BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF **AND** **IN THE MATTER OF**	the Resource Management Act 1991 applications CRC 203304, CRC 203305 and CRC 224495 a discharge permit to discharge contaminants to land and air and for coastal permit to discharge contaminants into water in the coastal marine area and for the occupation of the coastal marine area by an outfall structure, and its repair and maintenance.

REPORT AND DECISION OF HEARING COMMISSIONERS
PAUL ROGERS (CHAIR), AND HOANI LANGSBURY
Dated 20th October 2022

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2. INTRODUCTION

1. Paul Rogers (Chair),and Hoani Langsbury were appointed as independent hearing commissioners by the Canterbury Regional Council (CRC) under section 34A (1) of the Resource Management Act 1991 (RMA) to decide on multiple applications by Silver fern Farms Limited (Applicant). This decision sets out our findings on the applications, focusing on the principal issues in contention and the reasons for our decision.

3. BACKGROUND

2. The Applicant owns and operates a large mixed species meat processing operation at Paeroa and has applied for resource consents to authorise activities related to the disposal of waste water from the site.

3. The site is located at an address described as The Avenue Paeroa. The site includes buildings, car parks, accessways hard standing areas, boilers, composting, wastewater treatment, and open space land. Supporting activities occur on Applicant owned land adjacent to the processing plant site. These activities include holding of stock as required to support the processing operation, and the discharge of treated wastewater to land as a nutrient source for a cut and carry operation.

4. The operation including the discharges have been occurring at the site since 1904 with improvements to the direct discharge to the ocean and the introduction of irrigation as an alternative preferential discharge method occurring in more recent years.

5. The existing raised outfall pipe into the coastal Marine area (CMA) was installed in 1987, and the land-based disposal systems were introduced and made operative from 2008 in response to water quality effects and wastewater volumes being discharged into the CMA. The Applicant owns and/or has access to some 229 ha of land of which 141 is currently used for irrigation.

6. The wastewater is sourced from across the Applicant's Paeroa operations primarily butchery, animal assembly and composting. The wastewater is defined by the Applicant in the proposed conditions as treated meat composting waste and associated stormwater and freshwater generated at the site.

7. Stormwater at the site is split into multiple stormwater catchments with one of the catchments feeding into the wastewater stream.

8. Wastewater is separated into a red and green stream. The red stream includes all blood bearing materials and is presently discharged only to land. The green stream includes other sources, such as stockyards, truck wash, secondary butchery, and wash down. The green stream is discharged either to land or to the ocean.

9. The Applicant proposes to maintain the two discharge options for the foreseeable future but intends to increase the land-based discharge over time and to upgrade the wastewater treatment technology at the plant. This will improve the quality of the wastewater and reduce volumes, therefore reducing the effects on the receiving environment.

10. The resource consent applications are;

    a. CRC 203304, a discharge permit :

        i. to discharge contaminants (wastewater) onto or into land in circumstances where a contaminant may enter water, and;

ii. to discharge contaminants (odour and aerosols) into year from the land application of wastewater.

b. CRC 203305, a coastal permit:

i. to discharge contaminants (wastewater) into the coastal Marine area (CMA).

c. CRC 224495, a coastal permit:

i. to occupy the CMA within an outfall structure; and

ii. to maintain and reconstruct the outfall structure as required.

11. The most recent consents held for these activities were granted in 2016 expiring in 2018. The proposal was originally lodged prior to the existing consents expiring. The application information provided with the original application is in 2018 was not adequate so an updated AEE was resubmitted in February 2020 and it is the 2020 AEE that we have referred to and that the technical officer reports have also considered. The Applicant is authorised to continue to undertake activities under the expired is consents as provided for by section 124 of the RMA.

12. The application and supporting technical assessments include a number of technical expert reports. The AEE is in two parts. Part A and Part B relate to the land component and ocean outfall respectively. The application includes the following technical reports;

a. effects of discharges to land, prepared by Lowe Environmental Impact Limited,

b. effects of discharges to land and surface water, prepared by Pattle Delamore partners Ltd

c. visual effects of coastal outfall, prepared by Andrew Craig landscape architect

d. selection of preferred wastewater treatment options prepared by Pattle Delamore limited

e. economic benefits prepared by Brown, Copeland and co Ltd

f. coastal water quality and mixing zone is prepared by Cawthron Institute

g. coastal water quality, prepared by National Institute of Water and Atmospheric Research Ltd (NIWA)

h. cultural impact assessment, prepared by a AEC limited

13. The proposal was publicly notified in June 2021 at the request of the Applicant. The proposal was then split across two consent numbers, CRC 203304 covering all activities associated with the land discharge, and CRC 203305 covering all activities associated with the coastal discharge (including section 15 and section 12 activities).

14. The third consent number, CRC 224495, was generated after notification, to cover the section 12 activities in the CMA. CRC 203305 now covers only the section 15 coastal discharge. 16 submissions were received for the proposal with one submitter wishing to be heard.

4. DESCRIPTION OF THE PROPOSED ACTIVIY

15. The applications relate only to the disposal of wastewater from the site in its existing form. The proposal does not include any change to the scope of the activities that were previously

consented. Wastewater is collected from site processes and is directed either to land discharge irrigation system, or to an outfall into the Pacific ocean immediately adjacent to the site. The site location and surrounding farm area which includes the land irrigation area shown in figure 1 of the section 42A report

Information relevant to all activities

16. The processes generating wastewater that will be discharged under the consents are;

    a. animal assembly (stockyards);

    b. slaughter and butchery;

    c. fellmongery;

    d. composting leachate;

    e. wash down;

    f. truck wash; and

    g. stormwater.

17. No rendering or blood drying occurs at the site. The current wastewater stream is divided into “red” and “green” components. The red component includes all blood-bearing material and is discharged to land only. The green component includes other sources such as stockyards, truck water, secondary butchery, wash down, stormwater et cetera. Green wastewater is discharged either to land or to the ocean. The preferred method of wastewater disposal is to land and approximately 70% of the wastewater generated is supplied to land over the course of a full year.

18. Wastewater is currently treated by screening only, with screened solids compost at the site and the liquid phase discharged as per the current consents referred to as compost leachate. Large particulate matter is removed but particulates that are smaller than 0.5 mm remain in the wastewater. The discharge causes adverse effects on the receiving environment namely the marine environment, including high concentrations of enterococci and a visual plume which sometimes extends beyond the previously consented mixing boundary of 1500 m. Over the past decade the Applicant has been pursuing a programme of improving water quality and reducing the volume of wastewater discharge to the sea by developing land-based disposal methods.

19. As part of this proposal, the Applicant proposes to upgrade the technology at the plant to include additional separation of wastewater streams, filtration, disinfection, dosing and secondary treatment using dissolved air flotation (DAF) tanks. The proposed conditions for the ocean discharge consent, CRC 203305 include the requirement to install PCDAF technology within five years of the commencement of the consent, with updates to CRC to demonstrate that the Applicant is on track to achieve this within specified timeframes.

20. Detailed information about the current operation in the preferred wastewater treatment option is included in the Applicant’s PDP report which is found in the AEE at appendix 4.

21. The compost leachate is included in the wastewater stream and is the subject of these applications. However these applications do not include discharges from the processing site such as composting odours et cetera. The Applicant has other consents authorising those activities and they are not the subject of these applications.

CRC 203305 - the ocean discharge

22. The discharge of wastewater into the CMA is via an above-ground ocean outfall which extends a short distance offshore at Paeroa Beach as shown in figure 2 and 3 within the section 42A report. The outfall is located immediately adjacent to the site's wastewater treatment plant. The outfall pump is tied to the green stream buffer storage tank in a way that ensures that the outfall discharge is only triggered when the volume of buffered wastewater exceeds the capacity of the land discharge system.

23. The wastewater that will be discharged into the ocean includes treated meat processing wastewater, clean process streams and associated stormwater and freshwater and any seawater that is discharged as a result of coastal inundation during high seas.

24. The combined rate of discharge into the ocean and onto land under both consents CRC 203304 (land discharge) and CRC 203305 (ocean discharge) will not exceed 8300 m^3 per day and the maximum rate of discharge into the ocean will not exceed 1200 m^3 per hour.

25. The stormwater catchment that is the subject of this application, includes roof areas and uncovered hardstanding gravel surfaces in the eastern northern part of the site as shown in figure 4 within the section 42A report. The stormwater from these areas is piped from downpipes and intersect the main effluent pipes which remove wastewater from the processing activities. The combined stream is then discharged with the wastewater to sea.

26. The daily volume hourly rate of wastewater discharge will be measured and recorded. A site activity and environmental management plan (SAEMP) is intended to be developed and is implemented as per conditions. The purpose of the SAEMP is to provide information on the systems and controls at the processing plant that are required for the effective management of the treated wastewater and to achieve consent conditions. The SAEMP will include information about the infrastructure used to treat and discharge wastewater, how the wastewater stream will be separated, management of water volumes and loadings, environmental monitoring, and how to deal with incidents or emergencies, and procedures to address complaints.

27. The upgrade to the wastewater treatment at the plant, to include additional separation of wastewater streams, filtration, disinfection, dosing and secondary treatment using dissolved air flotation (DAF) tanks, will be operational within five years following the commencement of the consent. Proposed conditions set out the requirements relating to the upgrade.

28. There are proposed pre-and post-upgrade limits for the receiving environment that must be achieved. The receiving environment limits will apply before the upgrade are included and are similar to those on the existing now expired consents except with the proposed removal of the Enterococci limits. The receiving environment limits will ensure that beyond the mixing zone, which is proposed to be a radius of 1500 m from the discharge location as per figure 5 of the section 42A report;

    a. there will be no change in the natural temperature of seawater by more than 3°C;

    b. the dissolved oxygen concentrations will be not less than 80% of saturation concentration;

    c. there will be no conspicuous oil or grease films, scums or foams or floatable materials;

    d. there will be no omission of objectionable odour;

    e. there will be no significant adverse effects on aquatic life.

29. The receiving environment monitoring requirements are set out in conditions. The Applicant proposes to monitor receiving environment for a range of parameters, including a combination monthly and yearly sampling of seawater and analysis for temperature, pH, salinity, dissolved oxygen, total nitrogen, ammoniacal nitrogen, oil and grease and enterococci.

30. Visual monitoring using aerial imagery is also proposed and will be undertaken at least four times per year. This monitoring will record the extent of the discharge plume from the discharge point.

31. Following the upgrade, additional receiving environment limits will apply. These include the addition of visual limits to ensure that there will be no change in colour beyond the mixing zone boundary and limits on enterococci.

32. The Applicant proposes to review the extent of the mixing zone following the upgrade. The Applicant will engage a suitably qualified expert to review the mixing zone size, which will include a combination of modelling and sampling key parameters of concern. The review will commence within one year of the upgrade and will be provided to CRC within three months of the investigation ending.

33. The wastewater discharge will be monitored, prior to entering the outlet structure, for a range of contaminants is set out in conditions.

34. Following the upgrade, the Applicant will continue to monitor the quality of the discharge for the contaminants detailed in conditions and there will be wastewater discharge target concentrations that will apply. The target concentrations are included in the conditions and are for total suspended solids, cBOC5, NH4, TKN, DRP, oil and grease and enterococci. Conditions also provide for a process for revisiting the operation of the treatment facility if any exceedances of the target concentrations occur after 12 months following the commission of the upgrade. The target concentrations will not apply prior to the upgrade.

35. The consent holder will prepare and submit, annually the monitoring report, which will summarise and interpret all data collected as required by the conditions of consent and which will demonstrate the level of compliance with the consent conditions, including the receiving environment limits, and the discharge concentration targets. As well, the report will include discussion of any trends and the implications for the receiving environment, and whether any operational changes need to be made. A summary of the effects on the environment of the discharge will also be included in the report.

36. The Applicant proposes to establish a Tangata Whenua liaison group (TWLG) within a year of the consent been granted, with meetings to be held at least once per year. The purpose of the TWLG is to enable the Applicant share information relating to the exercise of the consent and the monitoring results with Tangata Whenua.

37. The Applicant also proposes to maintain a complaints register. This will involve recording and responding to any complaints received in relation to the exercise the consent.

CRC 203304 - discharges to land and air

38. The discharge of wastewater onto land is described in section 4 Part A of the AEE. The preferential discharge Method is to land but disposing of all wastewaters to land all of the time is not possible due to the ground conditions of the soil. For this reason, the ocean discharge must continue and is controlled by the buffer tank wastewater volumes.

39. Waste water is supplied to land by either fixed centre pivot irrigators or movable K line pods. The farm is managed as cutting carry operations to limit nutrient leaching. Grazing by animals, or feeding out animals, is not proposed. The land is owned by the Applicant for this purpose and the activity was previously authorised by consent CRC 191926. The area of land irrigated has progressively increased since irrigation was first implemented in 2008. The current irrigated area is 141.6 hectares and the Applicant proposes to irrigate up to 222 ha.

40. There are four land discharge areas, terrace discharge area A, terrace discharge area B, village discharge area and river flat discharge area shown in figure 6 within the section 42A report. The terrace and village discharge areas are currently developed and used for irrigation, but the river flat area is not yet developed. The Applicant seeks to retain this area as an option in the future.

41. The SAEMP will set out the systems and controls required for the effective management of the treated wastewater and its discharge to land. A copy of the SAEMP, and any amendments made to it will be provided as part of the annual reporting requirements to the CRC. This

42. Wastewater irrigation can be conducted at varying rates depending on the soil type and receiving environment. Variations include non-deficit irrigation and deficit irrigation. Because of the differing soil types and receiving environments across the Applicants land the irrigation areas have been separated into four areas, with different mitigation and management practices occurring in each area. These details are contained within the application and are referenced in the section 42A report at paragraphs 57 through 63 and are detailed and captured in proposed conditions.

43. In relation to spray drift and odour the Applicant proposes to minimise the extent and potential effects of the same by limiting the location of irrigation at or near irrigation area boundaries. These matters are provided for within consent conditions.

44. As expected with such discharges the Applicant proposes to undertake soil monitoring, meteorological monitoring and to monitor the volume of wastewater irrigated to each irrigation area. In pipe monitoring will also occur with weekly samples being tested for nitrogen and phosphorous. Every six months, samples will be tested for pH biochemical oxygen demand total suspended solids, will increase chloride, sodium, calcium, magnesium potassium and sodium absorption ratio. The dry matter and total nitrogen after harvest of Grass will also be monitored for each irrigation area. Monitoring in the sea ponds is proposed at the location shown on plan CRC 203304 being figure 3 within the section 42A report.

45. The Applicant will report annually to CRC at the end of August each year on the operation including information about the discharge of wastewater, environmental monitoring results complaints in any maintenance work needed. Similarly as with the ocean outfall there will be a TWLG established. The Applicant will also maintain records of complaints.

CRC 224495 - occupation of the CMA by the ocean outfall discharge structure and maintenance and repair works.

46. The outfall structure as described in the application section 2.1.1 (AEE Part B) and a photograph of the structure was included as figure 3 within the section 42A report. In summary the current form of the structure was completed in the late 1990s in response to storm damage. The outfall pipe is constructive of reinforced concrete and is about 60 m long. The outfall pipe is suspended above the beach and is supported by seven pairs of pillars. The last section the pipe is cantilevered beyond the most seaward set of pillars enabling wastewater to be discharged into water beyond the beach. The pillars are constructed of reinforced concrete and

are encased in individual sacrificial steel sleeves to protect the pillars from erosion caused by sediment movement along the beach and wave action.

47. The Applicant proposes to undertake works in the CMA to ensure the structure is maintained in good working order. Usually this would include general maintenance work or repair work following storm damage. The outfall structures and pillars are inspected regularly for damage and report on the condition of the structure is intended to be provided to the CRC annually. If any significant damage did occur the Applicant intends to advise CRC of the damage and what works are required to repair the structure and when the works will occur. The consent authorises the repair, maintenance and replacement of the structure in its current form. That is to enable the discharge of wastewater beyond the foreshore and into water. The consent will not authorise significant changes to the structure which would alter the footprint of structure by more than 10%. If significant changes were required beyond that 10% threshold of the consent would be required.

48. The Applicant proposes mitigation measures to ensure any adverse effects on the environment will be minimised stop these include the following:

    a. any materials used will be free from hazardous substances;

    b. all practical measures will be used to prevent oil and fuel leaks from vehicles and machinery;

    c. fuel storage or refuelling of vehicles and machinery will not occur in the CMA;

    d. any materials or depressed resulting from the works and any damage to the structure, will be removed from the CMA.

5. LEGAL AND PLANNING MATTERS

The Resource Management Act 1991(RMA)

49. Section 12 of the RMA restricts uses in the coastal Marine area and applies to the proposed activity. The outlet structure occupies the CMA as well maintenance and repair of that structural be required over time. These activities are not expressly allowed by a national environmental standard, or a rule in a regional coastal plan.

50. Section 15 of the RMA restricts the discharge of contaminants into the environment namely water land and year and is applicable to the proposed activity. The discharges of wastewater into the CMA is here proposed along with the discharge of wastewater onto land via irrigation and the discharge of contaminants associated with the irrigation of wastewater land and to ear are not expressly allowed by a national environmental standard or other regulation, or a rule in a regional plan.

National Environmental Standards for Freshwater Regulation 2020

51. The applicant via Mr Andrew Purvis has assessed the proposed discharge of contaminants onto land via the irrigation system against the relevant provisions of the NESF concluding that there is nothing of relevance in the standard. There is a natural wetland near the proposed river flat discharge area being the area surrounding pond three however the discharge area is set back from the wetland by at least 100 m therefore we agree consent under the NESF is not required. Gillian Ensor for CRC agreed.

Resource Management (National Environmental Standards for Air Quality Regulations 2004)

52. Within the AEE the Applicant concludes that there is nothing in this NESAQ that requires the consent applications to be declined. The section 42A officer Gillian Ensor agreed noting that this NESAQ does not manage discharges of odour or aerosol particles of the type discharged from the Applicant site. We accept that view.

Resource Management (National Environmental Standards for sources of Drinking Water) Regulations

53. These standards set out requirements for protecting sources of human drinking water from becoming contaminated and seek to reduce the risk of contaminating drinking water sources. Under these regulations we are directed to decline discharge permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment or we are to place conditions on resource consents requiring notification of drinking water suppliers if significant unintended events occur that may adversely affect sources of human drinking water.

54. The Paeroa community drinking water supply bore (JE 39/0 01 35) is located near TERRACE discharge area B. It is classified as a small community rural supply. The irrigation area does not overlap the drinking water supply protection zone for the bore and groundwater flows away from, not toward the drinking water protection zone. The Applicant within its AEE concluded that the effects on the supply will be negligible. Gillian Ensor agreed. We accept that advice.

Regional plans.

55. The relevant regional plans that the proposed activities must be considered under are;

    a. discharge of contaminants into or onto land we are it may into water - Canterbury land and water regional plan (LWRP)

    b. discharge of contaminants to air - Canterbury air regional plan (CARP)

    c. discharge of contaminants into water in the CMA - regional coastal environment plan (RCEP)

    d. occupation of the CMA by the outfall structure, and the repair and maintenance of that structure - RCEP.

56. The section 42A report at paragraphs 103 through to 115 identifies the consents required under each of these regional plans identifying the relevant rules in those plans. We accept the officer has correctly identified the relevant rules within the relevant plans.

Summary of consent requirements

57. The Applicant and the section 42A reporting officers agreed that the proposal is non-complying and consents are required for the following activities;

    a. discharge permit, under section 15 of the RMA, for:

        i. the discharge of contaminants (wastewater) onto or into land where it may enter into water. This is a discretionary activity under rule 5.92 of the LWRP.

        ii. the discharge of contaminants into air (odour and aerosols), associated with the discharge of wastewater onto or into land. This is a discretionary activity under rule 7.63 of the CARP.

b. a coastal permit, under section 15 of the RMA, for the discharge of contaminants (wastewater) into the CMA. This is a noncomplying activity under rule 7.5 of the RCEP.

c. a coastal permit, under section 12 of the RMA for:

   i. the occupation of the CMA by the outfall structure is a permitted by rule 8.22 of the RCEP

   ii. the repair, maintenance and reconstruction of the outfall structure and the CMA is a discretionary activity under rule 8.2 of the RCEP.

   iii. the position of material in the CMA associated with the repair, maintenance and reconstruction of the outfall structure is permitted by rule 8.11 of the RCEP.

   iv. the repair or maintenance of a structure in Coastal Hazard Zone 1 as permitted by rule 9.1 of the RCEP

   v. the reconstruction of a structure in coastal Hazard zone one is a discretionary activity by rule 9.2 of the RCEP.

58. The activities are all related and we agree should be bundled and considered together. Overall we agree the activity status of the proposal is noncomplying. We understood the Applicant to accept that outcome as well. At the time of hearing we were advised no consents are required under any NES.

6. DESCRIPTION OF THE EXISTING AFFECTED ENVIRONMENT

59. Key features of the receiving environment as a whole are;

a. the entire operating site encompasses the core processing facility infrastructure covering approximately 16.9 ha, the current irrigation area of 141 ha and remaining landholdings of approximately 172 ha;

b. the site is approximate 14 km south of Timaru;

c. the landscape is dominated by the Pacific Ocean which is immediately adjacent to the site. There is a protective seawall between the site and the ocean;

d. Pareora Village is in the centre of the proposed irrigation areas and approximately 432 people live there. There are some dwellings which are closer than 200 m from the irrigation areas.

e. the wider surrounding area is predominantly rural;

f. westerly winds dominate during night-time, down the Pareora river valley and the slope of the terrain. North easterly winds dominate during the day, resulting from land and sea interactions. Wind speeds are generally low;

g. State Highway one is to the west of the site between Pareora Village and the wider rural area. There are several minor roads that identified as public access areas on the walking access commissions public mapping tool. This includes half chain road overlapped by terrace discharge area A and River Street are overlapped by the river flat discharge area;

h. a railway line is located between the plant and irrigation areas, running parallel to the coast;

i. Te Runanga o Arowhenua is the kaitiaki Runanga for the area and the cultural impact assessment describes the key values for tangata whenua. The cultural assessment is included as appendix 17 of the AEE.

60. As to landform, soils and water in nutrient flow pathways;

a. the ground conditions and how water flows through the soils are well understood and documented in the application information. Council officers also provided a description of the receiving environment characteristics for each irrigation area;

b. the land around the site is generally flat, with a gentle slope towards the ocean. There are two terraces, with the terrace discharge areas elevated about 10 to 20 m above the remaining land;

c. the experts agree on the ground conditions, and how water and nutrients flow beneath the irrigation areas.

61. Groundwater;

a. groundwater flow paths have been assessed by the Applicant and there is general agreement as to the following matters;

i. groundwater beneath terrace discharge area A, flows into the central gully and constructed wetland and rock filter;

ii. groundwater beneath the terrace discharge area B flows north of the site cords and ephemeral waterway;

iii. groundwater beneath the village discharge area flows in East direction towards the coast;

iv. in the river flats area groundwater generally flows in the South East direction beneath the irrigation area towards the Pareora River and the coast.

b. the Applicant has undertaken groundwater quality monitoring associated with the current areas that are irrigated however there is little information about groundwater quality beneath the river flat discharge area.

c. the site is located in the Paeroa nutrient allocation zone (and exit) as defined in the LWRP. The area is identified as an orange nutrient allocation zone which means that groundwater quality in this area is at risk;

d. there are 54 active groundwater bores within 1 km of the irrigation areas, with approximately 10 bores identified as supplying domestic water as a first or second use;

e. the Paeroa community drinking water supply bore (J 39/0135) is located near state Highway 1 to the west of the Paeroa Township and near terrace discharge area A. It is 10.5 m deep with the top of the screen at 5 m below ground level. The drinking water protection zone is up gradient of the irrigation area;

f. there is a gallery which is used by the Applicant to supply potable water to the plant. It is located to the east of the river flats area.

62. As to the surface water features and freshwater ecology, we summarise ;

a. the surface water features include three ponds located adjacent to the coast which are identified on plan CRC 203304;

b. the central gully which drains terrace discharge area A close to the constructed wetland/rock filter area and then into see pond one. Ms Hayward for CRC noted that the pond is likely to have limited opportunity for fish to migrate in or out of but may be resting/feeding area for locally resident or migratory birds;

c. there is an ephemeral waterway which flows into Grant's block north of the proposed irrigation areas and which connects with the unnamed stream. Terrace discharge area B may impact the ephemeral waterway. There is a gravel seabed area and a lagoon forms behind that barrier. There are no fish records for this waterway;

d. sea pond 2 is located seaward of the village discharge area and the railway line. It may receive groundwater and occasional surface water run-off from the village irrigation area. Ms Hayward noted that the pond may support some birdlife but there are no reports of fish being observed in the pond;

e. sea pond 3 being a wetland and small lagoon is located seaward of the river flat discharge area. Groundwater may contribute to this surface water feature because it flows under the river flat discharge area taught the Paeroa River and coast. Ms Hayward notes that sea pond three is known to contain Eels in the vegetation surrounding the pond and associated wetland is a combination of native and exotic species;

f. the Paeroa River is south of the site and the river flat discharge area. It is a medium-sized Hill-feed river. The river mouth is often close to the sea because there is a gravel bar creating a shallow lagoon water flows under the gravel to the ocean. After high flows the mouth is often open to the sea allowing fish migrations. The lower Paeroa River does contain moderate native fish diversity, but low flows in summer limit habitat availability and migration opportunity;

g. riparian vegetation around the river is generally not native species. There are a range of exotic species, such as willows used for flood protection. Access to the lower river is limited to four-wheel-drive vehicles and walkers.

63. As to the coastal receiving environment;

a. the processing plant is located landward of the Paeroa Beach, which is a high energy coastal environment, and which is protected from coastal erosion by an engineered Sea Wall ;

b. recreational activities in the coastal environment are limited due to high energy environment of the coastal area, which drives Longshore transported beach sediment and disturbance;

c. the coastal water quality surrounding the Beach outfall discharge is classified by the RCEP. Paeroa Beach is classified as Coastal AE waters which means water is to be managed for the maintenance of aquatic ecosystems. The Classification extends for a radius of 1.6 m north and south of the Applicant's ocean outfall discharge location. The water quality classification changes from Coastal AE waters to Coastal CR waters north of the site at Normanby Beach, where water is to be manage for contact recreation and the maintenance of aquatic ecosystems north of the site;

d. the Ministry of health/Ministry for the environment guidelines for contact recreation specify that for a coastal water body to be suitable for contact recreation, all water samples shall contain less than 140 Enterococci/100ml. This is monitored via Condition 11(e).;

e. the Benthic environment at the point of discharge is predominantly fine sand and silt/clay there is a relatively low density of benthic fauna and relatively low species diversity. The area provides habitat for a variety of coastal and sea birds

f. the Tuhawaiki Mataitai is located approximately 5 km north of the discharge location. There is a reserve which restricts commercial fishing in the area;

g. Pareora beach is classified as a coastal Hazard zone one, as defined in the RCEP.

64. As to the Cultural Landscape

a. the history of Kāti Huirapa with the land goes back more than 70 generations when, according to tradition, Rākaihautū came to Te Wai Pounamu from Hawaiki in the canoe Uruao. The canoe landed at the boulder bank at Whakatū (Nelson). While his son Te Rakihouia took some of the party down the east coast, Rākaihautū led the remainder through the interior to Te Ara a Kiwa (Foveaux Strait). With his ko (digging stick) Rākaihautū dug Te Kari O Rākaihautū (the southern lakes).

b. Te Runanga o Ngai Tau, Te Runanga o Arowhenua were directly notified of the consent application and did not make a decision. A Cultural Impact Assessment had been prepared by Aoraki Environmental Consultancy Limited, to which Karl Russell of Te Runanga o Arowhenua participated in the preparation.

c. the CIA provides for the intended outcomes being sort by manawhenua, but without a submission no conclusion can be made in regard to support, opposition or neutrality.

7. NOTIFICATION and SUBMISSIONS

65. The proposal was publicly notified at the request of the Applicant. As noted in the section 42A report the proposal was originally split across two consent numbers, CRC 203304 covering all activities associated with the land discharge and CRC 203305 covering all coastal permit activities including section 15 and section 12 activities. We were informed that the consent number, CRC 224495, was generated after notification, to cover the section 12 activities in the CMA which were previously included in CRC203305. CRC203305 now covers the section 15 coastal discharge only.

66. Gillian Ensor considered that all proposed activities were included in the public notification and that notification of CRC 224495 was not required. We agree with that.

67. 16 submissions were received from eight submitters opposed the application. One submitter requested to be heard but unfortunately that submitter did not appear at the hearing. The full details of the submissions are contained at paragraph 122 of the section 42A report.

68. In summary the submitters opposed the discharge of wastewater to land and associated discharge to air because of odour effects and because of access to public right of ways or more correctly put access to public right of ways would be precluded by the discharges or impeded.

69. The coastal permit to discharge of wastewater in the CMA and for the occupation of the CMA by the outfall discharge was opposed because of the direct discharge of contaminants onto the beach and/or directly into the ocean. Primarily the submitter concern here was visual impact of the outfall structure and the visible discharge plume as well as the effects on water quality in the marine environment..

70. The section 42A report refers to conversation with Mr Andrew Barron a submitter in opposition. He was particularly concerned as to the discharge and the ocean submitting it should not be allowed. In relation to the discharge to land he was concerned that the irrigation of areas that identified as public access ways including Half Chain Road and River Street should not be allowed because doing so would prevent and/or impede public access.

71. Full details of the matters raised in the opposing submissions are contained within the section 42A reports. The main issue raised concerned the effects on the environment of the discharge of wastewater into the coastal area. Effects on cultural values also figured prominently. Those in support noted beneficial effects such as employment and considered that the status quo of discharging factory wastewater to land was not appropriate and the alternative of discharging to coastal waters was preferred.

8. THE HEARING

72. The hearing was held on 17 August 2022 at the Environment Canterbury offices in Timaru.

73. The Applicant presented a fulsome case at the hearing utilising summaries of pre-circulated and pre-read evidence. We heard from a number of submitters raising points in opposition or points of concern. Some submitters attended the hearing via video links. The section 42A officer group were available throughout the course of the hearing.

74. For the Applicant we heard from:

    a. Jo Appleyard - legal submissions;

    b. Alison Johnstone - operations and background of the Applicant;

    c. Azam Khan on upgrade options and the PC-DAF;

    d. Brian Ellwood on the effects of the land permit;

    e. Dr Don Morrisey on the coastal Marine water quality and cumulative effects of the coastal permit; and;

    f. Andrew Purvis on planning issues.

75. The application included a landscape and visual effects assessment completed by Mr Andrew Craig and an economic effects assessment undertaken by Mr Copeland. We also considered an assessment of recreational effects completed by Mr Greenaway and an assessment of odour of the wastewater irrigation activities provided by Michelle Dyer and Richard Chilton

76. The section 42A officers who appeared were:

    a. Gillian Ensor- planning;

    b. Ognjen Mojsilovic-soil quality and nutrient losses from soils; and

    c. Mark Trewartha- effects to groundwater from proposed activities; and

    d. Shirley Haywood – actual and potential effects of the proposed activities on surface fresh water quality and ecology; and

    e. Myles McCauley – actual and potential effects of the proposed activity on inequality; and

    f. Leslie Bolton-Richie – actual and potential effects of the proposed activity on coastal water quality and the marine environment; and

    g. Bruce Gabites- actual and potential effects of the proposed activities on coastal processes in particular the effects of the outfall structure on coastal erosion and coastal inundation.

77. Although not every witness and submitter is referred to in our decision, this does not mean that their submissions have not been read and considered. Simply that we have endeavoured to focus on issues we have identified as “key” and, where possible, avoid repetition in our decision. The 42A reports record full details of submissions received and summarises the submission points.

78. The submitter wishing to be heard Mr Barron did not present at the hearing. However during the hearing we received an email from him which we have taken into account.

79. In accordance with section 113(3) RMA, we have cross-referenced and adopted parts of the AEE, the 42A Reports and written evidence throughout this decision as appropriate.

SITE VISIT

80. We undertook a site visit on the morning of the 18th of August 2022, facilitated by Alison Johnstone and Robert Grant farm manager for the site. This included the operation area presently used for separating and pumping the current waste streams, all land discharge areas and the ocean outfall. The opportunity was also taken to familiarize ourselves with the paper roads, ponds and riparian areas.

81. As part of the site visit, we also looked at the proposed location for the new treatment facilities and the locations of the various sources providing for private and community potable water. A tour of the Pareora village, with a specific focus on the dwellings with the potential to be affected by odour from air discharges was undertaken.

9. DECISION OUTCOME

82. For reasons contained in this decision we have decided to GRANT consents CRC 203304, CRC203305, and CRC 224495 for the Silver Fern Farm proposal, subject to the conditions discussed throughout this decision and attached as Appendices 1, 2 and 3 of this decision.

10. Actual and Potential Effects (section 104(1) (a)

83. In the following paragraphs we concentrate on the key effects and matters in contention commencing with the effects of the land irrigation and then considering effects of the ocean discharge on coastal water quality marine ecology and public health risks.

84. During the hearing points of difference between the Applicant and the s 42A reporting officer group focused on the Coastal permit discharge in particular proposed conditions 43 and 35.

85. In detail Dr Bolton-Richie for CRC contended Condition 43 of the Coastal Permit limit for ammoniacal nitrogen should be based on 0.5mg/l default guideline for 99% of species in ANZG for fresh and marine quality water whereas Mr Morrisey for the Applicant contended it should be based on 0.91 mg/l default guideline for protection of 95% of species (ANZG 2018).

86. As to Condition 35 of the coastal permit Dr Bolton- Richie is of the opinion that median values should be used along with 90th %ile discharge quality targets. Mr Khan for the Applicant is of the opinion it is not appropriate to include median or mean values within the condition, as clean water streams are to be diverted away from the PCDAF for potential use as irrigation line flushing or direct discharge.

87. We discuss these conditions and the differing opinions on them below.

Land Discharge Effects

Effects on soil and potential for nutrient leaching

88. The Applicant proposes that each irrigation area is managed according to the ground conditions and receiving environment characteristics so as to ensure the effects of the proposed activity are acceptable. The key measures proposed to manage effects are;

    a. the application of wastewater and its nutrients will be via precision irrigation infrastructure which includes mostly Centre pivots with K lines used in some areas

    b. soil moisture will be continuously monitored and use of irrigation scheduling.

    c. the terrace discharge area will use non-deficit irrigation and will be managed by the soil moisture level, with the average application depth appearing by time of year.

    d. annually, soil samples will be taken from the terrace discharge areas and analysed for pH, exchangeable calcium, magnesium, potassium, sodium, phosphorus and total organic carbon and nitrogen.

    e. in the River Flat Area, soil quality will be measured prior to and after irrigation commences in these areas.

89. The Applicant considered that generally the land application receptors are more sensitive to hydraulic management, meaning the amount discharged to land via irrigation, rather than nutrients or other chemical loading being applied via the irrigation was important. Waterlogging, run-off and ponding and the gullies are likely to occur under heavy rainfall or if irrigation occurs when the soil is already wet. Therefore controls in that regard were important.

90. Mr Mojsilovic following review of the Applicant's information relating to the application of nutrients to land agreed with the Applicant's findings in relation to land forms, soil and water and nutrient flow paths. There was a high degree of agreement between the Applicant and Mr Mojsilovic in relation to the appropriate conditions. Mr Mojsilovic recommended annual soil monitoring for the village discharge area and the River flat discharge area. He also recommended adding exchangeable sodium potential to the parameters and found in condition 41 as it then was. These matters were agreed to by the Applicant.

91. Overall we understood Mr Mojsilovic to agree with the Applicant's approaches to manage and minimise the nutrient losses from the land based activity. Mr Mojsilovic did however note that outcomes would rest on effective monitoring systems and the interpretation of the monitoring data.

92. Further we note Mr Mojsilovic concluded that he agreed with the Applicant's conceptual site model for the nutrient cycling and flow pathways across the wastewater discharge area. It was his view that the proposed controls on the discharge activity, such as use of deficit irrigation or nitrogen input Limits appropriately matched the environmental characteristics of the different discharge areas. He also noted the proposed environmental monitoring is more robust compared to the requirements of the expired discharge permit which addresses some of the uncertainties about the flow of nutrients across the terrace block and the loss of nutrients to shallow groundwater in the freely draining areas of the site such as the village and River blocks.

93. Mr Mojsilovic recommended inclusion of additional conditions. They included a maximum application rate for the deficit irrigation areas be included as a new condition 20 A as it then was. As well soil quality monitoring should extend all irrigation areas, an amendment to condition 41 as it then was, consistent reporting of annual biomass removal and nitrogen

recovery data for the separate discharge areas should also be included requiring an amendment to condition 49 as it then was.

94. Taking all these matters into account Gillian Ensor was of the view that the proposed mitigation will ensure the effects of the irrigation on soil, and the potential for nutrient leaching will be minor. We agree with that assessment.

95. The section 42A Report identified a number of other effects, in relation to ground water quality and quantity, with proposed consent conditions addressing any potential effects. These are further outlined in the following section.

Effects on groundwater quality and quantity

96. The Applicant's AEE concludes that the effects on water quality will be no more than minor. This is based on;

    a. the terrace discharge area has poor connection to the underlying aquifer and drainage is directed via the man-made drainage network into the central gully and constructed wetland. Because of the constructed treatment infrastructure, there is not likely to be a significant increase in nutrients entering groundwater.

    b. the Village block will have minimal effects on groundwater because of the application rate and permeable nature of the gravels.

    c. the river flats irrigation has not yet commenced but because it will be managed by deficit irrigation, adverse effects are not expected. Monitoring will be undertaken to ensure that that is the case in any event.

97. The effects on groundwater bores in the Pareora village water supply are also discussed in the Applicant's AEE. The Applicant concluded that the potential for effects on that water supply are null which we took to be less than minor.

98. Mr Trewartha agreed with the Applicant's assessment namely that the irrigation activities are not likely to significantly increase groundwater levels for the amount of nutrients in groundwater because appropriate wastewater application management and soil drainage are being captured by the subsurface drainage network.

99. In particular Mr Trewartha considered any effects on the Paeroa drinking water supply bore J 39/0135 and other active groundwater bores within 1 km of the irrigation areas. It was his considered opinion which we accept that the proposed activities are not anticipated to adversely affect drinking water supplied by the public supply bore J 39/01 35 with a similar outcome in respect of the other private domestic bores.

100. Mr Trewartha reviewed the proposed monitoring for terrace discharge area A. As per the proposed conditions monitoring of nitrogen in the central gully will occur at locations upstream and downstream of the irrigation area. These monitoring points are shown on plan CRC 203304. He noted this will allow the total nitrogen entering and leaving the terrace discharge area to be calculated, and if it exceeds a nitrogen target of 35 KG N/day, this will trigger a requirement to investigate the reasons for exceedance's. Mr Trewartha agreed with that approach. Conditions reflect that approach.

101. For the village discharge area Mr Trewartha agrees with the Applicant that the effects to groundwater levels are expected to be minimal however he noted that the assessment did not include groundwater quality. The Applicant proposed to monitor groundwater quality at a bore located within the irrigation area as set out in condition 29 as it then was. Mr Trewartha

agreed with that approach and he was satisfied that the proposed groundwater quality monitoring for this area was adequate.

102. As to the River flat discharge area Mr Trewartha was concerned about the possibility that groundwater is entering the Pareora River, either directly or by surfacing and transported with overland flow. Accordingly he recommended continued groundwater monitoring to establish the contribution of groundwater to the river as well as groundwater quality monitoring prior to and following the commencement of irrigation in this area.

103. The Applicant's proposed mitigation to address any of Mr Trewartha's concerns included ground quality monitoring bores, limits on nitrogen loading measuring and testing of the same, limits on application depths, review of monitoring collected following commencement of irrigation to investigate water quality trends and reasons for those trends and finally if the data shows water quality is degrading, the consent holder proposes to investigate actions to reduce concentrations.

104. Regarding the effects of the proposed activity on groundwater quality and quantity it was Mr Trewartha's opinion that provided the mitigation proposed in conditions is concluded then the proposal presents are limited to moderate risk for groundwater quality, and groundwater users within or downgradient of irrigation areas and surface water quality in the Pareora River. However he was satisfied the proposed conditions would sufficiently address any concerns he held. It was his view that with the proposed consent conditions any potential effects to groundwater quality and quantity would be address such that there would be no outstanding groundwater matters that needed to be addressed.

105. In accepting his views we were able to conclude that the proposed conditions are appropriate to mitigate any adverse effects on groundwater and that the adverse effects on groundwater quality will be minor. As well we were able to conclude that the effects on the Pareora water supply and other private bores will be less than minor.

Effects on surface water environments (ecology and water quality)

106. Ms Hayward critiqued the Applicant's AEE in relation to effects of land discharge on surface water environments. Given the waste water contains contaminants such as Nutrients, organic material and suspended solids and faecal microbes Ms Hayward's concern was these contaminants could cause adverse ecological effects on freshwater receiving environments. As well she noted that the current state of water quality in the freshwater surface receiving environments was not well known. The information that was available did show elevated concentrations of some contaminants such as Nutrients.

107. Critically Ms Hayward was concerned about the effects of excess nutrient on water quality in the three sea ponds and the ephemeral waterway training from the currently irrigated areas (Terrace discharge area A and B, and the village discharge area) and also whether there will be increased growth of undesirable plants and algae. She was also concerned about the effects of irrigating the river flat discharge area and she recommended the collection of baseline data prior to Irrigation commencing in this area.

108. In response to these concerns expressed by Ms Hayward the Applicant proposes to undertake a range of monitoring. For Terrace discharge area B which drains towards the ephemeral stream north of the irrigation area, riparian planting along the length of the stream (see CRC 203304 figure 54 the extent of proposed planting) is proposed in water quality monitoring will be undertaken to sites when surface water is present (see plan CRC 203304 figure 4 for the location of monitoring sites) the samples will be tested for a range of contaminants as required by the in condition 30.

109. For the terrace discharge area A, monthly measuring of nitrogen contained in the stream when flowing at locations identified on plan CRC 203304 figure 4 (shown as rock filter U/S sampling site and rock filter D/S sampling site) as required by proposed conditions 16. This would enable the calculation of total nitrogen entering and leaving the Terrace discharge area A and potential effects on the ponds.

110. For the River Flats discharge area for two years prior to Irrigation commencing in this area quarterly sampling for a range of parameters at two sites on the Pareora River (upstream and downstream of the irrigation area) will be provided as per proposed condition 24 (B). The monitoring will continue following commencement of Irrigation.

111. For ponds 1 and 2, quarterly sampling for a range of parameters as set out in proposed condition 50 quarterly sampling two years prior to and during Irrigation of the river flat discharge area and finally for all the pond recording the general state of the ponds by photography at the same time the samples are taken as set out in proposed condition 51.

112. After considering the suite of conditions noting that they included management strategies, limits on wastewater application and nutrient inputs/outputs and monitoring, reporting and responding Ms Hayward was of the view that the potential risks that she had identified were being appropriately managed.

113. Accordingly on this basis we were able to conclude that the surface water environment and the risks to it arising from this proposal are well understood. As well the Applicant proposes water quality monitoring to be conducted so that the effects of the proposed activity will be better understood. The conditions include a requirement to respond to any increasing trend in contaminant concentrations potentially caused by Irrigation to the River Flats and Terrace discharge area B. The conditions have been further modified to ensure that the Applicant implements measures to reduce nitrogen loading if the targets are not met. So for all of these reasons we are able to conclude that the effects on freshwater surface water quality and ecology with the proposed conditions included will be minor.

Effects on air quality

114. The key air quality issue arose because of the proximity of the irrigation areas to Pareora village and dwellings. Mr McCauley considered the receiving environment is highly sensitive to land discharges. His report on the issue focuses on odour and aerosol droplets which he considers to be the key contaminants of concern. He did consider the Applicant's assessment methods which he concluded were appropriate. Ultimately he agreed with the Applicant's assessment that the wind born aerosol generation would be minimal because of the infrastructure design for the Irrigation activity.

115. In terms of odour the Applicant acknowledged that odour effects may be substantial at times especially were sensitive receptors are closer than 100 m from an Irrigation source. To respond to this the Applicant proposed buffers or setback distances around the irrigation areas. Mr McCauley in considering these buffers agreed that with appropriate management and mitigation and separation of Irrigation activities from Sensitive dwellings he concluded that the odour effects arising from the land discharges are likely to be acceptable.

116. In reaching this view Mr McCauley did consider and discuss submissions that identify odour as a concern. Of the eight submissions received three refer to odour. Mr McCauley did note that there is not a lot of information in the submissions regarding the effect and scale of those odour effects. Those particular submitters did not request to be heard.

117. As well as setbacks to manage any effects of the irrigation on inequality the Applicant also proposed daily emptying of the wastewater buffer tanks, weekly flushing of the pivots with freshwater, flushing the pivots before the harvest exclusion., Flushing the entire system prior to any plant shutdown. Of seven days or longer and utilisation of the operation of an on-site tropical station which would assist in determining suitability of conditions for land discharge application. As well a SAEMP would be developed to provide for the management of odour and aerosols.

118. So Mr McCauley concluded that he agreed with the Applicant's assessment of the effects of the land discharge on inequality and he agreed that the proposed mitigation measures were appropriate to address any potential effects of the irrigation on inequality.

119. Based on these views we were able to conclude that with the proposed mitigation measures included in conditions the effect of the proposed activity on inequality will be minor.

Effects on public access ways

120. Mr Barron in his submission was opposed to the irrigation of public access ways. He identified a number of land parcels that are public right of ways and he is concerned that the irrigation by the Applicant will limit access to these. On our site visit we identified the location of these public access ways. We did note that one of the centre pivot irrigators in the terrace discharge area A crosses land identified as Half Chain Road. Similarly the River Flats discharge area incorporates land identified as River Street. We understood from the Applicant that use of these public right of ways by members of the public was extremely rare. While on our site visit we did note that the presence of farm gates and stock and that the lie of the land made it extremely difficult to identify where Half Chain Road and River Street actually were. As well we observed that there were more direct routes available to members of the public to gain access to the foreshore area without utilising either Half Chain Road or River Street.

121. We have taken into account Mr Barron's further emails presented to us during the course of the hearing. Overall we concluded that the effects on public access ways for the above reasons would be minor.

Potential effects on significant habitats of indigenous fauna

122. Past effects on the Pareora River and coastal environment have impacted on the culture and values of iwi. The Iwi Management Plan referenced in the CIA included historic references to impacts on water quality in the area. These included the loss of native forest cover, discharges of storm and wastewater into rivers and the coastal environment, sedimentation, water extraction leading to reduced flow and the combination of these activities causing an inability of rivers to sustain the ecosystems within them.

123. Te Rūnanga o Arowhenua identified impacts on indigenous flora and fauna The fish, bird and plant species associated with the Pareora River are highly valued by tangata whenua, and there is the potential to disturb and/or contaminate habitats and effect the behaviour of some species. This is expanded on further in the section 10 of the Cultural Impact Assessmentaddressing Effects on Cultural Values. Arowhenua are actively working to restore mahinga kai values in the Pareora catchment and coastal mataitai, hence have an ongoing interest in any activity that may affect water quality and quantity in association with mahinga kai habitats.

124. While considering effects we need refer to conditions. At the end of the hearing there remained some points of difference between the Applicant and the reporting officers in relation to conditions of consent. However in respect of the land discharge permit CRC 203304 after

having directed the parties to continue dialogue we were presented within the Applicant's reply with an update that the section 42A officer group and the Applicant had agreed conditions in relation to the land discharge permit.

125. The copy of conditions attached to the Applicant's reply identified for us in red text the further changes that had been recommended by the reporting officers and accepted by the Applicant. As well as identified by blue text the conditions set identified further changes based on evidence from the Applicant. We discuss conditions 35 and 43 in more detail within the next section.

Effects of Discharge of waste water into the sea

126. Effects of discharge of wastewater on coastal water quality including public health risk and marine ecology

127. Dr Bolton-Richie considered the Applicant's AEE relating to coastal water quality and mixing zone is. She also considered the quality of the discharge. She notes the quality of the discharge is based on monitoring data gathered under the previous consent held for this activity.

128. She identified for us the key contaminants of concern and concentration trends and the impact of the treatment upgrade on those contaminants. In particular she noted that concentrations are typically variable, with spikes from time to time depending upon the species processed and processing loads. She noted concentrations of faecal indicator bacteria total suspended solids and will increase, as well as nutrients are high. She observed that concentrations of ammoniacal nitrogen show a decreasing treatment because of operational improvements. The primary concern was about contaminants that are ethnocentric to marine mammals in humans. She observed the Applicant proposes to monitor for Campylobacter and Cryptosporidium concentrations. She supported such monitoring which is included in proposed conditions.

129. Dr Bolton Ritchie also considered that it is appropriate to have receiving environment limits and that there are concentration targets for the quality of the wastewater at the point of discharge. She supported the proposed monitoring which she said will ensure the effects of the discharge on the receiving environment are better understood.

130. However there were outstanding areas where Dr Bolton Ritchie did not agree with the Applicant. First prior to the treatment upgrade the parameters included in the receiving environment limits beyond the mixing zone were not agreed and secondly after the PCDAF treatment upgrade the quality of the discharge and the proposed concentration targets for wastewater and the size of the mixing zone remained unresolved.

131. Turning to the receiving environment limits prior to upgrade the mixing zone proposed prior to the treatment upgrade is 1500 m and there are receiving environment limits that would apply beyond the mixing zone boundary prior to and following the upgrade.

132. Until the treatment technology at the plant is upgraded the Applicant proposes that beyond the 1500m mixing zone, receiving environment limits for temperature, dissolved oxygen concentration, will increase, odour and significant adverse effects on aquatic life will apply. These limits or parameters are included in proposed conditions.

133. Dr Bolton Ritchie does not agree with those parameters which should have limits prior to the upgrade. Her reason for this is the water quality classes adjacent to and north of the proposed mixing zone is coastal CR water. her view is that the CR standards as set out by

schedule 4 of the RCEP should apply. She adds for this reason Enterococci should be included as a receiving environment limit to ensure water quality north of the 1500m mixing zone meets the coastal CR water class standards. Such a condition was included on the previous consent. Figure 9 in the section 42A report shows the extent of the AE and CR water quality classes in relation to the discharge point

134. The Applicant in response explained to us that the reason that Enterococci are not proposed as a limit prior to the plant upgrade is because there will be exceedance of that standard at times which is currently the case. The Applicant does propose Enterococci to be a receiving environment limit following the PCDAF technology upgrade and this is included in proposed conditions. The upgrade will ensure sufficient treatment occurs and the concentration of enterococci beyond the mixing zone boundary will not exceed the proposed limits.

135. Considering the proposed mixing zone is 1500 m from the point of discharge and the AE water quality extends for 1600 m from the point of discharge there will be 100 m between the edge of the mixing zone and where the water quality classes changes from AE to CR that will be affected by this issue. Even in terms of effects within this 100 m buffer area between the two water quality classes we were not aware whether or not samples have been taken under the previous consent to demonstrate effects if any.

136. As we understood one of the effects of concern relating to enterococci is possible effects on contact recreation values. However taking into account our site visit and the evidence of Mr Greenaway we concluded that the area North of the site has limited recreational value due to the high energy coastal environment and its general remoteness. But against that point we note that Enterococci was included as a receiving environment limit in the previous consent. We have earlier recorded that there had been exceedances of that standard at times.

137. Acknowledging that there have been exceedances of the Enterococci standard at times and acknowledging those exceedances will likely continue for a limited time that is up until the PCDAF technology upgrade is commissioned and further acknowledging the effects on recreational values will be limited we nevertheless conclude it is useful to gather this data on enterococci.

138. We did not receive any information to the effect that it would not be possible to gather this data. Overall we consider that will be helpful when assessing the scale of improvement in the quality of the water discharge following the commissioning of the PCDAF technology.

139. Turning to the issue of proposed concentration targets for wastewater following the upgrade. We note that there are no concentration targets or limits for the quality of the discharge on the previously held consent for this activity. This issue focuses on the table included at condition 35 for the coastal permit for the sea discharge CRC 203305.

140. First the Applicant has not proposed any values for ammoniacal nitrogen. Dr Bolton Ritchie thinks a value should be included because this is a toxin to marine life at elevated concentrations. As well Dr Bolton Ritchie does not consider the DRP and TNK mean concentration targets are appropriate. Essentially it was her view that following the upgrade the proposed reductions for TKN and DRP should result in lower mean values then what is proposed.

141. As well Dr Bolton Ritchie was of the opinion that the mean and 95th percentile values for ammoniacal nitrogen, TK N and DRP be added when the design of the upgraded treatment system is completed. These concentration targets she said should be approved by CRC and tangata whenua.

142. Ms Gillian Ensor based on Dr Bolton Ritchie's opinion was of the view that the concentration targets need to be included in the consent being granted to ensure that the quality of wastewater, at the point of discharge, improves so that the effects on the receiving environment water quality, marine ecosystems, and human health are not adverse beyond the reasonable mixing zone.

143. As well she was concerned that there were no limits on the quality of the discharge for the first five years of the consent or whatever time it took to install the PCDAF technology. She was of the view that the discharge should not continue in its current form for longer than is absolutely necessary. To deal with this issue she considered it appropriate to see the time to install the PCDAF technology reduced from 5 years to 3 years. The Applicant sought 6 years.

144. Dealing now with the timing of the upgrade after hearing from Mr Khan for the Applicant detailing engineering procurement challenges relating to the build of the PCDAF including impacts of COVID and consequent labour and material supply chain issues Ms Ensor accepted that six years from the first exercise of the coastal permit was an appropriate time period in which to have the PCDAF fully commissioned and operational in accordance with the proposed conditions of consent.

145. Returning to the wastewater discharge quality targets post wastewater treatment plant upgrade Dr Bolton Ritchie considers that median value should be used along with 95th percentile values and the waste water quality targets as contained in condition 35.

146. On the other hand Mr Khan for the Applicant in his evidence and verbally at the hearing clearly explained, we thought why he did not consider it was appropriate to include a median or mean value within condition 35. Dr Bolton Ritchie did have the opportunity to respond to that evidence when she provided us with additional information. She did not do so.

147. Essentially Mr Khan in his evidence told us that treatment using the PCDAF requires separation of the waste water stream from clean water to minimise the continued chemical usage. So he said he did not consider that setting the mean or median concentration targets are of any relevance is clean water streams will be diverted away from the PCDAF plant for potential direct discharge or utilised as irrigation line flushing water. He said this was a more sustainable use of clean water streams rather than having the streams combined with other waste streams and subjected to additional treatment using acid and lime to adjust pH. He noted that given the PCDAF treatment is based on pH re-adjustment to induce precipitation only segregated waste streams with as much contaminant loading would be subject to PCDAF treatment.

148. Mr Khan used an analogy to demonstrate his point using sand as a proxy for contaminants. In his example he placed a kilogram of sand within 10 L of water against the assumption that this meant that the mean concentrations of sand would be exceeded. So if the solution to that circumstance was to add more water that would reduce the concentration of sand. However adding extra water to the 10 L of water would not reduce the amount of sand or contaminant load. Instead the load of sand or contaminant would be the same albeit within the greater quantity of water.

149. Also Mr Khan pointed out that the point of the condition or intention of the condition is to facilitate in-pipe monitoring that will inform the Applicant whether or not the PCDAF is operating as expected. While it is a consideration he informed us the condition in itself is not for the purpose of managing effects of the discharge into the receiving environment. Those matters are provided for in conditions 11 and condition 43.

150. Within the Applicant's reply we were told that were the PCDAF to result in discharges that were constantly at war around the 95th percentile values in condition 35 then the Applicant in all likelihood would also be in breach of the receiving environment limits. For example if 90 MG/L TK N is discharged at all times, then there will be a compliance issue with the 0.91 mg/l ammoniacal nitrogen limit contained in condition 43 (c) at the boundary of the mixing zone.

151. The Applicant's reply also referenced Mr Morrissey's opinion that for nutrients in the discharge, it is the load that is the most important because the load will affect the stimulation of phytoplankton growth. Mr Morrisey noted for toxic contaminants that do not bio-accumulate, however, it is the concentration that is most relevant to the effects. The Applicant understood Dr Bolton Ritchie's concern is that the 95th percentile target could allow relatively high concentrations to be discharged resulting in high nutrient loading. But the Applicant pointed out the nature of the discharge and conditions proposed will be that we're concentrations are high, the volume of the discharge is low or vice versa.

152. As well the Applicant pointed out the concentrations are ultimately controlled by the receiving environment limits. Should the Applicant not be able to meet these receiving environment limits then the Applicant would be required to review the operation of the PCDAF and make changes to ensure compliance with consent conditions.

153. Within its reply the Applicant made the point that Dr Bolton Ritchie in her evidence did appropriately recognise that she was not an engineer and did not purport to know the details of the PCDAF operation. We do accept by contrast this to Khan is an engineer who has been involved in the implementation of a number of these processing plants and treatment systems around the country.

154. So for all of these reasons we have decided to adopt the Applicant's position in relation to condition 35 deleting reference to mean values.

155. As to the mixing zone following upgrade Dr Bolton Ritchie was of the opinion that the size of the mixing zone should reduce following the treatment upgrade.

156. The original conditions put forth with the application did not propose or include any changes to the size of the mixing zone following upgrade. The Applicant now proposes new conditions set out in conditions 37 to 42 that in summary form require the Applicant to engage a suitably qualified and experienced expert to revise the mixing zone for the discharge after the wastewater treatment upgrade has been commissioned. The conditions contain a range of parameters to be considered. Dr Bolton Ritchie in her evidence noted she had reviewed the proposed conditions and agreed. We note she made some additional recommendations for change to those conditions which have been included in the final conditions set provided to us.

157. The next issue related to condition 43. Dr Bolton Ritchie considers the receiving environment limit for ammoniacal nitrogen and condition 43 should be based on the 0.5 mg/L default guideline value for protection of 99% of species in the Australian and New Zealand guidelines for fresh and Marine water quality (ANZG) and not the 0.91 mg/L default guideline value for protection of 95% of species.

158. In the Applicants reply after noting that Dr Bolton Ritchie referred to the 2012 version of the regional coastal environment plan rather than 2016 version that Dr Bolton Ritchie asserted with coastal water has no water quality class it is to be maintained in its natural state. She referred to pages 7 to 57 of the coastal plan to support those views. However the Applicant noted in their reply they could not find within those 50 pages that were referenced or anywhere else within the coastal plan the claim that we're coastal water has no water quality class it should be maintained in its natural state. Rather it was the Applicant's view for any part of the

coastal Marine area to be considered as having a water quality classification of natural state that circumstance must be expressly identified in the coastal plan. In other words coastal Marine areas that have not been classified with respect to water quality do not automatically fail to be considered as being in their natural state. We agree with that approach.

159. Further in its reply the Applicant noted that in support of her view Dr Bolton Ritchie quotes from part of the 2018 ANZG guideline for high conservation or ecological value systems. Which provides essentially that ecosystems highly valued for the unmodified state and outstanding natural and conservation values should be retained in that state. However the Applicant did not agree that the receiving environment consists of water that are in the natural state or of high conservation/ecological value. They pointed to the presence of the existing discharge to support that view. They also referred to the NIWA 2019 study which detailed median concentrations of a number of parameters supporting the view that the receiving environment does not consist of water that is in the natural state or of high conservation/ecological value.

160. In any event the Applicant in its reply noted that even if the coastal marine area beyond the AE classed waters was considered to be in its natural state the 95th percentile value would still be considered appropriate based on the known effects that the ammoniacal nitrogen in the discharge is not compromised the current ecosystem. Essentially the present discharge has not degraded water quality in this circumstance would continue to be the case following the upgrade.

161. In its reply the Applicant referenced Mr Morrissey's view that he considers the waters beyond the class AE would be better described as slightly to moderately disturbed systems as defined in the ANZG guideline as an ecosystem that had been adversely affected to a relatively small but measurable degree by human activity and is one that lies in the immediate vicinity of Timaru in particular.

162. Further we observe that Mr Morrisey was of the opinion that even if the waters could be considered in their natural state, the 99th percentile protections for ammoniacal nitrogen would still not be useful in protecting the natural state of those waters. As we understood it he explained that ammonia is subject to constant transformation so placing a limit on just one form is not useful in terms of endeavouring to preserve natural state and nor is a guideline for toxicity whether it be 95 or 99% an appropriate way of protecting natural state because if the concentration of ammoniacal nitrogen at the boundary of the mixing zone stayed constantly just below 0.5 mg/L it would meet Dr Bolton Ritchie's proposed consent condition however that circumstance would not qualify as a natural state when the background concentrations reported by NIWA in 2019 were 0.012 mg/L and 0.008mg/L from the mixing zone monitoring.

163. Taking the above into account we prefer the evidence of Mr Morrisey concluding that the appropriate ammoniacal nitrogen limit in condition 45 is 0.5 mg/L for the reasons he advances.

164. Several of the submitters identified within the submissions effects on marine water quality and risks to adverse effects on marine life and human health particularly if the discharge contains contaminants that subsequently affect shellfish more so when they are consumed by humans. We consider the above discussion and our resolution addresses the matters raised by those submitters.

Effects of the outfall structure in the CMA on coastal processes and hazards.

165. There was no pointsof contention relating to effects of the outfall structure in the CMA on coastal processes and coastal hazards primarily because the outfall structure is existing and

there are no changes proposed that structure. In any event Piper suspended above the beach and only the pillars impact on coastal processes. As well as we observed on our site visit there is a protective rock wall between the beach and the plant which helps protect the outfall structure pipes and pillars in the processing site from any serious damage due to coastal processes.

166. In addition we had the benefit of expert evidence from Mr Bruce Gabites one of the section 42A officers. He agreed with the Applicant's description of the coastal environment and coastal processes and rate of change occurring in and along Pareora Beach and identification of coastal hazards.

167. Based on Mr Gabites evidence, we agree with him and we accept that the occupation of the CMA by the outfall structure and pillars will not cause any adverse effect on coastal processes, or increase risk of the surrounding area to be adversely affected by coastal hazards.

Effects of ocean discharge on recreation.

168. This issue was again non-contentious. Mr Greenaway an expert in this area provided his assessment of such effects. Essentially he noted that there is a low level of recreational use in the area near the outfall structure. On our site visit we did note the presence of some fishes in the area however we also noted that a range of fishing options along the coast were accessible.

169. We agree with Mr Greenaway's assessment and accept it that the effects of the coastal outfall on recreation are expected to be less than minor.

Effects of ocean discharge on landscape and visual amenity.

170. Again this was a non-contentious issue. The Applicant did provide a landscape and visual effects assessment prepared by Mr Andrew Craig and experienced landscape architect. Mr Craig observed that the landscape in the immediate vicinity of the outfall is dominated by the coastline and the large-scale meat processing plant landward of the mean high springs boundary point. He noted there was no evidence at the site is a significant recreational or amenity destination. Direct access to the beach adjacent to the outfall is not easily facilitated because of the position of the seawall that prevents access to the beach opposite the discharge point. Mr Craig also observed that boating is not a common activity due to the high energy environment.

171. Mr Craig also concluded that very few people would suffer adverse visual amenity effects from the activity and the immediate environment does not convey an expectation that the amenity should be high. We took at that he was here relying on the presence of the already large-scale industrial meat processing plant.

172. Mr Craig concentrated on the visual effect arising from the discharge namely the discolouration of the sea. He noted and we agree with him that the visual effects arising from the discolouration of the sea by the discharge are highly variable with the effects coming and going over hours and days depending on a range of variables including the weather see characteristics in the volume of the discharge.

173. Mr Craig also noted that with the proposed upgrade to include the PCDAF plant this would remove particles from the wastewater and alter the colour of the discharge. He recorded it was anticipated the colour of the discharge would then be almost opaque. So the discolouration would not continue into the future.

174. We anticipate following the commissioning of the PCDAF the extent of the mixing zone is likely to reduce. That being the case we considered it realistic that the extent to potential adverse effects of the discharge would reduce.

175. Essentially while accepting the will be a continued effect on the receiving environment in terms of the visual effect as we have described it that effect does not occur constantly and is intermittent . As well because of the location of the discharge being in a high energy environment there are a limited number of people who would be affected by any adverse visual amenity effects. Given the upgrade is occurring in six years time then those effects will be diminishing over time.

176. For these reasons we agree with Mr Craig's assessment that the effects of the ocean discharge on landscape and visual amenity and general amenity will be minor.

Effect of ocean discharge on air quality

177. The Applicant has included a condition namely condition 6 that the discharge of wastewater to sea from the outfall shall not occur landward of the mean high water springs or give rise to any spray drift or odour that has a noxious dangerous offensive or objectionable effect. Taking into account that condition and also taking into account Mr McCauley's assessment of the discharge of wastewater into the ocean via the outlet structure on inequality we agree the effects of the ocean discharge on inequality will be less than minor.

Positive Effects

178. Mr Copeland and economist for the Applicant provided an assessment of the economic benefits of the continued operation of the Pareora meat processing plant. His views and opinions were not challenged and we accept them.

179. We readily accept that the Applicant has made a significant economic investment in its meat processing plant over an extensive period of time which in turn helps maintain the economic well-being of people and communities within the South Canterbury and Canterbury regions.

180. The definition of effect in the RMA also includes "positive effects". These include economic benefits as provided for by the ongoing operation of the Pareora meat processing plant. The benefits are discussed in several sections of the AEE and are summaries in sections 11 (Part A0 and 10 (Part B) of the AEE

181. Silver Fern Farms has demonstrated with in the application a commitment to a preference for land-based disposal, increases in the levels of treatment prior to discharge of effluent streams. There has been a reduction in the volume of wastewater being discharged, except when wet weather conditions persist.

182. The addition of the proposed physico-chemical dissolver air flotation plant upgrade to the existing wastewater treatment processes, will provide the most significant improvement to the quality of the discharge.

Conclusions on Effects of the land discharge, coastal discharge and occupation of the CMA by an outfall structure, and its repair and maintenance

183. We conclude for the reasons above that particularly taking into account the conditions of consent for all activities that the effects will be less than minor.

11. Relevant Statutory Provisions (section 104 (1) (b)

184. Between Mr Purvis for the Applicant and Ms Ensor for CRC we received comprehensive evidence on the relevant statutory provisions. There was little debate between the planning experts on both what were the relevant statutory provisions and their application to the proposal.

National Policy Statement for Freshwater Management 2020

185. As discussed above the CRC experts and those for the Applicant are satisfied that the land discharge activity with the proposed mitigation included in conditions will not result in any adverse effects on freshwater either ground or surface that are unacceptable. Those experts have concluded and we accept that the effects on freshwater will be minor.

186. As well the Applicant proposes to monitor freshwater quality in a number of bores and surface waterway is that could potentially be impacted by the proposed activity. This monitoring will ensure that the current state of water quality is better understood and any adverse effects on water quality are identified and measures implemented to ensure that no further decline in water quality.

187. As well the Applicant proposes to establish a tangata whenua liaison group which will ensure that the consent holder she has information relating to the exercise of the consent, results of monitoring and any actions required to respond to any declining trend in water quality in both ground water and surface water with Te Runanga o Arowhenua.

188. Taking these matters into account it was the view of both the Applicant Ms Ensor that the proposal was not contrary to the NPSFM 2020. We agree.

Resource Management National Environmental Standards for Freshwater Management Regulations 2020.

189. We agree with both the Applicant and Ms Ensor that given the proposed irrigation area is appropriately setback from the wetland surrounding pond 3 these regulations do not apply.

Resource Management (National Environmental Standards For Air Quality) Regulations 2004

190. We agree with the Applicant and the CRC reporting officer group that these regulations are not applicable to the proposed discharges.

New Zealand Coastal Policy Statement 2010

191. There was agreement between the Applicant and CRC as to the 5 relevant objectives being objectives 1 to 5. Ms Ensor agreed with the Applicant's assessment of the proposed activities against the relevant objectives and policies of the NZCPS within section 7.2.3 of the AEE (Part b of) agreeing that the proposed activity meets the relevant objectives and policies.

192. Initially Ms Ensor had some concerns regarding coastal water quality and the concentration targets for the discharge consequently not being confident that the proposed activity is consistent with objective 1 which states;

193. To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including Marine and intertidal areas, histories, dunes and land by;

194. Maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of the discharges associated with human activity.

195. Given the discussion we have recorded above in relation to effects on coastal water quality and refinements advanced in terms of conditions relating to coastal water quality and the monitoring of the same we are satisfied that the proposed activity is now consistent with objective 1.

Canterbury Regional Policy Statement 2013 (CRPS)

196. The Applicant assesses the proposal against the relevant provisions of the CRPS in section 8.4 (Part A) and section 7.3.1 (Part B) of the AEE concluding that both the land discharge and ocean discharges are consistent with the CRPS..

197. Ms Ensor agrees in relation to the land discharge that the effects of the proposed activity with mitigation as per conditions will be minor therefore she agrees with the Applicant that the proposed land discharge is consistent with the relevant provisions of the CRPS. We agree.

198. Initially Ms Ensor had concerns that the proposal may not be consistent with chapter 8 of the CRPS which addresses issues related to activities in the coastal environment including the appropriate occupation and use of the coastal marine area (CMA)

199. Ms Ensor agreed that the occupation and use of the CMA for the outlet structure is consistent with the relevant provisions of the CRPS because the structure is not new, no changes are proposed to structure and there will be no change and effects resulting from the grant of consent. We agree that the continued occupation and use of the CMA for the outlet struct as well as enabling its repair and maintenance is consistent with the relevant provisions of the CRPS

200. Initially because Ms Ensor had concerns relating to the ocean discharge on the coastal water quality and associated values of the coastal environment, that she considered may be more than minor, she was concerned that the proposed discharge may not be consistent with or could be contrary to the relevant provisions of the CRPS that relate to coastal water quality in the coastal environment.

201. In our view particularly after resolving the issues for CRC 203305 relating to both condition 35 and condition 43 and taking into account the agreement between experts in relation to all other relevant effects we reach the conclusion that the proposed discharge is consistent with the relevant provisions of the CRPS that relate to coastal water quality and the coastal environment.

Canterbury Land and Water Regional Plan (LWRP)

202. The Applicant assess the land discharge activities against the LWRP in section 8.5 (Part A) of the AEE. The Applicant concluded that the proposed activities are consistent with the relevant provisions in the LWRP. The LWRP contains objectives, policies and rules that are relevant for managing freshwater ground and surface water quality and activities that involve discharge of contaminants onto or into land where the contaminants may enter into water.

203. Ms Ensor agrees with the Applicant's assessment that the proposed activities are consistent with the relevant provisions of the LWRP because mitigation is proposed to ensure the application of wastewater to land will be managed in a way which will reduce nutrient

leaching and the resulting effects on groundwater and surface water in the receiving environment.

204. As well monitoring is proposed to ensure the effects of the proposed activity on groundwater and surface water are better understood, and if there is a declining trend in water quality, it will be investigated and operational changes will be implemented if required.

205. Further mitigation is proposed to ensure the effects on air quality will be managed appropriately including procedures to address any complaints received.

206. As well a tangata whenua liaison group will be established to ensure results of monitoring, operational changes, and other matters are communicated to Arowhenua and that they have an opportunity to be involved in ensuring the consent conditions are complied with. Finally, overall we conclude with proposed mitigation and conditions the effects on the receiving environment will be minor.

207. We accept the proposed activities including conditions are consistent with the relevant provisions of the LWRP...

Canterbury Air Regional Plan (CARP)

208. The Applicant assess proposed activity against the relevant provisions of the CARP and their assessment is included in section 8.6 of the AEE (Part A). The Applicant concluded that the proposed activities are consistent with the relevant provisions. Ms Ensor agreed

209. We also agree because the mitigation measures proposed to manage any effects on air quality , such as setback distances, shelterbelts, and flushing of irrigation infrastructure are, we consider effective and appropriate. As well, a complaints register will be established to address any concerns or complaints of neighbours regarding odour and aerosols beyond the boundary of the irrigation areas and for that matter the ocean outfall. Finally we accept that the effects of the proposed activity will be minor. So for these reasons we conclude that the proposed act of the is consistent with the relevant provisions of the CARP.

Regional Coastal Environment Plan (RCEP)

210. The Applicant included an assessment of the proposed activities against the relevant provisions of the RCEP in section 7.3.2 of the AEE (Part B) concluding that the proposal was not considered contrary to the objectives and policies of that plan.

211. In doing so the Applicant acknowledges that until the upgrade to the treatment plant is operational and the quality of the discharge improves there will be adverse effects on marine quality that extend beyond the boundary of the proposed 1500 m mixing zone. However the Applicant considered those effects will be minor. As noted above we accept that view.

212. Ms Ensor agrees with the Applicant's assessment in particular their conclusion regarding the provisions that relate to coastal hazards (section 9) and the use and occupation of the CMA by the discharge structure (section 8). Initially Ms Ensor held concerns that the proposal would not be consistent with relevant coastal water quality provisions within section 7. The reason for this related to the outstanding matters initially identified by Dr Bolton Ritchie.

213. Given that we have resolved those matters, we formed the view that the proposal including the conditions is consistent with the relevant coastal water quality provisions in particular objective 7.1 policy 7.2 7.4 7.6 and 7.8.

214. We observe that schedule 4 includes minimum standards that must apply for each classification of coastal waters, relevantly here AE and or CR. We note coastal CR water is to be manage for contact recreation and the maintenance of aquatic ecosystems. The standards include the same matters as AE water plus a concentration limit for enterococci. We accept beyond the 1500 m mixing zone boundary the Enterococci standard that is specified in the current consent is exceeded some of the time. We also accept that it is expected that until the treatment upgrade occurs that standard will be at times exceeded at the zone boundary.

215. However, we agree with Ms Ensor that the exceedances of the Enterococci standard could be considered temporary because it is likely they do not occur continuously and high concentrations are unlikely to occur after the upgrade is commissioned. So we conclude for those reasons the proposed activity is consistent with policy 7.4.

216. The proposal involves improving the quality of wastewater discharge and the sea including the developed land based disposal activity intended to reduce the effects of the ocean outfall discharge. While we accept prior to the upgrade there will be some exceedances in the RCEP standards we consider overall this to be a temporary effect. Also given our finding on the target concentration limits for the discharge following the upgrade we are satisfied that the effects of the discharge on water quality following the upgrade will be minor. Thus we are able to conclude the proposed activity is consistent with the relevant provisions of section 7 of the RCEP.

Iwi Management Plans and other plan provisions relevant to cultural matters

217. The NZCPS Objective 2 and Policy 2 require that we take into account the principles of the Treaty of Waitangi, and Kaitiakitanga, in relation to the coastal environment. In particular, to recognise the traditional and continuing relationships mana whenua hold with areas of the coastal environment and to take into account any relevant iwi management plans.

218. Objective 7.1 of the RCEP enables use of the coastal environment, providing, amongst other things, that wāhi tapu and wāhi taonga of value to tangata whenua are protected. Policy 7.7 is to ensure that discharges into the coastal marine area avoid significant adverse effects on cultural or spiritual values associated with sites, (e.g. areas covered by controls such as Taiāpure or mahinga Mātaitai), of special significance to the Tāngata whenua.

219. The LWRP Oobjective 3.1 seeks to recognise and enable Ngai Tahu culture, traditions, customary uses and relationships with land and water. We also note Objective 3.2, which seeks to apply Ki Utah Ki tai to the management of water, recognising the connectivity between surface water, groundwater, freshwater, land and the coast.

220. We also note Policy 4.14B requires us to have regard to Ngai Tahu values expressed within an IMP. While we acknowledge the policies within the IMPs, particularly in relation to avoiding discharges to the coastal marine area, where there is conflict with the NZCPS or RCEP, greater weight has been given to those higher order documents.

221. 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, seas and natural waters.

222. We observe the Applicant's preferred discharge method is to land and this will occur where ever possible. The inclusion of condition 1A in CRC 203305 to ensure the consent holder gives priority to discharge wastewater to land rather than to coastal waters will ensure this outcome. In addition we accept the evidence that there has been a reduction in the volume and rate of the ocean discharge since the land disposal method commenced. As well the

Applicant proposes to upgrade the treatment plant to ensure the quality of the discharge improves within 6 years from the commencement of this consent.

223. Primarily for these reasons and taking into account our finding on effects we conclude that the proposed activities with the conditions we have included will not be contrary the relevant provisions of the IMP.

Other section 104 matters

224. Section 104 (2A) requires us to have regard to the value of any existing investment for an Applicant affected by the provisions of section 124. Here we have relied upon the assessment of Mr Copeland (Appendix 5 of the AEE) about the value of the plant. He noted that the value to the Applicant of its investment in the plant could be considered in terms of either the replacement value of the plant (165.5 million) or the forgone future earnings of the plant if it was forced close. He concluded by both these measures the value of the plant is significant to the existing consent holder. We agree.

225. Section 104 (3)(c) requires us to consider section 107 we do so below. later.

226. Section 104 G requires us to have regard to the actual or potential effects of the proposed activity on the source of a registered drinking water supply and any risk that the proposed activity may pose that are identified within a source water risk management plan.

227. As noted earlier the Pareora village water supply bore is located adjacent to land owned by the Applicant which was authorised under the now expired consent to be irrigated. Part Lot 10, DP 694 is excluded from the irrigation area as part of this application and this will ensure we consider that the drinking water protection zone will not be affected by the proposed activity. As well we record the potential adverse effects of the proposed activity on the village drinking water supply has been assessed by the Applicant to be negligible and Mr Trewartha for CRC agrees.

CONSIDERATION OF ALTERNATIVES – SECTION 105 AND SCHEDULE 4

228. Schedule 4 RMA requires an Applicant, within its AEE, to consider and describe any possible alternative locations or methods for undertaking the activity if it is likely that the activity will result in any significant adverse effects on the environment.

229. Section 105 requires us to have regard to the nature of the discharge, the sensitivity of the receiving environment, the Applicant's reasons for the proposed choice, any possible alternative methods of discharge, including discharge into any other receiving environment

230. the Applicant has assessed a range of alternate disposal methods and these are discussed in the AEE in section 9 of Part A and section 8 of Part B Essentially the Applicant considers it is not possible to have 100% of the discharge to land nor is it practicable to utilise the Timaru district Council wastewater network and treatment plant. The Applicant considers and we agree that the wastewater treatment improvements proposed will improve the viability of the dual discharge operation into the future. We accept there are no viable alternatives and the approach proposed as part of these applications is in the circumstance having regard to the nature of the discharge and the sensitivity of the receiving environment to adverse effects the most appropriate.

SECTION 107 RESTRICTIONS ON GRANT OF CERTAIN DISCHARGE PERMITS

231. PParaphrased section 107 provides, after allowing for reasonable mixing, that we are only able to grant consent for a discharge permit or for a coastal permit provided that certain effects do not occur in the receiving waters.

232. We accept the evidence that depending upon the prevailing environmental conditions there can at times be a clear visual plume extending from the discharge point that is visible beyond the 1500 m mixing zone boundary. However we also accept the proposed upgrade to the treatment at the plant should address the colour of the wastewater and it is expected following the upgrade the visual plume will not extend beyond the mixing zone boundary.

233. Section 107(2) provides we may grant a discharge permit or a coastal permit to do something otherwise contravene section 15 that may allow any of the effects in section 107(1) if it is satisfied here relevantly the discharge is of a temporary nature.

234. We agree that because there will be a conspicuous change in colour or visual clarity until the treatment upgrade is commissioned the matters set out in section 107(2) must be considered and in our view only sub clause (b) which provides for temporary effects is relevant.

235. Temporary is not defined in the RMA but giving that word its plain ordinary meaning we accept it means lasting for a limited period of time, not permanent.

236. As we have noted earlier the visual plume may not be constant, varying spatially and temporally depending upon the volume and quantity and quality of the discharge on the receiving environment characteristics prevailing at the time of discharge. As well accepting that the treatment plant upgrade functions as anticipated, we accept that the plume will not be visible beyond the mixing zone boundary after that upgrade. For these reasons we agree that the effect could be described as temporary.

237. For all of these reasons we were satisfied that the restrictions described in section 107 are able to be met by the Applicant's proposal, taking into account proffered conditions of consent.

12. Part 2 RMA

238. Section 104(1) RMA states that the matters which we have discussed above are subject to the purpose and principles in Part 2 RMA. We discuss below the purpose and principles of the RMA and ssections 6 to 8, and return to the overriding sustainable management purpose of the RMA (section 5) in our overall evaluation of the proposal.

239. Following recent decisions, primarily from the Supreme Court and High Court, there is some limited debate on whether or not the previous broad overall judgement approach is still required absent in the invalidity, incomplete coverage, or uncertainty of meaning within the relevant statutory planning instruments.

240. No expert planner appearing before us identified any instances of invalidity, incomplete coverage or uncertainty of meaning in the relevant planning instruments so following these recent court authorities we do not need to consider Part 2.

241. We note that the RCEP was prepared prior to the NZCPS; however, there was no evidence from any planning witness that it was inconsistent with that document. We have found it to be a considered document, whose policy approach as it applies to this application closely matches that of the NZCPS. We have also found that this proposal inclusive of conditions is consistent with the objectives and policies of the relevant planning instruments. So this outcome does relieve us of the need to undertake Part 2 considerations.

242. Nevertheless out of an abundance of caution consistent with common practice we will adopt the approach of discussing the proposal in the light of Part 2. We have approached that exercise in the normal way treating the principles contained in sections 6, 7 and 8 as being subordinate to the purpose of the RMA as set out in section 5.

Section 6 matters of national importance

243. Sections 6 RMA identifies matters of national importance that we must "recognise and provide for" when making our decision.

244. We accept that the discharge into the mixing zone will have a limited environmental effect on natural character in particular water quality. However we note the improved level of treatment to the waste water provided by the Applicant following the treatment upgrade. We note the expert evidence was consistent that the modelled dilution even within the mixing zone was likely to be conservative and beyond the mixing zone the effect of the discharge on water quality was no more than minor.

245. Given a discharge such as this is provided for albeit provided a number of factors to have regard to in managing discharges are satisfied, under the planning instruments and conditions in terms of section 105 and 107 are satisfied we conclude that the natural character of the coastal environment particularly beyond the mixing zone will be both recognised and provided for.

246. Given the pre discharge treatment, the limited mixing zone following treatment upgrade and the monitoring conditions proposed, we accept the proposal is not inappropriate for the coastal marine area.

247. Section 6(d) relates to recognising and providing for the maintenance and enhancement of public access to and along the coastal mmarine area. Given that the wastewater pipeline is already in place, it will have no effect on existing public access to and along the coastal marine area

248. Public access to and along the coastal marine area will not be affected by this activity.

249. When considering section 6(e) and seeking to understand the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga, we concluded that in the absence of a submission, even though a CIA was provided, we are not in a position to determine if they are in support, opposed or neutral in relation to the activity.

250. We accept and understand that the relationship of Māori with land and water involves and includes stewardship. We are satisfied that the Applicant did endeavor to undertake pre-application consultation and did engage with the available Rūnanga following lodgement of the resource consent applications as demonstrated by their participation in the creation of the CIA..

251. Further, we are of the view that the conditions we intend to impose including further consultation with Iwi in relation to the ongoing operation of the plant. So in this way we consider that we are recognising and providing for section 6(e) matters.

252. We also consider, given the conditions that in particular require inspections of changes to the beach area and inspections following events such as earthquakes, the Applicant and the proposal recognises and makes provision for significant risks from natural hazards in terms of section 6(h).

Section 7 other matters

253. We now turn to the relevant matters that we are to have particular regard to under Section 7 RMA, including kaitiakitanga,[1] the efficient use of natural resources, the maintenance and enhancement of amenity values and the quality of the environment, the intrinsic value of ecosystems, and the maintenance and enhancement of the quality of the environment, among other matters.

254. In terms of section 7(a), mana participated in the preparation of the CIA with Te Rūnanga o Arowhenua identified as the entity holding mana over the coastal takiwa.

255. So to this extent we consider section 7(a) is being provided for.

256. In relation to 7(c), given our findings that the receiving environment of the discharge will be no more than minor, considering proposed conditions and appropriate monitoring, we are satisfied that we have given particular regard to the maintenance and enhancement of amenity values, the quality of the environment, and the intrinsic values of ecosystems. We reach this view primarily because the discharge structure is not a matter for consideration as part of this consented activity.

Section 8 Treaty of Waitangi

257. Finally, Section 8 RMA requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). Section 8 recognises the relationship of tangata whenua with natural and physical resources and encourages active participation of, and consultation with, tangata whenua in resource management decision-making.

258. As a result of undertaking a cultural impact assessment, the Applicant has made itself aware of Section 8 issues.

259. We consider, given the requirements for ongoing engagement with iwi provided for in the consent conditions, that the Treaty of Waitangi principles are provided for.

Section 5 The Purpose of the RMA

260. The purpose of the RMA is to promote the sustainable management of natural and physical resources. That is, the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:

a. sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and

b. safeguarding the life supporting capacity of air, water, soil, and ecosystems; and

c. avoiding, remedying, or mitigating any adverse effects of activities on the environment.

261. In considering whether the proposal will achieve the purpose of the RMA we have:

a. taken into account all the relevant matters identified under s 104 RMA;

[1] Guardianship, stewardship, trustee (http://www.maoridictionary.co.nz).

b. avoided consideration of any irrelevant matters;

c. given different weight to the matters identified under s 104 RMA, depending on our opinion as to how they are affected by the application of ss 5(2)(a), (b), and (c) RMA and ss 6-8 RMA— to the particular facts of the case, and then in light of the above:

d. allow for significance or proportion in the final outcome.

262. We conclude that granting consent with conditions including the condition to upgrade the treatment plant within 6 years from the first operation of CRC 203305 best meets the purpose of the RMA. Granting the consent subject to conditions enables the operation of the Applicant's plant leading to economic and social wellbeing and also provides, through conditions, for the health and safety of people and communities.

263. We conclude that cultural wellbeing will be provided because the conditions of consent provide for ongoing involvement of iwi, enabling input through various management plans and community liaison committee ..

264. The effects of the discharge on water quality was the pivotal issue. Overall we conclude that the discharge beyond the mixing zone will have, no more than minor effects.

265. Imposing conditions on the quality and quantity of the discharge, and monitoring of the same will, we consider, sustain the potential of the natural and physical resources to meet the reasonably foreseeable needs of future generations and will safeguard the life supporting capacity of the coastal marine area.

266. We have also found that granting consent to this proposal subject to conditions is consistent with the objectives and policies expressed within the relevant planning instruments.

Section 104D

267. Section 104D includes restrictions for noncomplying activities commonly described as the gateway tests. The first gateway relates to effects in particular whether or not the adverse effects of the activity on the environment inclusive of conditions will be minor. The second gateway relates to a consideration of whether or not the activity will not be contrary to the objectives and policies of the relevant plans.

268. Even if the gateways are satisfied there is still a discretion available to the decision-maker. That discretion is informed by the decision-makers findings under section 104 which we have set out above.

269. As set out earlier in this decision the proposed activity is a noncomplying because the ocean discharge does not meet the required standards of rule 7.5 of the RCEP that relates to visual clarity.

270. We find that in terms of the adverse effects of the activities on the environment for the land discharge including effects on public access is raised by the submitter Mr Barron we are satisfied that with the proposed mitigation measures included within the activities and the conditions that the effects on the environment will be minor.

271. In relation to the coastal permit authorising the ocean discharge we conclude having resolved the outstanding matters that the effects on the marine environment will be minor. The purpose of the upgrade to the treatment technology at the plant is to improve the quality of wastewater discharge and the ocean and we are satisfied that the improvements are reflected

in the concentration targets for the discharge. We are satisfied with the Applicant's evidence in relation to the recommended amendments to the consent conditions and we accept they will better manage the discharge of wastewater into the CMA.

272. For the coastal permit authorising the occupation, use and repair of the outlet structure on the CMA we consider that the effects will be minor.

273. Therefore in our view the proposal does pass the section 104D (1) (a) gateway.

274. In terms of whether the overall proposal as contrary to the objectives and policies of the relevant plans for the land discharge we are satisfied that the activity is not contrary to the objectives and policies of the LWRP and the CARP. For the coastal permit authorising the ocean discharge we consider that while the proposed activity is not consistent with some provisions of the RCEP that relate to water quality in the short being for the first six years after the consent commences the Applicant proposes to reduce the concentrations of contaminants entering the marine environment which will result in an improvement in water quality after the first six years. We conclude then that the proposed activity after the upgrade will not be contrary to the relevant RCEP provisions. We accept that while the ocean discharge is not consistent with some of the water quality provisions of the RCEP the proposal is not contrary to the majority of relevant provisions contained within the CARP, LWRP, RCEP section 8 and nine provisions. For the coastal permit authorising the occupation, use and repair of the outlet structure in the CMA, the proposed activities we find are not contrary to the relevant provisions of the RCEP.

275. Accordingly in our view the proposal does pass the section 104D (1) (b) gateway.

276. Given our findings above we see no reason to exercise our discretion to refuse consent rather to exercise it to grant consent.

13. LAPSING AND DURATION OF CONSENTS

277. The Applicant seeks a duration of 25 years for CRC224495, CRC203304 and CRC203305 with a lapse date of 2 years.

278. We agree and accept the recommended duration of 25 years as agreed by all parties..

279. Accordingly we consider the appropriate duration for these consents is 25 years.

14. DECISION

280. Pursuant to the powers delegated to us by the CRC and for all of the above reasons and pursuant to sections 104, 104B,104D 105, 107 and section 108 of the Resource Management Act 1991, we GRANT to Silver Fern Farms the following consents, CRC 203304, CRC 203305 and CRC 224495 subject to the conditions specified above and as set out at Appendices to this decision, which conditions form part of this decision and consent.

DECISION DATED AT CHRISTCHURCH THIS 20th DAY OF OCTOBER 2022

Signed by:

Paul Rogers (Chair) and Hoani Langsbury	

Land Discharge Permit CRC203304 Appendix 1

Activity:	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 wastewater
Site Location:	Pareora
Client Name:	Silver Fern Farms Limited
Consent Number	CRC203304
Commencement Date	commencement date yet to be determined
Expiry Date	twenty-five years

DEFINITIONS

"**Consent Authority Manager**" means the Canterbury Regional Council, Attention: Regional Leader Monitoring and Compliance

"**Cut and carry**" means pasture used for cut-and-carry cropping is required to be used so exclusively for the reported irrigation season, with harvested crop removed from the irrigation areas and livestock fully excluded.

"Nitrogen Target" means the mass of total nitrogen generated from the Terrace A Discharge area, which is the calculated difference between the nitrogen mass measured from the ephemeral stream downstream of the rock filter (NZTM 1458765 / 5072788) and the mass of nitrogen measured from the ephemeral stream by State Highway 1 (NZTM 1457358 / 5073567).

"**PCDAF**" means Physico-chemical dissolved air flotation (DAF) treatment.

"**Soil Moisture Level**" means the depth in millimetres of water for current 24 hr average soil moisture measurement.

"**Field Capacity**" means the soil moisture content of the soil when gravity drainage has ceased.

"River Flat Discharge Area" means that area shown on Plan CRC203304 Figure 1.

"**Tangata Whenua**" means Te Rūnanga o Arowhenua and Te Rūnanga o Ngā Tahu.

"**Terrace Discharge Area A**" means that area shown on Plan CRC203304 Figure 1.

"Terrace Discharge Area B" means that area shown on Plan CRC203304 Figure 1.

"Village Discharge Area" means that area shown on Plan CRC203304 Figure 1.

"**Wastewater**" means meat processing waste and associated stormwater (generated from the area identified on Plan CRC203304 Figure 2) and associated fresh water.

"**Wastewater Ponding**" means Wastewater ponding over an area greater than 100 square metres for more than 24 hours after the land has been irrigated.

"**Winter Months**" means from the 1st June through to the 30th August each year.

CONDITIONS

General

1. The discharge shall only be Wastewater from a meat processing plant located at Pareora, centred at NZTM 1458298/5071903.

2. The discharge to land shall occur on up to 222 hectares described as the "Terrace Discharge Area A ", Terrace Discharge Area B", "Village Discharge Area" and "River Flat Discharge Area" and which are shown on Plan CRC203304 Figure 1.

3. The discharge to land shall occur on land that is not grazed by animals nor used for feeding out to animals.

4. The combined discharge with consent CRC203305 shall not exceed a rate of 8,300 cubic metres per day.

5. The consent holder shall measure and record the daily volume of Wastewater discharged, and a copy of the records made available to the Consent Authority Manager, upon request.

6. The consent holder shall take all practicable steps to:

   a. Prevent leakage from pipes and structures associated with the Wastewater irrigation system; and
   b. Prevent Wastewater Ponding of the discharge.

7. The consent holder shall maintain and operate all structures and relevant equipment associated with the discharges to ensure compliance with the conditions of this consent.

Site Activity and Environmental Management Plan

8. Within six months from the first exercise of this consent, the consent holder shall provide a Site Activity and Environmental Management Plan to the Consent Authority Manager. A copy of the Site Activity and Environmental Management Plan shall be provided to the Tangata Whenua.

9. The purpose of the Site Activity and Environmental Management Plan is to provide direction on the systems and controls at the plant required for the effective management of the treated Wastewater discharge to land, including nutrient loading; and, otherwise to achieve the

conditions of this consent.

10. The Site Activity and Environmental Management Plan shall include but not be limited to details describing:

a. The infrastructure used to irrigate the Wastewater;
b. Systems to separate the Wastewater stream;
c. Management of Wastewater volumes;
d. Management of stormwater contributions from the catchment area shown on Plan CRC203304 Figure 2;
e. How wastewater irrigation will be spread as evenly as practicable over the irrigation area for each irrigation event;
f. Management of Wastewater irrigation to maintain both soil quality and crop health and to limit nutrient losses, including;
    i. Crops to be grown and their location in each discharge area;
    ii. The land application area, application methods and equipment;
    iii. Hydraulic application rates and rotation periods;
    iv. Methods to prevent leakage from pipes and structures associated with Wastewater the irrigation system;
    v. Methods to prevent Wastewater Ponding of the discharge;
    vi. Methods to ensure irrigation of Wastewater does not result in the field capacity being exceeded in deficit irrigation areas;
g. Contingency measures in place to deal with unusual events including spills;
h. On-site responsibilities, including operation and maintenance of the Wastewater irrigation pump-stations and transfer pipeline to the land treatment areas, and record-keeping;
i. Systems to deal with incidents or emergencies such as pump failures;
j. Methods to sample and analyse any groundwater and surface water that are required by the conditions of this consent;
k. Any other systems to carry out monitoring, including routine inspections of drainage systems and rock filter in the Terrace Discharge Area A;
l. How quality photographs of ponds 1, 2 and 3 shown on Plan CRC203304 Figure 3 are to be taken in a consistent manner;
m. Maintenance and calibration of meteorological monitoring equipment;
n. Management responses to wind speed and direction, including defining a maximum allowable wind speed and direction to manage spray drift;
o. Measures and procedures to avoid or reduce the emission of spray drift beyond the boundary, including details of shelter tree plantings, and a maintenance programme to ensure the shelter belts remains intact;

p. Measures and procedures to reduce odour, which shall include but not be limited to:
    i. How tanks are emptied and how the irrigation system is flushed weekly or prior to a harvest exclusion period or a plant shutdown;
    ii. How pivot head heights above ground are minimised;
    iii. How nozzles are managed to minimise the formation of fine droplets; and
    iv. How the wind direction is assessed daily prior to the commencement of Wastewater irrigation to enable irrigation away from downwind dwellings is used as far as practicable;
q. Details of species, planting density and width of riparian vegetation and maintenance programme for those parts of the ephemeral streams shown on Plan CRC203304 Figure 5;
r. Management of the constructed rock filter located in the ephemeral stream located within the Terrace Discharge Area A;
s. Procedures to handle complaints;
t. Any other procedures required to ensure the consent conditions are complied with.

11. The consent holder shall review the Site Activity and Environmental Management Plan each year to ensure the systems and controls at the plant remain appropriate and continue to achieve the purpose of the consent conditions. The review shall consider the results of any monitoring required by conditions of this consent and where necessary amend the Site Activity and Environmental Management Plan to better achieve the purpose of the Plan set out in condition 9. The consent holder shall provide a report detailing the review undertaken and also provide any amended Site Activity and Environmental Management Plan to the Consent Authority Manager by the last working day of August each year. Any amended Site Activity and Environmental Management Plan shall be provided to the Tangata Whenua.

Wastewater Irrigation Regime for the Terrace Discharge Area A (non-deficit irrigation)

12. When the Soil Moisture Level is greater than 96% of Field Capacity during the Winter Months, the application depth of Wastewater irrigation shall, on the Terrace Discharge Area A, not exceed an average application depth of 2.5 mm per day for at least the following three days.

13. When the Soil Moisture Level is less than 96% of Field Capacity during the Winter Months, the application depth of Wastewater irrigation shall, on the Terrace Discharge Area A, not exceed an average application depth of 7.5 mm per day.

14. Outside the Winter Months the irrigation application rate shall, on the Terrace Discharge Area A, not exceed an average application depth of 7.5 mm per day.

15. Notwithstanding conditions 12, 13 and 14, the peak irrigation application rate shall, across the Terrace Discharge Area A, not exceed 20 mm per day.

16. Within twelve months of the first exercise of this consent, the consent holder must annually calculate the Nitrogen Target to provide an estimate of the mass of nitrogen lost from the land treatment area as follows:

    a) Calculate the total nitrogen entering the Terrace Discharge Area A by monthly measuring the mass of nitrogen contained in the ephemeral stream, when flowing, at the end of each month by State Highway 1 (NZTM 1457358 / 5073567) shown on Plan CRC203304 Figure 4; and
    b) Calculate total nitrogen leaving the Terrace Discharge Area A by continuously measuring the flow of water draining from Terrace Discharge Area A downstream of the rock filter (NZTM 1458765 / 5072788 shown on Plan CRC203304 Figure 4) in the same period multiplied by that month's concentration of total nitrogen sampled from the immediately downstream of the rock filter flow monitoring point (NZTM 1458765 / 5072788).

17. Where the mass of nitrogen derived from sampling under condition 16, exceeds a Nitrogen Target of 35 kg N/day, averaged over the previous 12 months from the 1st July each year, the consent holder shall provide a report within one month to the Consent Authority Manager in accordance with condition 18.

18. The consent holder shall engage a suitably qualified and experienced water quality expert to prepare a report that contains the following:
    a) Review of all monitoring information;
    b) Examination of the climatic conditions that prevailed during the exceedance period;
    c) A water balance and if there is a surface water deficit, a discussion of the reasons why there is a difference between inflows and outflows;
    d) Examination of the Wastewater irrigation schedule during the exceedance period;
    e) Discussion of the reason why the Nitrogen Target of 35 kg N/day was exceeded; and
    f) Assessment of the likelihood of any actual or potential adverse effect on the receiving environment.

19. Should the report completed in accordance with condition 17 indicate that the contribution of total nitrogen from the Terrace Discharge Area A may be causing, or is likely to cause an actual adverse environmental effect as a result of the previous exceedance, then the consent holder shall:

a) Immediately engage an ecologist to resurvey pond 1 area to examine any changes to the ecological values identified under condition 51B;

b) Within six months of the provision of the report to Consent Authority Manager, investigate options for reducing nitrogen loss to ephemeral stream from the discharge of Wastewater and identify specific actions required to be taken as necessary to reduce the potential for such exceedances to be caused by the exercise of this consent;

c) Provide a report to Consent Authority Manager outlining the options considered and setting out the actions that will be undertaken and timeframes for implementing these actions; and

d) Ensure that the required actions are taken as soon as practicable thereafter.

Wastewater Irrigation Regime for the Village Discharge Area, the River Flat Discharge and the Terrace Discharge Area B (deficit irrigation)

20. The application depth of Wastewater irrigation shall, across the Village Discharge Area, the River Flat Discharge Area and the Terrace Discharge Area B, not exceed the average daily moisture requirement to refill the Soil Moisture Level ("deficit irrigation") above 90% of the Field Capacity of the soil.

20A. The peak irrigation application rate across the Village Discharge Area, River Flat Discharge Area and Terrace Discharge Area B, shall not exceed 20 mm per day.

Additional Conditions for the River Flat Discharge Area

21. There shall be no Wastewater irrigation of the River Flat Discharge Area during the Winter Months.

22. Nitrogen loading on to the River Flat Discharge Area shall not exceed 200 kg N/ha/yr across the area subject to wastewater irrigation, and the mass of nitrogen removed within the harvested material (kg N/ha/yr) shall be greater than 80% of that applied, measured as a rolling average over the previous 24 months of data.

23. Where the difference between the nitrogen applied and the nitrogen removed exceeds 40 kg N/ha/yr averaged over the previous 24 months, the consent holder shall provide a report within one month to the Consent Authority Manager setting out the reasons why the target is not being met and how the difference between nitrogen applied and nitrogen removed will be reduced to meet the target. Amendments to the Site Activity and Environmental Management Plan required under condition 8 may be required to achieve the reductions.

24. At least two years prior to the first discharge of Wastewater irrigation within the River Flat Discharge Area, and each year thereafter, the consent holder shall:

a) Quarterly sample and analyse the six groundwater from the bores and the gallery shown in Plan CRC203304 Figure 4 for the following:
    i. Sodium;
    ii. Nitrate Nitrogen;
    iii. Dissolved Reactive Phosphorus;
    iv. Conductivity; and
    v. Escherichia coli.

b) Quarterly sample, measure and analyse the samples from the Pareora River at the localities shown in Plan CRC203304 Figure 4 when there is flowing water for the following:
    i. Total Nitrogen;
    ii. Nitrate/Nitrite Nitrogen;
    iii. Ammoniacal Nitrogen
    iv. Dissolved Reactive Phosphorus;
    v. Conductivity;
    vi. Escherichia coli;
    vii. River water temperature at time of sampling; and
    viii. River water pH at time of sampling.

25. The consent holder shall, no later than two years after the commencement of Wastewater irrigation within the River Flat Discharge Area engage a suitably qualified and experienced water quality expert to review and report on the determinands monitored for under condition 24 (a) and (b) to examine whether the Wastewater irrigation is contributing to any upward trend in concentrations of the determinands which requires a management response to reverse that trend.

26. The consent holder shall carry out subsequent reviews, in accordance with condition 24, every three years thereafter unless the Annual Monitoring Report, prepared under condition 56, recommends an immediate review.

27. The report prepared under conditions 25 or 26 shall contain the following:

a) Review of all monitoring information;

b) Examination of the climatic conditions that prevailed,

c) Examination of the Wastewater irrigation schedule;

d) Discussion of the trends in determinands; and

e) Discussion of whether there is likely to be any actual or potential adverse effect on the receiving environment, including the Pareora River.

28. Should the report completed in accordance with condition 25 indicate that the determinands are, on average, trending upwards and there is an actual, or there is likely to be a potential adverse effect, if the upward trends continue, then the consent holder shall:

a) Immediately engage an ecologist to resurvey pond 3 and the wetland area to examine any changes to the ecological baseline identified under condition 51D;

b) Within six months of the provision of the review report to the Consent Authority Manager, investigate options for reducing the concentrations of the determinands resulting from the discharge of Wastewater irrigation and identify specific actions required to be taken as necessary to reduce concentrations;

c) Provide a report to the Consent Authority Manager outlining the options considered and setting out the actions that will be undertaken and timeframes for implementing these actions; and

d) Ensure that the required actions are taken as soon as practicable thereafter.

Additional Condition for the Village Discharge Area

29. The consent holder shall quarterly sample and analyse the groundwater from the Well 2 bore shown in Plan CRC203304 Figure 4 for the following:

a) Sodium;

b) Nitrate Nitrogen;

c) Dissolved Reactive Phosphorus;

d) Conductivity; and

e) *Escherichia coli*.

Additional Condition for the Terrace Discharge Area B

30. The consent holder shall establish and maintain riparian vegetation along those parts of the ephemeral streams shown on Plan CRC203304 Figure 5 attached to this consent. The planting and maintenance programme shall be implemented in accordance with the Site Activity and Environmental Management Plan.

31. The consent holder shall quarterly sample, measure and analyse the samples from the ephemeral stream, when there is flowing water at location (NZTM 1458827 / 5073787); and the location downstream of the ephemeral stream tributary from Terrace Discharge Area B (NZTM 1459028 / 5073698) shown on Plan CRC203304 Figure 4, for the following:

a) Total Nitrogen;
b) Nitrate/Nitrite Nitrogen;
c) Ammoniacal Nitrogen
d) Dissolved Reactive Phosphorus;
e) Conductivity;
f) Escherichia coli;
g) Stream water temperature at time of sampling; and
h) Stream water pH at time of sampling

Management of Spray Drift and Odour

32. The discharge of Wastewater to land shall not give rise to any spray drift or odour that has a noxious, dangerous, offensive or objectionable effect:

a) Within the boundary of the Pareora residential area shown by the blue line on Plan CRC203304 Figure 6; or
b) Beyond the red line shown on Plan CRC203304 Figure 6.

33. The discharge of Wastewater to land shall be setback:

a. At least 50 metres from the boundary of a property not owned or leased by the consent holder, where there is no shelter belt or where the height of the shelter belt along the boundary is less than two metres high; or

b. At least 25 metres from the boundary of a property not owned or leased by the consent holder, where the height of the shelter belt along the boundary is more than two metres high.

34. Notwithstanding condition 33, Wastewater that is discharged using moveable low-pressure fixed sprinklers (K-Line or similar), may discharged at the edge of a shelter belt along a boundary provided that the shelter belt is more than two metres high and written approval is provided to the consent holder by the neighbouring landowner and forwarded by the consent holder to the Consent Authority Manager.

35. The consent holder shall ensure the shelter trees located on the boundaries of the discharge areas and shown on Plan CRC203304 Figure 5 attached to this consent, are maintained in accordance with the Site Activity and Environmental Management Plan as a means to reduce spray drift.

36. The consent holder shall take the following measures to reduce odour:
    a) Daily emptying of the wastewater buffer tanks; and
    b) Flushing of the entire wastewater system prior to any plant shutdown of seven days or longer.

37. Within twelve months from the first exercise of this consent, the consent holder shall implement the following additional measures to reduce odour:
    a) Weekly flushing of the pivots with fresh water; and
    b) Flushing of the pivots before a harvest exclusion period.

38. The consent holder shall ensure that the discharge of Wastewater irrigation:
    a) Within the Village Discharge Area is at least 100 metres from the notional boundary of any façade of a residential dwelling; or
    b) Within the Terrace Discharge Area A and B and the River Flat Discharge Area is at least 180 metres from the notional boundary of any façade of a residential dwelling.

Note: *The notional boundary is defined as a line 20 metres from the exterior wall of the residential dwelling or the legal boundary where this is closer to the dwelling.*

39. Condition 38 shall not apply to any property that contains a residential dwelling:
    a) That is owned by the consent holder; or

b) Did not exist at the time of the first commencement of this consent; or

c) Where the landowner and occupier of a residential dwelling have given written approval that condition 38 does not to apply to their residential dwelling and the consent holder has forwarded the written approval to the Consent Authority Manager.

Soil-Related Monitoring

40. Soil moisture shall be continuously recorded and used for Wastewater irrigation scheduling as follows:

a) To a depth of 300 mm within the Terrace Discharge Area A in at least three representative areas that receive Wastewater irrigation; and

b) To a depth of 300 mm and 600 mm in at least one representative location in the Terrace Discharge Area B, Village Discharge Area and River Flat Discharge Area receiving Wastewater irrigation.

41. At least annually, the consent holder shall take a minimum of four representative soil samples from each of the Terrace Discharge Area A and B, the Village Discharge Area and the River Flat Discharge Area following commencement of irrigation. Each sample shall consist of not less than fifteen soil cores taken at a depth of 7.5cm and each sample shall be analysed for;

a) pH;

b) exchangeable calcium;

c) exchangeable magnesium;

d) exchangeable potassium;

e) exchangeable sodium;

f) exchangeable sodium percentage (ESP);

g) phosphorus (Olsen P); and

h) total organic carbon and total nitrogen.

42. Prior to the first discharge of Wastewater in the River Flat Discharge Area, the consent holder shall collect four representative soil samples from the River Flat Discharge Area and analysed for the determinands listed in condition 41.

43. The location and date of soil sampling required under conditions 41 and 42 shall be recorded.

Monitoring of the Weather

44. Within twelve months of the first exercise of this consent, the Consent Holder shall install meteorological monitoring instruments at the site. The instruments shall be:

a) Installed and operated in accordance with Australian Standard 2923 – 1987 Ambient Air Guide for Measurement of Horizontal Wind for Air Quality Applications;
b) Installed at a height of at least ten metres above the site's natural ground level;
c) Able to record the meteorological monitoring results continuously using an electronic data logging system with an averaging time for each parameter of not more than one minute;
d) Capable of continuously monitoring:
    i. Wind direction;
    ii. Wind speed;
    iii. Rainfall; and
    iv. Temperature.

45. The meteorological instruments specified in condition 42 shall be installed and maintained in accordance with the manufacturer's specifications and by a suitably qualified and experienced practitioner. The consent holder shall maintain a record of when maintenance is undertaken, and the type of maintenance undertaken. This record shall be attached to annual monitoring report required under condition 56.

46. The wind speed and direction information collected in accordance with condition 44 shall be corroborated by visual observation at the boundary of the area to be used in any discharge event on at least three occasions during each year of operation with at least one observation in spring, summer and autumn. The observations shall be undertaken and recorded at the site during periods at or about the median wind velocity and in the prevailing wind direction. The observations must be adequate to enable the calibration of the weather station.

Monitoring Discharge Volumes

47. The consent holder shall record the volume of Wastewater irrigated on a daily basis to each irrigated area.

In-Pipe Monitoring

48. The consent holder shall undertake a 24-hour flow proportional sample weekly of the Wastewater discharge that is representative of the total discharge to the land treatment system; and

a) Sample and test the discharged Wastewater each week, and covering all working days of the week, for:
   i. Total Kjeldahl nitrogen (milligrams per litre);
   ii. Total oxidised nitrogen (milligrams per litre; and
   iii. Total phosphorus (milligrams per litre).

b) Sample and test the discharged Wastewater every six months for:
   i. pH;
   ii. 5-day carbonaceous biochemical oxygen demand (milligrams per litre);
   iii. Total suspended solids;
   iv. Oil & grease;
   v. Chloride (milligrams per litre);
   vi. Sodium (milligrams per litre);
   vii. Calcium (milligrams per litre);
   viii. Magnesium (milligrams per litre);
   ix. Potassium (milligrams per litre; and
   x. Sodium Adsorption Ratio (SAR).

Dry Matter and Total Nitrogen Monitoring

49. The consent holder shall monitor and report the dry matter and total nitrogen after each harvest of cut grass from each discharge area~~s~~ or where relevant each irrigator in Terrace Discharge Area A and B as follows:

a) One composite sample shall be taken for every ten hectares of the cut grass harvested from within a discharge area;
b) A composite sample shall be taken from ten samples of cut grass and analysed for total nitrogen;
c) The weight of grass harvested in kilograms of dry matter shall be recorded; and
d) The consent holder shall use the data obtained to determine the kilograms of nitrogen per hectare exported from the land application area via the Cut and Carry system.

Pond Monitoring

50. The consent holder shall:

a) Carry out quarterly water sampling of ponds 1, and 2 shown in Plan CRC203304 Figure 3;

b) Carry out quarterly water sampling of pond 3 two years prior to, and during, the discharge of Wastewater to the River Flat Discharge Area shown in Plan CRC203304 Figure 1; and

c) Measure and analyse the water samples for the following:

i. Total Nitrogen;

ii. Total Phosphorus;

iii. Ammoniacal Nitrogen;

iv. Dissolved Oxygen;

v. Measurement of pond water temperature at time of sampling;

vi. Measurement of pond water pH at time of sampling.

51. The consent holder shall record by photography the general state of the ponds, including whether there are any algae blooms or any dead fish. The photography shall be carried out on the same day as the water is sampled in accordance with condition 48.

51A. Within six months from the first exercise of this consent, the consent holder shall engage a suitably experienced and qualified ecologist to carry out an ecological survey of ponds 1 and 2 shown on Plan CRC203304 Figure 3, and provide a report on the results of the ecological survey to the Consent Authority Manager.

51B. The purpose of the ecology survey and report required under condition 51A is to document the current state of the ponds to determine whether the Wastewater irrigation in the Terrace Discharge Area A or the Village Discharge Area could be attributable to any future adverse effects on the ecology of ponds 1 and 2 shown on Plan CRC203304 Figure 3. The ecological survey shall include but not be limited to the identification of the macro-invertebrate and fish communities in ponds 1 and 2 and an assessment on the health of these communities, having regard to results of the water quality monitoring required under condition 50 (a) and (c).

51C. The consent holder shall resurvey pond 2 every five years after the first ecological survey was completed to examine any changes to the ecological values that were identified under condition 51B; and, if so, whether the changes are attributable to the Wastewater irrigation in the Terrace Discharge Area A or the Village Discharge Area. The report shall be provided to the Consent Authority Manager with two months completion of the ecological survey.

51D. At least two years prior to the first discharge of Wastewater irrigation in the River Flat Discharge Area shown on Plan CRC203304 Figure 1, the consent holder shall engage a

suitably experienced and qualified ecologist to carry out a baseline ecological survey of pond 3 shown on Plan CRC203304 Figure 3, and of the associated wetland plants surrounding the pond 3, and shall provide a report on the results of the ecological survey to the Consent Authority Manager.

51E. The purpose of the baseline ecology survey and report required under condition 51D is to determine whether the Wastewater irrigation in the River Flat Discharge Area could be attributable to any future adverse effects on the ecology of pond 3 shown on Plan CRC203304 Figure 3 or on the ecology of the associated wetland plants surrounding the pond 3. The baseline ecological survey shall include but not be limited to:

a) The identification of the macro-invertebrate and fish communities in pond 3 and an assessment on the health of these communities, having regard to results of the water quality monitoring required under condition 50 (b) and (c); and

b) The identification of the wetland plants present and an assessment on the health of the wetland plant community.

Methods to Sample and Analyse

52. Methods to sample and analyse Wastewater shall follow the most recent edition of the "Standard Methods for the Examination of Water and Wastewater" by A.P.H.A. and A.W.W.A. and W.E.F. (standardmethods.org) or alternatively by another method approved in advance by Consent Authority Manager.

53. Methods to sample and analyse groundwater and surface water required by conditions 16, 24, 29 and 50 shall be detailed in the Site Activity and Environmental Management Plan required under condition 8.

54. All analysis shall be undertaken by International Accreditation New Zealand accredited laboratory or equivalent to NZS/ISO/IEC/17025 quality standards.

Records Management and Reporting

55. The following records shall be maintained for each discharge event: date; time; duration; area of land; wind speed direction; effluent and clean water application rate; soil moisture levels. A copy of these records shall be made available to the Consent Authority Manager on request. A summary of this data shall be provided in the annual monitoring report required by condition 56.

56. The consent holder shall provide the Consent Authority Manager an annual monitoring report by the last working day of August each year, or such other date agreed to in writing by the Council. As a minimum, the monitoring report shall:

a) Summarise and interpret (including graphical presentation and statistical analysis) all data collected as required by the conditions of this consent and discuss any trends or changes in environmental effects evident from the monitoring data, both within the annual period and compared to previous years;

b) Discuss and recommend whether the monitoring results of the groundwater carried out for the River Flat Discharge Area trigger the need for any immediate review and reporting to be carried out under conditions 26, 27 and 28;

c) Detail any changes to how the land treatment system is to be managed after commissioning of the PCDAF required by Coastal Permit CRC203305, and recommend any necessary amendments to the Site Activity and Environmental Management Plan.

d) Notwithstanding clause (c), report and discuss any other operational changes or improvements made to the Wastewater treatment or meat processing operations, which would result in a notable variation of water quality or volume discharged;

e) Summarise any effects mitigation measures undertaken in the previous year, in particular measures to improve soil and pasture health;

f) Make recommendations on alterations/additions to the monitoring programmes;

g) List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent;

h) Report and discuss any complaints received as a result of the activities authorised by this consent;

i) Report on and discuss feedback received from the community and from the Tangata Whenua; and

j) Discuss any other issues associated with the consent that have arisen during the year.

Tangata Whenua Liaison Group

57. Not less than one year after the first exercise of this consent, the consent holder shall invite representatives of the Tangata Whenua to establish a Tangata Whenua liaison group.

58. The purpose of the Tangata Whenua liaison group is:

a) To enable the consent holder to share information relating to the exercise of this consent and the integrated approach for the management of Wastewater discharges to the sea authorised under separate concurrent consent;
b) To discuss the monitoring required by this consent; and
c) To discuss any other issues or incidences associated with the management of the discharge.

59. Invitations to participate in the Tangata Whenua liaison group shall be extended to the Tangata Whenua and once the Tangata Whenua liaison group is established, the consent holder shall offer to hold meetings of the group at least once per year.

60. The costs of participation in the Tangata Whenua liaison group shall lie where they fall, except that all administration costs will be the responsibility of the consent holder.

61. The consent holder shall provide no less than two weeks' notice of all Tangata Whenua liaison group meetings and shall keep minutes of these meetings and distribute them within five working days.

Complaints Monitoring

62. The consent holder shall maintain a Complaints Register for the purpose of recording and dealing with any complaints that are received by the consent holder in relation to the exercise of this resource consent. The Complaints Register shall record, where this information is available:
a) Time and type of complaint including details of the incident, for example, duration, location and any effects noted;
b) Name, address and contact phone number of the complainant if offered;
c) A description of weather conditions when the complaint occurred;
d) The likely cause of the complaint and the response made by the consent holder including any corrective action undertaken, if applicable;
e) Any corrective action taken to address the cause of the complaint, including the timing of that corrective action; and
f) The response from the consent holder to the complainant.

63. The Complaints Register shall be provided to the Consent Authority Manager as part of the annual monitoring reporting requirements or upon request.

Condition Review

64. The Canterbury Regional Council may annually, during the last five working days of May or October, serve notice of its intention to review the conditions of this consent for the purposes of;

a) Dealing with any adverse effect on the environment which may arise from the exercise of this consent; or

b) Requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment as a result of the exercise of this consent; or

c) To review the adequacy of and the necessity for monitoring undertaken by the consent holder.

Sea Discharge (Coastal Permit) for CRC203305 Appendix 2

Activity:	to discharge water and contaminants into the coastal marine area
Site Location:	The Avenue, Pareora
Client Name:	Silver Fern Farms Limited
Consent Number	CRC203305
Commencement Date	commencement date yet to be determined
Expiry Date	twenty-five years

DEFINITIONS

"**Consent Authority Manager**" means the Canterbury Regional Council, Attention: Regional Leader; Monitoring and Compliance

"Campylobacter" means *Campylobacter jejuni*

"Cryptosporidium" means the genus *Cryptosporidium*

"Existing Mixing Zone" means that area shown on Plan CRC203305 Figure 1

"Outlet Structure" means the existing structure that discharges Wastewater at or about map reference NZTM 1458538mE 5071869mN

"**PCDAF**" means Physico-chemical dissolved air flotation (DAF) treatment

"Revised Mixing Zone" means that area determined and mapped in accordance with conditions 37 to 40

"**Tangata Whenua**" means Te Rūnanga o Arowhenua and Te Rūnanga o Ngā Tahu;

"**Wastewater**" means treated meat processing wastewater, clean process streams, and associated stormwater and fresh water and any seawater that is discharged as a result of coastal inundation during high seas.

CONDITIONS

General

1. The discharge shall only be Wastewater from a meat processing plant located at Pareora, centred at map reference NZTM 1458298, 5071903, and associated water specified in the definition attached to this consent.

1A. The consent holder shall give priority to discharge Wastewater to land authorised under CRC203304 provided that the conditions set out in CRC203304 can be complied with and the consent holder is able to discharge Wastewater to land in accordance with the Site and Activity Management Plan required under conditions 8 to 10 of CRC203304.

2. The discharge shall occur into water at all times via the discharge structure located at or about map reference NZTM 1458538mE 5071869mN.

3. The Wastewater discharge shall be sampled at the same accessible in-pipe location prior to discharge into the receiving environment. The location shall be documented in the Annual Monitoring Report required by condition 23 and any change to the location shall be documented in the annual monitoring report required by condition 23.

4. The combined discharge with consent CRC203304 shall not exceed a rate of 8,300 cubic metres per day and the discharge of Wastewater to the coastal marine area shall not exceed a rate of 1,200 cubic metres per hour.

5. The consent holder shall measure and record the daily volume and hourly rate of Wastewater discharged. The consent colder shall maintain at all times suitable electromagnetic flow meters, with an error accuracy range of +/-5% to record the daily volumes of the discharge. The consent holder shall ensure the full operation of these meters at all times during the exercise of this consent. A copy of the records will be provided to the Consent Authority Manager upon request.

6. The discharge of Wastewater to sea from the outfall shall not occur landward of the mean high water spring tide or give rise to any spray drift or odour that has a noxious, dangerous, offensive or objectionable effect.

Site Activity and Environmental Management Plan

7. Within six months from the first exercise of this consent, the consent holder shall provide a Site Activity and Environmental Management Plan to the Consent Authority Manager. A copy of the Site Activity and Environmental Management Plan shall be provided to the Tangata Whenua.

8. The purpose of the Site Activity and Environmental Management Plan is to provide direction on the systems and controls at the plant required for the effective management of the treated Wastewater discharge to the coastal marine area; and, otherwise achieve the conditions of this consent.

9. The Site Activity and Environmental Management Plan shall include but not be limited to details describing:

   a) The infrastructure used to treat and discharge the Wastewater;
   b) Infrastructure and systems to separate the Wastewater streams;
   c) Management of Wastewater volumes and loadings;
   d) Changes to details contained in clauses (a) to (c) after the Wastewater treatment upgrade required by conditions 32, 33 and 34 is implemented;
   e) Systems to carry out the environmental monitoring and measurement programme;
   f) Systems to deal with incidents or emergencies;
   g) Procedures to handle complaints; and
   h) Any other procedures required to ensure the conditions of consent are complied with.

10. The consent holder shall review the Site Activity and Environmental Management Plan each year to ensure the systems and controls at the plan remain appropriate and continue to achieve the purpose of the consent conditions. The review shall consider the results of any monitoring required by conditions of this consent and where necessary amend the Site Activity and Environmental Management Plan to better achieve the purpose of the Plan set out in condition 8. The consent holder shall provide a report detailing the review undertaken and also provide any amended Site Activity and Environmental Management Plan to the Consent Authority Manager by the last working day of August each year. Any amended Site Activity and Environmental Management Plan shall be provided to the Tangata Whenua.

Receiving Environment Limits

11. Subject to condition 42, the discharge shall not, beyond the Existing Mixing Zone boundary (shown on Plan CRC203305 Figure 1), result in:

a) A change the natural temperature of seawater more than 3 degrees Celsius;

b) A dissolved oxygen concentration that is less than 80% of saturation concentration;

c) The production of conspicuous oil or grease films, scums or foams, or floatable materials;

d) Any emission of objectionable odour;

e) Between 1 November and 31 march in the following year, the median concentration of enterococci from the five consecutive samples collected at intervals of between five and nine days exceeding 35 colony-forming units per 100 millilitres of water, or a single sample exceeding 277 colony-forming units per 100 millilitres of water; and

f) Any significant adverse effects on aquatic life.

Receiving Environment Monitoring

12. The consent holder shall carry out the following monitoring programme:

a) Seawater shall be sampled during the discharge of Wastewater from the outlet structure to the sea. The seawater shall be sampled when the Wastewater is at or near the expected maximum daily volume for the sampling period;

b) The samples collected from sites 1, 2 and 3 shown on Plan CRC203305 Figure 1 shall be analysed for

i. Temperature

ii. pH

iii. Salinity

iv. Dissolved Oxygen (DO)

v. Total nitrogen

vi. Ammoniacal nitrogen

vii. Oil & grease

viii. Enterococci

c) Seawater sampling for the parameters listed under 12 (b), other than *Enterococci*, shall be carried out monthly from sites 1 and 2 shown on Plan CRC203305 Figure 1;

d) Seawater sampling for the parameters listed under 12 (b), other than *Enterococci*, shall be carried out yearly from site 3 shown on Plan CRC203305 Figure 1;

e) For Enterococci, samples shall be collected between 1 November in any year and 31 March as following:
    i. Samples shall be collected at the sites required under conditions 12 (b);
    ii. Sampling shall be performed on at least on five separate occasions at intervals of between five and nine days;
f) Samples collected under this condition shall be analysed in accordance with conditions 21 and 22.

13. The consent holder shall monitor for a conspicuous change in colour and clarity in accordance with condition 14 and shall use its best endeavours to carry out the visual monitoring with the use of aerial imagery or similar, concurrently with the seawater sampling required under condition 12.

14. The consent holder shall undertake aerial imagery monitoring (aerial photography and/or video) at least four times each year to record the extent of the discharge plume. The aerial imagery monitoring shall be undertaken in calm conditions (less than 10 km/hr wind speed) and extend out to the Existing Mixing Zone boundary north and south of the outlet and shall include the full extent of the plume.

15. At least one month prior to the first undertaking of aerial imagery monitoring required under conditions 13 and 14 the consent holder shall provide a copy of a report setting out the details of how the aerial imagery monitoring is to be undertaken, to the Consent Authority Manager.

16. The aerial imagery monitoring method shall be reviewed annually and any changes to the method shall be recorded in the annual monitoring report required by condition 23.

17. The consent holder shall cease monitoring at the boundary of the Existing Mixing Zone under conditions 12 (c), 12 (d), 13 and 14 and instead monitor at the boundary of the Revised Mixing Zone under conditions 12 (c), 12 (d), 13 and 14 when condition 42 is invoked.

18. The consent holder may, with approval of the Consent Authority Manager, cease the aerial imagery monitoring required by conditions 13 and 14 if no observable plume beyond the Revised Mixing Zone boundary is able to be detected on consecutive images taken during the first five years following the commissioning of the Wastewater treatment upgrade in

accordance with condition 34.

19. The consent holder may, with approval of the Consent Authority Manager, cease the receiving environment monitoring required under condition 12 (d) provided condition 17 has been invoked for at least a period of five years.

Monitoring of Wastewater Discharge

20. The consent holder shall take a 24-hour flow proportional sample of the in-pipe Wastewater discharge at the location required under condition 3 and identified in accordance with condition 23.

a) The consent holder shall sample and test the discharged Wastewater each week for:
   i. pH
   ii. 5-day biochemical oxygen demand (cBOD5)
   iii. Total suspended solids
   iv. Total Kjeldahl nitrogen (TKN)
   v. Ammoniacal N (NH4-N)
   vi. Dissolved Reactive Phosphorus (DRP)
   vii. Oil and grease
   viii. Enterococci

b) The sampling carried out in clause (a) shall cover all working days of the week that discharges are occurring.

21. Methods to sample and analyse Wastewater and seawater shall follow the most recent edition of the "Standard Methods for the Examination of Water and Wastewater" by A.P.H.A. and A.W.W.A. and W.E.F. (standardmethods.org) or alternatively by another method approved in advance by the Consent Authority Manager.

22. All analysis shall be undertaken by an International Accreditation New Zealand accredited laboratory or equivalent to NZS/ISO/IEC/17025 quality standards.

Reporting

23. The consent holder shall provide the Consent Authority Manager with an annual monitoring report by the last working day of August each year. The monitoring report as a minimum shall:

a) Summarise and interpret (including graphical presentation and statistical analysis) all data collected as required by conditions of this consent and analyse the information in terms of compliance with this consent;
b) Identify and discuss any important trends in the data and the implications of these on the coastal marine area receiving environment;
c) Compare the results obtained over the reporting period with the results obtained from previous reporting periods;
d) Analyse the results against the targets set out in condition 35;
e) Report and discuss any operational difficulties, changes or improvements made to the wastewater treatment or meat processing operations, which would result in a notable variation of water quality or volume discharged;
f) Report on progress toward completing the Wastewater treatment upgrade required by condition 32;
g) Report on any procurement or supply issues associated with completing the Wastewater treatment upgrade;
h) List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent;
i) Identify the in-pipe sampling location required under condition 3; and, in the event that the location needs to be changed, then identify the new location together with the reasons why the change is necessary;
j) Report and discuss any complaints received regarding the discharge into the coastal marine area and any action taken by the consent holder to address the complaint;
k) Report on the aerial imagery monitoring carried out in accordance with conditions 13 and 14 and describe any changes to the methodology with the reasons why; and
l) Provide an interpretation of the effects on the environment of the discharge to the coastal marine area.

Monitoring of Campylobacter and Cryptosporidium within the Wastewater Discharge

24. The consent holder shall carry out monthly sampling of the Wastewater for *Campylobacter* and *Cryptosporidium* for 12 months prior to, and following, the commissioning of the Wastewater treatment upgrade required by condition 34.

25. The sampling of the Wastewater *Campylobacter* or *Cryptosporidium* shall be at the location determined by condition 3 and shall be sampled in accordance with condition 21.

26. All analyses of *Campylobacter* and *Cryptosporidium* shall be undertaken in accordance with condition 22.

27. The consent holder shall engage a suitably qualified and experienced microbiologist to review the monitoring results obtained under condition 24 and, having regard to the risk of exposure to the public, provide the Consent Authority Manager with a report and recommendations on whether:
    a) Monthly monitoring for *Campylobacter* and *Cryptosporidium* should continue; and
    b) Whether any action is required to lower the *Campylobacter* or *Cryptosporidium* concentrations in the Wastewater.

28. Where the recommendation provided in accordance with condition 27 is for the monitoring of either *Campylobacter* or *Cryptosporidium* (or both) to cease, the consent holder may, with approval of the Consent Authority Manager, cease monitoring and conditions 24 to 27 will no longer apply.

29. Where the recommendation provided in accordance with condition 27 is for the monitoring to continue, the monitoring of either *Campylobacter* or *Cryptosporidium* (or both) must continue in accordance with conditions 25 to 26 for a further period of 36 months and a further report under condition 27 must be prepared.

30. A report prepared in accordance with condition 27 shall be provided to the Consent Authority Manager no later than 3 months after monitoring has been completed in accordance with conditions 24 or 29.

31. Should the report completed in accordance with condition 27 conclude that the *Campylobacter* or *Cryptosporidium* are at a concentration that could result in an unacceptable risk to public health then the consent holder shall:
    a) Within 6 months of providing the report to Consent Authority Manager, investigate options for reducing the concentrations of the *Campylobacter* or *Cryptosporidium* (or both) resulting from the discharge of Wastewater and identify specific actions required to be taken as necessary to reduce concentrations; and
    b) Undertake those actions as soon as possible and report to the Consent Authority Manager of the actions undertaken.

Upgrade of Wastewater Treatment

32. No later than three years from the consent commencing, the consent holder shall prepare and submit to the Consent Authority Manager a Wastewater treatment upgrade plan. A copy of the upgrade plan shall be provided to the Tangata Whenua. The report shall be prepared by suitably qualified and experienced person(s) and the upgrade plan shall identify PCDAF technology and other upgrades necessary to improve the quality of the Wastewater discharged to the coastal marine area and to comply with the receiving environment limits set by Conditions 11 and 43. The treatment upgrade plan shall include but not be limited to:

a) Details of the investigation into waste stream separation, its benefits, and associated recommendations, including details of the expected reductions in receiving environment concentrations of TSS, cBOD5, NH4-N, TKN, DRP, TP oil and grease and Enterococci concentrations that will be achieved by the upgrade;
b) A description of the Wastewater treatment upgrade, including the proposed PCDAF technology that is to be installed;
c) Any changes required to the operation and management of Wastewater after the Wastewater treatment upgrade has been completed;
d) A description of how the proposed treatment upgrade would minimise the visual effects of the Wastewater discharge in the receiving environment;
e) A description of how the Wastewater treatment upgrades will be undertaken, including the installation of the PCDAF, and including a staged work plan describing the timing associated with the progressive implementation of the upgrade; and
f) The monitoring and reporting obligations associated with the Wastewater treatment upgrade and this consent.

33. The consent holder shall at the first and second anniversary from the first exercise of this consent provide information that describes the background work carried out during previous year needed for the Wastewater treatment upgrade. The information shall be provided in the annual monitoring report required under condition 23.

34. The consent holder shall ensure that Wastewater treatment plant upgrade, including the installation of the PCDAF, is fully commissioned and operational in accordance with the Wastewater treatment upgrade plan set out in condition 32 and this consent no later than six years from the first exercise of this consent.

Wastewater Discharge Quality Targets – Post-Wastewater Treatment Plant Upgrade

35. The consent holder shall, when undertaking monitoring in accordance with condition 20, compare the following parameters with the targets listed in the table below:

Parameter	95 Percentile
Total suspended solids	100
cBOD5	670
TKN	90
DRP	15
Oil & grease	<40
Enterococci	15,000

1. *All parameters are in mg/L except for enterococci as cfu/100 mL.*
2. *The 95th percentile value shall be calculated on a rolling basis from the previous 20 consecutive samples*

36. If any of the targets identified in condition 35 are exceeded more than 12 months after the Wastewater treatment upgrade has been commissioned in accordance with condition 34, the consent holder shall engage a suitably qualified and experienced wastewater engineer to review the monitoring information, how the upgrade is operating, and recommend any necessary changes to the operation, including the operation of the PCDAF. Any changes to the operation and the reasons why are to be documented in the annual monitoring report prepared in accordance with condition 23.

Preparation and Implementation of a Revised Mixing Zone

37. The consent holder shall engage a suitably qualified and experienced expert to revise the mixing zone for the discharge after the Wastewater treatment upgrade has been commissioned, as required by condition 34. The revised mixing zone size must not be larger than the existing mixing zone size.

38. The investigation shall commence no later than one year after the Wastewater treatment upgrade, including the commissioning of the PCDAF. The results of the investigation shall be provided to the Consent Authority Manager no later than two years after Wastewater treatment upgrade.

39. The investigation required under condition 37 shall include but not be limited to:

a) Running Cormix or an equivalent model to determine the dilution field of Enterococci and faecal coliforms contained in the Wastewater discharge;

b) Performing laboratory dilution testing for clarity and colour;

c) Sampling at least the following determinands to crosscheck the modelling and dilution work:

i. Enterococci;

ii. Faecal coliforms;

iii. Colour;

iv. Clarity;

v. Ammonia nitrogen;

vi. Total nitrogen or Total Kjeldahl nitrogen;

vii. Dissolved Oxygen (DO);

viii. Dissolved Reactive Phosphorus (DRP);

ix. Fat, Oil and Grease (FOG);

40. A report shall be prepared by the expert that carried out the investigation under conditions 37 to 39 that:

a) Describes and discusses the rationale for the investigation methodology used, including the location of sampling undertaken;

b) Present the results used to assess the size of the revised mixing zone;

c) Presents a revised mixing zone in response to the commissioning of the Wastewater treatment upgrade; and

d) Provides a map of the Revised Mixing Zone, including the distances from the outfall to the north and southern boundary of the Revised Mixing Zone, and the revised sampling sites required for condition 12, which will replace Plan CRC203305 Figure 1.

41. The report prepared under condition 40 shall be provided to the Consent Authority Manager no later than three months after the investigation has been completed.

42. The receiving environment limits set out in condition 11 shall apply to the shortest distance from the outfall to either the Revised Mixing Zone boundary or the Existing Mixing Zone boundary. The Plan CRC203305 Figure 1 shall be updated following the completion of the

investigation and reporting set out in conditions 37 to 41 and show either Revised Mixing Zone or the Existing Mixing Zone, whichever is the shortest.

Additional Receiving Environment Limits Post-Wastewater Treatment Upgrade

43. Beyond the boundary of the Revised Mixing Zone, the discharge shall:
    a) Not result in any conspicuous change in colour or clarity; and
    b) Not cause, between 1 November and 31 March in the following year, the median concentration of enterococci from the five consecutive samples collected at intervals of between five and nine days to exceed 35 colony-forming units per 100 millilitres of water, or a single sample to exceed 277 colony-forming units per 100 millilitres of water; and
    c) Not result in ammoniacal nitrogen exceeding 0.91 mg/L.

44. The receiving environment limits set out in condition 43 shall apply to the shortest distance from the outfall to either the Revised Mixing Zone boundary or the Existing Mixing Zone boundary, whichever is in effect in accordance with this consent. Plan CRC203305 Figure 1 shall be updated following the completion of the investigation and reporting set out in conditions 37 to 41 and show either Revised Mixing Zone or the Existing Mixing Zone, whichever is the shortest.

Tangata Whenua Liaison Group

45. Not less than one year after the first exercise of this consent, the consent holder shall invite representatives of the Tangata Whenua to establish a Tangata Whenua liaison group.

46. The purpose of the Tangata Whenua liaison group is:
    d) To enable the consent holder to share information relating to the exercise of this consent and in particular discuss the work towards the development of the Wastewater treatment upgrade, including the installation and the performance of the PCDAF once commissioned;
    e) To provide an opportunity for feedback on the draft or any draft amended Site Activity and Environmental Management Plan prepared under condition 7;
    f) To discuss the monitoring required by this consent; and
    g) To discuss any other issues or incidences associated with the management of the discharge.

47. Invitations to participate in the Tangata Whenua liaison group shall be extended to the Tangata Whenua and once the Tangata Whenua liaison group is established, the consent holder shall offer to hold meetings of the group at least once per year.

48. The costs of participation in the Tangata Whenua liaison group shall lie where they fall, except that all administration costs will be the responsibility of the consent holder.

49. The consent holder shall provide no less than two weeks' notice of all Tangata Whenua liaison group meetings and shall keep minutes of these meetings and distribute them within five working days.

Complaints

50. The consent holder shall maintain a Complaints Register for the purpose of recording and dealing with any complaints that are received by the consent holder in relation to the exercise of this resource consent. The Complaints Register shall record, where this information is available:

    g) Time and type of complaint including details of the incident, for example, duration, location and any effects noted;
    h) Name, address and contact phone number of the complainant if offered;
    i) A description of weather conditions when the complaint occurred;
    j) The likely cause of the complaint and the response made by the consent holder including any corrective action undertaken, if applicable;
    k) Any corrective action taken to address the cause of the complaint, including the timing of that corrective action;
    l) The response from the consent holder to the complainant.

51. The Complaints Register shall be provided to the Consent Authority Manager as part of the annual monitoring reporting requirements or upon request.

Condition Review

52. The Canterbury Regional Council may annually, during the last five working days of May or October, serve notice of its intention to review the conditions of this consent for the purposes of:

a) Dealing with any adverse effect on the environment which may arise from the exercise of the consent; or
b) Requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment as a result of the exercise of this consent; or
c) The failure to construct the PCDAF treatment plant within the timeframes set by Condition 34.

Coastal Occupation Permit for CRC224495 Appendix 3

Activity:	Coastal permit to re-construct, maintain, repair or alter an existing outlet structure located on the foreshore in the Coastal Marine Area Coastal permit to occupy the coastal marine area for the purposes of using an existing outlet structure, and also to occupy the Coastal Marine Area to carry out any maintenance, repair, alteration or reconstruction of the structure
Site Location:	The Avenue, Pareora
Client Name:	Silver Fern Farms Limited
Consent Number	CRC224495
Commencement Date	commencement date yet to be determined
Expiry Date	Twenty-five years

CONDITIONS

General

1. The outlet structure shall be located at or about map reference NZTM 1458538mE 5071869mN.

2. The outlet structure shall only be used for the conveyance and discharge of Wastewater authorised under CRC203305.

3. The discharge of Wastewater from the outlet structure shall be into seawater and not directly onto land unless the structure been significantly damaged or destroyed by an adverse weather event in which case the discharge can be directly onto land for a temporary period until the outlet structure is repaired or reconstructed. Such repair or reconstruction work shall be carried out as soon as possible.

4. The outlet structure shall be maintained in good condition and in accordance with accepted good engineering practice.

5. An annual inspection shall be undertaken by a suitably qualified and experienced person to assess the condition of the structure. A report on the condition of the structure and proposed maintenance, shall be provided to the Canterbury Regional Council, Attention: Regional Manager, RMA Monitoring and Compliance (the Consent Authority Manager) by the last working day of August each year.

6. Any repair, maintenance or reconstruction of the outlet structure shall be carried out as soon as practicable.

7. In the event of damage or destruction to any part of the outlet structure caused by an adverse weather event, the consent holder shall give written notice to the Consent Authority Manager within five working days of the damage that has occurred and the repair or reconstruction work that is required, including details of the works that will occur and timing of the works.

8. In the event that the outlet structure needs to be reconstructed after significant damage to, or destruction of, the outlet structure, the consent holder may add up to 10% to any cross-sectional area during the term of this consent of the outlet structure during reconstruction in

order to make the structure more resilient to future adverse weather events. Details of the design and the reasons why, and the timing of works, shall be provided to the Consent Authority Manager within one month of the adverse weather event. The design of the structure is included in Plan CRC224495A attached to this consent.

9. Any materials used in the repair or maintenance of the outlet structure shall be inert materials that are free from hazardous substances.

10. The Consent Authority Manager shall be notified not less than 48 hours prior to the commencement of any works in the Coastal Marine Area.

11. All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery.

12. There shall be no storage of fuel or refuelling of vehicles and machinery anywhere on the foreshore.

13. Any debris or material resulting from damage or deterioration of the structure shall be removed from the Coastal Marine Area as soon as practicable.

14. All practicable measures shall be undertaken to minimise adverse effects on the environment.

15. The Canterbury Regional Council may annually, during the last five working days of May or October, serve notice of its intention to review the conditions of this consent for the purposes of:

    d) Dealing with any adverse effect on the environment which may arise from the exercise of the consent; or

    e) Requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment as a result of the exercise of this consent.