spiritual values and customs and traditions;
- Allow all things that affect Arowhenua to be dealt with by Arowhenua first and foremost; and
- Increase opportunities for Arowhenua Rūnanga to practice customs and traditions associated with the uri (descendants) of Arowhenua.

The key policies of relevance to this application require all activities directly and indirectly affecting waters and rivers to:

- Ensure the highest classified standard of water quality is maintained, with no waste discharges;
- Ensure there are sufficient flows maintained to sustain the life of these waters;
- Protect and restore the natural habitats that rely on the water source;
- Ensure all food taken from natural waters is fit for human consumption;
- Protect the passage of migrating fish in all rivers and natural waterways,
- Ensure all breeding areas for fish, birds, all species in waterways are undisturbed,
- Ensure access to Mahika Kai adjacent to Maori reserves is maintained by the Crown, District Councils and the Regional Council, whilst recognising that the purpose of these reserves; and
- Ensure access to Mahika Kai allows access to water of sufficient quantity and quality to exercise traditional rights and customary uses.

### 3. CIA METHODOLOGY

The following “seven step” approach was employed in the preparation of this CIA:

#### Step 1. Understand and Review the Application.

This step was completed by:

- Holding an initial hui with Silver Fern Farm’s Project Manager;
- Receiving a copy of the proposal and supporting information;
- Undertaking a technical review of the material to provide an analysis of the application and identify key potential areas of concern for mana whenua/tangata whenua; and
- Attending a meeting with Silver Fern Farm’s Project Manager and Consultants to discuss cultural and historical effects and potential mitigation options.

#### Step 2. Identify the Relationship of Mana Whenua/Tangata Whenua with the Resource, Assess Whether the Safeguards of the RMA (Ss 6(E), 7(A) and 8 as Overarching Provisions Relating to Cultural Impacts) Have Been Met.

An information summary was prepared by AEC’s Principal Planner and circulated to the Cultural Consultants in order to obtain their feedback on the proposal. The feedback provided by the Cultural Consultants identified and captured:

- The relationships between Maori, their culture AND their traditions AND ancestral land, water, sites, wāhi tapu and other taonga that might be affected by the proposal
- The implications for the knowledge and practice of Kaitiakitanga by tangata whenua over their taonga of the proposal.
- Whether the principles of the Treaty of Waitangi are affected by the proposal; and
- Any mitigation measures that could be put in place to ensure the adverse effects on the environment were minor.

Te Rūnanga o Arowhenua are the only iwi entity that oversee the application site.

#### Step 3. Identify the Effects on Tangata Whenua and their Values

Potential effects are identified utilising the Ngāti Huirapa Iwi Management Plan as a guide and the responses provided by the Cultural Consultants have been utilised to further define the list of potential effects. This list of effects has, in turn, been considered against the categories of effects used in the RMA definition (eg. positive/negative, temporary/permanent, etc). Section 6 of this report considers the various effects on those relationships identified in Section 5. The effects identified are then considered in terms of their magnitude, ie. whether they are more than minor.

#### Step 4. Assess Whether the Effects can be Avoided, Remedied or Mitigated

After identifying the potential for any effects on the cultural values held by Arowhenua and taking on board the comments received from the Cultural Consultants, an assessment is made as to whether any of the effects identified as more than minor can be avoided, remedied or mitigated. Feedback was also provided to the Applicant’s project manager as a preliminary step to allow time to ascertain whether any recommendations made by Arowhenua could be accommodated in the design of the application.

#### Step 5. Construct Recommendations to the Applicant

Once the relationships of AEC to the resource/site has been identified, the effects of the proposed activity on Arowhenua and the options for avoiding, remedying or mitigating those effects has been identified, the task of framing recommendations to the Applicant in regard to those effects was completed. Recommendations have been drafted based on the assessment as per step 4 above and the response provided by AEC along with any follow up conversations with the project manager from Silver Fern Farms Limited.

#### Step 6. Report Back to Mana Whenua

The Draft CIA report including recommendations is circulated to the Cultural Consultants for comment. Any feedback received is incorporated into the final report.

#### Step 7. Present Findings To Silver Fern Farms Limited

That Applicant's review the CIA, and meet with AEC if required, to discuss how recommendations may be included in the final application/proposal, and following this, Silver Fern Farms send AEC a report on the outcome.

## 4. DESCRIPTION OF THE PAREORA AREA

### 4.1. Description of the Existing Environment

The landscape is dominated by the Pacific Ocean, with the Silver Fern Farms Pareora operation situated directly on the east coast of the South Island, lying behind a protective sea wall that runs along this stretch of coast. Pareora village is immediately to the west of the core operations, with the Pareora River to the south.

#### 4.1.1. Existing Coastal Outfall

Wastewater from the meat processing operation at Pareora has discharged into the coastal marine area since 1904, some 115 years. Prior to 1988, discharge of all liquid wastes occurred directly onto the beach via three short timber flumes. Each flume carried liquid waste from the particular part of the processing operation it serviced. Over time, different liquid waste streams combined as the processing operation grew and on-site drainage needed to change to accommodate growth.

In 1988, the wooden flumes were finally removed, and a new 62 m coastal outfall was constructed. The coastal outfall pipeline passes through the sea wall and extends in a south-east direction (perpendicular to the foreshore), ending with the discharge point beyond the surf zone.

In 1999, the most seaward pile set of the outfall structure collapsed as a result of storm damage. Restoration of the pipeline was carried out using a cantilevered pipe inserted into the existing pipeline. The repaired length was around 60.5 m, reinstating the discharge point beyond the surf zone. The basis of using a cantilevered pipe, rather than reinstating the end pier, was that it could be easily replaced if damaged in future storm events.

The outfall structure is a reinforced concrete pipe suspended above the surf on seven reinforced concrete piers 6.7 m apart. Given the dynamic nature of the coastline, the outfall structure is subjected to storm surges, erosion, and 'sand-blasting' of the structure itself. The outfall piers have been further protected by installing larger reinforced concrete footings and sacrificial steel sleeves.

As part of the development of the land-based wastewater irrigation network in 2008, buffer tanks were installed at the wastewater treatment plant (WWTP) and the coastal outfall discharge pump was connected to the irrigation green stream buffer tank control, only turning on when irrigation buffer storage reaches capacity and irrigation cannot keep up with wastewater generation. At the same time, blood-bearing wastewater was permanently diverted from ocean discharge to the land-based wastewater irrigation network only.

Since discharge to land became the preferential discharge route, discharge to the coastal marine environment via the coastal outfall has significantly reduced from historical volumes, and now occurs on a start / stop operation controlled by buffer tank wastewater volumes.

#### 4.1.2. Pareora Beach

The Pareora beach and seabed of the area is part of the Waitaki fan coastal component with the major sediment sources being the Waitaki River discharging into the Pacific Ocean approximately 55 km south of the Pareora River; and erosion of the 14 km long Morven Alluvial Cliff coastline north of the Waitaki River.

The coastline at Pareora is a very exposed, high-energy system, made up of sandy gravel beaches subject to storm surges, erosion and strong long-shore sediment transport / drift. The

high-energy nature of the offshore marine environment is evident by the naturally high turbidity of the seawaters, generally giving them a milky turquoise-blue colouration.

The beach texture is mixed sand and gravel, with occasional loess cliffs and shelves showing through the beach. It is understood that a shallow continental shelf covered in silty sands and gravel extends some considerable distance offshore, and these are interspersed along the coast with bed-rock reefs providing localised habitats. However, the mixed sand and gravel Pareora Beach seaward of the site is protected by an armoured shoreline, unlike other coastal beaches north and south of Pareora.

Tides are diurnal with a moderate tidal range of 1 m – 2 m, and tidal currents are of about 2 km/h. The dominant wave direction is the south-east.

#### **4.1.3. Coastal Ecological Values**

The resource consent application states the high energy character of the coastal area drives longshore transport of beach sediment and disturbance, making the seabed substrate extremely mobile and therefore, the benthic fauna it supports is relatively sparse and of low complexity.

The Applicant commissioned NIWA report to investigate whether submerged reefs were found around the Pareora Beach. NIWA confirmed there were none; however, in 2016 NIWA outlined that there is a voluntary ban on benthic trawling to protect elephant fish species and the habitat of the school shark. It is understood the nearest submerged bed-rock reef (just south of the Normanby Beach) includes this habitat.

In-shore fish species are largely dependent upon the nature and quality of benthic substrates, and near-shore habitats. Given the coastline around Pareora Beach is uniform, and benthic species are patchy, the fish species in the area are likely to be those of a transitory nature, i.e. those that are highly mobile and wide-ranging.

The resource consent application goes on to state that lone fur seals (kekeno) have been seen on the Pareora foreshore; however, this is an infrequent sight. This appears to be at odds with the data provided by the Department of Conservation who perform regular fur seal counts in the area. Similarly, whilst it is known that whales seasonally migrate through these waters some distance offshore beyond the marine shelf on their way north in winter and south again in the spring, actual sightings are unknown.

Arowhenua are also aware that the Hector's dolphin (tūpoupou, pahu, and popoto) pass through the area. The hector's dolphin is particularly important to Arowhenua and Ngāi Tahu as traditionally, Māori watched the movements of dolphins to predict the weather. The prediction of weather enabled Maori to determine whether they went fishing at sea or stayed on land; therefore, having significant cultural value to their whakapapa.

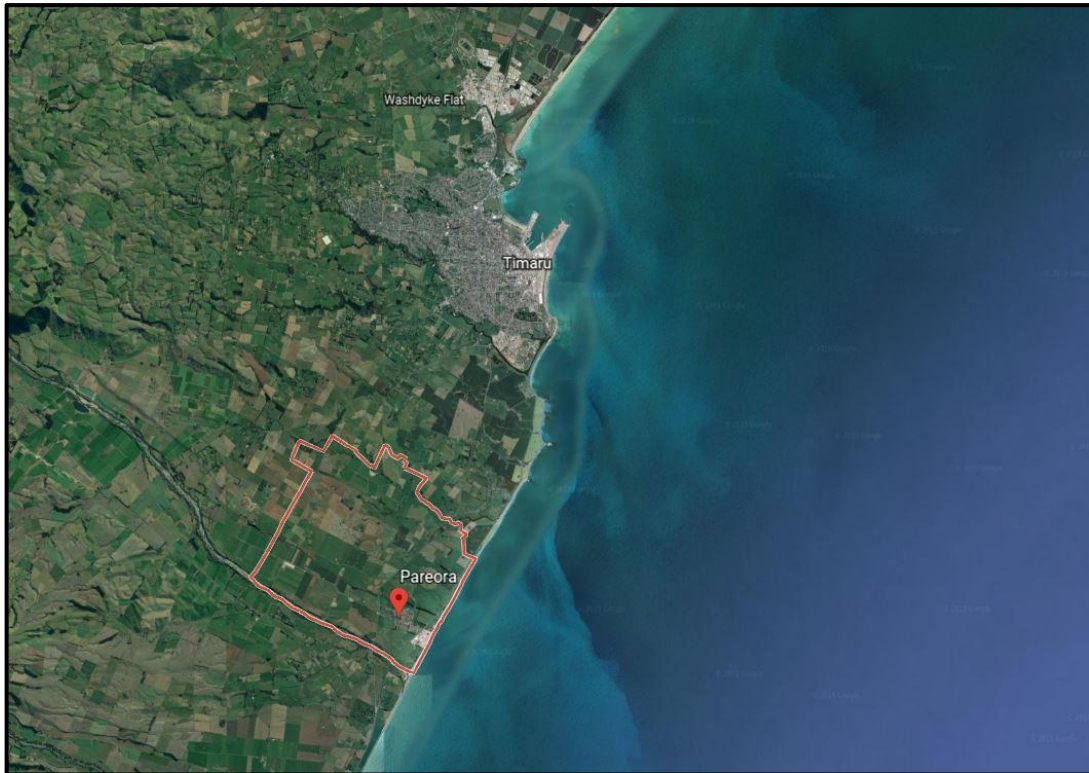
## **4.2. Description of Surrounding Land Uses**

### **4.2.1. Rural Use**

The landscape setting of the receiving environment surrounding the wastewater irrigation area is predominately rural. Characterised by abundant open space dominated by greenery, normal features associated with a working rural environment are in evidence on the land. These include fencing, shelterbelts, irrigation activities, and farm tracks. Buildings and other physical features, such as roads and transmission lines are also present in the surrounding landscape. The state highway intersects the Pareora Village from the wider Pareora district.

#### 4.2.2. Residential Use

Pareora village, a settlement of around 432 people (Statistics New Zealand, 2013), is within the area administered by Timaru District Council. It is squeezed between State Highway 1, along the western border, and the Main Trunk Railway on the eastern border.



*Figure 1: Location of Pareora in relation to Timaru to the north (Google Earth)*

Canterbury Frozen Meats purchased land on the north bank of the Pareora River for the development of a meat processing plant in 1904, prior to that the land was open grazing country. Immediately following the purchase, a town plan was developed to service the meat plant. The town was originally called “Brooklands” after Mr. Robert Brookland from whom some of the land had been purchased. The streets names followed those of local significant people of the time. The name of the township, ‘Brooklands’ did not last and by 1915 the settlement was referred to as Pareora.

Within the town plan, land was set aside for the building of four churches, a school, a library, and a town hall. There were four privately owned boarding hostels for single men, all staff at the plant at one time. As the major employer in the area the Company’s payroll sustained the development of the Pareora community.





*Figure 2: Township of Pareora with Silver Fern Farms located near the coast (Google Earth).*

The Pareora School located on Elworthy Street closed at the end of 2018. The grounds encompassed large open playing fields, a hard-surfaced tennis court and a swimming pool. A number of classrooms were prefabricated buildings relocated from Twizel in the 1970's.

It is currently unclear to what the future holds for the use of the school grounds and buildings.

Community services include a Country Club, and a sports ground and facilities and the Pareora Domain. The sports ground and facilities, although zoned as a recreational area in the District Plan, remain within the landholdings of Silver Fern Farms.

While some staff continue to reside in Pareora, nowadays they also commute from Waimate, Timaru, Temuka, and other small rural communities nearby, with the highest percentage of employees coming from within 14 km of the plant

#### **4.2.3. Industrial Use**

There are no other industrial activities in the immediate area, other than commercial farming activities.

### **4.3. Description of the Site**

The Operating Site is located on, and around, The Avenue in the village of Pareora approximately 13 km south of Timaru (See Figure 3). Core processing activities at the Operating Site are at the south-eastern end of The Avenue, Pareora, located between the village and the Pacific Ocean.



Figure 3: Indicative area of Silver Fern Farms Pareora operations.

The landscape is dominated by the Pacific Ocean. The Operating Site is situated directly on the coast lying behind a protective sea wall that runs along the coastline in front of the core operations. The Pareora village is immediately to the west of the processing site, and the Pareora River to the South.

#### 4.3.1. Pareora River

The Pareora River is a medium sized hill-fed river with its origins in several small streams flowing from the Hunters Hills and flows north before turning southeast to reach the Pacific Ocean at the southern end of Pareora. It is uncommon for the Pareora River mouth to be open to the sea, the river mouth is more often than not closed, with a gravel bar creating a shallow lagoon where the water flows under the gravel, out to sea. Willows and other riparian flood protection planting generally obstruct access to the river.

Pareora lies within the Makikihi Ecological District. The predominant vegetation of this area originally was probably wetland species in low-lying sites, grading to coastal lowland forest on higher ground, but the almost total loss of the indigenous vegetation makes it difficult to determine the precise nature of that ecology.

The wider surrounding area is now predominantly rural with the main land use being agricultural. Farms provide a mix of dairying, pastoral, horticultural and arable use. The hill country is used for growing dry crops (such as wheat and barley), deer and sheep farming, with the lower flats around Pareora village mainly used for dairy farming and blackcurrants. There has been a significant increase in dairy farming and other irrigated arable land uses in the district over the past ten years.

#### 4.4. **Property Legal Descriptions Associated with Activities**

The Operation can be divided in to five areas; the processing site, Village Irrigation, Terrace Irrigation, River Flats Irrigation (consented but not currently used) and the Grants Block (grazing).

The Operating Site encompasses a total of approximately 404Ha made up of numerous titles. The current Discharge Permit provides for the application of wastewater to a number of parcels of land. Figure 2 below summarises these blocks and their constituent land titles.



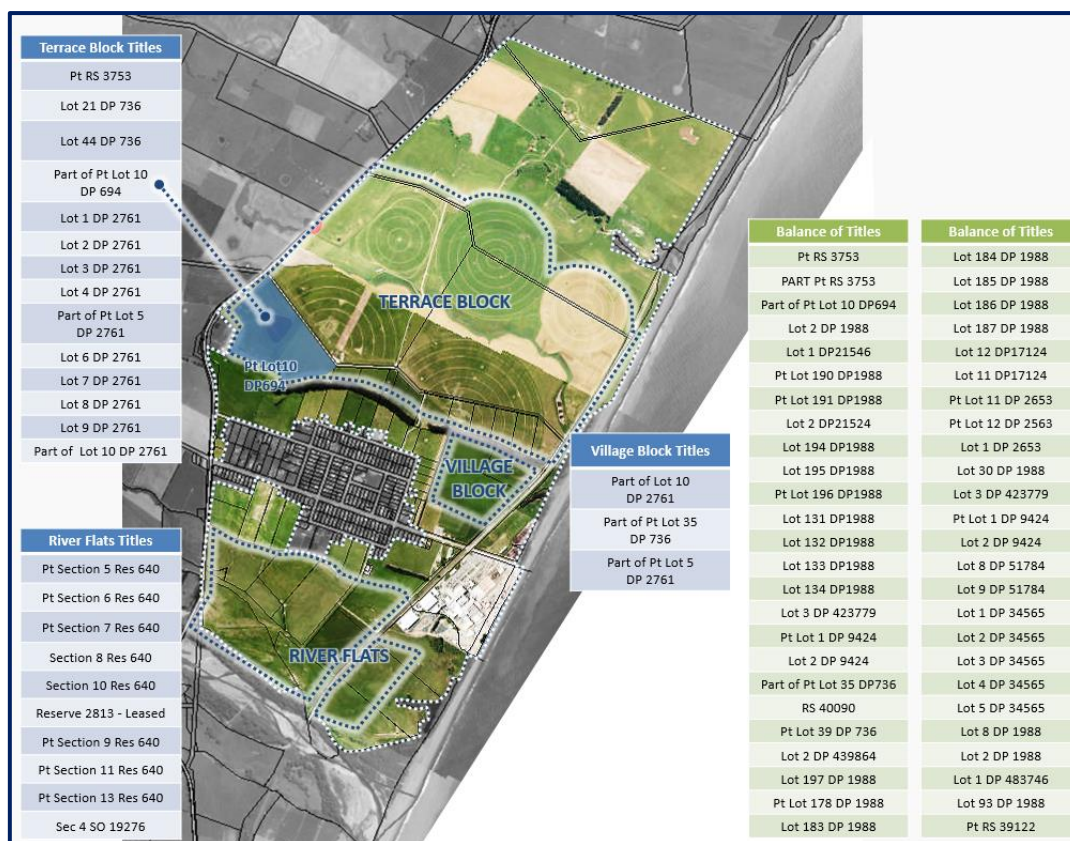


Figure 4: Indicative location of property land parcels (taken from AEE Part A).

Since the installation of irrigation infrastructure there is land currently consented which does not need to be included for the application of wastewater going forward (highlighted land parcel Part of Pt Lot 10 DP 694) however, it still needs to be included within the consented area to provide a buffer.

#### 4.5. Zoning

Zoning of the land holdings associated with land-based irrigation of wastewater are within Rural 1/ Rural 2/ Rural 3/ Industrial H zones pursuant to the Timaru District Plan.

## 6. BACKGROUND INFORMATION

### 6.1. Introduction

Silver Fern Farms owns and operates a large mixed-species meat processing operation south of Timaru at Pareora, South Canterbury, producing export quality products.

The processing plant and key service activities are principally situated on The Avenue. This includes buildings, car parks, access ways, hardstand areas, boilers, composting, wastewater treatment, and open space areas. Land support activities occur on company owned land across Pareora. These include holding of stock (beef, lamb/ sheep, bobby calves, goats, and venison) as required to support the processing operation, and discharge of treated wastewater to land as a nutrient source for a cut-and-carry operation.

Upon receipt, stock is held within the animal assembly (stockyards) before it is processed, it is then dressed and trimmed in the primary butchery (slaughter board). Carcasses are transferred to the secondary butchery (boning room). Offals are transferred to internal products, where they are broken down and packed into cartons and either frozen or chilled for load out and distribution. Skins and hides are prepared and packed for further processing off site.

Following the closure of the onsite rendering (2014) and blood processing (2016), all blood and renderable material from the Silver Fern Farm Pareora operations are sent off site to purpose built and appropriately managed, third party facilities for further processing.

The plant is capable of operating day and night shifts up to seven days a week, given the nature of the industry and Silver Fern Farms' ability to respond rapidly to market changes, means it is possible that production throughput at the site could increase with short-notice.

The entire Operating Site encompasses:

- the core processing facility infrastructure itself sits on approximately 16.9 ha;
- the current irrigation area (K-Line and Centre-pivot) is on approximately 141 ha; and
- the remaining landholdings, approximately 172 ha, includes undeveloped consented irrigation areas, land the Company has locked up for trial natural regeneration, buffer strips, and dry-land areas (some possibly with future irrigation potential).

## 7. DESCRIPTION OF THE PROPOSED ACTIVITY

Silver Fern Farms are applying to ECan for new resource consents to renew existing consents that expired in August 2017. Table 1 below summarises the two existing resource consents that require renewal.

Table 1: Existing Resource Consents that Require Renewal (taken from AEE Part A).

Consent	Activity	Expiry Date	Consent Term Sought	Maximum Duration (RMA)
CRC191926 (formerly CRC163704 and CRC051833)	Discharge Permit - To discharge contaminants onto land; to discharge contaminants onto land where they may enter water; to discharge contaminants to air from the land application of the effluent	29 Aug 2017	25 years	35 years
CRC1191929 (formerly CRC163849 and CRC071504)	Coastal Permit - To discharge water and contaminants into the coastal marine area; to occupy the coastal marine area with an outfall structure; to reconstruct the outfall structure as required.	29 Aug 2017	25 years	35 years

Aside from seeking renewal consents to enable the existing activities to continue, Silver Fern Farms are also seeking an additional consent to accommodate a proposed new treatment process for the coastal discharge. This will likely require an adaptive management process and review of performance standards as the new treatment process is progressively implemented during the consent term. As a consequence of this process, a longer consent term is being sought for the coastal discharge of contaminants.

Silver Fern Farms have separated the various activities into two resource consent applications – a discharge permit and a coastal permit. Application ‘A’ relates to the discharge of treated wastewater to land via land-based irrigation. Application ‘B’ relates to the coastal permit and the re-consenting of the coastal discharge.

The two separate resource consent applications are discussed in greater detail below.

### 7.1. Land Discharge Permit

#### 7.1.1. Overview

Resource consent application ‘A’ outlines the discharge consents being sought for renewal. The activities seek to:

- Discharge contaminants onto land;
- Discharge contaminants onto land where they may enter water; and,
- Discharge contaminants to air from the land application of the wastewater.

#### *Discharge Permit*

At present, the preferential discharge route for wastewater (including processing water, blood-bearing wastewater, yard wash water, storm water, etc.) produced across the operating site is to discharge the material to land via an irrigation system on properties owned by Silver Fern Farms.

All wastewater generated at The Operating Site is largely biological and contains very little material that is not fully degradable by biological means; generally consisting of settleable and

suspended solids derived from blood, paunch content liquids, stockyard/ truck washings and fat/ protein from meat tissue.

There are two separate wastewater streams associated with the processing plant. These are generally known as:

- Green stream – wastewater from the stockyards, truckwash, secondary butchery, internal products, gut cutting, and general processing wash-down; and
- Red stream – wastewater from blood-bearing departments including primary butchery, and blood handling activities.

These wastewater streams, once separated, undergo different primary treatments and streaming before discharge to land or coastal waters occurs. The solids recovered from mechanically screening the different wastewater streams are composted on-site, with the resultant compost material sold to the public and some donated to local groups.

The Applicant's land is utilised for wastewater treatment only and the grass is cropped and removed in a "cut-and-carry" system, it is not routinely grazed (other than for maintenance purposes as required). Consequently, the pasture is managed with the land-based treatment of wastewater as the priority, rather than maximisation of production from the land (e.g. dairy farming).

#### 7.1.2. Timeframe of Consent

The Applicant seeks a renewed consent term of twenty-five years.

#### 7.1.3. Activity Status

The activity status of the discharge is discretionary under Rules 5.92 and 5.97 (Land and Water Regional Plan). Discharge to air from wastewater disposal is permitted under Rule 7.3 (Regional Air Plan). The Application must therefore be considered as a **discretionary activity**.

## **7.2. Coastal Discharge Permit**

### 7.2.1. Overview

Resource consent application 'A' outlines the discharge consents being sought for renewal. The activities seek to:

- To discharge water and contaminants into the coastal marine area;
- To occupy the coastal marine area with an outfall structure; and,
- To reconstruct the outfall structure as required.

Silver Fern Farms are seeking a renewal resource consent to allow the Pareora operation site to continue the current alternative discharge route for treated wastewater, and to allow for the commissioning of a new treatment option, which will improve the quality of the coastal discharge.

The preferential discharge route is via land-based irrigation of wastewater, as discussed in application 'A'; however, soil moisture conditions, limited drainage capacity of some soils, and land-based wastewater irrigation still being in development means not all wastewater generated is able to be discharged to land.

The resource consent application claims that land-based irrigation of wastewater has not been able to replace the need for an alternative discharge route. Continuation of discharge via a coastal outfall enables a balance to be achieved between sustainable irrigation and outfall discharge.

### *Coastal Permit*

As outlined above, all wastewater generated at Silver Fern Farms Pareora is largely biological and contains very little material that is not fully degradable by biological means; generally consisting of settleable and suspended solids derived from blood, paunch content liquids, stockyard / truck washings and fat / protein from meat tissue.

The wastewater is generated from food processing operations, the cleaning materials used must have low residual effects on equipment, a requirement that is closely regulated by the Ministry for Primary Industries (MPI).

As mentioned above, there are currently two separate wastewater streams and stormwater currently contributes to both of these wastewater streams. Both wastewater streams undergo primary treatment and are mechanically screened for the recovery of solids through a series of reducing sized screens, ending with 0.5 mm. Recovered solids are transported and processed at the onsite composting facility. Following screening, wastewater from the green stream is directed to the pump sump before being discharged to land irrigation and/or to the coastal marine area via the coastal outfall.

Blood-bearing wastewater from the primary butchery (red stream) stream is only irrigated to land, and as such is independently streamed, and screened, through the WWTP. Wastewater is held within separate buffer tanks, which can be diluted with fresh water or wastewater from the green stream, prior to being discharged onto company owned land via spray irrigation. By design, blood-bearing wastewater once at the WWTP cannot be included in the wastewater stream discharged to sea.

The Applicant has commissioned a number of consultants to review whether any other potential alternatives were possible. Existing monitoring has shown that the existing discharge does not adversely affect pH, and temperature in the receiving environment. However, there is elevation of microbial levels and reduction of water clarity prior to dispersing.

Cawthron and NIWA both recommended improvements could include:

- Reduction in volume of wastewater discharged to the sea; and
- Reduction in solids and bacterial loading to the coastal marine area.

Whilst a number of options were proposed and assessed, the most practical option needed to complement the existing land-treatment system, and budget-wise allow for a staged upgrade. As a result, the preferred option is to install a full-flow physico-chemical wastewater treatment plant over the term of the replacement consent.

The first stage of the proposed wastewater treatment improvements is to carry out flow separation, and flow improvement. This will result in three streams, rather than two as currently:

- Green stream.
- Red stream.
- Clean Stream.

Progressively each stream will undergo different stages of treatment, specifically designed for the final route of the wastewater, i.e., whether land or coastal. Wastewater will still be preferentially discharged to land where possible to grow crops and remove nutrients. However, where this is constrained, and coastal discharge is required any red/green stream flow will receive physico-chemical treatment:

- Screened red stream wastewater is treated in an acid phase DAF (Dissolved Air Floatation). This will target to remove a large bulk of proteins, organic matter, solids and

- reduce colour – the red colouration precipitates out with the proteins when the isoelectric point is reached;
- Screened green stream wastewater is treated in a DAF using a MIRINZ double pH-adjustment process to target oil & grease, organic matter, solids reduction, phosphorus precipitation, and also improves the clarity of discharged wastewater;
  - Filtration and disinfection prior to discharge – providing additional clarity allows for optimum transmissivity for UV disinfection.

Material removed from the improved WWTP will be dewatered and composted (option to render some components if acceptable), with the liquid stream being returned to the wastewater stream for treatment.

#### 7.2.2. Timeframe of Consent

The Applicant seeks a renewed consent term, of twenty-five years.

#### 7.2.3. Activity Status

The activity status of the discharge is discretionary, and repairs and maintenance to the outfall are permitted. Any reconstruction of the outfall structure that does not fall within permitted activity rules is a **discretionary** activity.

## 8. STATUTORY CONTEXT

### 8.1. Ngāi Tahu Claims Settlement Act 1998

The Treaty of Waitangi is often considered to be the founding document for European (Pākehā) settlement in New Zealand. It guaranteed to Māori the right to keep their lands, forests, fisheries and all their treasures, but they would hand sovereignty in the English version, and governorship in the Māori version, over to the Crown and would also be able to sell only to the Crown. Initially, there was little dispute, as the settlers were able to buy land from the Māori through legal channels. However, after a while, Māori became disillusioned and less willing to sell, while the Crown came under increasing pressure from settlers wishing to buy. Consequently, government land agents were involved in a number of dubious land purchases. Agreements were negotiated with only one owner of tribally owned land and in some cases, land was purchased from the wrong people altogether.

During the late 1960s and 1970s the Treaty of Waitangi became the focus of a strong Māori protest movement which rallied around calls for the government to 'honour the treaty' and to 'redress treaty grievances'. Māori expressed their frustration about continuing violations of the treaty and subsequent legislation by government officials, as well as inequitable legislation and unsympathetic decisions by the Māori Land Court alienating Māori land from its Māori owners.

In 1975 the Treaty of Waitangi Act established the Waitangi Tribunal to hear claims of Crown violations of the Treaty of Waitangi, to address those concerns. It allowed any Māori to lodge a claim against the Crown for breaches of the Treaty of Waitangi and its principles.

In 1985 the Fourth Labour Government extended the Tribunal's powers to allow it to consider Crown actions dating back to 1840, including the period covered by the New Zealand Wars. The number of claims quickly rose, and during the early 1990s, the government began to negotiate settlements of historical (pre-1992) claims.

Ngāi Tahu's claims covered a large proportion of the South Island of New Zealand and related to the Crown's failure to meet its end of the bargain in land sales that took place from the 1840s. Ngāi Tahu sought recognition of their relationship with the land, as well as cash and property, and a number of novel arrangements were developed to address this. Among other things, Ngāi Tahu and the Crown agreed that Mt Cook would be formally renamed Aoraki/Mount Cook and returned to Ngāi Tahu to be gifted back to the people of New Zealand.

Te Rūnanga o Ngāi Tahu (TRoNT) is the governance entity of Ngāi Tahu, following the Treaty of Waitangi settlement between the iwi and the New Zealand Government under Ngāi Tahu Claims Settlement Act 1998. It is also a mandated iwi organisation under the Māori Fisheries Act 2004, an iwi aquaculture organisation under the Māori Commercial Aquaculture Claims Settlement Act 2004, an iwi authority under the Resource Management Act 1991 and a Tūhono organisation. It also represents Ngāi Tahu Whanui, the collective of hapū including Waitaha, Ngāti Māmoe, and Ngāi Tahu under Te Rūnanga o Ngāi Tahu Act 1996.

The interests of Ngāi Tahu cover a wide range of regions, including the territories of West Coast Regional Council, Environment Canterbury, Otago Regional Council and Environment Southland, and the District Councils which make up these Regional Councils.

Papatipu rūnanga, as constituent areas of Ngāi Tahu, each have an elected board which then elect a representative to Te Rūnanga o Ngāi Tahu. Kāi Tahu has a very corporate structure, in part due to the death of an important Upoko Ariki (paramount chief), Te Maiharanui, at the time of the arrival of Europeans in New Zealand. Under the Resource Management Act, both the trust and local papatipu rūnanga are to be consulted with about natural resource matters.



The 18 representatives of papatipu rūnanga (including Arowhenua) oversee Te Rūnanga o Ngāi Tahu as a charitable trust.

#### 8.1.1. Taonga Species

For Arowhenua, an ecosystem is a dynamic and complex community consisting of plants, animals, micro-organisms, and the non-living environment. All aspects of the community interact as a functional unit. The conceptual framework assumes people are an integral part of the ecosystem. Māori also see themselves as a part of ecosystems rather than separated from ecosystems. To achieve well-being humans, require basic materials, health, good social relations, security, and freedom of choice and action. Many of these basic necessities are provided directly and indirectly by ecosystems. Humans not only depend on ecosystems; they influence them directly through land use and management. The strength of this interdependency between humans and ecosystems may be conceptualised as a reciprocal relationship comprising manaaki whenua (caring for the land) and manaaki tangata (caring for people).

A significant part of this belief around ecosystems and the interdependence between Māori and the environment are mahinga kai practices (gathering food) in accordance with traditional protocols and knowledge. Mahinga kai is a practice that continues to underpin the Ngai Tahu way of life today. Arowhenua considers that all waterbodies within their rohe should be suitable for mahinga kai. Representatives of Arowhenua have said that when applying mātauranga, Maori consider that the discharge of wastewater to land (which will eventually leach into waterways) and the marine environment will have an impact on mahinga kai as there is no certainty that populations of kai species will not be affected.

In addition to the mahinga kai species, Ngāi Tahu identifies a number of marine mammal taonga species that can be found in and around the Canterbury and South Canterbury Coast. Table 2 below lists these species.

Table 2: Taonga Species: Marine Mammals as Listed in the Ngāi Tahu Claims Settlement Act 1998.

Name in Māori	Name in English	Scientific Name
Ihupuku	Southern Elephant Seal	<i>Mirounga leonina</i>
Kekeno	New Zealand Fur Seal	<i>Arctocephalus forsteri</i>
Paikea	Humpback Whale	<i>Megaptera novaeangliae</i>
Parāoa	Sperm Whale	<i>Physeter macrocephalus</i>
Rāpoka/Whakahao	New Zealand sea lion / Hooker's sea lion	<i>Phocarctos hookeri</i>
Tohorā	Southern Right Whale	<i>Balaena australis</i>
Pahu, and Popoto	Hector's Dolphin	<i>Cephalorhynchus hectori</i>
Tūpoupou and Tutumairekurai	Maui Dolphin	<i>Cephalorhynchus hectori maui</i> (mid Canterbury but do travel south)
Ko Ahitereiria Ko te Penguin o Ahitereiria	Australian Fairy Penguin	<i>Eudyptula novaehollandiae</i>



The Hector's dolphin and New Zealand fur seal are two specific species that are known to live in the area and are mentioned in the resource consent application. These species are taonga<sup>1</sup> and are listed by the Department of Conservation as 'nationally vulnerable' (declining population) and 'threatened' respectively. Both species live on or near the coastline, using bays and harbours to raise their young, feed and rest. They live near the water surface and are particularly vulnerable to contamination and human behaviour.

The hector's dolphin is particularly important to Arowhenua and Ngāi Tahu as traditionally, Māori watched the movements of dolphins to predict the weather. The prediction of weather enabled Maori to determine whether they went fishing at sea or stayed on land; therefore, having significant cultural value to their whakapapa. Consequently, contaminating the living environment of marine mammals (ecosystem as outlined above) also contaminates the whakapapa (genealogy) of Arowhenua members and their linkages to their ancestors.

## **8.2. New Zealand Coastal Policy Statement (NZCPS)**

There are a number of relevant objectives and policies in the NZCPS 2014. Relevant provisions include NZCPS Objective 3 which draws on the Treaty of Waitangi and is to recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by incorporating mātauranga Māori into sustainable management practices; and recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.

NZCPS Policy 2 includes recognising the importance of Māori cultural and heritage values through such methods as historic heritage, landscape and cultural impact assessments; and provide for the identification, assessment, protection and management of areas or sites of significance or special value to Māori, including identifying areas of high potential for undiscovered Māori heritage, for example coastal pā or fishing villages. NZCPS Policy 2 has relevance to the proposal.

Another relevant policy, NZCPS Policy 6(h) is to consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, such as headlands and prominent ridgelines, and as far as practicable and reasonable apply controls or conditions to avoid those effects. Policy 6(h) has particular relevance to Wahi tapu.

## **8.3. Canterbury Regional Policy Statement**

The Canterbury RPS and the Strategic Directions and Outcomes both have objectives that are targeted at the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga; and the protection of historic heritage from inappropriate subdivision, use, and development.

The Canterbury RPS includes numerous objectives and policies that manage the relationship of Maori with natural resources and directs the territorial authorities to work with Ngai Tahu to identify areas of cultural significance and include methods to protect those areas in their plans. Among other things, these direct the council to:

- include methods for the protection of Ngāi Tahu ancestral lands, water, sites, wāhi tapu and other taonga;

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<sup>1</sup> Intergenerational protection of highly valued object or living thing, passed on from one generation to the next, in a caring and respectful manner.

- engage with Te Rūnanga o Ngāi Tahu and the appropriate papatipu rūnanga to ensure adverse effects of activities on culturally significant sites are avoided, remedied or mitigated; and
- consider the protection of Ngāi Tahu ancestral lands, water sites, wāhi tapu and other taonga in the processing of resource consents.

#### **8.4. Resource Management Act 1991 (RMA)**

The RMA is the primary statute which governs the use and development of natural and physical resources in New Zealand. It applies to all resources within New Zealand (including the coast), and to all people seeking to exercise rights, obligations or powers in relation to those resources. Māori values and world views are a feature of New Zealand's environmental regulatory regime and have an influential role in the management of New Zealand's natural and physical resources.

The primary Part 2 provisions expressly addressing Māori values require persons exercising functions under the RMA to:

- Recognise and provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other tāonga as a matter of national importance (section 6(e)).
- Recognise and provide for the protection of protected customary rights as a matter of national importance (section 6(g)).
- Have particular regard to kaitiakitanga (section 7(a)).
- Take into account the principles of the Treaty (section 8).

The RMA provisions require substantive and procedural recognition of Māori values. The substantive provisions (Part 2 and Section 6) recognise that Māori values and world views will influence the outcome of RMA decisions and are to be given practical effect in policy and planning instruments and consenting processes

The RMA recognises the role of iwi management plans in the preparation of regional policy statements, regional plans and district plans. Iwi management plans are an important tool in informing the preparation and assessment of applications for resource consent and designations.

The relevant documents prepared under the RMA are outlined below:

##### **8.4.1. Timaru District Plan**

The Timaru District Plan (District Plan) was approved by the TDC on 22 February 2005 and was deemed to be operative on 8 March 2005. The purpose of the District Plan is to enable the Council to carry out its functions under the Resource Management Act 1991.

The District Plan determines resource management issues, objectives, policies, methods and rules which control and manage the development of the District. The District Plan zones the District and regulates what can be built or developed within these zones. The Operative District Plan is currently under review; however, no new provisions have been notified; therefore, the current provisions apply.

The key objectives and policies of relevance to this application require that water bodies are healthy and maintained to a level sufficient to:

- Maintain a representative range of natural ecosystems;
- Maintain and enhance the natural character and functioning and habitat values of the coastal environment and wetlands, streams, rivers and their margins;

- Protect the heritage, cultural and traditional values associated with natural areas; and
- Control tree planting, vegetation clearance, structures and earthworks within or adjacent to significant wetlands, rivers and the coast where these activities have the potential to adversely affect natural character and functioning, habitat values, amenity or cultural values.

#### 8.4.2. [Land and Water Regional Plan](#)

The Canterbury Land and Water Regional Plan (“LWRP” or “the Plan”), which was made operative on 1 February 2017 by the Canterbury Regional Council (known as Environment Canterbury (ECan)). The purpose of the plan was to identify the resource management outcomes or goals for managing land and water resources throughout Canterbury to achieve the purpose of the RMA.

The LWRP is made up of 16 sections and a map volume: the first describes Canterbury’s land and water resources, interrelated issues that need to be managed, the key partnerships, relationships and processes already underway, including the Canterbury Water Management Strategy (CWMS). The second section describes how the Plan works and contains the definitions used in the Plan. The subsequent three sections cover the region-wide objectives, policies, and rules. Sections 6 to 15 inclusive contain sub-region catchment specific policies and rules, and Section 16 contains the schedules. The maps referred to in the rules are in a separate map volume.

The key policies of relevance to this application require all activities directly and indirectly affecting waters and rivers to:

- Manage fresh water and coastal water as integrated natural resource and recognise and enable Ngāi Tahu culture, traditions, customary uses and relationships with land and water resources;
- Ensure fresh water and coastal water is recognised as being essential to all life and is respected for its intrinsic values.
- Ensure high naturalness waterbodies, hapūa and their margins are maintained in a healthy state or are improved where degraded;
- Ensure the loss or discharge of sediment or sediment-laden water and other contaminants to surface water and coastal water from earthworks, including roading, works in the bed of a river or lake, land development or construction, is avoided, and if this is not achievable, the best practicable option is used to minimise the loss or discharge to water.
- Safeguard the life supporting capacity of the fresh water and coastal, including its associated: aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation; and
- Safeguard the existing values of waterways and coastal water that are important for providing mahika kai to Takata Whenua; and protect wāhi tapu and other wāhi taonga of value to Takata Whenua.

#### 8.4.3. [Pareora Catchment Environmental Flow and Water Allocation Plan](#)

The purpose of this Plan is to promote the sustainable management of the natural and physical resources and to achieve the integrated management of those resources for the Pareora River and its tributaries including, but not limited to, the Burnett Stream (draining from the north), White Rock River, Motukaika Stream, the South Branch of the Pareora River draining from the Hunter Hills in the south west, and hydraulically connected groundwater.

The Plan sets out the resource management issues related to the abstraction of ground and surface water in the Pareora River Catchment, and the objectives, policies, and methods for

managing them. Because the focus of this Plan is on water allocation, other potential catchment issues such as water quality are only addressed to the extent necessary to provide for water allocation and the Plan does not make comprehensive provision for them.

In this catchment potential demand for water for out of stream uses is high and there is little additional resource available for abstraction without significant adverse effects on instream values and reliability of supply for existing abstractors. Water from the Pareora River Catchment is used for irrigation, industry, and as a community water supply for Timaru City and other communities. Therefore, the Plan focuses on maintaining the existing environment, maintaining existing instream values for surface water bodies, and ensuring existing surface and groundwater abstractors maintain a reasonable reliability of supply, in the first instance.

### **8.5. Iwi Management Plan of Kati Huirapa**

The Iwi Management Plan of Kati Huirapa was written by the hapū Kati Huirapa (Kai Tahu, Kati Mamoe, Rapuwai, and Hawea Waitaha) in 1992. The rohe of Kati Huirapa extends from the Rakaia River in the north to the Waitaki River in the south. Arowhenua Runaka is the local representative group similar to local government. Te Runaka was formed to protect and defend rakatirataka, the turangawaewae, and the cultural and social values of its members.

The preparation of a resource consent needs to take into account the Iwi Management Plan of Kati Huirapa. Policy 1 specifically states that the dumping of wastes and contaminants in coastal waters should be avoided and all waste discharges shall not be discharged into rivers. Lakes, seal and natural waters.

### **8.6. Proposed Marine Protection Area**

The coastal marine habitat within the Project Area is of high value. It is typical of that found along the Canterbury Bight and supports a range of different types of biota. Although relatively homogenous, habitats present are representative of the wider area. Habitats are dominated by relatively shallow nearshore water, over soft sediment, and no features causing gaps in species presence are present in the wider area.

At the time of writing, the Minister of Fisheries and the Minister of Conservation had recently signalled their intent to pursue a new marine protected area on the south eastern coast of the South Island. While still very early in the process, the proposed area would stretch from Timaru in the north, to Waipapa Point in Southland and encompass 1,267 km<sup>2</sup> under varying forms of protection. This is the outcome of the South-East Marine Protection Forum (SEMPF) that was instigated in 2014 to gauge the industry, public and stakeholder support for inclusion of 20 sites within the network of marine protected areas.

Under the proposal, the proposed discharge site would fall within a Type 2 Marine Protected Area (MPA) C1 (South-East Marine Protection Forum 2018). Type 2 MPAs are areas that incorporate various management tools that together meet the protection standard. Management tools can be established under various Acts, but most notably the Fisheries Act 1996. Type 2 MPAs are not no-take areas as they generally allow most recreational fishing to occur, as well as some commercial fishing depending on the fishing method. A mandatory/bottom line requirement to qualify as a Type 2 MPA is the prohibition of mobile bottom-impacting fishing methods such as bottom trawling.

The Type 2 MPA has been proposed rather than a full marine reserve in order to ensure there is no impact on the customary and recreational fishery associated with the Waitaki River mouth, particularly salmon and whitebait fisheries. In addition to being within a Type 2 MPA, the outfall site would also fall within a Kelp Protection Area, prohibiting the commercial harvest of giant bladder kelp.

Some of the rationale assigning C1 the Type 2 MPA status are:

- Main species caught are school shark, rig, and elephant fish. Species are mobile that feed in both open water and near the seabed and play an important role in maintaining balance in the food chain and help to maintain trophic linkages.
- Area contains foraging habitat for the Nationally Endangered Hector's dolphin (*Cephalorhynchus hectori hectori*).
- Incidental capture of Hector's dolphin occurs most frequently in commercial set nets targeting rig, elephant fish and school shark.
- Mainland populations of the Nationally Endangered yellow-eyed penguin (*Megadyptes antipodes*), Nationally Vulnerable Steward Island shag (*Bowdleria punctata stewartiana*) and the Not Threatened spotted shag (*Stictocarbo punctatus punctatus*) (Robertson et al. 2017) all feed within the area and are considered to be at medium risk from set net fisheries.

At this stage, it does not appear the development of the Type 2 MPA at the project area will prevent a discharge continuing. However, during the original consultation process, a number of submitters expressed concerns about the impacts generated by discharges and suggested they also needed to be considered. The Forum does recommend that Regional and District Councils within the Forum region ensure that the necessary monitoring and management of activities is carried out to actively address issues of concern and protect and maintain coastal habitats and ecosystems.

## 9. RELATIONSHIP OF TE RŪNANGA O AROWHENUA TO PAREORA RIVER, COASTAL ENVIRONMENT AND SURROUNDING LANDSCAPE

### 9.1. Traditional Cultural Relationships

The Pareora River (South Canterbury) flows out of the Hunter Hills from the north-west to south-east, and discharges its waters onto the floodplain, to enter the coast south of Timaru. With its headwaters in the Hunters Hills, the Pareora River exits the lower gorge at Pareora Huts. One third of the catchment is steep land, with the remaining two thirds being rolling hill country.

#### 9.1.1. [Kai Tahu Management Principles](#)

Consistent with the philosophy of managing *ki uta ki tai* (mountains to the sea) Ngai Tahu value the whole of the Pareora Catchment: from its source, its passage through the gorge, its traverse across the lower floodplains to interface with saltwater at its river mouth along the Canterbury Coast. Cultural beliefs, values and practices that underpin the interactions of TRA members with the catchment include *mauri*, *kaitiakitanga*, *whakapapa*, and *mahinga kai*.

Traditional management was founded on a set of cultural values that arose from the Ngai Tahu worldview. These cultural values include a set of principles upon which the relationship between people and the environment must be based in order to sustain the balance between the needs and demands of humans and the health of the natural world that sustains them. The following principles are significant elements of the Ngai Tahu worldview which, when understood together, approximate the non-Maori concept of “sustainable management”.

**Te Ao Maori:** The principle of holism: Sustainable management must consider the environment and its component parts as a whole and assess effects from actions across all dimensions, spiritual, mental, biophysical, and social [*te taha wairua*, *te taha hinekaro*, *te taha tinana*, *te taha whanau*].

**Whanaungatanga:** The principle of kinship, connectedness, and inter-dependence between all things within the natural world including people: sustainable management must be based on ethics of Whanaungatanga reflecting and giving life to the inter-relationship between all things. Sustainable management should seek to sustain the health, wealth and well-being of the natural environment while sustaining the communities of people dependent upon them.

**Whakapapa:** The principle of cause and effect, descent and transmission: Sustainable management must be predicated on an understanding that all actions cause effects which in turn cause other effects. Eventually the cycle of effects returns in kind to the original actor. Sustainable management decisions must consider all immediate and downstream effects in the present and, as far as possible, into the future.

**Taonga Tuku Iho:** The principle of generational continuity and responsibility: Present generations are one with those who have gone before us and those yet to be born. This applies to people and to generations or successive cycles of other species or natural phenomenon. Present generations have an overriding obligation to control the effects of their actions so as to ensure that resources are passed on to future generations in at least as healthy and productive a condition as they were inherited from the ancestors.

Under Ngai Tahu conception, all elements within the world are linked by mutual descent from the atua (dieties) and the primeval parents, Rakinui and Papatuanuku. Thus, all parts of the environment are related to one another and exist within a mutually inter-dependent whole.<sup>2</sup>

#### 9.1.2. Kai Tahu Cultural Values

The paragraphs that follow summarise (via a series of dot points) key cultural values as understood and approved by Ngai Tahu.

Value	Explanation
<b>Whakapapa</b>	<ul style="list-style-type: none"> <li>• Traditional knowledge and scientific classification of relationships between parts of the ecology (e.g. the relationship between water and fisheries, or between individual ecological functions);</li> <li>• Ancestral descent rights that define authority as between individuals and groups of people to control, manage and act as kaitiaki guardians, for the benefit of present and future generations;<sup>3</sup> and</li> <li>• Approval from the Gods and non-human kaitiaki guardians conferred on certain individuals, whanau, and hapu who are designated by mana Atua expressed through whakapapa ancestral right and obligation, to be the rightful people entitled to benefit from the resources and to carry the associated mandate to protect the environment and to speak on its behalf.</li> </ul>
<b>Rangatiratanga</b>	<ul style="list-style-type: none"> <li>• Tribal areas of land and waters which are the exclusive territories of Ngai Tahu, the holders of exclusive rights of authority over those areas as against other tribes.</li> <li>• Chiefly authority conferring and defining rights to control and manage and the activities of people affecting the environment; and</li> <li>• The Article II guarantee of the Treaty of Waitangi.</li> </ul>
<b>Manaakitanga</b>	<ul style="list-style-type: none"> <li>• As a customary concept, manaakitanga is an expected standard of behaviour (Mead, 2003. Manaakitanga is the fostering and nurturing of relationships between a host and a visitor. Being able to manaaki visitors to the marae and to supply to manuhiri iconic species of kai historically sourced locally is a strong driver for the hapu's participation in fisheries management.</li> </ul>
<b>Whanaungatanga</b>	<ul style="list-style-type: none"> <li>• Inter-relationship between all parts of the ecology;</li> <li>• Inter-relationship between the ecology and the well-being of mana whenua; and</li> <li>• Obligations on decision-makers to ensure that all parts of the ecosystem including people and their communities are cared for.</li> </ul>
<b>Mana Whenua</b>	<ul style="list-style-type: none"> <li>• Spiritual power and authority that creates rights and obligations flowing from the lands that sustain and are cared for by an iwi, hapu, or whanau;</li> <li>• The people holding traditional rights of exclusive authority as Tangata whenua of their tribal territories; and</li> </ul>

<sup>2</sup> "Maori developed a system of resource management in which people were no more than another living part of the whole ecosystem, capable of a care-taking role alongside other creatures...People lived within and as a part of a whole to which they were intimately and genealogically related." Love (1992)

<sup>3</sup> "In addition to the interconnection between all things, whakapapa defines ancestral rights as between people. Rights flowing from whakapapa include rank and status in society, mana to belong to a specific group or a number of hapu or whanau kinship groups, and authority to exercise rakatirataka or chieftainship." Lifeforms Focus Group, Ministry of Commerce Maori and the Patenting of Lifeform Inventions (1999)

<b>Taonga</b>	<ul style="list-style-type: none"> <li>• All things prized, tangible and intangible, animate and inanimate;</li> <li>• The concept of a resource, its utility, and notions of sustainability, the wise use of resources, and the obligation to maintain the mauri;</li> <li>• Respect for the past and the obligation to preserve resources and cultural wealth and well-being for future generations;</li> <li>• Intrinsic values; and</li> <li>• Cultural use, heritage, and amenity values.</li> </ul>
<b>Mauri</b>	<ul style="list-style-type: none"> <li>• The life force<sup>4</sup>; and</li> <li>• The “Environmental Benchmark” by which nga runanga measure the present health of the environment, the inter-linked well-being of mana whenua, and the actual and likely effects, positive or adverse, of the proposed mine development</li> </ul>
<b>Kaitiaki</b>	<ul style="list-style-type: none"> <li>• Guardian spirits who communicate with the living world to warn of danger and herald the times and limits of harvest seasons, sometimes manifested through guardian animals, birds, fish, insects or taniwha;<sup>5</sup></li> <li>• Intergenerational responsibilities as resource caretakers (i.e. responsibilities to protect the interests of future generations;</li> <li>• The obligation to guard, foster, and protect resources and people, including the obligation to consent to or refuse access to resources to protect sustainability;</li> <li>• Tohunga and whanau kaitiaki people with the matauranga (training and knowledge) to interpret signs in the environment (such as environmental indicator species or natural events) that were utilized to understand the changing ecology.</li> </ul>
<b>Tikanga</b>	<ul style="list-style-type: none"> <li>• Rules and regulations controlling the actions of people and the practices associated with these rules and regulations;</li> <li>• Sustainable management kawa (protocols, use controls, and culturally-sound techniques) designed to ensure the results of human action are consistent with the cultural values and desired environmental, social, and economic outcomes sought by nga runanga;</li> </ul>
<b>Wahi Tapu &amp; Wahi Taonga<sup>6</sup></b>	<ul style="list-style-type: none"> <li>• Sites that are or have been made tapu in nature to protect their intrinsic values and/or because of their association with the Gods, the tupuna, or important historic and cultural events and activities; and</li> <li>• Other sites particularly valued for their utilitarian significance as places from which resources are customarily sourced, that are ecologically significant (for e.g. as breeding or migratory habitats) or that were particularly significant species or taonga resources are located.</li> </ul>

<sup>4</sup> "Mauri is the life-force which generates, regenerates, and upholds creation. It is the bonding element that knits all the diverse elements within the Universal Process giving creation its unity in diversity. It is the bonding element that holds the fabric of the universe together". Rev Maori Marsden The Holistic World View of the Maori (1992)

<sup>5</sup> "Kaitiaki or guardian spirits are left behind by deceased ancestors to watch over their descendants and to protect sacred places. Kaitiaki are also messengers and a means of communication between the spirit realm and the human world. There are many representations of guardian spirits, but the most common are animals, birds, insects, and fish." Cleve Barlow Tikaka Whakaaro: Key Concepts in Maori Culture

<sup>6</sup> "All the lands of Papatuanuku are sacred. Any time you want to disturb the surface of that land and do something with it, certain protocols and procedures need to be carried out in order to make it noa (non-sacred). This would usually involve a tapu lifting ceremony and karakia to appease the essence of the earth."

Huirangi Waikerepuru of Taranaki, quoted in Solomon and Schofield The Resource Management Act and the Treaty of Waitangi: A Starting Point and Framework (1992)



<b>Mahinga kai</b>	<ul style="list-style-type: none"> <li>• The bounty given by Papatuanuku to its people;</li> <li>• Places and resources (e.g. species) important for sustaining the cultural, social, and economic well-being of mana whenua; and</li> <li>• The activities associated with gathering and use of the resources, including cultural harvest, whanau experience and knowledge, and transmission of cultural values and tikanga practices between generations.</li> </ul>
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In considering tangata whenua views, what is of fundamental importance is that there is a cultural abhorrence to the discharge of treated wastewater to natural water regardless of the level of treatment of the wastewater. There is also the abhorrence of transportation of waste material past Maori meeting houses, cemeteries and sacred Maori land sites.

Between the Waitaki River and the Washdyke Lagoon north of Timaru, there are a number of culturally significant sites (burial sites, food gathering sites, settlement sites) and waterways containing mahinga kai species that have the potential to be adversely affected by the wastewater discharging from the Silver Fern Farms site<sup>7</sup>. The culturally significant waterways and sites are outlined in Appendix 1 attached.

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<sup>7</sup> New Zealand ocean currents are heavily influenced by the Tasman Front (TF), Subtropical Front (STF) and Sub-Antarctic Front (SAF). The ocean currents along the Canterbury Bight flow in a south west to north east direction.

## 10. EFFECTS ON TE RŪNANGA O AROWHENUA'S VALUES AND INTERESTS

This section identifies the potential effects on Arowhenua's values as a result of the project as set out by Silver Fern Farms, and the implementation of that project.

The list of effects identified below is not set out in any order of priority or importance. They are structured under headings of the four well-beings as identified in the RMA - Environmental, Cultural, Economic and Social. Largely these issues are interconnected and overlap as certain environmental effects could just as easily be discussed under the categories of 'cultural, social or economic' wellbeing. Before considering these individual elements, it is important to first contextualise these by looking at the "big-picture".

Past effects on the Pareora River and the coastal environment have impacted on the culture and values of iwi. The iwi management plan referenced previously in this report touch on many of the historic issues that have impacted water quality in the area. These include such matters as loss of native forest cover, discharges of stormwater and waste water into rivers and the coastal environment, sedimentation, introduction of pest species, and over allocation of water leading to reduced flows and the inability of rivers to sustain the ecosystems within them and at the coast where freshwater flushes are required to start breeding patterns. These have flow on impacts such as diminishing of mauri, loss of access to and matauranga associated with sites and species, and subsequently can impact the mana of iwi.

### 10.1. Environmental Effects

Arowhenua's concerns largely relate to the potential for whole catchment and long-term effects on cultural values as a result of continuing operations of the Silver Fern Farms factory and infrastructure. Operational activities as well as the discharge of wastewater to land and the coast have the potential to affect tangata whenua values and interests. There are four key areas of interest for Arowhenua:

1. Soil quality: Arowhenua are concerned with the level of nitrates and chemicals that are discharged to ground in order to improve agricultural productivity and/or to discharge a by-product onto land that has no net economic gain.
2. Water quality and quantity: Arowhenua are working to restore mahinga kai values in the Pareora catchment and the coastal mataitai, and therefore, have an interest in any activity that may affect water quality or mahinga kai habitats.
3. Appropriate incident management and communication: As manawhenua and kaitiaki, hapū have a responsibility to ensure appropriate tikanga (protocol) is upheld with regard to incident management and communication.
4. Flora and Fauna: The fish, bird and plant species that live within and around the Pareora River and other significant rivers and streams located between Pareora and Timaru (refer to Appendix 1) are highly valued by tangata whenua, and there is the potential to disturb and/or contaminate habitats and effect the behaviour of some species.

#### 10.1.1. Soil Quality

There are many discharge activities that occur within the region and these need to be managed to minimise adverse effects on water and air quality and ensure they do not create contaminated sites. Discharges to land can leach through land into ground water or run off into surface water bodies. The consequences of leaching will vary depending on the amounts and type of discharge and the conditions that the discharge is occurring in, for example soil type and depth to ground water. Discharges with toxic content will potentially contaminate the soil on which the discharge occurs. Some discharges will also create air quality impacts, in particular

odours, which will also need to be managed. The discharge of untreated wastewater is considered unacceptable for public health reasons.

The nearshore coast around the project area is identified as un-surveyed in the available nautical chart. This is likely due to the exposed nature of the coast making it difficult to survey and the fact that the alluvial fan of the Pareora River extends for more than 50 km out to sea. As a consequence of these factors, the quality of the soils on the seabed cannot be determined; however, it must be acknowledged that due to human behaviour since European arrival that the natural state of the seabed has been reduced from their former extent.

Arowhenua recommend the following with regard to long-term discharge of treated wastewater to land and the ocean and minimising the effects on soil quality:

- Regular soil testing and stop wastewater irrigation if chemical levels are found to be too high and pose immediate and/or long-term risk to the environment.
- Remediation of soils and restoration of soil resources.
- Research alternative methods in which to utilise the treated wastewater.

#### 10.1.2. [Water Quality](#)

All water (freshwater, ground water, seawater etc) is the most sacred taonga to Arowhenua. How water is managed can affect the mauri of awa and the species that inhabit them. Arowhenua are the kaitiaki of a variety of taonga species and resources which were formerly abundant in the vicinity. In addition to their kaitiaki responsibilities, great importance also rests on the ability of the iwi to be able to continue or restore customary practices in and around this location.

The water quality along the Canterbury Bight has historically been relatively high, and typical of relatively unimpacted open coastal waters. However, in recent years, spot measurements of basic water quality measurements have taken from sampling points in Timaru (Caroline Bay) and along the coast near the mouths of rivers. The results indicate water temperatures are generally cold, but variances are reflective of the time of year and ambient weather conditions.

Dissolved oxygen saturation and concentration were deemed high; however, salinity varied slightly along the coast depending on the proximity of the site to the river mouths. Generally, waters were less saline closer to the mouth and patterns of salinity were affected by the direction of the current. Currents along the Canterbury Bight generally move northwards, carrying freshwater further north, but it is known to vary depending of the whether flows within rivers are high or low.

High saline levels are crucial near the coast as it is the freshwater flushes from rivers that trigger breeding patterns in fish species. Freshwater flushes allow migratory fish to adjust from sea water to freshwater before beginning their migratory travel up rivers to spawning areas. The contamination of this zone or the lack of freshwater within rivers can delay or prevent this process from occurring.

The potential impact on water quality within rivers, streams, creeks and stormwater waterways as a result of long-term operational activities of factories and the discharge of wastewater is an environmental and cultural effect of concern for tangata whenua. Arowhenua seek to have water quality in the Pareora River (and other rivers between Waitaki and Timaru) and its tributaries consistent with protecting customary fisheries and enabling customary use. This means managing the potential for contaminants entering the rivers, streams, creeks and the marine environment.

The Iwi Management Plan also contains specific policies on the discharge of contaminants to water and land and stormwater management, setting out how these activities can be managed to avoid impacts on water quality. The recommended management actions below reflect these policies. Arowhenua recognise that environmental conditions at the operational sites will be different than in the rest of the district; however, the environmental footprint of the proposal beyond physical boundaries, and therefore, operational activities need to be managed to minimise impacts. Direct discharges to water and the ocean should be avoided, and the potential for non-point source discharges minimised.

Issues raised by Arowhenua with regard to long-term operational activities and minimising the effects on water quality are:

- Containment of effects: The effects of operational activities should be contained within the Silver Fern Farms site and associated farms.
- Sediment and erosion control: Sedimentation is a significant issue of concern for tangata whenua. Sediment accumulates in riverbeds and at the coast, degrading the quality of the habitat and the resource. Operational activities have the potential to create a risk of increased concentrations of suspended sediment in the river channels and at sea.
- Contaminated soil management: Some areas of rural land adjoining rivers, streams and the coast may have contaminated soils, and rural activities that expose these soils can pose a risk to water quality, if soils are washed into the river during storm events.
- Stormwater management: Rūnanga's policy is that stormwater should be clean before it enters any waterway or ocean. Stormwater can carry high sediment loads or contaminants, and this can adversely affect water quality. Arowhenua require that all stormwater needs to be treated before it is discharged into a waterway, to ground or the ocean. Therefore, the Applicant and ECan should ensure that treatment devices and methods are robust and considered clearly within the conditions of consent.
- Spills or leaks, and the discharge of contaminants to ground or water (i.e. fuel, oil or other contaminants) have the potential to negatively impact on water quality. Arowhenua require the Applicant and ECan to have robust procedures and appropriate conditions of consent to ensure the potential for spills and leaks is appropriately mitigated. Arowhenua require the Applicant and ECan to manage onsite activities and follow appropriate spill or leak procedures to ensure the contaminate is isolated and remedied to ensure ground and/or water does not become contaminated.

#### 10.1.3. Incident Management and Communication

Arowhenua's interest in incident management and communication processes is in response to the need to ensure correct Ngāi Tahu tikanga (protocol) is followed. Incidents of interest to Arowhenua are:

- a) Accidental discovery of archaeological material, including kō iwi tangata.
- b) Accidental spill of contaminants into the river or its tributaries (e.g. fuel or oil).
- c) Accidental or deliberate discharge of contaminants into the coastal environment as a result of system failure or excess quantity of wastewater product.
- c) Injury of a worker on site.
- d) Death of a worker site.

#### 10.1.4. Marine Mammals

As outlined above, the coastal marine ecosystem within the Project Area is of high value. It is typical of that found along the Canterbury Bight and supports a range of different types of biota. Although relatively homogenous, habitats present are representative of the wider area.

Habitats are dominated by relatively shallow nearshore water, over soft sediment, and no features causing gaps in species presence are present in the wider area.

For Arowhenua, an ecosystem is a dynamic and complex community consisting of plants, animals, micro-organisms, and the non-living environment. All aspects of the community interact as a functional unit. The conceptual framework assumes people are an integral part of the ecosystem. Māori also see themselves as a part of ecosystems rather than separated from ecosystems. To achieve well-being humans, require basic materials, health, good social relations, security, and freedom of choice and action. Many of these basic necessities are provided directly and indirectly by ecosystems. Humans not only depend on ecosystems; they influence them directly through land use and management. The strength of this interdependency between humans and ecosystems may be conceptualised as a reciprocal relationship comprising *manaaki whenua* (caring for the land) and *manaaki tangata* (caring for people).

A significant part of this belief around ecosystems and the interdependence between Māori and the environment are *mahinga kai* practices (gathering food) in accordance with traditional protocols and knowledge. *Mahinga kai* is a practice that continues to underpin the Ngāi Tahu way of life today. Arowhenua considers that all waterbodies within their rohe should be suitable for *mahinga kai*. Representatives of Arowhenua have said that when applying *mātauranga*, Maori consider that the discharge of wastewater to land (which will eventually leach into waterways) and the marine environment will have an impact on *mahinga kai* as there is no certainty that populations of *kai* species will not be affected.

In addition to the *mahinga kai* species, Ngāi Tahu identifies a number of marine mammals *taonga* species that can be found in and around the Canterbury and South Canterbury Coast. Table 2 below lists these species.

Table 3: *Taonga Species: Marine Mammals as Listed in the Ngāi Tahu Claims Settlement Act 1998.*

Name in Māori	Name in English	Scientific Name
Ihupuku	Southern Elephant Seal	<i>Mirounga leonina</i>
Kekeno	New Zealand Fur Seal	<i>Arctocephalus forsteri</i>
Paikea	Humpback Whale	<i>Megaptera novaeangliae</i>
Parāoa	Sperm Whale	<i>Physeter macrocephalus</i>
Rāpoka/Whakahao	New Zealand sea lion / Hooker's sea lion	<i>Phocarctos hookeri</i>
Tohorā	Southern Right Whale	<i>Balaena australis</i>
Pahu, and Popoto	Hector's Dolphin	<i>Cephalorhynchus hectori</i>
Tūpoupou and Tutumairekurai	Maui Dolphin	<i>Cephalorhynchus hectori maui</i> (mid Canterbury but do travel south)
Ko Ahitereiria Ko te Penguin o Ahitereiria	Australian Fairy Penguin	<i>Eudyptula novaehollandiae</i>

The Hector's dolphin and New Zealand fur seal are two specific species that are known to live in the area and are mentioned in the resource consent application. These species are *taonga*<sup>8</sup>

<sup>8</sup> Intergenerational protection of highly valued object or living thing, passed on from one generation to the next, in a caring and respectful manner.

and are listed by the Department of Conservation as ‘nationally vulnerable’ (declining population) and ‘threatened’ respectively. Both species live on or near the coastline, using bays and harbours to raise their young, feed and rest. They live near the water surface and are particularly vulnerable to contamination and human behaviour.

The Hector’s dolphin is particularly important to Arowhenua and Ngāi Tahu as traditionally, Māori watched the movements of dolphins to predict the weather. The prediction of weather enabled Maori to determine whether they went fishing at sea or stayed on land; therefore, having significant cultural value to their whakapapa. Consequently, contaminating the living environment of marine mammals (ecosystem as outlined above) also contaminates the whakapapa (genealogy) of Arowhenua members and their linkages to their ancestors.

#### **10.1.5. Flora and Fauna**

The main settlements for early Māori were on or near the coast, but Māori also hunted inland. For South Canterbury’s earliest inhabitants, moa was a major source of food, along with forest birds, and the eels and flounder that were abundant in coastal lagoons. Especially important in South Canterbury was kāuru, which is the root of young cabbage trees (tī kōuka) and shaped like a carrot. Rich in natural sugars, the cabbage tree would be dug up and the root baked in umu-tī (ovens), which partially crystallised the sugars. The kauru would then be dipped in water and chewed.

Cabbage trees were historically found in huge abundance across the Canterbury Plains area. Favouring wet conditions, the cabbage tree was found on the outer areas of natural wetlands, which occupied much of Canterbury prior to European arrival. With the introduction of agricultural practices by early Europeans, the wetlands were drained, and the water utilised for irrigation of crops. As a consequence of the change in land use, many of the cabbage tree forests were cut down and burnt. Today, the indigenous trees still exist in small stands or as isolated single trees across the lower Canterbury Plains. In addition to the trees, early Māori ovens have also been found scattered along the South Canterbury coastline between the Waitaki River and Timaru, confirming that indigenous plants (including the cabbage tree) and fish caught at sea, in rivers and coastal lagoons were important components to the diet of early Ngāi Tahu.

Regardless of whether ECan chooses to grant or decline the proposed resource consent applications, the discharge of wastewater to land and the coastal environment will occur close to culturally significant rivers and streams as well as the coastal marine environment. Therefore, it is important for the Applicant and ECan to undertake an ecological assessment to identify valued species, and either protect, relocate and/or restore those sites throughout the length of the resource consent. For areas of significant disturbance, a specific restoration project should be put forward as a condition of consent to ensure ongoing adverse effects are avoided.

#### **10.2. Cultural Effects**

As mentioned previously, the Pareora River is a tupuna awa for Arowhenua iwi. Safeguarding the mauri of the river is a primary focus. Manawhenua such as Arowhenua look to cultural health indicators to interpret the status of mauri. These may include factors such as the presence of healthy kai and other indigenous flora and fauna, the presence of resources fit for cultural use, and the aesthetic qualities of resources such as the visibility of important landmarks.

#### 10.2.1. The Significance of Wai - Manawhenua

The way in which manawhenua iwi view wai (water) is culturally unique. This section gives an overview of some of the cultural values in an effort to raise awareness and understanding of key considerations in the management of waterways in the Canterbury Region.

Te Tiriti O Waitangi promised Crown protection of Maori custom and cultural values – a right that extends to the protection of tino rangatiratanga. However, these rights have not been upheld by local councils and manawhenua iwi have gradually lost control over wai and the resources connected with waterways in the rohe. Despite this loss of customary right, wai remains an integral part of manawhenua iwi life. Maintaining and enhancing the health and well-being of wai is an ongoing concern for Arowhenua.

#### 10.2.2. Effects on the relationship of tangata whenua with their waters (wai)

Wai (water) is a living taonga, classified under Article II of the Treaty of Waitangi. A sacred treasure, wai symbolises the wairua (spiritual) link between the past and the present. The lifeblood of Papatuanuku and the tears of Ranginui, wai flows through the land via channels and waterways, creating wetlands, streams and swamps on its path. Waterways connect the mountains with the sea. For Arowhenua, the spiritual and physical relationship with wai are intertwined – both elements are essential for life.

On a spiritual level, wai (water) and the life of wai sustains are treasures within the realms of ngā atua kaitiaki (spiritual guardians). Tangaroa is the spiritual guardian of wai and Tane Mahuta of the forests, trees and birds living along riverbanks and in the surrounding catchments. The origin of all things reflected in the belief that everything has a mauri (life force) and a wairua (spirit). In recognition of the mauri and the wairua that exists in all taonga (treasures), wai is considered sacred (tapu).

Through their whakapapa (ancestral ties) and spiritual relationship with ngā atua kaitiaki, Arowhenua as Manawhenua believe they have a duty to their ancestors (those living and those to come) to take care and protect wai and other taonga. Manawhenua iwi members are the ahi ka kaitiaki – a duty demonstrated in the practice of kaitiakitanga. For manawhenua iwi, their spiritual and physical survival is dependent on their ability to safeguard resources as kaitiaki of an area.

The kaitiaki role is focused on making decisions about how to manager wai, using matauranga (knowledge), according to tikanga (customary practices) and tikanga (rules). Examples of customary practices kaitiaki use include acknowledging ngā atua kaitiaki before utilising resources connected with wai; working to enhance the health of waterways; using wai for cleansing purposes; maintaining mahinga mātaimai (food baskets); and looking after others using resources from wai catchments.

#### 10.2.3. Effects on the relationship of tangata whenua with their ancestral lands

Water catchments in Timaru and the Waimate Districts were central to the wellbeing and survival of tūpuna (ancestors) living in the rohe. Awa (rivers such as the Pareora, Pig Hunting Creek, and Makikihi River) provided natural pathways for accessing inland areas from the coast, where many resources could be gathered. The whole catchment was important for harvesting resources – from the mountain streams and lakes, the river valleys, wetlands, coastal lagoons and the river mouths – where many of the permanent settlements were located.

Customs and cultural values associated with wai and mahinga kai were an integral part of traditional life; maintaining the life supporting capacity of wai remains central to the lives of present day manawhenua.

The mitigation options proposed by the Cultural Consultants seek to improve water quality, the distribution and abundance of fish such as tuna (eel) and koaro and enhance cultural values such as mauri overall.

### **10.3. Social and Economic Effects**

Safety to the people of Timaru and South Canterbury (Pareora area) is critical for the wellbeing of the entire community, including iwi. As outlined above, the potential for a catastrophic (unpredicted) system failure within the factory has the potential to require untreated wastewater to be discharged to the ocean outfall structure for temporary periods of time. This has the potential to contaminate the marine environment and cause significant harm to those using the local beach for recreational purposes. Causing significant harm has the potential to result in significant economic costs through fines and infringement notices.

Balancing the safety of the region is paramount; however, the option to deconstruct the ocean outfall structure and replace the discharge mechanism with alternative methods such as recycling the wastewater for use during the operational process must also be considered in the long term. The ongoing discharge of treated wastewater into the coastal marine area has the potential to create unknown effects in the future, which will heavily influence the wellbeing of mana whenua/ tangata whenua, which is inextricably linked to ecological and cultural health.

The infrastructure within rivers and the discharge of wastewater into the ocean have had significant adverse effects on customary practices and mahinga kai in the Pareora. Any effect or combination of effects that makes subsistence and/or cultural harvest harder or less attainable has and will continue to have a social and economic effect on iwi.



## **11. POTENTIAL MEASURES TO AVOID, REMEDY OR MITIGATE ADVERSE EFFECTS**

Where an activity results in adverse effects on the environment, Section 5 of the RMA requires that these be avoided, remedied or mitigated. Case law considers that the ordering of these requirements prescribes a hierarchy – if possible, effects must be avoided. If this is not possible, then they must be remedied. Where they can be neither avoided nor remedied then adequate mitigation measures are required.

Arowhenua have made several recommendations in relation to the Silver Fern Farms' proposal, which are embodied in the recommendations below.

Recommended measures to avoid, remedy or mitigate potential adverse effects for consideration by the Applicant and ECan should the project proceed, include:

### **11.1. Water Quality**

1. Across all activities (within and outside of the coastal environment), ensure appropriate and effective measures are in place to avoid the discharge of contaminants to water, or to land where contaminants may enter water.
2. Effective erosion and sediment control measures are required to avoid the discharge of sediment to the coast and rivers (especially the Pareora River). This includes but not limited to:
  - (a) Minimising the extent of land cleared and left bare at any given time.
  - (b) Using sediment control systems designed to minimise erosion and contain sediment eroded by water or wind (e.g. buffer zones, silt fences, sediment basins).
  - (c) Ensuring sediment does not enter stormwater system.
3. Future resource consents should contain an assessment of risk associated with contaminated soils, and the responses and processes associated with managing the potential for soils high in nitrates and other relevant chemicals to enter the rivers, waterway systems and the coastal environment. This assessment should be drafted in accordance with any recommendations or requirements of ground condition surveys.
4. A Stormwater Management Plan with effective measures to manage stormwater and avoid contaminated stormwater entering rivers and the coastline, given the high sediment loads or contaminants that stormwater may carry.
5. A spill of fuel, oil or other hazardous substance to water or to land where the contaminants may enter water (river, stream and/or coastal environment) must be treated as an emergency incident. The risks, responses and processes associated with managing this potential should be outlined in a Spill Management Plan, including the involvement Arowhenua in incident management.
6. Monitoring provisions in the future need to include requirements for regular monitoring and effective plans of action if thresholds or limits are exceeded or adverse effects detected. Monitoring programmes should reflect and respond to the protection of water quality and the coastal environment generally.
7. The Applicant, TDC and ECan should require all contractors to have contingency plans (including funds) in the event of an uncontrolled or emergency discharge.
8. The Applicant, TDC and ECan should require all contractors to identify risk, and provide a response plan, in the event that materials are found in other parts of the District.

## **11.2. Incident Management and Communication Processes**

### **11.2.1. Accidental Discoveries**

1. In areas where there is a cultural monitor on site (i.e. Areas of High Risk), the cultural monitor will ensure the appropriate care and protection of accidental discoveries, including retrieval and handling consistent with the correct tikanga.
2. In areas where there is no cultural monitor on site (i.e. low risk areas), the ADP will set out the steps to take in the event of an accidental discovery of Māori archaeological material. This includes the requirement for work to cease at the site, and immediate contact with Arowhenua.

### **11.2.2. Spills**

1. Arowhenua is to be notified in the event of a spill or leak of oil, fuel or other hazardous substance, to water or to land where contaminants may enter water. The harbour is used for mahinga kai and any spills must be reported so that whanau can be notified.

## **11.3. Marine Mammals**

1. The main potential adverse effects for marine mammals were considered to be affects from increased turbidity associated with the discharge of wastewater and affects from exposure to contaminants from the discharge. Arowhenua would prefer to see the use of the ocean outfall discontinued once an effective alternative measure has been identified.
2. A resource consent shall include provisions to monitor and manage the effect of the coastal discharge on marine mammals.
3. The processing of the resource consent shall also assess the relevant components of the Marine Mammals Protection Act 1978, the Wildlife Act 1952 and the Marine Coastal Area (Takutai Moana) Act 2011 to ensure compliance.

## **11.4. Flora and Fauna**

1. A resource consent shall explicitly identify the value of mahinga kai and tuna (eel) and the importance of managing operational activities to recognise and provide for this.
2. A resource consent shall include provisions to monitor, manage and restore the potential disturbance to flora and fauna, including the effects of system failure, accidental contamination, noise and vibration associated with onsite works to ensure the environment is retained in its natural state.

## 12. CONCLUSIONS

This report is prepared on behalf of Te Rūnanga o Arowhenua as the Ngāi Tahu Papatipu Rūnanga representing the tangata whenua who hold mana whenua and mana moana (traditional authority) over the Pareora area. The report provides information and recommendations to ensure that the resource consent(s) being prepared by Silver Fern Farms Limited recognises and provides for Ngāi Tahu values, interests and tikanga (protocols).

The following aspects should be considered in the resource consent application(s) and during the processing phase of the consent consent(s):

- Recognition of historical Māori use and occupancy of Pareora and surrounds, and therefore the potential for accidental finds of cultural/archaeological material.
- Recognition of the importance of mahinga kai (food resource), and the need to manage activities to avoid effects on water quality and mahinga kai habitats.
- Containment of the effects of operational activities to the coastline, coastal marine area, river and catchment area, and specific provisions to manage the increased risk to water quality as a result of discharge activities.
- Recognition of Te Rūnanga o Arowhenua, as manawhenua, and the role of AEC in incident management. For Arowhenua, the resource consent is an opportunity for ECan to send a clear message to contractors and the community that the company has a long term and custodial interest in the Pareora River and the Canterbury Coast, by ensuring that performance standards, mitigation measures and management actions are consistent with protecting the environment and the multiple values that are associated with it.

## APPENDIX 1: CULTURALLY SIGNIFICANT SITES AND WATERWAYS

### Waterways

Waitaki River	is a large braided river that drains the Mackenzie Basin and enters the Pacific Ocean on the east coast of Te Waipounamu. The name Waitaki, a Kāi Tahu variant of Waitangi, is a common place name throughout Polynesia. The name literally means “the waterway of tears” and is often referred to in historical stories as representing the tears of Aoraki. The river was an important traditional travel route, providing direct access to the rich inland mahinga kai resources of the Mackenzie Basin and Central Otago. The river was an important source of mahinga kai, and numerous settlements and food-gathering places were located on both sides of the river.
Waihao River	flows from its sources in the Hunters Hills in an easterly direction towards the Canterbury coastline. The name Waihao is derived from Waitaha, the first people to arrive in Te Waipounamu on-board the Uruao waka.
Te Kōtare o Waihao	is the estuary of the Waihao River. Te Kōtare o Waihao is recorded as a kainga mahinga kai where eels and whitebait were gathered.
Haymans Lagoon (Ōpiro)	is a small body of fresh water situated near the Waihao River on the Canterbury coastline. Ōpiro means “bad smell”, and the name refers to the bad odour that resonates from the stagnant water.
Maori Lake	is a former lagoon, situated on the coastline south of Wainono Lagoon. Known locally as “Māori Lake”, the former lagoon was an outlet from the Wainono Lagoon, even though the Wainono Lagoon drained into the sea further south. Māori Lake was part of the extensive network of kāinga mahinga kai (food-gathering places).
Wainono Lagoon	is a renowned kāinga mahinga kai (food-gathering place). A variety of native fish including tuna (eels) and inaka (whitebait) were gathered from the lagoon and its many tributaries. Large quantities of ducks, including pūtakitaki (paradise ducks), pārerā (grey duck) and teal, were also harvested from the lagoon.
Makikihi River.	Makihikihi is the correct spelling for the Makikihi River. Makihikihi flows east from the Hunters Hills before reaching the Pacific Ocean south of the small town of St Andrews.
Otaio River	flows from the Hunters Hills towards the Canterbury coastline. Ōtaia was a passenger on the Ārai-te-uru waka, which capsized off Matakāea (Shag Point) on the Otago coastline.
Pareora River	flows from the Hunters Hills into the Canterbury coastline. Pareora was a passenger on the Ārai-te-uru waka, which capsized off Matakāea (Shag Point) on the Otago coastline. After the capsizing, many of the passengers went ashore to explore the land.
Pig Hunting Creek	flows into the South Canterbury coastline south of the township of Normanby.

Waimātaiai	Was a lagoon situated near the Tīmaru foreshore, renowned as an important source of mahinga kai. In 1880 Hoani Kāhu from Arowhenua described Waimātaiai as an eel weir where tuna (eel) and whitebait were gathered. This saltwater lagoon was eventually lost in 1933 due to changes in sediment drift caused by the creation of the Port of Tīmaru.
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Culturally Significant Sites

Jack's Point	Paparoa is a rock located at Jacks Point. It is recorded that seafood, such as paua and kina were gathered there. A number of burial sites are also known to exist at Jack's Point.
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Mutumutu Point	Te Motumotu is the correct spelling for Mutu Mutu Point on the coastline south of Tīmaru. In 1880, Hoani Kāhu from Arowhenua recorded that Te Motumotu was a river and waka landing site. A number of middens and ovens are known to exist along the coastline within this area.
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Patiti Point	Pātītī was a passenger on a waka, which capsized off Matakaea on the North Otago Coastline. After the capsizing, many of the passengers went ashore to explore the land. However, they needed to be back at the waka before daylight. Most did not make it, including Pātītī.
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Tīmaru	Tīmaru was an integral component of the extensive Ngāi Tahu network of settlements and food-gathering places located throughout South Canterbury. Situated south of the prominent Te Waiaeruati pā.
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Coastal Reefs	Between Normandy and Jacks Point there are a number of offshore natural reefs that were historically used for gathering and hunting food. The reefs were also used to assist in navigation along the coast and were known to have settlements nearby.
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