BEFORE THE CANTERBURY REGIONAL COUNCIL AND WAIMATE DISTRICT COUNCIL

IN THE MATTER OF	the Resource Management Act 1991
AND	
IN THE MATTER OF	Eight Resource Consent Applications by Fonterra New Zealand Limited to the Canterbury Regional Council and Waimate District Council to expand its milk processing facility at Studholme.

CRC160873 – to undertake earthworks associated with the excavation of stormwater ponds, site levelling, construction of earth bunds and construction of a swale.

CRC160875 – to undertake works in the beds and banks of watercourses and their riparian margins, associated with a pipeline and culverts.

CRC160940 - to divert northern catchment surface water and to undertake site dewatering.

CRC160874 – to discharge domestic wastewater to land from staff and visitor facilities associated with a milk powder plant.

CRC160876 – to disturb, occupy and discharge contaminants to the Coastal Marine Area (CMA).

CRC160871 – to discharge contaminants to air from a milk powder plant and associated activities, including boilers and wastewater treatment.

CRC160872 – to discharge stormwater from roofs, roads, impervious and hardstand areas associated with a milk powder plant.

RMA150031 – a land use consent for the expansion of Studholme Milk Processing Plant on State Highway 1 and associated infrastructure.

REPORT AND DECISION OF HEARING COMMISSIONERS

PAUL ROGERS (Chair), JOHN ISELI and GINA SOLOMON

TABLE OF CONTENTS

Appendices:

1 INTRODUCTION

1.1 We have been delegated and appointed as independent hearing Commissioners by both the Canterbury Regional Council (CRC or ECan) and the Waimate District Council (WDC) under section 34A(1) of the Resource Management Act 1991 (RMA) to hear and decide eight applications by Fonterra New Zealand Limited (Fonterra) to expand its existing milk processing facility (the Existing Plant) located at Studholme[1] (the site). This decision sets out our findings on these applications, focusing on the principal issues in contention and the reasons for our decision.

1.2 In addition to the evidence and submissions provided by Fonterra, and the submitters at the hearing, along with the section 42A officer reports and evidence provided at the hearing, we record that we have read and taken full account of the application documents, including the Assessment of Environmental Effects (AEE) provided by Fonterra. We have read and considered all of the written submissions lodged by the submitters. Although not every witness and submission is referred to in our decision, this does not mean that they have not been considered. Rather we have endeavoured to focus on key issues and where possible avoid repetition in our decision.

1.3 In accordance with section 113(3) RMA, we have also cross referenced and adopted parts of the AEE provided by Fonterra, the section 42A officer reports, and written evidence throughout this decision as appropriate.

1.4 To assist the reader, we have attached appendix one which lists the acronyms and abbreviations used throughout this decision.

2 DESCRIPTION OF THE ORIGINAL AND THE NOW ADVANCED "STAGE ONE" PROPOSAL

2.1 The original proposal was accurately described by Patricia Harte, the section 42A reporting officer for WDC, as a proposal to significantly expand the Existing Plant at the site. A detailed description of the proposal is set out in volume 1, section 4 of the application documents.

2.2 The key elements of the original development were:

(a) the construction of two new 30 tonne per hour dryers with a height of up to 56m and four associated discharge stacks 3m above this;

(b) a new powder store building with a total area comprising 66,750m²;

(c) two additional coal/biomass fired boilers of 65MW (Stage 1) and 50MW (Stage 2) respectively up to a height of 45m with a single stack height of up to 68m and associated coal handling facilities;

(d) new milk reception and clean in place (CIP) facilities;

[1] *Approximately 6km to the east of the Waimate Township on SH1.*

(e) the recycling of condensate for use in the factory after reverse osmosis treatment;

(f) two new sealed tanker parking areas;

(g) new rail sidings and loading facilities to enable a seven day a week/24-hour rail operation;

(h) the construction of bunds for noise reduction;

(i) an increase in on-site employees by approximately 50 operations staff for each stage and 66 more tanker drivers for Stage 1 and 75 for Stage 2. The total staff numbers for the completed development would increase from 50 to 150 operational staff and from 15 to 150 tanker drivers;

(j) an increase in total vehicle movements from 162 per day to 529 per day for Stage 1 and ultimately 1237 for Stage 2;

(k) a new access off State Highway One (SH1) for milk tankers opposite Molloys Road;

(l) new landscaping along SH1, Foleys Road and on the noise bunds;

(m) new on site stormwater retention ponds and the realignment of the Northern drainage path;

(n) a new sewage disposal system utilising 3900m² for the disposal field and located on land to the South of Foleys Road;

(o) the demolition of a number of existing buildings on the existing factory site;

(p) an offsite biological wastewater treatment plant (WWTP);

(q) a pipeline and ocean outfall; and

(r) extensive earthworks associated with the main site, the stormwater ponds, the realignment of the Northern drainage path, the WWTP and the pipeline/ocean outfall.

2.3 Originally the proposal or development was to proceed in two stages. Stage 1 was to include the development of the first of two dryers (Dryer 2) a new boiler (Boiler 3), approximately 36,850m² of dry store building, a new CIP, a new milk reception, expansion of the existing tanker parking area, new road access, the development of rail sidings, a new domestic wastewater treatment and disposal system, new stormwater ponds and wetland, a new biological treatment plant at the current WWTP site, and the development of a pipeline and ocean outfall. Stage 2 of the proposal was to include the development of the second new dryer (Dryer 3), a further boiler (Boiler 4), a further approximately 29,900m² of dry store building, expansion of the milk reception area, and a new tanker parking area. Initially consent for both stages was sought as part of this application.

2.4 Overall the original proposed development incorporated approximately 105,000m² (10.5ha) of new building area on the site. When combined with the remaining building area on the site, which would have been approximately 9400m² after demolition, this gave a total of approximately 114,400m² (11.44ha) of building area on a site of some 32.95ha.

2.5 Significant alterations are proposed to the vehicle access arrangements of the site. The existing SH1 access point from Packers Road will be closed and a new side access created some 500m further to the north opposite Molloys Road. All tanker access to and from the site will be via this new access point on to SH1. A second access point into the site and into the Studholme Hotel will remain from Foleys Road. The existing public roads into the Site, including Packers Road, are proposed to be closed. We were told at the hearing this is subject to a separate proposal being advanced by WDC.

2.6 Relevantly we were also advised a certificate of compliance had been obtained from WDC for earthworks on the site excluding those identified as HAIL sites or those within 20m of any existing river. We were also told that a resource consent had been obtained by Fonterra to deal with the contaminated soil within the site. This National Environmental Standards (NES) consent (RM150040) provides for the removal of an underground petrol storage tank and removal of soil contaminated by a sheep dip. The contaminated soil is to be encapsulated and then placed at the base of the boundary bund. The final location of this contaminated soil will depend on the final form of landscaping and the bund.

2.7 Within the right of reply Fonterra revised the proposal before us restricting it to Stage 1 only. Essentially a Stage 1 proposal would effectively halve the production capacity as originally proposed. **The Stage 1 Proposal** involves:

(a) one additional dryer (Dryer 2) with a height up to 56m and associated discharge stacks (4) 3m above this;

(b) one additional coal/biomass fired 65MW boiler (Boiler 3) up to a height of 45m for the building with a single stack height of 68m and associated coal and wood fuel handling facilities;

(c) a dry store area of 36,850m^2 which would now be fully confined to the Business 3 zoned part of the site and no longer occupy that part of the site zoned Rural;

(d) a new CIP;

(e) a new milk reception;

(f) the recycling of condensate for use in the factory after osmosis treatment;

(g) the construction of bunds for noise reduction;

(h) expansion of the existing tanker parking areas;

(i) development of and operation on a seven day per week 24-hour per day basis of rail sidings inclusive of rail shunting movements;

(j) an increase in total vehicle movements from 162 per day to 529 per day;

(k) stormwater ponds with treatment and attenuation, and the development of a new biological wastewater treatment facility located at the current WWTP site, that would remain the same as originally proposed in terms of the overall level of treatment but would now relate only to Stage 1;

(l) a new domestic waste water treatment and discharge system utilising 3900m^2 of drip line disposal field in the same location and of the same scale as the original application but relating only to Stage 1;

(m) the development of and construction of an in-ground pipeline from the new WWTP to the coast and the operation of the ocean outfall as proposed within the original application;

(n) a small reduction in noise caused by Stage 1 activities, relative to the original proposal;

(o) visual and amenity mitigation through landscaping and amenity planting along SH1, Foleys Road and on the noise bund;

(p) roading alterations relating to SH1, namely closing access from Packers Road, establishing new access points 500m further to the north opposite Molloys Road, and restricting all tanker access to and from the site to this new access point onto SH1. In addition, all existing access from public roads into the site off SH1 and Foleys Road are proposed to be closed. However, a second access point into the site and to the Studholme Hotel will remain from Foleys Road;

(q) demolition of a number of existing buildings on the site;

(r) extensive earth works on the Site, for the stormwater ponds, for the realignment of the northern drainage path, and for the WWTP, pipeline and ocean outfall;

(s) storage of hazardous substances which will be appropriately bunded to prevent potential spills. Quantity levels of hazardous substances will increase in terms of those currently stored on the site, including a replacement above ground fuel storage tank capable of holding 50,000L of diesel and 20,000L of diesel additive. LPG will be stored on site, namely 5000kg. The other hazardous substances are cleaning agents to be utilised at the site. Those substances are nitric acid, caustic acid, hydrochloric acid, food grade caustic, sulphuric acid; and

(t) new lighting associated with the new intersection on SH1, the Foleys Road/SH1 intersection, the rail loading area, the tanker parking area and the milk reception area.

2.8 A land use consent is sought from WDC for the expansion of the dairy processing factory on the site. Separate consents are sought from CRC to establish the pipeline and treatment facilities for wastewater and stormwater, and to discharge contaminants to air, ground and water. There is a degree of overlap between some elements of the various applications.

2.9 The range of activities referred to above are the subject of several discrete resource consent applications which we have identified by reference to the numbers on the opening page of this decision. Where appropriate through this decision we will refer to the identification numbers for the individual resource consents. However, our approach is to consider the individual resource consents as component parts of the overall proposal. We focus on determining whether or not the overall proposal should be granted consent or not. We do not consider each resource consent application separately so as to determine whether each application could be granted in isolation of the other consents. Rather we have grouped all of the resource consent applications together to make up the single proposal for which consent is sought.

3 PROCEDURAL AND PRELIMINARY ISSUES

Climate Change – Section 104E Issue

3.1 While not a true preliminary issue we have decided to deal with the s104E RMA issue before we proceed with the balance of the decision. This approach will avoid repetition and allow those hearing participants interested in this issue to easily locate our consideration of it.

3.2 S104E RMA deals with decisions on applications relating to discharge of greenhouse gases. The section is in play, subject to its terms, because Fonterra has applied for a discharge permit authorizing the discharge of CO2 and other contaminants from the burning of coal in the new boiler plant.

3.3 From the outset in its opening Fonterra made it clear s104E RMA properly interpreted and applied meant that we must not have regard to the effects of the discharge of greenhouse gases from the boiler plant on climate change. In his opening submissions Mr Williams for Fonterra made it clear he considered that we were expressly prohibited under the RMA from considering the wider climate change effects of burning fossil fuels namely relevant to this application coal. He said it was open to us to have regard to the effects of how the fuel is delivered to and handled on the site but that the choice of fuel is a business one for Fonterra.

3.4 As a matter of law, he said we were not able to have regard to submissions or evidence relating to the effects of the discharge of greenhouse gases from this proposal on climate change. However, he said we could have particular regard to the effects of climate change on the activity. For example, we could take into account the effects of sea level rise caused by climate change on the ocean outfall. He also submitted that we could take into account the use and development of renewable energy to the extent that it enabled a reduction in the

discharge into air of greenhouse gases. He supported his submissions by reference to a range of Supreme Court decisions.

3.5 In contrast the submitter group, whose main issue related to the effects that this proposal would have on climate change, primarily through the use of fossil fuels, did not promote an alternate interpretation or application of s104E RMA nor did they point to any court decisions supportive of their views. Their position on s104E RMA was either not to address it or alternatively while acknowledging its existence and its effect asked us to ignore it as bad law.

3.6 Our role as best we are able is to apply the RMA in making decisions on applications. Parliament which sets the law of the land has seen fit through s104E RMA to specifically direct consent authorities not to have regard to the effects of a discharge permit on climate change. In our view the wording as it appears within s104E RMA is very clear. That wording has been tested before the highest court within our court system and the view of that court has been succinctly expressed in our view by Mr Williams for Fonterra. We cannot have regard to the effects of the discharge before us on climate change. For these reasons we prefer the Fonterra position on this issue to that of the submitters.

Proposal Amendment: Stage 1 and 2 Reduced to only Stage 1

3.7 Another preliminary issue is responding to Fonterra's formal notice contained within Mr Williams' written reply of 4 May 2016 that Fonterra wishes to withdraw the "Stage 2" elements of its original application and pursue a "Stage 1" proposal alone. Within that part of the reply Mr Williams sets out the jurisdiction to consider a Stage 1 proposal alone.

3.8 His essential point is that the amendment advanced is of the same character of development as originally notified in that the activity that the Stage 1 proposal provides for remains milk processing. He expands on this point in noting that the reduced proposal, the Stage 1 proposal, still entails an increase in plant capacity, milk collection, product storage and the disposal of domestic and factory processed wastewater.

3.9 The key point of difference between what was originally sought (Stage 2) and the amendment advanced (Stage 1) is that the set of effects that submitters have expressed concern about will all decrease or at worst will remain static. In essence the scale and intensity of the Stage 1 proposal, particularly in terms of visual bulk and lighting effects, noise, total contaminant discharge rates, traffic generation, domestic waste water discharges, and construction effects will all reduce. Mr Williams said that the reduced scope and intensity of the now advanced Stage 1 proposal is clearly within the ambit of the notified application and there is jurisdiction for us to grant a Stage 1 proposal. We agree with him and have proceeded to assess and consider the Stage 1 proposal for consent.

The Relevance of the Dairy Industry Restructuring Act 2001 (DIRA)

3.10 Many submitters, both within their original submissions and in evidence before us, raised concern with the potential for this proposal if granted

to promote or support further dairying in the wider Canterbury and Otago regions.

3.11 Fonterra addressed this issue in opening, submitting that DIRA in particular means that the hearing panel cannot have regard to the possible expansion of dairying activity in these regions. In short we were told that under DIRA Fonterra has no option but to pick up and pay for milk from farmers who hold Fonterra shares. Further we were told that Fonterra must accept all applications to become a shareholding farmer and it must also accept all applications to increase the volume of milk supplied by a shareholding farmer. There was, we were told, the ability of Fonterra to reject an application to take milk if the cost of transporting the milk from a new entrant exceeds the highest cost of transporting another shareholder farmer's milk. We were told this exception was not relevant to the site because the current suppliers of milk are located throughout the Canterbury and Otago regions.

3.12 Fonterra noted that it is making this application to ensure it can future proof its operations and respond in time to accommodate any future growth of milk supply in the central South Island area. Given the lead in times for construction of a dairy processing factory, we were told there is a clear requirement for the consenting phase to be well in advance of the time when processing capability would be required.

3.13 Mr Williams further submitted that the effects of additional dairying, given that it is not being undertaken by Fonterra and would in any case require its own resource consents, is not relevant to determining the application before us. In reply he refined his position, reminding us that we were tasked under section 104(1)(a) with assessing any actual and potential effects on the environment of allowing the activity. He reminded us that the law is well settled such that it is only inevitable or reasonably foreseeable effects of the activity that should be considered under section 104 and that regard is not to be had to effects which are independent of the activity authorised by the resource consent and/or which may require their own resource consents or authorisations.

3.14 He made the further point that farmers will make their own choices related to their own individual farming operations and Fonterra does not control those choices. Rather Fonterra develops and utilises forecast models that indicate that South Island farmers will choose to convert land to dairying or to intensify existing dairying at a long-running milk supply growth rate of 4-5% per annum. If that development does occur, then Mr Williams reminded us that Fonterra is legally obliged under DIRA to pick up that milk and provide processing capacity. He noted that the applications before us do not enable further dairying.

3.15 The submitter position was that granting consent for the applications before us would inevitably lead to further dairy development and intensification and that outcome was an effect on the environment of allowing consent.

3.16 The Court of Appeal in *QLDC v Hawthorn*[2] concluded that what is now section 104D(1)(a) and section 104(1) are both concerned with the impact of a particular activity on the environment. They are not concerned with the effect which allowing the activity might have on the fate of subsequent applications for resource consent. The only type of effect that might arise in that circumstance is a precedent effect. However even when taking matters such as precedent into account, neither the applicant nor the consent authority is under any obligation to conduct an area wide investigation involving a consideration of what others may seek to do in the future in unspecified places and unspecified ways in reliance on the granting of the application before it.

3.17 Even if the submitter argument were to be advanced to some degree, the Court of Appeal has held that the possibility of other future activities should not be considered when assessing cumulative effects. Also the Court of Appeal in *Auckland RC v Living Earth*[3] has determined that it is not permissible in considering a resource consent application to have regard to an effect on a putative activity or development that would require resource consent that has not been applied for.

3.18 Aside from the practical considerations that the submitters' position gives rise to, the law in this circumstance is very clear. We are not required to consider the possibility of an increase in dairy farm development as an effect arising from the grant of consent to this proposal primarily because developments of that sort require their own resource consent.

Existing Resource Consents

3.19 Fonterra holds five existing resource consents for the site:

CRC140320 – Discharge of contaminants to air;

CRC156714 – Discharge of evaporator condensate and stormwater to a wetland and Waimate Creek;

CRC131835 – Discharge of condensate and wastewater to land;

CRC131344 – To take and use water from two bores; and

CRC11345 – Discharge human wastewater from the Studholme Hotel.

3.20 The application states that consent CRC140320 will be surrendered and replaced by a new consent if the application is granted. The other existing consents will remain unchanged.

4 NOTIFICATION, SUBMISSIONS AND HEARING

4.1 The section 42A reports prepared by both WDC and CRC fully detail notification of this proposal and identify all of the submissions received. We do not intend to repeat those details but will simply cross refer to

[2] *2006 12 ELRNZ 299*
[3] *2009 NZRMA*

the relevant parts of those reports for notification and submission details.

4.2 The hearing on this proposal and all applications began at Waimate on Monday, 4 April 2016 at 9:30 am and ran for two weeks including on Friday, 15 April 2016. We carried out a site visit of both the site and its surrounds and travelled to various viewing points on 7 April 2016.

4.3 We attach as Appendix 2 a list of persons and their relevant organisations who presented evidence to us are at the hearing.

5 THE EXISTING ENVIRONMENT

5.1 Fonterra's Existing Plant is located approximately 6km to the east of Waimate Township on SH1. The site once formed the settlement of Studholme Junction with the Waimate branch railway line meeting the Main South line. The settlement contained a sawmill, grain store, railway station, a number of commercial premises, residential dwellings, sheep and cattle yards and a sheep dip. Aside from the remaining Studholme Hotel, all these features ceased to exist many years ago.

5.2 The site has been used primarily for manufacturing since at least 1993. Prior to becoming a dairy factory in 2006 it was utilised for the processing of vegetables for which consents to discharge to land, water and air, and to take and use groundwater were granted.

5.3 The site is dissected by a number of public roads, both formed and uninformed, and vacant quarter acre lots which relate to the former Township. It contains a dryer, boilers, dry store, administration offices, milk reception and CIP, underground diesel tank, milk tanker parking area, staff and visitor parking, DAF treatment plant, coal handling facility, old grain store and the Studholme Hotel. Both the site and surrounding roads including SH1 have night-time lighting.

5.4 At its peak, the Existing Plant processes up to 900,000L of milk per day into milk powder. The majority of the milk is sourced from the North Otago and South Canterbury areas. The Existing Plant primarily operates between August and June each milking season although it does at times process milk through winter. Currently the Existing Plant employs 50 operational staff along with 15 tanker drivers. The immediate surrounding area includes a sparse number of residential dwellings within the rural environment and the Studholme Hotel which is located on the site.

5.5 The land upon which the proposal will develop is zoned Business 3 under the Waimate District Plan. The balance of the site is zoned Rural. The area of a former sheep dip is located near the Packers Road/SH1 corner and has been the subject of contamination investigations. This area will be remediated, we were told, prior to development of the site.

5.6 The landscape setting of the receiving environment in close proximity to the Existing Plant is characterised by abundant open space dominated by greenery. Typical features scattered within a working rural environment are apparent on the land surrounding the proposed

development site. Those features include fencing, shelterbelts and farm tracks. Farm buildings and other physical features such as roads, transmission lines and the like are present in the surrounding landscape.

5.7 The site totals some 13ha and contains both developing and mature trees primarily on the south-western and western boundaries. In places mature shrubbery also occurs in association with existing dwellings, however the majority of the site is open and demarcated by post and wire fencing. The site is contained on the eastern boundary by the Main South railway line and on the western boundary by SH1. The farmland surrounding the site is generally extensive where buildings are relatively sparse. Because most land uses are devoted to productive pastoral farming rather than other activities such as horticulture, the landscape appears reasonably uniform and in character and reflects rural production. Further afield the Hunter Hills, including Mount Studholme, provide a backdrop to the West. These features are some 13 or more kilometres from the site.

5.8 There are three designations in relatively close proximity to the site. The closest are the adjoining SH1 and railway line, followed by the electricity substation on the corner of Foleys and Hannaton Roads. Two further designations, a Waimate water supply bore to the south west on Mitchells Road and a recreation ground to the south are situated some 2.6km and 1.8km away from the existing site respectively.

5.9 Land to the south of the site and south of Foley's Road (which forms part of the existing site) will be utilised for stormwater retention and human waste treatment and disposal. This land is rural zoned. This land presently contains two houses occupied by Fonterra staff, along with associated buildings and pasture land.

5.10 Domestic wastewater generated from ablutions at the Existing Plant is treated in a septic tank and discharged to land via a soak pit. Both the septic tank and soak pit will be decommissioned if the proposal proceeds.

5.11 The proposed wastewater treatment site is located approximately 1000m to the South East of the main plant site on Hannaton Road. This site is zoned rural. It contains existing wastewater ponds along with stormwater ponds and a small utility shed.

5.12 Waimate Creek runs along the northern side of the existing WWTP and continues to the south of Meyers Road before discharging into the Waihao Arm. The creek is ephemeral and often is dry through the area adjoining the WWTP during the summer months. Infrastructure surrounding the area of the main site and the WWTP comprises various roads and bridges, the main trunk railway line, transmission lines and a substation.

5.13 Fonterra currently supplies wastewater to several third-party farms that hold consent to irrigate treated wastewater. Fonterra stated that these third-party irrigation consents will remain and continue to be utilised. However, it is not proposed to increase the size of the irrigation network.

5.14 The proposed ocean outfall will be located approximately 3km away from the WWTP. The existing environment is a gravel beach extending eastward into the sea and the sea floor. The outfall will extend approximately 600m into the Pacific Ocean. The existing environment is typical of the wider South Canterbury coastline, being a very dynamic, wave-exposed environment characterised by steep gravel beaches.

5.15 The existing environment subject to the proposed outfall pipeline route includes rural roads, public road reserve and private land containing flat, highly modified pasture. Some cropping does occur along the route of the pipeline. The pipeline alignment requires the crossing of both Waimate Creek and the Waihao Arm which drains from the Wainono Lagoon and coastal wetlands. Local drains and river stop banks also make up the existing environment relevant to the pipeline.

5.16 There is a Department of Conservation Stewardship Area (identified in the Waimate District Plan) that follows the coastline, north of the outfall pipeline to Wainono Lagoon. The proposed works will avoid this area (see Drawing GIS-2932873-02 in Appendix A2).

5.17 An Area of Significant Natural Value (ASNV): (Waimate District Plan) (Area 21 under Schedule 5 of the Regional Coastal Environment Plan for Canterbury) is located from mean high water springs, for a distance of 200m immediately seaward, along the coastline from Waihao box in the south to the northern point of the Wainono Lagoon. The wastewater pipeline is proposed to pass along the seabed through this ASNV.

5.18 Drawing number GIS-2932873-01 within Volume 2 Appendix A2 of the AEE (being part of the Beca report on the pipeline and outfall) provides a very useful over view of the existing environment relevant to the WWTP, pipeline and ocean outfall aspects of the proposal.

5.19 The Wainono Lagoon Outstanding Natural Landscape (ONL) is approximately 2km north east of the proposed development site. The lagoon is the only substantial coastal lake and mudflats between Lake Ellesmere and the Tairi Valley. It is the second largest wetland on the Canterbury plains and is a wetland of international importance under the RAMSAR Wetland Convention. It is a complex interaction of groundwater, lagoon inflows and outflows, river flows and coastal processes.

5.20 Wainono Lagoon is important to Ngāi Tahu. It is known as Te Kai Hinaki O Rakihouia (the food basket of Rakihouia), named to celebrate the bountiful food supply that the lagoon and the ocean beside it provided[4]. Given all the evidence provided we believe that as this is a highly modified area, food supply today is unlikely to be as bountiful as it was in past.

5.21 The natural mouth of the Lagoon and the Waihao River is artificially maintained at the coast further south by the Waihao Box (also classified as an ONL). Flows from the coast can extend up to the lagoon.

[4] *Cultural Impact Assessment, p80.*

5.22 The lagoon consists of flax swamp, rush and sedge swamp, succulent herbs and mudflats. It is an important habitat for a number of bird species, including the threatened White Heron/Kotuku, Royal Spoonbill, Wrybill/Ngutupare, and other species such as Grey Teal and Pied Stilt. It is a habitat for a range of native fish species, an inanga spawning ground and a Māori eel fishing area. Wainono Lagoon has high tangata whenua landscape values and is an important mahinga kai area for tangata whenua.

5.23 The area including Wainono Lagoon and a portion of the Waihao River catchment, Waituna Stream and Hook River east of State Highway 1[5] is known as the Waihao Mataitai Reserves. These areas are traditional fishing grounds of special importance to local Māori.

5.24 There are also two fishing easements near Wainono Lagoon[6], Te Houiri Māori Reserve (10 acres) and Pukatahi or Puhakati Māori Reserve (20 acres). These reserves were set aside as Fenton Orders which were lands granted to enable the continuation of a food gathering lifestyle for the exclusive use of the beneficial owners – ensuring ongoing access to mahinga kai.

5.25 During our site visit we observed the lagoon and followed the proposed outfall pipeline route to the ocean. As noted above the areas are highly modified and are used mainly for farming. Many of the waterways on this route had very low flows or no water at all and were quite degraded in clarity and clogged with weeds, thus impacting on fish habitat.

6 SITE VISIT

6.1 We spent a full day on Thursday, 7 April, on our site visit. While undertaking our visit we utilised site photographs and other graphics depicting the Stage 1 and 2 proposal in a developed state prepared by landscape experts. We took views of the existing site from state highways and local roads, utilising the graphics to help us assess the impacts of the Stage 1 and 2 proposal from the viewpoints on those highways and roads.

6.2 We visited the Wainono Lagoon, and assessed views from the lagoon back to the existing site. We carefully considered viewpoints of the existing site from residences located on both the state highways and local roads. In particular, we carefully scrutinised views from the available public viewing points close by the Bleeker, Wilson, Penno and Fox properties. We utilised maps and plans provided to us during the hearing so we insured we understood the extent of the then proposed development made up of Stages 1 and 2 and identified the district plan zones for industrial and rural land relative to the site.

6.3 We undertook in the company of a Fonterra employee a site visit of the proposed domestic effluent disposal area. We carefully looked at the neighbouring land, paying close attention to the contours of the site and that of the neighbouring land so as to better understand surface water flow paths.

[5] *Cultural Impact Assessment, p83.*
[6] *Cultural Impact Assessment, p39.*

6.4 We then visited the site of the proposed WWTP at Hannaton Road. An existing WWTP is in operation on that site. We saw large bags which were filled with sludge which had been recently extracted from the treatment ponds. This activity had caused complaints about odour which we refer to below. While at the proposed WWTP site we located Waimate Creek so as to understand the location of the discharge point from the existing stormwater system.

6.5 We travelled the route of the proposed pipeline from the proposed WWTP through to the Waihao Arm. By reference to maps and plans we located the proposed crossing point for the pipeline at the Waihao Arm. We could also from that point see the substantial gravel bank on the coastline. We did identify some of the reserve areas and other sites related to fish and game activities. We also located the staging area for the pipeline construction.

6.6 We then travelled to the coastal gravel bank to identify where the pipeline would traverse that gravel bank. While on the gravel bank we identified the location of the proposed ocean outfall.

6.7 Separately we took views from various locations within the Hunter Hills of the existing site to help us understand how visible the existing site was from those locations and to help us understand what the proposal would look like from those vantage points.

6.8 While undertaking the site visit we endeavoured to recognise areas or sites which were of cultural significance or importance to enable us to better understand any effects that the proposal may have on such locations.

7 PLANNING FRAMEWORK

District Council Application RMA150031

7.1 The site is zoned in part as Business 3 with the remainder being Rural within the WDC Plan. The zone boundaries are identified within Patricia Harte's section 42A report at Figure 1 on page 6. The Business 3 boundary is also identified within Fonterra's AEE volume 1 (tab B) on Babbage plan marked BCO 3D. The Business 3 zone is located in the central portion of the site with both the southern and northern sections zoned Rural.

7.2 The existing factory is located primarily within the Business 3 zone. As Mr Chrystal, the planning expert for Fonterra, noted in his part of the reply dated 3 May 2016 the Stage 1 proposal will involve the location of roading, stormwater retention, a new office, tanker workshop and parking on the northern part of the site which is within the Rural Zone.

7.3 Under the district plan resource consent is required for a number of aspects of the Stage 1 proposal. Within her section 42A report Ms Harte undertook an analysis of the then proposed development which included both Stage 1 and 2 against the district plan provisions to determine compliance and also status of the activities. Notwithstanding that the original proposal has now been modified, we are of the view

that her original analysis remains relevant (as shown in the following table taken from Ms Harte's report).

	Rule/Standard	Status
Industry not provided for in Rural Zone (Section 4)	Rural Zone Rule 5.3	Discretionary
Noise within zone exceeds Zone Standards for Business 3 Zone (Section 6)	Business 3 Zone Standard 7.1.1	Non-complying
Light within the zone exceeds Zone Standards for Business 3 Zone (Section 6)	Business 3 Zone Standard 7.4.2	Non-complying
Wastewater and Treatment Plan not provided for in Utility Provisions (Section 11)	Utilities Rule 4.6	Discretionary
Earthworks associated with construction of pipeline within and adjoining Waimate Creek and the Waihao Arm (Section 11)	Utilities Rule 3.2 and Site Standard 5.1.1	Restricted Discretionary
Height of buildings in Rural zone exceeds permitted height of 10m	Rural Zone Site Standard 7.1.1	Restricted Discretionary
Height of buildings in Business 3 Zone exceeds permitted height of 10m	Business 3 Zone Site Standard 6.1.2	Restricted Discretionary
Financial contributions less than required for industrial development (Section 10)	Rule 1.2.2 and Site Standard 1.3.1 Open Space and Recreation Contributions	Restricted Discretionary

Business 3 Zone – Site Standards	Compliance Comment
6.3.1 Setbacks from neighbours – minimum of from internal boundaries	Less than 1m deep of landscaping is provided part
6.6.1 Landscaping – minimum of 10% of the Business 3 Zoned part of the development will be landscaped	Less than 10% of the site is landscaped
6.9.1 Access — no access shall be obtained from SH1	A new access is proposed from SH1
Rural Zone – Site Standards	**Compliance Comment**
7.2.2 General tree and vegetation planting	Planting is proposed within 15km of the internal boundary. Trees greater than 5m in height are proposed within 50m of road boundaries.
7.2.3 Heavy Vehicle Movements	The proposal will exceed 20 heavy vehicle movements per day.
Signs – Site Standards	**Compliance Comment**
1.1 All signs shall comply with the height requirements for the zone in which they are located.	Both dryers will have logo signs which exceed the 10m zone height limit.
6.2.6 Maximum area of signs in Rural Zone: 2sq.m	The free standing sign at the new entrance off SH1 will exceed the 2sq.nn limit
Transport – Site Standards	**Compliance Comment**
2.1.1 Parking	The proposal does not meet the minimum car parking requirements of: Industrial 1.5 per $100m^2$ GFA; Office 2 per $100m^2$ GFA (1705 required, 160 provided)
2.5 Cycle Spaces	The proposal does not meet the minimum cycle spaces of 1 cycle parking space per 20 required parks

7.4 We understand that Ms Harte's analysis of the relevant district plan provisions and the outcome in terms of overall status of the activity, being non-complying, was accepted by Fonterra.

7.5 However, Mr Williams for Fonterra supported by Mr Chrystal submitted that the breach of standard 7.1.1 relating to noise and the breach of standard 7.4.2 relating to lighting were what he described as a "technical breach". He said that this technical breach occurred because each of the standards related to conditions at the boundary of particular properties and the spill of noise or light into other sites. This circumstance arose because the site of this proposal had at an earlier time been divided into smaller quarter acre allotments, resulting in the technical breaches of the rules referred to.

7.6 We were told that Fonterra owned all of the allotments which collectively formed the site of the proposal. Mr Williams contended that there was an air of unreality about applying the standard in the way in which Ms Harte did because Fonterra itself owns all of the land in the Studholme Business 3 Zone. He further noted that Fonterra could have avoided either standard by giving itself written approval on RM 150031 or amalgamating its titles. However it did neither.

7.7 Mr Williams referred to a range of decisions which were relevant if we accepted his view that without the technical non-compliances the status of the activity would be discretionary. However, because of what follows, we do not think it necessary to determine whether or not Mr Williams' submissions and Mr Chrystal's planning analysis on this technical non-compliance point are correct or not.

7.8 The Business 3 Zone objectives and policies are to enable the establishment and maintenance of industrial activities which do not adversely affect the community of the area in the vicinity as well as having an acceptable level of amenity and environmental quality for people working or visiting the zone.

7.9 The objectives and policies of the Rural Zone generally seek to achieve a level of rural amenity which is consistent with a range of activities anticipated and that creates an acceptable and pleasant living or working environment, protects and enhances its conservation values and overall character, and avoids development that would detract from the important values and features.

Regional Council Consents

7.10 The relevant planning framework for the discharge permit to discharge contaminants to air (CRC160871) includes the National Environmental Standards (NES) relating to air quality which came into effect on 1 September 2005 followed by amendments taking effect on 1 June 2011.

7.11 The Resource Management National Environmental Standards for Air Quality Regulations 2004 (NESAQ) particularly regulations 17, 20 and 21 apply as does the Natural Resources Regional Plan (NRRP) Chapter 3 along with the Proposed Canterbury Air Regional Plan (PCARP) and the Canterbury Regional Policy Statement (RPS).

7.12 CRC160872, which is the application for a discharge permit to discharge stormwater to water, triggers the National Policy Statement for Freshwater (NPSFW), the RPS and the Canterbury Land and Water Regional Plan (LWRP).

7.13 In relation to CRC160873, which is an application to undertake earthworks associated with the excavation of the stormwater ponds, site levelling and construction of earth bunds and a swale within 50 m of a surface water body, and earthworks associated with the installation of the waste water pipe which is to occur within 5 m of a flood protection structure, and CRC160875 which is an application to undertake earthworks in the beds and banks of water courses and their riparian margins in relation to the installation of a waste water pipe, the relevant framework is found within the NPSFW, the RPS, and the decisions version of the Proposed Land and Water Regional Plan (LWRPD).

7.14 CRC160940 which seeks to divert Northern catchment surface water and undertake site dewatering, is also assessed against the policies and objectives of the LWRPD.

7.15 CRC160874 which is an application to discharge domestic waste water to land from staff and visitor facilities associated with the milk powder plant, is assessed in relation to the Proposed Land and Water Regional Plan (LWRPD) and Variation 3 (Var3 LWRPD) to that plan.

7.16 In relation to the Regional Council consents, there was agreement between Fonterra and all relevant Council officers that six of the Regional Council applications/activities associated with the original proposal are discretionary. The same activity status applies for the now reduced Stage 1 proposal.

7.17 The only exception in terms of status relates to CRC160876 which application seeks to disturb, occupy and discharge contaminants to the Coastal Marine Area (CMA). The New Zealand Coastal Policy Statement 2010 (NZCPS) applies to this application as does the Regional Coastal Environment Plan for the Canterbury Region (RCEP). This plan covers both the land use activities in the coastal hazard zones, that is section 9 RMA issues and section 12 and section 15 RMA within the CMA. The RPS is also relevant.

7.18 Under the RCEP erecting or placement of the wastewater pipeline within the CMA within an Area of Significant Natural Value (ASNV) triggers rules 8.5(c), 8.9, and 8.10 of the RCEP which results in a non-complying activity status. Also, permanent occupation of the CMA triggers Rule 8.25 and the placement of more than 50,000 m^3 of any material within an ASNV triggers rule 8.15, both of which are classified as non-complying activities. A summary of the classification of the various activities proposed within the coastal permit application is provided in the following table:[7]

[7] *Section 42A Officer's Report of Deepani Seneviratna, p 19.*

Activity	RMA Section	Rule	Classification
Erection and placement of structures in the Coastal Hazard zones	s9	9.2 (a) & (f)	Restricted Discretionary
Disturbance to the CMA and removal of material from the CMA	s12	8.7	Discretionary
Erection of a structure in the CMA	s12	8.2	Discretionary
Erection or placement of a structure in the CMA	s12	8.3 (c)	Discretionary
Erection or placement of a structure in an Area of Significant Natural Value (ASNV)	s12	8.5 (c)	Non-Complying
Disturbance of the foreshore or seabed within an area of ASNV	s12	8.9	Non-Complying
Excavation and disturbance of natural material within the CMA in an ASNV	s12	8.10	Non-Complying
Discharge of water and contaminants to CMA	s15	7.2	Discretionary
Permanent occupation of the CMA	s12	8.23 8.25	Discretionary Non-Complying
Deposition of material on the foreshore/CMA Deposition of more than 50,000 cubic metres of any material within an ASNV	s12	8.12 8.15	Discretionary Non-Complying

7.19 We understood Fonterra to agree with this analysis of the proposed activities against the relevant rules of the RCEP, with the outcome that the status of the coastal permit application is non-complying.

7.20 Fonterra, through Mr Williams, did suggest that the applications could be considered in an un-bundled fashion. However, other than alluding to that possibility, he accepted that all of the individual consents should be bundled together as part of a single proposal with the outcome (notwithstanding his reservations in relation to RM150031) attracting non-complying activity status.

7.21 Whilst accepting that the status of the proposal before us is non-complying, Fonterra submitted that for the purposes of section 104D:

(a) the adverse effects on third parties contemplated by RM150031 and which are non-complying are no more than minor. Also when the activity contemplated by RM150031 is taken as a whole, the overall activity is not inconsistent with the objectives and policies of the district plan; and

(b) as to the regional applications that related to the pipeline and ocean outfall which trigger non-complying status by virtue of CRC160876, the evidence is that the adverse effects on the

environment associated with this part of the proposal are less than minor, and again when the proposal is taken as a whole it is not contrary with the objectives and policies of the relevant planning framework.

7.22 Put another way Fonterra submitted through Mr Williams that, even if section 104D is applied to all of the applications, the proposal passes both the section 104D gateway tests and then falls to be considered under section 104.

7.23 So the outcome reached is that the status of the resource consent activity for the now reduced Stage 1 proposal is non-complying. As to the points made by both Messrs Williams and Chrystal that the non-compliance is of a technical nature resulting in us treating the land use consent applications as discretionary, we find that because we have bundled all the consent applications into a single proposal and given that both the key land use consent and that of the pipeline ocean outfall are non-complying, then we should assess and determine the Stage 1 proposal as a non-complying activity.

8 STATUTORY CONSIDERATIONS

Sections 9, 12, 13, 14 and 15 RMA – Duties and Restrictions

8.1 Part 3 RMA sets out duties and restrictions on activities, including the following sections that are particularly relevant to the applications and proposal before us.

8.2 Section 9 places restrictions on the use of land. No person may use land in a manner that contravenes a national environmental standard, a regional rule, or a district plan rule unless the use is expressly allowed by a resource consent or by virtue of existing use rights which are not relevant in this case.

8.3 Section 9 is relevant to the land use consent necessary to establish the milk processing factory (RMA1500031), the land use consents to undertake earthworks associated with the excavation of the stormwater ponds, site levelling, construction of earth bunds and construction of a swale, and also the earthworks associated with the installation of a wastewater pipe and earthworks in the beds and banks of water courses and their riparian margins, including alterations to existing culverts (CRC160873 and CRC160875).

8.4 Section 12 provides for restrictions on the use of coastal marine areas and is relevant to CRC160876 in relation to disturbing, occupying and discharging contaminants into the CMA and placing structures within the coastal hazard zones 1 and 2.

8.5 Section 13 provides restrictions on certain uses of beds of lakes and rivers, section 14 places restrictions relating to water including taking, using, damming and diverting (including diverting any open coastal water). Finally, section 15 deals with discharge of contaminants into the environment. These sections of the RMA are all relevant to the Regional Council consents.

Sections 104, 104B and 104D RMA – Consideration of Applications

8.6 Section 104(1) RMA sets out the matters we must have regard to in our consideration of the applications. The relevant matters are as follows:

(a) any actual and potential effects on the environment of allowing the activity;

(b) any relevant provisions of –

(i) a national environmental standard;

(ii) other regulations;

(iii) a national policy statement;

(iv) a New Zealand coastal policy statement;

(v) a regional policy statement or proposed regional policy statement;

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

8.7 The balance of s104 RMA contains a range of other matters that may also be relevant to our consideration, including the following: (among others)

(a) Section 104(2) – Provides us with the discretion to disregard an adverse effect on the environment if the plan permits an activity with that effect (the permitted baseline).

(b) Sections 104(6) and (7) – Provides that we may decline a consent on the grounds of inadequate information, taking into account any requests for further information that have been made.

8.8 We note section 104(1) RMA provides that the matters therein listed are subject to Part 2 RMA, which includes sections 5 through to 8, inclusive. We consider Part 2 matters subsequently.

8.9 For non-complying activities, the same requirements of s104(1) apply. In addition, s104D contains particular restrictions for non-complying activities and provides:

"(1) Despite any decision made for the purpose of [section 95A(2)(a) in relation to adverse effects], a consent authority may grant a resource consent for a Non-Complying Activity only if it is satisfied that either –

(a) the adverse effects of the activity on the environment (other than any effect to which [section 104(3) (a) (ii)] applies) will be ***minor*** *[****emphasis*** *added]; or*

*(b) the application is for an activity that will not be **contrary** [**emphasis** added] to the objectives and policies of –*

(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or

(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and proposed plan in respect of the activity.

(2) To avoid doubt, section 104(2) applies to the determination of an application for a Non-Complying Activity."

8.10 In considering whether an effect on the environment is "*minor*", minor means lesser or comparatively small in size or importance, and the judgement is to be made considering the adverse effects as a whole. In relation to the second jurisdictional hurdle, the word "*contrary*" is given a meaning of more than just non-complying, but opposed to in nature, different to, or opposite. We are required to consider whether the proposed activity would be contrary (in that sense) to the objectives and policies of the relevant plans in an overall consideration of the purpose and scheme of the plans.

8.11 Based on the above, the process we will follow when considering a non-complying activity is to:

(a) identify the relevant s104 matters;

(b) consider whether one or both of the jurisdictional hurdles in s104D are met having regard to the relevant, and rejecting irrelevant, matters under s104; and

(c) if either one of the jurisdictional hurdles is passed, weigh the relevant matters under s104 and Part 2 as part of the overall discretion whether or not to grant consent under s104B.

Section 105 RMA – Discharges

8.12 Section 105 requires us to have regard to:

(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects;

(b) the applicant's reasons for the proposed choice; and

(c) any possible alternative methods of discharge, including discharge into any other receiving environment.

Section 107 RMA

8.13 Section 107 places restriction on the grant of certain discharge permits. We are not able to grant a discharge permit or a coastal permit to do

something that would otherwise contravene section 15 relating to the discharge of contaminants into water if, after reasonable mixing, the contaminant or water discharged either by itself or in combination with the same, similar or other contaminants is likely to give rise to a range of adverse effects within the receiving waters.

8.14 Those adverse effects include the production of any conspicuous oil or grease or films, scums or foams or floatable or suspended materials, conspicuous changes in colour or visual clarity, omission of objectionable odour and any significant adverse effects on the aquatic life.

9 PART 2 MATTERS RMA

9.1 Section 104(1) RMA states that our consideration of the applications is subject to Part 2 RMA, which covers sections 5 – 8 inclusive. We record that our approach is that sections 6, 7 and 8 contribute to, and will inform, our evaluation under s5 RMA.

9.2 The overall purpose of the RMA is "to promote the sustainable management of natural and physical resources". In turn, "sustainable management" means:

9.3 "... managing 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 (excluding minerals) to meet the reasonably foreseeable needs of future generations;

(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".

Sections 6 identifies the following matters of national importance that we must *"recognise and provide for"* when making our decision:

(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;

(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers;

(e) The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga; and

(f) The protection of historic heritage from inappropriate subdivision, use and development.

Section 7 lists the following other matters that we shall "*have particular regard to*":

9.4 (a) Kaitiakitanga:

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(ba) The efficiency of the end use of energy:

(c) The maintenance and enhancement of amenity values:

(d) Intrinsic values of ecosystems:

(e) [Repealed]:

(f) Maintenance and enhancement of the quality of the environment:

(g) Any finite characteristics of natural and physical resources:

(h) The protection of the habitat of trout and salmon:

(i) The effects of climate change:

(j) The benefits to be derived from the use and development of renewable energy.

9.5 Finally, section 8 requires that we shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

10 PRINCIPLE ISSUES IN CONTENTION INCLUDING ASSESSMENT OF EFFECTS UNDER S104 AND PLAN PROVISIONS

10.1 The principal issues in contention arising from our consideration of the Stage 1 proposal are evaluated under the following broad headings:

(a) Effects of discharges of contaminants to air from the plant, including odour from wastewater treatment;

(b) Effects of wastewater discharge via the ocean outfall;

(c) Effects of stormwater discharge to Waimate Creek;

(d) Effects of sewage effluent discharge to land;

(e) Noise effects;

(f) Landscape and visual effects including lighting, glare and signs and effects on rural character and amenity;

(g) Hazardous substances;

(h) Traffic effects;

(i) Effects of construction and establishment of the ocean outfall and pipeline;

(j) Effects of diversion of surface waters, earthworks and take of dewatering water; and

(k) Positive effects, including economic benefits.

Effects of Discharges of Contaminants to Air from the Plant

10.2 During the course of the hearing we heard a great deal of evidence regarding the potential effects of the various contaminant discharges to air associated with the proposal. The matters in contention have been somewhat narrowed as a consequence of the significantly reduced scale of the proposed discharge (combined 65MW boiler output, one 5.5t/hr powder dryer and one 30t/hr powder dryer) and also the revised conditions now proposed that are largely agreed between the air quality experts. The primary air quality issues requiring our consideration are:

(a) Greenhouse gases and effects on climate change;

(b) Odour from the wastewater treatment plant;

(c) Effects of sulphur dioxide (SO_2);

(d) Effects of fine particulate matter (PM_{10});

(e) Effects of metals and other contaminants;

(f) Boiler ash handling; and

(g) Dust from construction activities.

Greenhouse Gases and Effects on Climate Change

10.3 The issue of the discharge of CO_2 and other greenhouse gases from the proposed burning of coal in the boiler plant drew substantial attention from a large number of submitters. For example, Dr Lloyd referred us to the findings of the Intergovernmental Panel on Climate Change (IPCC) regarding global warming and associated effects and the recent Paris Agreement that requires urgent action to reduce CO_2 emissions. We note the real and genuine concern of submitters and accept the evidence that on a national and international scale significant reductions in CO_2 emissions will be required to address the impact on climate change.

10.4 Our findings on the legal interpretation of s104E in relation to the application have already been discussed earlier in this decision. In summary we conclude that the case law is well settled on this matter and we are unable to take into account the effects of the boiler discharge on climate change within the framework of the Resource Management Act. The legislation intends that CO_2 emissions are addressed on a national scale via the Emissions Trading Scheme (ETS) and other measures. We note the evidence of submitters that the ETS may become more effective over time because the carbon price is forecast to increase significantly due to the outcome of the Paris Agreement and the need for urgent action. In this regard it is important that significant coal users such as Fonterra are conscious of the imperative to reduce CO_2 emissions on a national scale. The burning of carbon neutral fuels such as wood biomass instead of coal is an important factor in this consideration.

10.5 Given the above concerns, it is not surprising that the availability of wood biomass in the Waimate area was the subject of considerable attention at the hearing. The revised proposal, as detailed in Fonterra's submissions in reply dated 4 May 2016, is now for a maximum combined boiler output of 65MW (reduced from 115MW) with the aim to supply up to 20% of the energy by burning biomass. The reply specifically stated that Fonterra is committed to installing a boiler with specific capability of co-firing biomass in such quantities. We find that a condition mandating the boiler design to enable co-firing with biomass is appropriate (condition 22c).

10.6 The evidence in chief of Ms Thompson discussed a 2013 report which indicated that in the order of 15MW output could be achieved from burning of wood biomass sourced from within a 100km radius of the plant. We were not provided with the report and several submitters have questioned the validity of the assessment, including the applicability of a 100km radius for economic wood supply. Mr Jirkowsky noted that some wood may in fact be able to be sourced economically at a distance of significantly more than 100km, given the transport cost savings achieved where other wood is sourced close to the plant. Submitters noted that indeed the potential increase in carbon price over time might significantly improve the economics of burning wood as a fuel.

10.7 Ultimately we have not pursued the issue of wood supply further because the applicant has not proposed a minimum biomass burning rate. Consequently, we have not taken into account "the benefits to be derived from the use and development of renewable energy" under s7(j) of the Act in reaching our decision. Nevertheless, we encourage Fonterra to burn renewable fuels in its various dairy plants to the greatest extent feasible and note its stated commitment to meet a target of 20 percent energy from wood biomass in this case, equivalent to 13MW output.

Odour from the Wastewater Treatment Plant

10.8 Several submitters raised concerns at the hearing regarding the effects of odour from the existing wastewater treatment plant serving the current Studholme dairy plant. Mr Van Kekem, on behalf of submitters,

undertook odour observations around the plant and presented evidence to the panel in relation to odour effects. It was accepted by Fonterra at the hearing that the existing treatment plant has caused some odour impacts and we questioned Mr Maitland (the Site Manager) regarding operation of the plant and handling of odour complaints. In particular, it was accepted that recent de-sludging of the treatment ponds caused a significant short-term increase to odour emissions. We observed the existing wastewater treatment plant and sludge storage during our site visit.

10.9 The application as received and the accompanying assessment of effects did not contain substantive detail concerning the design of the proposed wastewater treatment plant. However, it became clear during the course of the hearing that the treatment plant proposed is very different in design and operation to the existing plant that was built by the former owner of the site. We questioned the applicant in detail regarding the proposed plant design and instructed the odour experts, Messrs Chilton and Van Kekem, to confer and prepare an agreed set of consent conditions that address mitigation of odour effects.

10.10 The suite of conditions now proposed for the wastewater treatment plant is comprehensive and addresses specific design and operational aspects relevant to odour generation. An anoxic treatment tank is proposed (to reduce nitrate concentrations), following by a mechanically aerated system, followed by a clarification system with continuous sludge removal. Several conditions now proposed are of particular relevance to odour control, including:

(a) Flushing of the pipes to the treatment plant with water if discharge to the plant does not occur for more than 48 hours (condition 48);

(b) Monitoring of dissolved oxygen in the aerobic tanks or ponds and maintaining oxygen above 0.7g/m^3 (conditions 49,51);

(c) Maintaining an appropriate food to micro-organisms ratio in the aerobic treatment system (condition 51);

(d) Full enclosure of any anaerobic treatment system and treatment of gaseous emissions (condition 53);

(e) Preparation of an odour management plan and certification by the regional council (conditions 55-58); and

(f) Establishment of an on-site weather station that could provide meteorological data to assist investigation of any odour events (conditions 59-60).

10.11 Odour caused by sludge removal from ponds or tanks was raised as a concern of local residents, given the observed effects of recent de-sludging of the existing treatment ponds. We questioned the applicant regarding the sludge removal process during the hearing and were assured that sludge would be removed from the proposed plant on a continuous basis such that this would not be a significant source of odour. Accordingly, we have decided to impose an additional condition

47(d) requiring that sludge removed from the plant is not stored on site for a period of more than 48 hours after removal without full containment or treatment to reduce odour emissions.

10.12 Having regard to the design of the proposed wastewater treatment plant and the consent conditions now proposed, we accept the evidence of Mr Chilton (paragraph 42 of his rebuttal statement) that "the potential for off-site nuisance odour to occur is no more than minor". We find that the odour mitigation measures associated with the proposed plant would be a significant improvement on the degree of odour mitigation associated with the existing wastewater treatment plant.

10.13 We have examined the objectives and policies of the relevant planning documents. We accept the evidence of Mr Chrystal that that the odour discharge as now proposed (including suggested conditions) is consistent with the overall objective and policy framework. In particular, we note that the proposed plant is not predicted to cause objectionable or offensive odour effects at neighbouring rural dwellings and thus the application is consistent with Policy AQL5 of the NRRP.

Effects of Sulphur Dioxide (SO2)

10.14 SO_2 is a primary contaminant discharged from the combustion of coal in the proposed boiler plant. Fonterra does not propose to limit the sulphur content of the coal burned, but rather has specified maximum SO_2 emission limits as consent conditions. This approach allows a wider choice of coal types provided scrubbing technology is used to remove SO_2 from the combustion gases. Given that continuous in-stack monitoring of SO_2 is proposed, we find that the proposed approach is appropriate in that it focuses directly on the contaminant emission rate rather than a de facto measure such as coal sulphur content.

10.15 Mr Chilton used the CALPUFF dispersion model to assess the effects of SO_2 and other key contaminants discharged from the boiler plant. The original modelling assessment (based on 115MW net combined boiler output) was audited by Mr Edwards for the CRC and was also analysed by Mr Van Kekem on behalf of submitters. Mr Chilton subsequently made some revisions to the modelling to achieve conservative SO_2 predictions for all boiler operating scenarios. Furthermore, as a result of reduction to a maximum combined output of 65MW, Mr Chilton has provided the results of updated modelling that includes revised isopleth plots of maximum predicted SO_2 ground level concentrations (GLCs).

10.16 We are satisfied on the evidence that the dispersion modelling approach adopted is appropriate and that the predicted contaminant GLCs are likely to be conservative. Unsurprisingly, the revised modelling presented by Mr Chilton in the Golder Associates report of 27 April 2016 (submitted with the written reply) predicts maximum GLCs that are less than those calculated for the original 115MW proposal. Maximum 1-hour average SO_2 GLCs of 160µg/m^3 off-site and 87µg/m^3 at existing dwellings are predicted. These values are well below the NES for SO_2 of 350µg/m^3 (1-hour average, 9 annual exceedances allowed) and 570µg/m^3 (1-hour average, maximum not to be exceeded).

10.17 Mr Chilton's updated modelling also predicts maximum 24-hour average SO_2 GLCs of 98µg/m^3 off-site and 50µg/m^3 at existing dwellings. These peak predicted values are well within the current New Zealand Ambient Air Quality Guideline of 120µg/m^3 (24-hour average).

10.18 The predicted maximum 24-hour average SO_2 concentrations exceed the World Health Organisation (WHO) 2006 guideline of 20µg/m^3 (24-hour average). Maximum predicted values at existing dwellings are equivalent to the WHO interim guideline of 50µg/m^3 (24-hour average). The WHO guideline has not been formally adopted in New Zealand. During the hearing we were made aware of concerns of air quality practitioners regarding the applicability of the WHO guideline to New Zealand conditions. This is particularly so for industrial discharges in rural areas where peak daily SO_2 GLCs are typically much larger than mean daily concentrations.

10.19 We accept that the WHO guideline has limited applicability to New Zealand conditions, particularly in relation to discharges of this type. Nevertheless, we consider that a precautionary approach should be adopted in relation to 24 hour SO_2 concentrations. We have therefore determined to include a clause in the review condition (72) that requires ambient SO_2 monitoring to be implemented in the event of a 24-hour average guideline of 50µg/m^3 or less being adopted in New Zealand.

10.20 We have reviewed the consent conditions that are now proposed and find that these are appropriate in terms of control of SO_2 emissions. In particular, in-stack SO_2 monitoring would be required by condition 33 once the 65MW boiler is established. Taking such monitoring into account and having regard to the SO_2 GLCs predicted, we consider that ambient SO_2 monitoring (except as outlined above) is not necessary in this case.

10.21 Mr Edwards for the CRC determined that the predicted GLCs of key contaminants discharged from the proposed dairy plant are such that the application is consistent with the objectives and policies of the RPS, NRRP and PCARP. We accept that assessment. Overall we find that, based on the evidence presented, any adverse effects of SO_2 discharged from the dairy plant are likely to be minor.

Effects of Fine Particulate Matter (PM_{10})

10.22 Fine particulate matter (PM_{10}) is the size fraction associated with potential health effects and is discharged from milk powder plants and coal/wood fired boilers. Fonterra proposes to control particulate matter (PM) emissions from the powder dryers and the boilers by bag filtration. The filtration is designed to achieve PM emission concentration limits (adjusted to standard conditions) in the dryers of 25mg/m^3 (existing 5.5t/hr Dryer 1) and 15mg/m^3 (proposed 30t/hr Dryer 2). For practical reasons associated with monitoring methodology, we accept the evidence that measuring total PM from the dryer vents is appropriate and it may be assumed that approximately 90% of dryer PM is PM_{10}.

10.23 Fonterra proposes PM_{10} emission concentration limits (adjusted to standard conditions) for the boiler discharges from both Stack 1 (two existing 15MW boilers) and Stack 2 (proposed 65MW boiler) of 45mg/m^3. Total combined boiler output is limited to 65MW. In response to questions from the panel, the applicant agreed to include annual monitoring of condensable particulate in the boiler discharges (condition 43). Continuous in-stack PM monitoring is also proposed to indicate failure of the filter bags. The evidence is that the proposed bag filtration controls are consistent with good practice for modern dairy plants.

10.24 Mr Chilton's dispersion modelling (as revised in the Golder Associates report of 27 April 2016, submitted with the written reply) predicted that discharges from the proposed plant would cause a maximum PM_{10} GLC of approximately 5µg/m^3 (24-hour average) at the most affected neighbouring dwelling. Off-site cumulative concentrations (including background) are predicted to be well within the NES of 50µg/m^3 (24-hour average). We accept the evidence of Mr Chilton that any adverse health effects at neighbouring properties caused by PM_{10} discharges are likely to be minor.

10.25 We have also considered the issue of potential degradation of ambient air quality in Waimate Township. The modelled PM_{10} concentrations caused by the combined Fonterra discharges (including discharges from Boiler 4 and Dryer 3 as originally proposed) at the Waimate Airshed were less than 2.5µg/m^3 (24-hour average). We accept that the modelling approach was conservative and that these predicted peak GLCs will now be substantially reduced as a consequence of the revised proposal. Therefore, we find that the application does not trigger a requirement for "offsetting" under the Regulation 17 of the NESAQ or the PCARP (where the relevant rule 7.14 is the subject of several opposing submissions). It is noted that dairy plant operation would typically be below peak output during the winter period when ambient concentrations are elevated due to domestic burners used in Waimate. Overall we consider that adverse effects of PM_{10} on ambient air quality are acceptable.

10.26 We find that the conditions of consent relating to PM_{10} discharges from the site, as now proposed and agreed between the experts, are appropriate and require a high standard of emission control and monitoring of stack discharges. Given our findings regarding the effects of PM_{10}, we accept the conclusion of Mr Edwards that the discharge is generally consistent with the objectives and policies of the RPS, NRRP and PCARP. Mr Edwards notes that there is some tension with Policy 6.4 of the PCARP in that a reduction in PM_{10} concentrations in the Waimate Clean Air Zone would not be achieved. However, this policy is subject to challenge and can be afforded little weight at this stage in the planning process. Nevertheless, we find that the predicted degree of increase in PM_{10} concentrations in the Clean Air Zone is not significant.

Effects of Metals and Other Contaminants

10.27 Some submissions raised concerns regarding potential effects of hazardous air pollutants discharged from coal combustion, including

metals, volatile organic compounds and dioxins/furans. Mr Edwards officially requested further information from applicant regarding the effects of these trace contaminants and additional assessment detail was provided accordingly. The information provided at the hearing indicates that concentrations of these contaminants will be much less than relevant air quality guidelines. We accept the conclusions of both Mr Chilton and Mr Edwards that any adverse effects of trace contaminants would be minor.

10.28 We find on the evidence that the primary contaminants discharged, in terms of potential adverse effects, are PM_{10} and SO_2. We accept the evidence of Mr Chilton that the discharge of other combustion products, including NO_2 and CO, from the boiler plant is unlikely to cause adverse effects.

Boiler Coal and Ash Handling

10.29 It is proposed that coal and wood biomass for the boilers will be delivered and stored under cover (condition 38). Taking into account the mitigation proposed and the distance to neighbouring dwellings and other sensitive receptors, we find that dust from fuel handling is unlikely to cause adverse effects.

10.30 Ms Carlson presented a submission that raised concerns regarding the potential effects of boiler ash, due to the toxicity of coal ash containing metals and other contaminants. We questioned the applicant on this matter and it appears that there is room for substantial improvement to the current ash handling procedures on site. Conditions 37 and 65 have been proposed accordingly. We have determined that condition 65 should apply to all boilers (not only Boiler 3 as proposed) and would require boiler ash to be passed through a pug mill or similar process to avoid dust emissions from ash handling. In addition, we consider that a clause should be included that requires no visible discharge from the ash handling process. A clause addressing ash handling practices is also appropriate as part of the operational procedures in condition 6. Provided these measures are implemented, we are satisfied that any adverse effects of ash handling would be minor.

Dust from Construction Activities

10.31 Construction activities are the primary source of any dust impacts that might be experienced beyond the site boundary, albeit for a finite period. Fonterra proposes to undertake appropriate dust control practices during the construction phase, including application of water, setting of vehicle speed limits on unsealed surfaces, and establishing vegetation on bunds. Condition 64 of the discharge to air consent is proposed as follows:

"Best practicable measures shall be used to avoid or mitigate the dispersal and deposition of dust resulting from construction activities beyond the property boundary. These dust control measures shall include, but are not limited to, the following:

(a) application of water on exposed construction areas by water tanker and/or sprinkler systems during dry windy conditions;

(b) restricting vehicle speeds to 20 kilometres per hour on unsealed surfaces;

(c) restricting dust generating operations during strong wind conditions in particular greater than an average wind speed of 10 metres per second; and

(d) rapid establishment of grass by "hydro-seeding" or similar methods on soil bunds and other unsealed areas following construction."

10.32 These dust control measures are typical for such projects and are similar to controls implemented during construction of the Fonterra Darfield plant. These controls would also be incorporated in a Construction Management Plan (CMP) required by conditions 11 and 12 of the WDC land use consent. We consider that condition 12 of that consent should make specific reference to the dust control measures required during construction.

10.33 Mr Chilton in his evidence in chief stated that, based on his experience of dust emissions from other large construction sites, he did not expect offensive dust effects to occur. Taking into account the temporary nature of any dust effects and the separation from sensitive activities, we find that dust could be adequately controlled to prevent significant adverse effects.

Effects of Wastewater Discharge via the Ocean Outfall

10.34 The coastal permit application includes the discharge of contaminants via the proposed marine outfall pipeline. Discharge by diffuser on the sea bed would occur at distance of at least 300m from the shoreline. The discharge would comprise of treated wastewater, stormwater and condensate. The primary discharge in terms of contaminant load is derived from the wastewater treatment plant. A comprehensive monitoring regime, including trigger values, is proposed for key contaminants in the discharge.

10.35 The effects of the outfall discharge were assessed on the basis of the wastewater and stormwater volumes generated by the original proposal that included Dryers 1, 2 and 3. Proposed condition 38 of the coastal permit limits the maximum daily volume of discharge to 24,000 cubic metres and limits the maximum flow rate to 280 litres per second. The average rates of discharge, particularly in relation to the daily wastewater flow, are expected to be substantially less given the reduced scale of the plant now proposed. Fonterra has nevertheless requested that the maximum flow rate limits proposed for the Stage 2 expansion be retained. We note that the assessment of effects was based on these peak rates of discharge and this approach would allow for peak short-term discharges caused by the stormwater contribution to the outfall discharge. We find that it is not necessary to impose reduced short-term flow rate limits.

10.36 Based on the submissions and evidence presented to us, we consider that the primary issues requiring our consideration are:

(a) Effects of the outfall discharge on public health;

(b) Effects of chemicals in the discharge and adequacy of assessment;

(c) Effects on ecosystems;

(d) Effects on cultural values;

(e) Alternatives; and

(f) Conditions of consent.

Effects on Public Health

10.37 Several submissions raised concerns regarding the potential effects of the outfall discharge on public health. In particular Professor Slooten and Dr Dewes discussed the potential effects of micro-organisms present in the wastewater. They discussed the risk of zoonotic diseases (transferred from animals to humans) and the difficulty of monitoring for all potential pathogens. Professor Slooten also noted the potential for health effects to be caused by airborne pathogens in sea spray.

10.38 Dr Stott's evidence in chief specifically evaluated the potential effects on public health and (from paragraph 62) analysed the health risk to coastal and foreshore users associated with *Pseudomonas* and *Listeria* species. She concluded that the public health impacts of the proposed discharge of microbiological contaminants, based on predicted concentrations in the wastewater, appear to be negligible. However, Dr Stott recommended that further monitoring of pathogens should be undertaken to confirm the predicted concentrations in the wastewater.

10.39 Trigger values for indicator values for indicator bacteria and/or pathogens were not initially proposed as part of the wastewater discharge monitoring programme. Consequently, in our fifth minute we requested additional detail concerning the proposed revised conditions for pathogen monitoring include a potential draft program for monthly monitoring for *Pseudomonas aeruginosa* and *Listeria* species in the discharge to the outfall. We find that the revised monitoring schedule and pathogen trigger values are appropriate, based on Dr Stott's evidence.

10.40 Dr Stott's assessment of potential public health effects was reviewed by Dr Seneviratna for the CRC, with advice from Dr Bolton-Ritchie in relation to monitoring procedures. She took into account the submissions received and concluded that the potential adverse effects on public health due to the outfall discharge would be less than minor. We accept that assessment, taking into account the comprehensive consent conditions now proposed.

10.41 The issue of potential toxic shellfish poisoning was also raised by submitters. Dr Stott noted in her rebuttal evidence (paragraph 20) that

mussel growth attached to the Fonterra Clandeboye outfall indicates that mussel growth could occur at the proposed Studholme outfall. However, she stated that one mussel sample collected from the Clandeboye outfall, where the wastewater discharge is untreated, met food standards. We accept the evidence that the high energy coastal environment in the vicinity of the outfall is not conducive to swimming or diving and health risks associated with recreational mussel harvesting are likely to be negligible. We note that a proposed consent condition would require signage on the foreshore to indicate the presence of the outfall pipeline.

Effects on Aquatic Ecosystems, including Marine Mammals

10.42 Professor Slooten in her submission raised concern regarding potential effects of the outfall discharge on Hector's dolphin. These dolphins range over a wide area, can be observed close in-shore, and are known to accumulate contaminants. Mr Sneddon assessed the effects of the discharge on marine mammals, including dolphins and seals. He concluded that the high wastewater quality and dispersive characteristics of the receiving environment, combined with the mobility of mammals, are such that the risk of adverse effects for these species is low to insignificant. Dr Seneviratna accepts that assessment and we similarly find on the evidence that adverse effects on Hector's dolphin and other marine mammals are likely to be less than minor.

10.43 Mr Sneddon discussed the high energy nature of the open coastal receiving waters and noted that particulate organic matter in the discharge would be unlikely to settle in the vicinity of the outfall. He considered that the dynamic and mobile nature of near-shore sediments is likely to effectively prevent seabed accumulation of contaminants. Near-shore benthic samples collected indicate that potential food sources for fish, in the form of invertebrate benthic communities, are relatively sparse.

10.44 Overall Mr Sneddon's assessment found that the proposed wastewater quality and the predicted rate of dispersion would result in less than minor adverse effects on fisheries, birdlife and marine ecology. Taking into account the nutrient concentrations in the treated wastewater, he considered the risk of algal growth to be negligible. Dr Seneviratna accepted his conclusions. Subject to the comprehensive suite of conditions now proposed, we find that potential effects of the discharge on aquatic ecosystems are minor.

Effects of Chemicals used in the Plant

10.45 A variety of cleaning agents and other chemicals are used in dairy plants and in this case would ultimately be discharged to the wastewater treatment system. Some chemicals, such as those used as corrosion inhibitors or for boiler water treatment, would be present in the discharge in trace quantities. Other chemicals, such as acids and caustic soda used for cleaning, would be present in higher concentrations during the initial discharge from the plant to the wastewater treatment system.

10.46 The application listed the various chemicals likely to be used and assessed their toxicity and fate, concluding that any adverse effects of such chemicals in the outfall discharge would be less than minor. However, the assessment did not accurately quantify the likely rates of usage of these chemicals in relation to wastewater volume and thus the assessment was not based on predicted concentrations in the outfall discharge. Submitters raised concerns regarding the chemicals and associated breakdown products discharged to sea and we found that additional information would assist our determination on this matter.

10.47 In our fifth minute dated 18 April 2016 we requested additional information from the applicant as follows.

(a) Please identify the cleaning agents and other chemicals intended to be utilised within the proposed plant for cleaning, including the maximum quantities and frequency of utilisation of the same?

(b) Please provide the maximum concentrations of chemicals entering the wastewater treatment plant?

(c) Taking account of the potential removal/dilution/treatment of these chemicals resulting from the treatment process, please calculate and provide the predicted maximum discharge rate of these chemicals to be discharged from the outfall into the ocean?

(d) Please provide an assessment of the potential effects of the utilisation of these cleaning agents and chemicals?

10.48 In response to our request Mr Sneddon provided a Cawthron Institute report dated 3 May 2016. The Cawthron report was attached to the applicant's written reply dated 4 May 2016. Mr Sneddon calculated chemical concentrations in the wastewater based on known usage at the Fonterra Darfield site over a five-month period. With regard to the cleaning chemicals used, Mr Sneddon concluded that sodium hydroxide, nitric acid and sulphuric acid would neutralize or degrade through the treatment process into constituents that present no risk of toxicity to the marine environment at the point of discharge. The predicted concentrations of water conditioning chemicals in the wastewater are very small and the Cawthron report did not predict any associated toxicity at the outfall discharge.

10.49 Mr Sneddon also examined the potential effects of discharge of water test reagents that would be used in small quantities. Predicted concentrations in the wastewater discharge are very small. However, Mr Sneddon noted the presence of 1,10-phenanthroline in one of the reagents. This chemical is persistent and very toxic to aquatic organisms and he considered that it should not be discharged to natural waters, despite the very small concentration predicted. The Cawthron report states that the use of water test chemicals is unlikely to be intrinsically linked to the wastewater discharge and that such chemicals may be disposed of via other routes. Accordingly, we have decided that an additional condition 61 of the coastal permit should be imposed that requires there to be no discharge of water treatment chemicals containing 1,10-phenanthroline via the wastewater treatment system.

10.50 Submitters, including Professor Slooten, considered that effects associated with toxic breakdown products should be taken into account. Concerns particularly relate to the formation of disinfection by-products formed by the reaction of hypochlorite with organic matter. This matter was considered by Mr Sneddon in the Cawthron report of 3 May 2016. While acknowledging the limited available information regarding the effects of disinfection by-products in wastewater on the aquatic environment, he observed that the large dilution factor applied following the outfall discharge reduces the risk of any adverse effects.

10.51 Based on all the evidence and information now provided to us, we accept Mr Sneddon's conclusions and find that any adverse effects of chemicals discharged via the outfall are likely to be minor. We note that chemical inputs to the wastewater plant would ultimately need to be regulated by Fonterra to prevent toxic effects on the biological treatment system that could compromise the performance limits proposed as consent conditions.

10.52 Dr Seneviratna's review of the application reached the overall conclusion that the outfall discharge would meet water quality standards for the 99% level of protection as set out by ANZECC, resulting in less than minor effects. Given her conclusions, she also found that the proposal is consistent with the objectives and policies of the NCPS, RPS and RCEP. We accept her conclusions regarding the relevant objectives and policies and note that this assessment was not disputed by the parties.

Effects on Cultural Values

10.53 In relation to the effects on cultural values the evidence provided noted that submitters sought more information or had a variety of concerns as follows:

(a) the composition of the outfall discharge and contaminants present;

(b) the effects on ocean water quality;

(c) the nature of any impact, including long and short term effects;

(d) potential effects on taonga species, marine life, ocean biodiversity and the endangered Hectors Dolphins that frequent this area;

(e) possible effects on species that migrate from the sea to fresh water (diadromous fish);

(f) effects on benthic organisms that live on the ocean floor and their habitats in the discharge area;

(g) potential effects on water quality in the Waihao Arm and Wainono Lagoon;

(h) risk of harm to birds feeding on fish in this area;

(i) adequacy of proposed discharge water quality testing; and

(j) potential accumulation of matter in the pipes that would create odour and/or pollution issues.

10.54 Waihao Rūnanga via their Cultural Impact Assessment (CIA) noted that the marine environment and the interaction it has with the freshwater environment is important to Waihao. Its importance is linked to many values associated with the sea, the interaction of the sea with freshwater and the many waterways connected to the coast.

10.55 As noted above, we accept that the outfall discharge would meet the required NZECC water quality standards for the 99% level of protection which will result in less than minor effects and therefore minimise the risk for ocean and freshwater habitats of taonga species.

10.56 Mr Sneddon notes in his evidence in chief that the dilution factors for the discharged wastewater to meet freshwater targets in the Canterbury Water Management Strategy are well below the degree of dilution predicted for the immediate area around the outfall. Therefore, the operation of the outfall is not expected to have any significant effects on freshwater habitat and species. The evidence was that the discharge is not expected to have any effect on the migration behaviour of diadromous fish species in the area and we accept that evidence.

10.57 As noted earlier, Dr Stott's summary evidence concluded that any public health effects of the discharge are expected to be less than minor. Dr Stott suggested that future monitoring should be conducted once the new treatment system is fully operational to confirm the assumptions of this assessment. The proposed suite of conditions for the ocean outfall discharge include comprehensive requirements for ongoing monitoring of wastewater quality (conditions 39-48).

10.58 Dr Seneviratna noted in her report that she reviewed and assessed the CIA commissioned by Fonterra, prepared by Tipa & Associates and Sara Eddington on behalf of Waihao Rūnanga; the submissions received from Waihao and Arowhenua Rūnanga; Te Whakatau Kaupapa – Ngāi Tahu Resource Management Strategy for the Canterbury region; and the relevant Iwi Management Plan (IMP) that covers all of Canterbury. She stated that she is unqualified to assess the impacts on the cultural aspects of the proposal but noted that Fonterra have consulted with Waihao Rūnanga and are willing to have ongoing discussions during and post construction and that Fonterra is willing to amend the proposal during the consultation process with all the cultural groups.

10.59 We accept the applicant's proposed conditions regarding establishment of a community liaison group (conditions 56-58 of the coastal permit). These conditions would enable continuous discussions with cultural groups and provide the opportunity to discuss further concerns if they arose. It has been noted already that Fonterra and Waihao Rūnanga have met and many of Waihao's concerns have been addressed within the conditions. Overall we consider the adverse impacts on Ngāi Tahu cultural values associated with the ocean outfall discharge will be less than minor.

Alternatives

10.60 Several submissions noted that alternatives to the discharge of wastewater via the ocean outfall should be considered. The wastewater disposal options considered by Fonterra have been described in Section 6 of the AEE. These options include irrigation of wastewater onto land, discharge to the WDC wastewater treatment plant, and discharge to surface waters. These alternatives were discounted by the applicant for various reasons of cost, lack of sustainability, lack of support from the local community and regulatory controls.

10.61 We are aware that Fonterra irrigates wastewater from several of its other dairy plants onto land. Irrigation onto land therefore, at least on the face of it, appears to be the most viable alternative option. Mr Brough at paragraph 20 of his summary evidence discussed the wastewater irrigation feasibility study undertaken in December 2014. He noted that land ownership in the neighbouring area is fragmented and approval to irrigate would be required from a large number of landholders. He also stated that most suitable irrigation areas are subject to restrictive nutrient management rules under the LWRP. Overall Mr Brough concluded that while wastewater irrigation is technically feasible it is not practical due to a combination of the poorly draining soil types, competing irrigation schemes, nutrient allocation rules and the relatively small size of farms near the plant.

10.62 We have analysed the information provided regarding the alternative options for wastewater discharge. In our view adequate consideration has been given to alternatives. Bearing in mind our conclusions regarding the potential effects of the ocean outfall discharge, we find that discharge to sea is an acceptable option in this case.

Section 107

10.63 Section 107(1) of the Act prevents the discharge of contaminants into water:

(a) "…if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(b) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(c) any conspicuous change in the colour or visual clarity;

(d) any emission of objectionable odour;

(e) the rendering of fresh water unsuitable for consumption by farm animals; and

(f) any significant adverse effects on aquatic life."

10.64 Our evaluation of the effects of the wastewater discharge finds that any adverse effects on aquatic life would be minor. The proposed

standard of wastewater treatment is high and we accept the evidence that there would not be any conspicuous floatable or suspended materials and that any change in colour or visual clarity would not be significant. Objectionable odour effects associated with the outfall discharge are not anticipated. Consequently, we find that s107 does not prevent granting of consent to the wastewater discharge.

Conditions of Consent

10.65 During the course of the hearing there was a degree of discussion regarding the details of the proposed conditions associated with the ocean outfall discharge. The applicant's experts and Dr Seneviratna were requested to prepare an agreed set of conditions, to the extent achievable. Those conditions have been included with the applicant's reply and the majority of technical differences have been resolved. We consider that those conditions are now generally appropriate given the extent of assessed effects of the discharge. However, the remaining relatively minor outstanding issues are determined as follows.

(a) The advice note attached to proposed condition 43 of the coastal permit is deleted and now incorporated in new condition 45, as suggested by Dr Seneviratna.

(b) Dr Seneviratna's new condition 44 is included. That condition requires a report to be prepared on the relationship between indicator bacteria and pathogens, the need for future monitoring, and appropriate triggers. The condition is similar to the applicant's proposed condition 45 (now deleted), but would require a report to be prepared regardless of the extent of any exceedances detected during the two-year interim monitoring period.

(c) Proposed conditions 46, 47 and 48 are retained, requiring adoption of the recommendations of a 'Future Monitoring Report'. Condition 47 requires that, as a minimum, further monitoring of *Pseudomonas aeruginosa* and *Listeria* species is undertaken five years after the commencement of discharge.

(d) Condition 49 recommended by Dr Seneviratna requires a dye or sampling study to determine the extent of the mixing zone of the ocean outfall discharge. We accept the applicant's view that the assessment of the mixing zone that has been undertaken is adequate and the condition would not inform a management response. Accordingly, that condition is deleted.

(e) Proposed condition 50 required a benthic monitoring survey to be undertaken 5 years after commissioning of the outfall. The survey would follow the same methodology as the benthic baseline monitoring survey. Dr Seneviratna recommends that the survey be repeated on a five yearly basis, noting that such benthic monitoring is paramount to understanding the potential long term effects of the discharge. She pointed out that sediments and benthic communities provide a reliable long term indicator of effects and tend to accumulate stressors over time. We accept the applicant's assessment that effects on benthic communities

are predicted to be minor. However, we also note there are uncertainties associated with such assessments particularly in relation to long term impacts. We therefore find that initial benthic monitoring after five years, followed by 10 yearly repeat monitoring is appropriate and not overly onerous in this case. Such monitoring would verify the accuracy of the applicant's assessment and would serve to inform any future assessment or review of conditions.

Effects of Stormwater Discharge to Surface Water and Groundwater

10.66 The proposed stormwater system includes the following features:

(a) A 9900m^3 treatment pond (the North Pond) with first flush basin and ability to pump 1000l/s to the Hannaton Road stormwater attenuation ponds;

(b) A 5900m^3 treatment pond on the south side of Foleys Road (the South Pond) and a pump station to transfer 150l/s to the Hannaton Road ponds;

(c) A 50m^3 isolation pond to accept any spills from the tanker queuing and parking area;

(d) Expansion of three existing stormwater attenuation ponds at Hannaton Road to 72,000m^3 capacity; and

(e) A new wetland finishing pond at the Hannaton Road site to provide final treatment prior to discharge to Waimate Creek at a rate of up to 30l/s or the ocean outfall pipeline.

10.67 Discharge of stormwater from the existing plant to Waimate Creek at up to 30l/s is authorised by consent CRC156714. Fonterra proposes to replace that existing consent with the new discharge permit that is sought. The evidence we heard was that the proposed standard of stormwater treatment is high and that the proposal is expected to result in a net improvement to the quality of stormwater discharged to Waimate Creek. The creek is ephemeral, being dry for extended periods at the discharge point from the wetland. The creek discharges into the Waihao Arm.

10.68 The applicant proposes to also discharge treated stormwater via the ocean outfall pipeline during times of peak flow. The effects of this discharge have been considered as part of the combined wastewater discharge via the outfall.

10.69 The stormwater discharge to Waimate Creek is one of the less contentious parts of the overall proposal. The experts are largely in agreement regarding the effects of the proposed discharge and the content of recommended consent conditions.

Effects on Surface Water and Groundwater Quality

10.70 Taking into account the existing authorised discharge to Waimate Creek, Mr Walters' overall assessment was that the proposed discharge

would result in an improvement to water quality in the creek. He emphasized that all wastewater discharges would be via the proposed ocean outfall and that no wastewater discharge to Waimate Creek would occur.

10.71 Mr Edwards reviewed the applicant's assessment of the effects of the stormwater discharge for the CRC. He considered that discharge to groundwater via infiltration through the base of the stormwater ponds would have a minor effect on groundwater quality. Due to the expected contaminant concentrations and high clay content of the soils, Mr Edwards stated that the rate of contaminant discharge to groundwater would be small.

10.72 In relation to the stormwater discharge to the creek, Mr Edwards concluded that the treatment system design (including multiple in-line attenuation ponds and a wetland) would result in a high rate of contaminant removal. Overall he considered that the stormwater discharge would have a minor effect on the water quality of Waimate Creek.

10.73 Based on the evidence we find that any adverse effects arising from the proposed stormwater discharges to Waimate Creek and groundwater are likely to be minor. We note that the use of a wetland to treat discharges to the creek is in line with best practice. The system design directs stormwater from localised areas (such as the truck wash) with potentially significant sources of contaminants to the wastewater treatment plant. We accept the evidence that any impact of the existing authorised discharge on Waimate Creek would likely reduce as a consequence of replacement with the proposed discharge.

10.74 Mr Edwards considered the objectives and policies of the RPS and LWRP and found that the proposal to discharge stormwater is "not inconsistent" with those documents. That assessment was not disputed at the hearing and we have reached the same conclusion.

Effects on Water Quantity

10.75 The applicant's calculations of design capacity in the stormwater treatment ponds were audited by Mr Edwards. He accepted those calculations and noted that the rainfall intensity data used made an appropriate and conservative allowance for the effects of climate change. Mr Edwards stated that the proposed stormwater management system has sufficient capacity to manage stormwater generated from a 1% AEP (annual exceedance probability) 4-day rainfall event, regarded as an extreme rainfall event. He noted that stormwater generated by more extreme rainfall events would be expected to result in widespread flooding in the catchment with only minor proportional contribution from Fonterra discharges.

10.76 Mr Walters stated that in a 100 year (1% AEP) 4-day rainfall event the stormwater ponds may overflow to Waimate Creek via an engineered spillway at a rate of up to 300l/s. This rate may be compared to the estimated peak flow in the creek during such an event of 144,000l/s. Flood records indicate that much of the surrounding area would be inundated in such an event. We accept that conclusion. Overall we find

that any adverse effects of the proposed stormwater discharge on water quantity and associated flooding would be less than minor.

Cultural Effects of Discharge to Waimate Creek

10.77 Evidence was provided to the hearing which outlined the importance of all waterways including Waimate Creek, not only to Waihao and Arowhenua Rūnanga but to Ngāi Tahu iwi as well. *"Mahiāa Kai are the places and resources (e.g. species) important for sustaining the cultural, social and economic well-being of manawhenua and the activities associated with gathering and use of the resources, including cultural harvest, whanau experience and knowledge and transmission of cultural values and tikanga practices between generations."*[8]

10.78 Mr Woodlock noted in his s42A Officer's Report that Te Whakatau Kaupapa – Ngāi Tahu Resource Management Strategy for the Canterbury Region, is the relevant iwi management plan (IMP) that covers all of Canterbury. The policies of the IMP highlight the importance of water quality and the relationship tangata whenua have with water bodies including areas of mahinga kai.

10.79 Waihao Rūnanga have noted that they support stormwater being discharged to Waimate Creek if it meets sufficient water quality standards (approved by Waihao Rūnanga) before it is discharged.[9]

10.80 We have been made aware that the cultural values affected by the stormwater discharge to surface water and groundwater include impacts on:

(a) river biodiversity;

(b) ecosystems that taonga species such as eel and whitebait inhabit; and

(c) water quality and the ability for Waihao Rūnanga and other submitters to gather edible mahinga kai.

10.81 During our site visit we observed the current state of Waimate Creek being totally dry in lower reaches. Due to the ephemeral nature of the creek it has limited importance as a mahinga kai waterway.

10.82 As already discussed, a wetland is proposed to treat the final stormwater discharges and the proposal is expected to result in a net improvement to the quality of stormwater discharged to Waimate Creek.

10.83 We consider that the proposed conditions for the stormwater discharge address Waihao Rūnanga's concerns. In particular condition (7) requires consultation to occur with Waihao Rūnanga to ensure fish passage is maintained within the final design of culverts.

[8] *Cultural Impact Assessment, p28-29.*
[9] *Cultural Impact Assessment, p42.*

10.84 Condition (12) gives Waihao Rūnanga the opportunity to have input into the design of the wetland.

10.85 Condition (27) relates to a required Annual Environmental Report to ECan which includes (h):

10.86 *"the report for the first year following the completion of Stage 1 construction shall include a review of potential environmental benefits to Waimate Creek that may occur if the stormwater discharge regime is altered. This review shall be provided to Waihao Rūnanga."*

10.87 Proposed conditions (28 and 29) enable consultation with Waihao Rūnanga for a Waimate Creek Cultural Values Report to be prepared which will outline:

"*the impact of the discharge on the ecological values of Waimate Creek; and*

the impact of the discharge on the cultural values of Waimate Creek (as informed by Te Rūnanga o Waihao."

10.88 We find that the conferring that occurred between Fonterra and Waihao Rūnanga and the proposed conditions adequately address the cultural effects of the proposed stormwater discharge to Waimate Creek

Conditions of Consent

10.89 There was little disagreement between the applicant's experts and Mr Edwards regarding the content of recommended consent conditions for the proposed stormwater discharge. An agreed set of conditions has been provided that addresses any matters that arose during the course of the hearing. These revised conditions specify design parameters and a certification pathway for the wetland (conditions 11-13) to ensure that the proposed stormwater treatment is achieved. We consider that the conditions now suggested are appropriate and adequately address any issues raised by the parties.

Effects of Sewage Effluent Discharge to Land

10.90 The applicant proposes to treat domestic sewage effluent from staff ablution facilities in a membrane bioreactor or packed bed reactor package system. The discharge to land would be via covered drip line irrigation to a raised disposal field at a monthly average loading rate of not more than 2mm/day. The proposed disposal field is located on a triangle of land owned by Fonterra immediately to the south of Foleys Road.

10.91 Fonterra stated that the existing permitted effluent discharge via septic tank and soak hole would be decommissioned if the proposed treatment system was installed. We accept the evidence that the proposed standard of effluent treatment is high and a significant improvement (in terms of contaminant removal) over the existing septic tank discharge.

10.92 The submissions received in relation to the effluent discharge primarily expressed concern about ponding of effluent, flooding of the site and associated contamination of surface waters. We will focus on those issues in our evaluation of potential effects.

Effects Associated with Effluent Ponding

10.93 The evidence of Mr Hall, on behalf of submitters Penno and Wilson, discussed the low permeability of soils at the disposal field site and expressed concern that the proposed effluent application rate could result in ponding on the soil surface under some conditions. Mr Hall has local knowledge, having designed the effluent treatment system for the neighbouring Studholme Hotel.

10.94 Mr Brough acknowledged Mr Hall's concerns but noted that the proposed effluent application rate is small, being based on poorly drained soils, and could be further modified once detailed on-site investigations have been undertaken. He observed (paragraph 30 of his summary evidence) that the proposed application rate is consistent with the rates consented for the Studholme Hotel discharge. Mr Brough proposed additional conditions of consent that require a disposal system design report, based on site investigations, to be prepared and sent to the CRC for certification.

10.95 Further conditions are proposed by the applicant that require daily soil moisture monitoring and cessation of the discharge if field capacity has been reached or if effluent is visible at the land surface. Fonterra has confirmed that under these circumstances effluent could be taken off-site and discharged to the WDC treatment system.

10.96 Bearing in mind the comprehensive revised consent conditions that have been prepared in consultation with Mr Woodlock, we find that sufficient measures would be in place to prevent ponding of effluent on the land surface that could result in runoff and associated adverse effects.

Effects Caused by Flooding of the Effluent Treatment Site

10.97 Messrs Hall, Penno, Bleeker, Fox and Wilson raised concerns regarding the location of the disposal field in an area known to be prone to flooding or overland flow, with potential for runoff and contamination of surface waters. Mr Walters noted that overland flow paths adjacent to the proposed disposal field site are indistinct and there is risk of some flow onto the site. Consequently, Mr Brough proposed that topsoil be imported onto the disposal field area to raise the level to at least 12.8m above sea level, above any known flood levels.

10.98 Mr Brough also proposed (paragraph 36 of his summary evidence) that the effluent disposal field be relocated so that it is at least 15m from the boundary with Mr Penno's property. We intend to impose an additional condition 17(b) to that effect. A further condition is proposed by Fonterra, requiring that a drainage channel be formed along Foleys Road to divert flood waters away from the land application site.

10.99 Taking into account the revised suite of mitigation measures now proposed in response to the evidence of submitters, we find that flooding of the effluent disposal site is unlikely to occur to a degree that would cause significant adverse effects on Mr Penno's land or on down-gradient surface waters, including Waimate Creek 450m to the south. The proposed raising of the disposal area with imported topsoil and the separation distance from the boundary are expected to prevent the risk of contamination of crops on Mr Penno's land. We accept the evidence of Messrs Brough and Woodlock that compliance with the revised conditions would ensure that adverse effects associated with flooding of the site are minor. We note that there is a degree of comfort provided by the site-specific design certification requirements and the ability to dispose of effluent off-sit in the event of system failure.

Effects on Groundwater and Surface Water Quality

10.100 Mr Woodlock reviewed the assessment of effects on groundwater and surface water quality. He received technical advice from Dr Scott, CRC Senior Groundwater Quality Scientist. She noted that the contaminant loads (nutrients and pathogens) to groundwater are likely to be less from the proposed treatment system than the current septic tank discharge, resulting in potential effects that are expected to be an improvement over the current state.

10.101 Taking into account the location of dwellings and water supply bores in the neighbouring area, Mr Woodlock concluded that the adverse effects of the discharge of pathogens and nitrate nitrogen on groundwater quality and other groundwater users would be less than minor. He also found that the mitigation measures now proposed to prevent effluent ponding and runoff, as we evaluated previously, would be sufficient to prevent contamination of surface water that might affect human and stock health.

10.102 We accept the evidence of Messrs Brough and Woodlock that sufficient mitigation is now proposed to prevent any significant adverse effects on water quality. We also accept Mr Woodlock's assessment that the proposed effluent discharge is consistent with the objectives and policies of the RPS and NRRP. Our finding is that, subject to the comprehensive suite of conditions provided with the applicant's reply of 4 May 2016, any adverse effects of the sewage effluent discharge would be no more than minor.

Effects on Cultural Values

10.103 Evidence in the CIA notes the cultural importance of puna (springs) and groundwater which provide habitat and augment many waterways within the Wainono/Waihao Catchment[10]. Many taonga species within this catchment rely on groundwater for many of their life stages. Concern noted by submitters was in regard to water quality effects the discharge may have on the ground and surface water resources and the associated impacts on aquatic ecosystems.

[10] *Cultural Impact Assessment, p 43-44.*

10.104 We are aware that Fonterra will be decommissioning their current permitted effluent discharge via a septic tank and soak hole if the proposed treatment system is installed. We accept the evidence provided that the proposed effluent treatment standard will be high and will be a significant improvement in removing contaminants over the current septic tank discharge.

10.105 As discussed earlier, the adverse effects of the discharge of pathogens and nitrate nitrogen on groundwater quality and other groundwater users are predicted to be less than minor. The various conditions and mitigation measures proposed to prevent effluent ponding would be sufficient to prevent contamination of surface water and water quality that might affect taonga species.

10.106 We consider that the set of conditions proposed would require effective management of the sewage effluent discharge to land and the treated discharge would be a significant improvement on the current system. Conditions 35-37 relate to the setting up of a Community Liaison Group that would enable ongoing communication and consultation between Fonterra, Waihao Rūnanga and the community.

Conditions of Consent and Mitigation

10.107 Following further discussions and amendments to proposed conditions, there remained little disagreement between the Messrs Brough and Woodlock regarding the content of conditions for the proposed sewage effluent discharge. An agreed set of conditions has been provided that addresses matters that arose during the course of the hearing, including issues of ponding, flooding and runoff. Subject to the addition of condition 17(b) as discussed, we consider that the revised conditions now suggested are appropriate and adequately address the issues that have been raised by submitters.

Duration of Consent

10.108 Fonterra requested a duration of 35 years for the discharge permits, including the sewage effluent discharge, stating that long term consents are appropriate given the large scale infrastructure works proposed and the degree of mitigation applied. Mr Woodlock recommended a 15-year term for the sewage effluent discharge, noting the sensitivity of local groundwater to nutrient loads and the compliance history at the Fonterra Darfield and Clandeboye plants.

10.109 In determining appropriate consent duration, we have considered the sensitivity of the receiving environment and likely compliance with conditions. However, we have also taken into account the high standard of treatment proposed and the comprehensive suite of conditions now recommended, including a clause that allows annual review. Furthermore, we note the evidence that replacement of the existing septic tank discharge with the proposed discharge is likely to result in a net improvement to groundwater quality. On the basis of these factors we find that a term of 35 years is appropriate for the effluent discharge permit.

Noise Effects

10.110 The noise effects of the full Stage 2 expansion, as initially proposed, were modelled by Marshall Day Acoustics (MDA) and results were presented at the hearing. Subsequently the noise effects associated with the reduced proposal (excluding Dryer 3, Boiler 4 and the second dry store, with an associated reduction in tanker traffic) has been re-modelled by MDA. The results of this re-modelling were presented in a memo from Mr Hay of MDA to Fonterra, dated 22 April 2016, and included with the applicant's submissions in reply dated 4 May 2016.

10.111 Mr Hay's updated noise modelling predicts a small reduction in noise levels at neighbouring properties, relative to the original Stage 2 proposal. Fonterra proposes to use a "noise control boundary" as the basis for assessing and monitoring noise around the plant. We consider that this approach is acceptable in this case and offers certainty and simplicity for determining compliance with noise standards.

10.112 The proposed noise limits at the noise control boundary align with the current District Plan noise standards, with the exception of use of L_{Aeq} adopted by the WHO rather than the L_{A10} parameter in the District Plan. We accept Mr Hay's evidence that the proposed noise limits are appropriate and note that this was not disputed by the noise experts. The operational noise limits to apply at the noise control boundary are:

- Daytime (0700-1900) 55 dB $L_{Aeq\ (15min)}$ when measured at the dairy factory noise contour; and
- Night-time (1900-0700) 45 dB $L_{Aeq\ (15min)}$ and 75 dB L_{AFmax} when measured at the dairy factory noise contour.

Effects of Noise from Plant Operation and Rail Activity

10.113 Mr Hay's updated noise modelling results indicate that effects are likely to be acceptable at the noise control boundary and at neighbouring dwellings. The nearest dwelling is at 89 Foleys Road, owned by Mr Bleeker. The modelling predicts noise levels approaching 45 dB $L_{Aeq(15min)}$ at Mr Bleeker's dwelling.

10.114 Mr Humpheson was engaged by Mr Bleeker to provide evidence on potential noise effects. He noted that noise from the existing factory is experienced around the Bleeker property and there would be an increase in noise if consent for the expansion was granted. Mr Humpheson expressed concern that the predicted noise levels are "right against" the noise limit of 45 dB $L_{Aeq\ (15min)}$ at Mr Bleeker's dwelling, allowing little margin for error. He raised concerns regarding the perceived lack of transparency in Mr Hay's noise modelling approach and the potential for non-compliance with the limits, requiring remedial measures.

10.115 In response to Mr Humpheson's concerns, Mr Hay explained that the noise data used in the model had been obtained from existing Fonterra sites (including Darfield and Pahiatua). He considered that the modelling and subsequent noise monitoring at these sites gave him confidence that the predicted noise levels in this case are appropriately

conservative. We questioned the experts regarding the noise monitoring proposed to assess compliance with recommended consent conditions. Subsequently we have been provided with revised recommended conditions covering noise monitoring, formulated with the input of Dr Trevathan as noise expert for the WDC. Those conditions (27-31 of the WDC land use consent) would require a comprehensive noise monitoring report for each of the first three years that an expanded plant is operational.

10.116 Dr Trevathan reviewed Mr Hay's noise assessment and stated that he is satisfied that sufficient controls are in place to ensure that noise will comply with the proposed limits. He considered that daytime noise levels are likely to comply with the proposed limit by "some margin" and considered that the limits would prevent sleep disturbance during the night time period. However, Dr Trevathan noted that the proposal may result in a clearly audible change in noise levels during the night time period at some receiver locations.

10.117 Some discussion occurred at the hearing regarding the proposed bund at the eastern site boundary and the potential to adopt alternative measures (such as a large shed) to mitigate noise at Mr Bleeker's property. We note that the proposed condition 36 requires a bund or other attenuation device between the site and Mr Bleeker's dwelling before on-site rail movements during the night-time period could occur. Mr Hay's updated modelling indicates that such noise attenuation measures would provide a further "margin of safety" by reducing the predicted noise level to well within the 45 dB $L_{Aeq\ (15min)}$ limit at the 89 Foleys Road dwelling. The modelled bund also has the predicted benefit of ensuring compliance with the limit at all points of the noise control boundary.

10.118 We have carefully considered the evidence provided by the three noise experts, Messrs Hay, Humpheson and Trevathan. On this basis we find that adverse effects from noise associated with dairy plant operation on neighbours (including occupiers of existing dwellings) are likely to be minor. The conditions of consent now proposed include comprehensive certification and monitoring procedures that are expected to be sufficient to ensure that the proposed noise limits are met.

Effects on Potential Future Dwellings established within the Noise Control Boundary

10.119 An issue arose during the hearing regarding the potential for dwellings to be established in future as permitted activities under the District Plan, on land located within the noise control boundary. The evidence we received from Fonterra and Mr Chrystal is that the potential for such dwellings to establish close to the dairy plant is very limited for a number of reasons.

10.120 While we agree the potential is low, we consider that the risk of establishment of a future dwelling is not negligible. Consequently, we find that a condition providing for noise insulation of any such future dwellings to meet a 35 dB $L_{Aeq\ (15min)}$ night-time internal noise limit would be appropriate. Such a condition was proffered as an option by the applicant and has been adopted as condition 38 of RMA150031.

Subject to this condition, we conclude that adverse noise effects of the plant on any future dwellings established in the neighbouring area are likely to be minor.

Effects of Noise During Construction

10.121 In his evidence (paragraph 40) Mr Hay stated that the District Plan (Rule 6.11.2) stipulates that construction noise shall be assessed against and shall not exceed the recommended limits specified in NZS 6803: 1999 'Acoustics – Construction Noise'.

10.122 NZS 6803:1999[11] permits the following daytime limits for construction activities:

Noise Limit	Construction Timeframe
80dB L_{Aeq}	Short term (less than 14 days)
75dB L_{Aeq}	Typical duration (2 to 20 weeks)
70dB L_{Aeq}	Long term (more than 20 weeks)

10.123 Fonterra proposes that construction activities will be designed and conducted to comply with NZS6803:1999. Recommended condition 12 requires specification of measures to enable compliance with NZS6803 within the CMP. Based on his experience with the construction of other large dairy factories (particularly at Darfield and Pahiatua), Mr Hay considered that compliance with the NZS6803 limits is achievable and would provide adequate protection of the amenity of neighbouring residents.

10.124 It is reasonable to expect that construction works of the proposed scale would cause some annoyance to local residents. However, we are satisfied that compliance with NZS6803, with specific measures addressed in the CMP, should be sufficient to ensure that adverse effects of construction noise are no more than minor.

Conditions

10.125 Revised noise conditions for the WDC land use consent have been proposed by Fonterra. These conditions include changes to the proposed noise monitoring procedures with the input of Dr Trevathan for the WDC. Subject to the addition of condition 38 as discussed to address effects on potential future dwellings within the noise control boundary, we are satisfied that the recommended noise conditions are appropriate.

[11] *New Zealand Standard NZS 6803:1999 'Acoustics – Construction Noise'*

Landscape and Visual Effects including Lighting, Glare and Signs and Effects on Rural Character and Amenity

Original Application – The Fonterra Position

10.126 The original Fonterra proposal, particularly the milk processing factory element, attracted attention from reporting officers and submitters like. The views they expressed in the submissions, evidence and reports in summary form was that the size and scale of the processing factory was much too large for its site, the proposed landscaping treatment was inadequate and that there would be serious adverse visual effects and consequently serious effects on rural character and amenity. Indeed, Mr Craig's landscape assessment for Fonterra acknowledged that when persons were in close proximity to the factory site visual impacts would be significant and properly described as being more than minor. However, it was his assessment that beyond a distance of 1km the visual impacts of the plant would be acceptable because of the proposed landscape treatment. It was also his view that rural character and amenity would not be adversely affected, particularly beyond the 1km area.

10.127 As to the other parts or elements of the original proposal, Mr Craig was of the view that neither the WWTP nor the pipeline needed landscape or visual treatments. Regarding the WWTP site Mr Craig noted that it already has the existing WWTP located upon it. Notwithstanding the presence of these structures, he considered the landscape character of the area to be very much rural.

10.128 He considered that the existing WWTP does exhibit the same degree of amenity that occurs within the surrounding landscape. As to the ocean outfall pipeline route, he observed that the landscape, except for the stream crossings and shore line gravel banks, is typically rural in character.

10.129 Mr Craig did not think the WWTP site (after construction of the new plant) would require any landscape treatment such as screening. He considered it well set back from the only public view point on Hannaton Road. Also the new structures were all under the height limit of 10m as per the WDC plan so in his opinion the new structures would all fit within the permitted baseline.

10.130 Turning to the ocean outfall pipeline, while it traverses the rural area it will be buried so Mr Craig concluded that no landscape treatment is required. The vegetation disturbed during construction is not of high or special value and in any event will quickly re-establish. In the main grasses predominate and will be re-sown following construction. He did not think any landscaping treatment was required for the stream crossings where the pipeline crosses the Waihao Arm.

10.131 Mr Craig explained that due to operational reasons the available choice in terms of roof colour is very limited. The roof colour for the dry store needs to be reflective to ensure internal temperature levels are appropriate.

10.132 Mr Craig explained that the most extensively used colour on similar facilities is "Titania" which will be used on most of the dryer cladding and dry store roofing. He further explained that Titania has a light reflectance value (LVR) of 67% which is relatively high. Vertical panels on the dryers will be finished in "Gray Friars" with a LVR of 8%. The dry store cladding is to be finished in "Gull Gray" which has a LVR of 48%. He considered that the contrast between the Titania coloured roof and the Gull Gray walls will have the effect of elongating the building, exaggerating its horizontality.

10.133 The significant reduction in size and scale of the original proposal to the Stage 1 proposal means we think that some of the effects described above will not be as significant as originally assessed. We accept that Fonterra has operational requirements that limit colour choice, with reflective colours be required in some circumstances for temperature control.

WDC and Submitter Position

10.134 Mr Densem, the landscape expert for WDC, was very concerned about the significant effects of the proposed size and building coverage on rural character and natural values of the expansion site. He considered the Stage 2 dry storage buildings, covering some 67,000m² in area, to be massive buildings in the context of the application site. He considered those buildings along with space provided for parking and manoeuvring areas would have the effect of de-naturalising a large area of currently rural farmland between SH1 and the railway, converting it to industrial character and obliterated existing natural values. He was critically concerned about the overall footprint size and site coverage of the Stage 2 proposal, not necessarily the height of some of the proposed structures.

10.135 Mr Densem, when assessing the visual and landscape screening that Fonterra promoted for the original application, was of the very clear opinion that the dairy plant would remain a dominant presence particularly for the four residences located reasonably close to the Site. Primarily his expert opinion was based upon the "gigantic scale, the vehicle and operational activities and the lighting which would occur on site". In his opinion these would be distracting events from normal rural activities. Essentially it was his view in terms of the original proposal that the huge scale of the proposed Plant exceeds the capacity of the site to adequately mitigate the landscape effects.

10.136 Both Mr Densem and Ms Harte, because of these visual effects, concluded that the impact on rural character and amenity of the rural land surrounding the Site would not maintain that amenity and character but rather would adversely impact upon it.

10.137 In his principal report Mr Densem expressed his expert opinion that these key effects could only be mitigated by a smaller development on the proposed site. By smaller he meant some 50% less than the size and scale of the original application.

10.138 Many submitters both in their submissions and evidence raised concerns relating to what they saw as adverse visual impacts of the

original proposal. This was particularly so of those submitters living relatively close to the plant such as Mr Penno, Mr Nigel Wilson, Mr Jeffrey Bleeker and Mr Jack Fox. These submitters contended that the scale of the factory as proposed by the original application was much too large for the site. The consequence as they saw it was that no amount of screening would mitigate or remedy the adverse visual effects of this element of the original proposal.

10.139 Submitters expressed the view that the size and scale of the plant was such that any landscaping would be ineffective and the resultant visual effects would also have an adverse impact on the landscape and effects on rural character and amenity. Essentially they were of the view that establishment of an industrial activity of the proposed size and scale (particularly given it was to be located on Rural zoned land) would cause adverse effects on the character and amenity of the surrounding rural land.

10.140 When Ms Harte assessed the original proposal against the district plan objectives and policies for the Rural Zone and Business 3 Zone she relied on the findings as to landscape and visual effects that Mr Densem had reached. In her view the objectives and policies of the WDC plan of most relevance are the Business 3 objectives, particularly Objective 1. This objective provides for the establishment and maintenance of industrial activities which do not adversely affect the amenities of areas in the vicinity. We think this particular objective recognises that the Business 3 Zone is surrounded by a Rural Zone.

10.141 It was Ms Harte's opinion that the proposed original development (Stage 2) had the potential to result in adverse effects in relation to the landscape and character of the area, visual domination, noise, traffic, and dust and odour nuisance. She concluded that while traffic and noise effects may be in conformity with this objective there were adverse impacts on the landscape and on visual amenity of neighbours and users of adjoining roads including SH1.

10.142 She also considered the that the Rural Zone objectives and policies were relevant to the original application and drew our attention to Objective 5, landscape character and natural features, Objective 6, rural amenity and environmental quality, Policy 6E, general amenity controls and Policy 6I, non-rural uses.

10.143 Her assessment concentrated on Rural Zone Objective 6, noting that rural amenity and environmental quality was particularly relevant because the level of amenity it seeks for the Rural Zone is one that does not cause a significant deterioration of the quality of the rural environment. We understood her opinion to be that the scale and intensity of what was originally proposed was such that it would degrade the quality of the rural environment. She did not however consider this to be the case for noise and traffic generated by the original proposal.

10.144 We do not need to dwell on the evidence which assessed the original proposal for these effects because Fonterra has significantly reduced the size and scale of the factory now proposed for the site. However, it is fair to say we were influenced by Mr Densem's and Ms Harte's

assessments and opinions and those of the submitters that the original proposal did have significant adverse visual effects, especially in proximity to the plant, and it did have adverse effects on both rural character and amenity.

10.145 Significant changes have been made to the proposed size and scale of the milk processing factory, as evidenced by Fonterra's 4 May reply. Those reductions in the size and scale, particularly of the milk processing factory, understandably impact on the extent of all of the effects discussed in this section.

10.146 Significant change arose during the course of Fonterra's submissions in reply so we have little in the way of submitter evidence relating specifically to the revised Stage 1 only proposal. However, we are not troubled by that as the changes promoted by Fonterra are intended to address submitter and reporting officer concerns that the scale of the original proposal was too large for the site, with consequent significant adverse effects.

The Densem Further Assessment

10.147 The significant extra planting proposed is mainly natives, however because they are fast growing some Eucalypt plantings are proposed within some areas of the natives and also in their own clusters or rows. More planting is now proposed around the disposal pond at the northern boundary and the proposed domestic waste disposal area along Foleys Road. Along SH1 this area of proposed planting has notably increased. Further screen planting is proposed along the Main South Railway line which will be visibly pleasing and reduce noise to some degree.

10.148 We asked Mr Densem to provide us with his views of the revised landscape plan (Concept Landscape Plan V2 last revised 26/04/16) prepared by Mr Andrew Craig for Fonterra and included within the reply.

10.149 Within his additional section 42A report dated 13 May 2016 Mr Densem concluded that the additional landscaping now proposed will, with adjustments he recommended, enable the reduced development to be suitably mitigated and would lead to landscape effects (with one exception) being minor. He noted that what was now proposed was a significant change from the original proposal which in his view was a development that was too big for the site and could not be adequately mitigated.

10.150 Mr Densem's additional report assesses the landscape and visual effects of the now reduced Stage 1 proposal from a range of viewpoints: namely from the north end of the site, from SH1 and Molloys Road, from neighbouring sites, from the east or railway side and from the south end of the site. Helpfully he also assesses other parts of the Stage 1 proposal, namely the oxidation ponds and outfall.

10.151 His report includes assessments of effects of the Stage 1 proposal on rural amenity and rural character and he also assesses the Stage 1 proposal along with the now proposed landscaping and visual

mitigation measures to determine its consistency or otherwise with the relevant objectives and policies for the Business 3 and a Rural zones in the WDC district plan.

10.152 In relation to the northern end of the factory site, Mr Densem concludes that the modified proposal (Stage 1) has sufficient space at the northern end of the site to mitigate the effects of the factory on views from SH1 to the north and from neighbours to the north east, primarily Mr Fox. Mr Densem does however make suggestions which in his opinion would make the mitigation proposed by Fonterra more effective. He went on to record his view that if his suggestions were adopted in respect of the mitigation measures for the north end of the application site, then in his opinion the Stage 1 proposal would comply with Rural Zone Objective 6 and Business 3 Zone Objective 1.

10.153 As to effect on views from SH1, Molloys Road and those neighbouring the site it was Mr Densem's conclusion that importantly the SH1 boundary of the site would be adequately mitigated from the perspective of the public and SH1 users. However, he considered the matter was much more finely balanced in terms of views from further west and he described it as a 50-50 call as to whether or not Fonterra had adequately mitigated visual effects. He recommended consultation with the western neighbour Mr Wilson in that regard.

10.154 On the east or railway side of the site a proposed earth bund is provided as visual mitigation. The bund is clearly identified on Mr Craig's concept landscape plan V2. Mr Densem has identified a line of mature pine trees standing where the bund is proposed. He notes those pine trees would provide a readymade visual screen if retained. However, if they are to be removed and the bund constructed it is Mr Densem's opinion that a new screen of trees should be re-established along the bund once constructed. He recommends oak because they are an extensive amenity feature along the main trunk line throughout South Canterbury. He observes that Version 2 of the plan does not provide trees on the bund.

10.155 Mr Densem also notes that beyond the north end of the bund the plan (V2) shows a short line of eucalypts. He considers that from a landscape perspective it would be desirable for this line of trees to be extended northwards to ensure visual screening from neighbours to the north east and east, namely Mr Fox and Mr Bleeker.

10.156 Turning to the west of the railway, Mr Densem notes that the plan (V2) shows a line of eucalypts on the immediate west or Fonterra side of the railway line. He supports inclusion of these trees because they would screen views of the plant from the north-east. It is his view that if the treatment of the eucalypts that he proposes for the west of the railway occurs, in combination with extended planting on the eastern side, this result would effectively mitigate the views of the proposed plant from Mr Fox's site and also from Mr Bleeker's property.

10.157 As to the south end, Mr Densem supports the inclusion of additional eucalypt trees along SH1 south of Foley's road because they will, in combination with a corpse of trees previously proposed on the north-east corner of Foley's Road, improve screening of the plant when

approaching it from the south on SH1. He also suggests establishing shrubs and small trees around the proposed South stormwater pond to be established on the Foley's road site so as to naturalise it.

10.158 Returning to the objectives and policies of the district plan, Mr Densem expresses his expert view that if landscaping and visual mitigation measures generally accord with Mr Craig's V2 plan and modified by Mr Denson's marked up plan, it is his opinion that the factory element of the Stage 1 proposal would not result in a significant deterioration of the rural environment and would maintain the natural and amenity values anticipated in the Rural Zone.

10.159 In terms of the Business 3 zone it is his opinion that the Stage 1 factory element is envisaged by the district plan. He notes that while perhaps taller than expected, the now proposed expanded landscape provisions will significantly mitigate the effects of the factory expansion, albeit not totally for neighbours to the west. It is Mr Densem's view that the proposed plant will not adversely affect the amenities of the surrounding areas in a significant way and he concludes the buildings and structures associated with the Stage 1 proposal will comply with Objective 1 of the Business 3 Zone.

10.160 With regard to the proposed WWTP and ocean outfall, while acknowledging that amenity plantings have not so far been proposed by Fonterra, it is Mr Densem's view that there should be amenity planting undertaken in the WWTP area at Hannaton Road and the outfall route. He recommends five or six copses of trees to break up views of the site and provide visual integration for the treatment pond margins. He notes that new treatment tanks (such as the anoxic tank, up to 10m tall) are proposed to be located within the WWTP grounds and he recommends planting of shrubs and small trees around them for integration of the tanks into the surroundings. In relation to the outfall he recommends that surface water channels nearby the outfall route be developed in places with streamside plants such as flax and rushes in association with the Waihao Rūnanga.

10.161 Turning to conditions, Mr Densem is of the view that the conditions should provide a requirement to submit a detailed landscape plan for WDC approval before construction of the plant and he provided us with a draft condition to that effect.

Further Fonterra Response

10.162 Fonterra, through its 19 May 2016 reply, responded very constructively to Mr Densem's recommendations to amend the landscape plan V2. We consider that Fonterra has adopted all of Mr Densem's recommendations for further modification with the exception of only four relatively minor matters.

10.163 Fonterra do not support the inclusion of some of the tree copses recommended by Mr Densem. Fonterra explained they are uncomfortable from a food safety regulatory perspective with adopting the western most two copses and the copse close to the processing and load-out area because experience has shown that such plantings attract birds and vermin. This outcome gives rise to the risk of food

safety and related regulatory issues. In any event in our view these three copses are of limited value in achieving acceptable visual effects and contributing to rural amenity.

10.164 Fonterra do not support the planting of screening trees beyond the north end of the railway bund, particularly beyond the short line of eucalypts already provided for on plan V2. Fonterra explained that this land is informally occupied by Mr Bleeker for farming purposes and Fonterra assumes Mr Bleeker is also satisfied with this position.

10.165 However, Mr Bleeker through his legal counsel Mr van der Wal on 26 May 2016 lodged a memorandum informing us he was happy that the land he currently utilises to the north of the proposed bund be fenced off, provided Fonterra shares in fencing costs and then properly maintains the area. Further Mr Bleeker through counsel informs us that the land in question is an insignificant sliver of land which he does not require and in no way can come close to beginning to compensate him for the loss of amenity that even the reduced factory will impose upon him. Mr van der Wal also reminds us that there is no agreement between Mr Bleeker and Fonterra in relation to any issue and Mr Densem is mistaken in that regard when in his further report he informs us he did not consider the effects on the Bleeker house because he understood discussions had occurred directly between Fonterra and Mr Bleeker. Usefully Mr Densem does tell us that he considered the effects of the Stage 1 proposal on the Bleeker farmland north of the house and he did conclude, subject to his recommended amendments, that effects on that farmland would be no more than minor.

10.166 While undertaking our site visit we took time to consider the views of the then intended proposal from Hannaton Road on the east side of the factory site. We carefully considered views from the Fox property as well. At the time of our site visit the proposed factory was of course much larger and the landscaping proposed more limited. In our view the landscaping now proposed as per plan V4 for this eastern side of the factory site is sufficient to ensure that visual effects will be no more than minor. With the indigenous vegetation copse and the possible future planting of oak trees on top of part of the proposed bund and on some of the land to the north of that bund (as shown on plan V4) the sight lines to the factory site will be limited. This vegetation, when it is nearing a reasonable height, will largely in our opinion preclude views of the factory site from that vantage point. That proposed mitigation combined with the significant reduction in size of the buildings satisfies us that the revised proposal will ensure that visual effects as well as any effects on rural amenity and character will be minor.

10.167 For the sake of completeness, we accept Fonterra's response to Mr Densem’s view that there are visual effects arising from the unoccupied use of land in the northern part of the factory site. Under the revised Stage 1 only proposal the rural zoned parts of the site are being used for landscape planting and access ways which are inherently rural in nature. We consider that any residual visual effects that arise are not of significant concern.

10.168 Te Rūnanga o Waihao wished to see landscaping treatment of the stream crossings and expressed a preference for landscape screening of the WWTP. We understood Mr Goldschmidt for Fonterra to agree to such planting during the hearing.

10.169 Mr Densem within his supplementary s42A report certainly recommends landscape treatment of the WWTP site and where the ocean outfall pipeline crosses the Waihao Arm. Planting for the Waihao Arm has been included within the proposed conditions but not for the WWTP site.

10.170 We find that planting of the WWTP site is appropriate because, even accepting that public views are not readily available of the site, screening still provides protection of the rural character and amenity of the sites surrounds. Also we understood Fonterra to agree to such planting. We have included WWTP landscaping to screen buildings and structures over 4m in height within conditions.

Conclusions on Landscape, Visual Rural Character and Amenity Issues

10.171 Impacts on landscape, visual effects and effects on rural character and amenity were a very significant issue for us emerging from the original proposal. With the substantial reduction in the size and scale of the factory element of the now Stage 1 proposal, combined with the now proposed landscaping treatment, we are satisfied that visual effects are acceptable and that there will be negligible effects on rural character and amenity. We agree with the assessments provided to us by Mr Densem of the effectiveness of the revised landscaping and conditions provided by Fonterra.

10.172 However, we do accept (as noted above) that some of Mr Densem's further or additional recommendations are not appropriate for the reasons advanced by Mr Williams in his further reply of 19 May 2016.

10.173 Fonterra does not support the inclusion of rounded stormwater ponds, explaining that the reason for this relates to operational issues because ponds of that shape are difficult to clean and construct when compared to oblong ponds. More importantly we accept Fonterra's submission that there are no significant landscape issues arising from the ponds themselves. In our view they will be difficult to observe whilst travelling on SH1, although we acknowledge the ponds will be more obvious to view from Foleys Road. This is a not frequently travelled local road.

10.174 Fonterra make it clear in their reply of 19 May that, should the existing pine trees along the railway line need to be harvested, they will replace them.

10.175 Finally, Fonterra takes issue with Mr Densem’s recommendation that Mr Wilson be consulted to ascertain his views regarding the impacts that will now occur as a result of the reduced proposal, including landscaping treatment.

10.176 Because the Stage 1 only proposal is a significant reduction in size and scale in comparison to the original proposal, Fonterra contend that we do not need to further consult with Mr Wilson. Further Fonterra remind

us that Mr Wilson did not present evidence regarding specific landscaping concerns. On our re-reading of his evidence and our hearing notes we agree and note that Mr Wilson did adopt the evidence of Mr Penno and Mr Bleeker. Adopting the evidence is not the same as experiencing an effect. We also observe that Mr Wilson does not live close to the site. For these reasons we agree that not only is there no need to further consult with Mr Wilson, there is also no justification to do so because the visual and amenity effects of the Stage 1 only proposal (taking into account the mitigation measures provided for in plan V4) on Mr Wilson and his property can properly be described as no more than minor.

WDC Objectives and Policies

10.177 We record that we accept Mr Densem's analysis of the WDC objectives and policies relevant to the landscape character and amenity issues. We also accept Mr Chrystal's opinion for Fonterra that the overall revisions for the landscape treatment would ensure that the factory element of the Stage 1 proposal is consistent with the objectives and policies of the WDC district plan for both Business 3 and the Rural Zone.

Landscaping of Ancillary Features of the Stage 1 Proposal

10.178 We consider that the landscaping treatment proposed for the WWTP the stormwater ponds, the effluent disposal area, and where the ocean outfall pipeline crosses the streams is appropriate to ensure that visual effects of those elements of the proposal are acceptable and are consistent with the relevant objectives and policies of the WDC district plan.

Conditions

10.179 We have paid careful and close regard to the proposed condition set which provides for landscaping treatment of the various elements of the Stage 1 proposals.

10.180 Forming part of the proposed conditions is a Landscape Plan (now V4). This plan will be given to Waihao Rūnanga for comment and input on the proposed plant selection and landscaping. Fonterra will be required to have regard to any comments received when selecting and implementing the final Landscape Plan.

10.181 Conditions (16 and 17 of CRC160875) require riparian planting following construction works associated with the Waihao Arm crossings and coffer dam areas. The applicant will consult with Waihao Rūnanga to develop a Riparian Planting Plan designed to enhance the river landscapes and support species habitat and the river environments that Waihao have expressed concern about.

10.182 The proposed riparian planting would improve the cultural values of this area as requested by Waihao Rūnanga. It will of course take some years before the native plants flourish and grow, and native birds and insects accumulate.

10.183 The proposed establishment of the Community Liaison Group, conditions (58-60 of the WDC land use consent) will enable Fonterra and Waihao Rūnanga to further advance their relationship and understanding of each other's culture and enable ongoing consultation.

10.184 As discussed earlier, we intend to require WWTP landscape planting to screen buildings and structures over 4m in height (condition 40(b) of the WDC land use consent).

10.185 In all other respects we consider the proposed conditions to be appropriate in avoiding, remedying or mitigating any adverse visual effects or adverse impacts upon rural character and amenity.

Lighting Effects and Glare

10.186 Night time lighting of the original proposal was identified by Mr Craig, Mr Densem and Ms Harte as being a significant visual and amenity effect. Mr Craig relied upon the Synlait plant at Dunsandel to demonstrate the lighting effects of such plants, contending that lighting effects of this sort are not uncommon in rural areas.

10.187 Mr Densem was very concerned that the original application would greatly extend the lit area at night and there would be diminution of night-time rural character. Mr P Conyngham for Fonterra provided within the AEE (Revision C-24 April 2015, Appendix 1 to Vol 1 of the Aurecon Report) an assessment of lighting effects of the original proposal, concluding lighting would meet the standards of the district plan as the maximum light spill from the boundary is less than 3 lux. We assumed that the statement was based on the light spill (less than 3 lux) that would apply to a residential zone adjoining the Business 3 Zone. Ms Harte was of the view that such an approach was appropriate and we agree.

10.188 However later Mr Dent for Fonterra advised us that the appropriate light spill limitation for a dark rural area would be 1 lux, which based on his proposed improved lighting design we understood to be achievable.

10.189 The WDC plan in terms of standards in the Business 3 Zone, in particular rule 7.4.1, requires all exterior lighting to be directed away from the adjacent properties and roads so as to avoid adverse effects on the neighbourhood and on traffic safety. Secondly light spill on to other sites within the Business 3 Zone is not to exceed 10 lux.

10.190 As we have already noted, while there are a number of different titles within the Business 3 Zone, those titles are owned by Fonterra and in the main the lighting which causes spill is internal to the application site and therefore is unlikely to cause any particular problems. As we have already noted the land surrounding the factory site is zoned rural and there are no light spill limits in the Rural Zone other than requiring lighting to be directed away from adjoining properties.

10.191 Many submitters were concerned with night-time lighting effects both at the plant site and on SH1. The Existing Plant provides an existing environment perspective. It is very well lit at night, particularly the

upper levels of the high structures on the site. Mr Dent's assessment confirmed that at night from neighbouring properties the existing plant is very prominent, visually dominant and almost completely open to view. We agree with that assessment and consider it to be an accurate view of the existing consented lighting effects.

10.192 In response to the submitters' concerns, Mr Dent told us lighting on the SH1 is a matter for the NZ Transport Agency (NZTA) and would be designed in accordance with its specific and standardised requirements. Lighting on the SH is not a matter directly covered by the District Plan and the NZTA approach to night lighting on the SH is driven by functional and road safety requirements, which is entirely appropriate. Mr Dent explained the associative control of environmental effects is addressed in the form of secondary guidance that is limited by practical limitations.

10.193 While still assessing the original proposal, Mr Dent explained that much could be done in terms of better managing lighting for internal roadways, walkways, the railway siding and load out areas and building exteriors.

10.194 Within these areas Mr Dent recommended that the lighting be of a type with optical control for light spill minimisation and have a horizontal orientation, in other words no up-tilt. Overall he considered the lighting proposed for the original application appeared to be significantly higher level or brighter than had been adopted by Fonterra at the similar Darfield site that has been recently developed. He recommended a closer alignment with the Darfield installation.

10.195 As to building exteriors, which we noted were well lit now, he recommended that, with the exception of lighting mounted on the load out buildings for pavement area operations, the only other lighting proposed on the building exteriors was that for external staircases. This would be an improvement on the current circumstance.

10.196 Turning to the railway siding and load out, the lighting he proposed is of a type with well-defined optical control for light spill and downward orientation. He did note that the rail side lighting had been designed for a higher lighting level than required by Kiwi Rail, primarily for consistency with the operational requirements for the adjacent load out areas.

10.197 In respect of vehicle headlights on roadways within the original development, Mr Dent was of the view that they would be substantially screened from external view by bunds, vegetation and building structures.

10.198 Glare was also addressed by Mr Dent. He described glare as a visual disability or discomfort resulting from direct view of a relatively high intensity light source against a dark background. A common example he told us is the sensation of approaching motor vehicle headlights. In his view the proposed landscaping would provide shielding of the plant and structures and provide adequate control, including mitigation of effects associated with vehicle headlights within the site.

10.199 Returning to light spill it was Mr Dent's view, after carefully considering the proposed lighting design, separation from neighbouring properties and screening effects, that the resulting light spill would not be contrary to the WDC planning requirements. We note that Ms Harte shares this view. Mr Dent went on to say that, in common with many other district plans, the WDC plan does not effectively address the increased vulnerability of rural areas to lighting effects.

10.200 Mr Dent was of the opinion that the anticipated light spill levels are directly related to relatively high design lighting levels. It was his opinion that there was scope for further reduction of those levels with consequential reduction of light spill without detriment to the proposed activity. With these matters addressed Mr Dent concluded that the direct light spill of 1 lux (which is lower than the WDC plan requirement) will be insignificant in relation to any aesthetic effects.

10.201 He also considered that significant benefit could be obtained from further lighting design development with greater emphasis placed on rationalising lighting levels to minimise both sky glow and aesthetic effects. An example is the higher than necessary lighting levels for the railway siding areas as stated within the Aurecon report. He also recommended utilising modern control technologies to reduce lighting levels where operational requirements permit (motion sensors and the like).

10.202 We find that with the design methodology promoted by Mr Dent the concerns raised by submitters will be more than adequately addressed. We have considered the proposed land use consent conditions relating to lighting and glare and we are satisfied that they capture the essential aspects of Mr Dent’s recommendations.

10.203 Turning to the Stage 1 proposal before us, it is clear that the extent of effects relating to lighting, light spill, glare, sky glow and aesthetic landscape impacts can only be less because the size and scale of the proposal is now to be significantly reduced with improved landscaping and a consequent reduction in the need for lighting. We also observe that the landscape treatment now proposed by Fonterra for the Stage 1 proposal includes more plantings along the SH frontage which will assist with light spill glare and the screening of motor vehicle traffic lights on the Site itself. The substantial increase in proposed plantings both to the southern and northern ends of the Site will also assist.

10.204 There will be lighting required for the Molloys Road and SH1 and site intersection, being a matter for NZTA.

Conclusions on Lighting and Glare

10.205 We reach the outcome then that the effects of lighting and glare are properly described as no more than minor, particularly when regard is had to the light spill from the existing factory site and the improvements promoted by Mr Dent which will be delivered through the proposed conditions that we consider to be appropriate.

Signs

10.206 Three new signs are part of the Stage 1 proposal. One will be a free standing double sided sign located adjacent to the new site access from SH1. This sign will be the primary identification sign for site access. It is proposed to be 4.5 m² in area with a dimension of 3 m wide and 1.5 m high. That sign will contain the Fonterra logo and the words "Dairy for life" and "Studholme". It will be an overall total height of 2.7 m above ground level.

10.207 Two additional Fonterra logo signs were originally proposed for each of the two new dryers. Now that there is only one new dryer proposed there will be one additional Fonterra logo sign which will be 24 square metres in area and located near the top of the dryer in a similar manner to the signage on the existing dryer.

10.208 As the proposed road sign will be located within the Rural Zone, rule 6.2.6 of the district plan is not complied with because the sign has an area greater than the permitted 2 square metre sign area. The new logo sign for the dryer is located within the Business Zone portion of the site and does not comply with rule 1.1 regarding the maximum height requirements of 10m for the zone.

10.209 We accept the assessment of effects of the signs undertaken and recorded by Ms Harte at paragraph 77 of her section 42A report. Essentially we agree with her that the proposed signs will be viewed in the context of the large rural industrial nature of the development as a whole and as such will not have adverse effects on the amenity of the locality. The proposed signs are largely an extension of what already exists so we agree with her that the visual impact is considered to be generally in keeping with what might be expected on this type of site, given the activities undertaken.

Hazardous Substances

10.210 The existing milk processing site includes the storage of hazardous substances. The application for the original proposal plus the evidence we received confirms these hazardous substances are appropriately bunded to prevent spills of hazardous substances beyond the storage facilities.

10.211 The proposal before us will result in increases in the quantity of hazardous substances stored on the site. Some hazardous substances will be stored on the site in above ground fuel storage tanks. It is proposed that those tanks will be capable of holding 50,000L of diesel fuel and 20,000L of diesel additive.

10.212 The other additional hazardous substances stored on the site are in the main the cleaning agents utilised to clean the milk processing elements of the plant. These cleaning agents include nitric acid, caustic soda, hydrochloric acid, food grade caustic and finally sulphuric acid.

10.213 No additional quantities of hazardous substances are proposed to be stored on the WWTP site where they would exceed the plan limits. As Ms Harte noted, the applicant has informed us that all hazardous

substance storage areas will be designed and managed in accordance with HZNO regulations. The health and safety and employment legislation will also apply to the use of these hazardous substances.

10.214 We have considered the proposed conditions of the WDC land use consent (conditions 3-10) and we are satisfied that they are appropriate with regard to bunded storage and spill prevention. In addition, appropriate measures are proposed such as spill kits that would assist in avoiding harmful environmental consequences of a spill does occur.

10.215 The probability of spills, while they cannot be ruled out, is low particularly if appropriate management and care is applied. With the measures contained within the proposed conditions in place, we accept the evidence that the effects of an adverse consequence such as a spill are likely to be minor.

10.216 We consider that granting consent to store and use hazardous substances, particularly having regard to the consent conditions proposed, would be consistent with the policies and objectives of the district plan and relevant regional plans.

10.217 Mr Woodlock confirmed that the hazardous substance provisions of the LWRP are now operative and therefore the requirement for consent under the NRRP no longer applies to this activity. We accept his conclusion that the proposed storage and use of hazardous substances is a permitted activity under the LWRP. Consequently, the original conditions of consent for this activity proffered by Fonterra are no longer necessary.

Traffic Effects

10.218 The original proposal was to provide 173 parking spaces within two formal parking areas, develop a new tanker wash facility, and close the existing site access points from Packers Road, Hansen Street, Quinn Street, Murray Street and Barrars Road.

10.219 The primary site access is intended to be via a new intersection to be constructed onto SH1 opposite Molloys Road. This access will cater for all tanker movements. The proposed intersection upgrades include a right turn lane with capacity for two tankers, and left turn acceleration and deceleration lanes both to and from the site. Secondary site access to the staff parking areas and in certain parts of the site will be provided from Foleys Road. Some heavy goods vehicle movement is expected to continue via this access.

10.220 We were told that all boiler coal deliveries will arrive by train so no road traffic effects result. The traffic assessments undertaken by the experts relate to the original Stage 2 proposal. We were told that there would be an increase in operational staff from 50 to 100 upon completion of Stage 2 and the number of tanker driver staff would increase from 15 to 150. During construction some 700 staff would be employed on the site. It was calculated that there would be an increase in total vehicle movements from the existing 162 per day to a total of 1237 movements per day for the Stage 2 development. Clearly the traffic

movements generated by the revised Stage 1 proposal would be significantly less, increasing vehicle movements to 529 per day.

10.221 The traffic expert for Fonterra, Mr Andy Carr, and the expert for the WDC, Mr Ray Edwards, did not report any notable areas of disagreement between them regarding the assessed traffic effects.

10.222 Mr Edwards in his report (paragraphs 12-24) identified the relevant rules from the district plan for both the Business 3 Zone and the Rural Zone. We need not repeat these rules but simply record that we agree with his analysis.

10.223 Mr Edwards identified the following traffic related effects for consideration. After hearing and reviewing all of the evidence, some of which we discuss below, we agree he has identified the key effects that are classified as follows:

(a) Estimated traffic generation;

(b) Effects on SH1 performance, primarily access to farm properties;

(c) The proposed Molloys Road intersection; and

(d) The flush median.

10.224 We now address these effects having close regard to the submissions and evidence we received.

Traffic Generation

10.225 Mr Rutherford, who provided expert traffic evidence on behalf of the submitter group, agreed with the traffic generation and intersection capacity analysis put forward by Mr Carr and supported by Mr Edwards. As Mr Edwards pointed out, this agreement is important because it correctly recognises that while the proposal will result in a notable increase in heavy goods vehicle traffic as a component of the overall SH1 traffic flow in the vicinity of the site, the increase in overall traffic flow is relatively small being in a range between 11 and 14%.

10.226 In summary what this means is that there is common ground between the three traffic engineers that the roading network overall can accommodate the traffic generation of the original Stage 2 proposal.

Effects on SH1 Performance

10.227 Mr van der Wal for submitters Messrs Wilson, Bleeker and Penno, in his opening submitted that traffic effects caused primarily by increased vehicle movements arising from the proposal would cause an adverse effect on his clients' access to and from SH1. However, within these submitters' own evidence traffic issues were raised but did not appear to be a primary concern relative to other issues raised.

10.228 Mr Rutherford when addressing farm access issues seemed to accept that the anticipated increase in traffic resulting from the proposed plant expansion was not sufficient to justify upgrading the state highway,

particularly in relation to access points to the submitters' farms. In answer to our questions in relation to Mr Penno's access way upgrades, he accepted that while those works were appropriate there was no strong connection between those works and the likely levels of traffic activity arising from the proposal.

10.229 The Penno submission contended that increased truck volumes would result in a reduction in road safety at the SH1 access points to the Penno property. Mr Edwards carefully considered in his s42A report all the available site accesses to the Penno property. That consideration is set out in paragraphs 54 through to 58 of his report. He concluded that the increase in traffic generation would either have no measurable effect upon the use of some access points or alternatively was likely to alter the level of service to other access points, in both instances due to the very low access volumes involved. Even after considering reported crash data he expressed the view that the proposal was unlikely to affect the operation of the Penno site accesses.

10.230 Mr Wilson has properties located on the western side of SH1 opposite the Fonterra factory site and extending as far south as Mitchell's Road. Like Mr Penno he was concerned that the proposal will affect property access to the various Wilson land holdings. Even taking into account increases of traffic volumes past the Wilson site accesses, Mr Edwards was of the view that any effects would be more related to loss of rural amenity rather than road network capacity.

<u>The Proposed Molloys Road Intersection</u>

10.231 Specifically, in relation to the Molloys Road intersection it was Mr Edwards' opinion that the upgrades to this intersection would provide a significantly improved intersection that would better cater for turn movements both in and out of Molloys Road then the present circumstances.

10.232 Mr Rutherford concentrated on the Molloys road intersection with SH1. He had a range of concerns. He questioned whether it was appropriate for the Molloys intersection to be a crossroads because he was concerned about the creation of a crossroad in a high-speed rural environment. He also expressed a view about the need for a right turn (northbound) acceleration lane, the provision of a flush median and finally the need to have the final design for the intersection resolved now (rather than subsequent to any consent being granted).

10.233 Mr Edwards in his supplementary evidence addresses all of these points and in doing so referred on a number of occasions to our questions of Mr Rutherford. The key issue in his view was whether or not there should be a condition of consent preventing tanker traffic from accessing or leaving the site via Molloys Road so as to prevent cross traffic manoeuvres across SH1.

10.234 To deal with this issue Fonterra promoted a consent condition which would implement protocols to ensure tanker drivers do not access or leave the Site via Molloys, road except in the event of an emergency or other unforeseen events precluding use of alternatives.

10.235 Fonterra and Mr Edwards pointed out to us that the Genesis truck routing software package used by Fonterra can be programmed to censure the use of Molloys Road by Fonterra milk tankers and any other vehicles with such GPS units in them. These GPS units enable monitoring of routes so Fonterra can use directions and rules issued to its drivers combined with the GPS units as a means of monitoring compliance.

10.236 In addition, Mr Edwards pointed out that there are proposed section 128 RMA review conditions which could address non-compliance with the GPS related condition should issues start to arise with cross-traffic use of the intersection.

10.237 We understand and accept that this condition will not prevent the use of Molloys Road by plant-generated traffic or non-tanker heavy goods vehicle traffic. However, based on the evidence we heard, we accept that it is highly unlikely such vehicles would use Molloys Road so that the potential for cross SH1 traffic at this access location is remote. We acknowledge that Mr Rutherford still had concerns about this additional non-tanker heavy goods vehicle traffic, but we accept the evidence from Mr Carr and the assessment by Mr Edwards that the level of this traffic seeking to use the Molloys Road intersection would be very low.

10.238 Mr Rutherford also suggested a 35m 'off set T' design to discourage movement across SH1. Mr Edwards did not support such a small offset because it would offer no road safety benefits at all as it was too small to prevent cross traffic movements. In any event he told us he had cited correspondence between Mr Carr and NZTA in which NZTA had already dismissed this option. We return to this point later.

10.239 Mr Rutherford suggested moving the site access north of the Molloys Road intersection as a further option. Mr Edwards informed us that such a design had also been presented by Mr Carr to NZTA for evaluation. He agreed that such a design would certainly discourage cross traffic movements but still questioned whether any such movements would actually occur. Critically though he informed us that such a design would require a left turn acceleration lane into the site and to achieve that this lane would intrude across land owned by others, namely a Mr Lister. So even if this option were of value, it is not open for us to consider it because it involves utilisation of land owned by third parties. Based on the evidence we have read and considered we do not think cross SH1 traffic will be such an issue in any event.

10.240 Mr Rutherford's primary concern relating to the proposal was that a right turn (northbound) acceleration lane was not provided as part of the Molloys Road intersection. Mr Edwards clarified for us that Mr Rutherford was referring to an additional northbound traffic lane in the centre of the state highway. Mr Edwards discussed and assessed the potential road safety effect as a result of not providing a right turn acceleration lane. He noted that Mr Rutherford did not provide any analysis of the performance of other factory intersections located in high-speed rural areas to support his recommendation. After carefully assessing the issues Mr Edwards noted that typical treatments used elsewhere for a comparable frontage road carrying some traffic

volumes are either: (a) no right turn acceleration lane; or (b) a short acceleration lane which he considered offers no benefits for a tanker situation. It was his conclusion then that the intersection treatment proposed by Fonterra is an appropriate design response to this particular traffic environment.

10.241 After considering the competing views on this point we prefer the views expressed by Mr Edwards, being based on a thorough and robust assessment of whether or not, from a traffic safety point of view, a right turn northbound acceleration lane is necessary. We accept his evidence that it is not.

Flush Median

10.242 Mr Rutherford supports a painted median along the section of SH between Foleys and Molloys Road. He suggests this to improve accessibility for the joint access to the two rural properties (one of which is owned by Fonterra) located on the western side of SH1 just north of the current Packers Road intersection.

10.243 Mr Edwards did not think the turning volumes at the shared access on the western side of SH1 justified the provision of a specific facility such as a flush median. Also he considered that the future northbound traffic volume, given such volume is well within the capacity of SH1, would continue to provide frequent gaps in the passing northbound traffic flow through which a vehicle could turn right into the rural properties. He noted that the future operation of the Foleys Road intersection indicated a very high level of service and minimal delays for traffic turning right into Foleys Road.

10.244 While Mr Edwards did not accept Mr Rutherford's rationale for a painted median, he did think the concept of a flush median between the Foleys Road intersection to a point north of Molloys Road had merit. He saw this flush median is providing a quasi-right turn acceleration lane out of the northern site access while at the same time providing shelter for the extremely low volumes of traffic that turn right into Molloys Road.

10.245 However, he noted that such ideas on possible design for road network improvements, given they are on SH1, are not a matter for us to determine because we are not the road controlling authority. It is NZTA that has the ultimate decision in relation to any potential upgrades to accommodate this proposed development.

10.246 Turning to the NZTA submission which sought the imposition of a range of conditions, should we be willing to grant consent, Mr Edwards stated that he reviewed those conditions and considered all of them to be either relevant or necessary. He reminded us that the proposed intersection upgrades are only at a conceptual design stage and that the final design will require a separate approval from NZTA and, as is usual practice, this would be developed in consultation with the NZTA in due course.

Concerns of Other Submitters

10.247 In relation to Mr Bleeker's submission, Mr Edwards addressed his concern that increased train traffic servicing the site would impede access to his property over the level crossing to SH1. Mr Edwards on review considered the submitter really meant to refer to the Foleys Road level crossing to the south of the Fonterra site. Based on our site visit we agree. Mr Edwards did not have details on the proposed rail movements but we understood from Fonterra, based on information provided by Mr Goldschmidt, that the frequency of rail movements would not be likely to result in any significant impediment for Mr Bleeker gaining access to his site. Mr Goldschmidt explained that the rail movements to the Site from the south would relate to coal traffic. Most rail movements from the Site would be heading north taking product from the factory to either the port of Timaru or Lyttelton.

10.248 The Ora Taiao submission raised concern that the projected increases in traffic volume could impact on road safety. Mr Edwards was of the opinion that the predicted future traffic volumes along SH1 were well within the geometric capacity of the road. He was also of the view the proposed intersection designs for upgrading, while only at a conceptual stage, were in accord with current best design practices. He noted that while additional traffic on any road is likely to increase the exposure to crash rates, review of reported crash data for this section of SH1 indicated that the only consistent contributor to crashes is a loss of vehicle control as a result of driver fatigue. It was his opinion that the Fonterra proposal is most unlikely to exacerbate this effect. Mr Edwards did draw to our attention the point that there had been no reported crashes in the last 10 years on the relevant section of SH1 that involves vehicles turning into or out of side roads or driveways.

10.249 We note that NZTA lodged an original submission and provided us with further written material during the hearing because a representative from NZTA was unable to attend the hearing. We reviewed and considered those materials, noting they supported and confirmed the expert opinion provided to us by Messrs Carr and Edwards.

Timing of Traffic Works including Proposed Intersection Works for Molloys and Foleys Road

10.250 Mr Edwards and Fonterra confirmed that the proposed works on the Molloys and Foleys Road intersections would be completed prior to Stage 1 becoming operational. This is required by the proposed consent conditions.

10.251 Mr Edwards expressed concern about construction traffic volumes and how access to the site will occur during construction, including whether or not intersection works are required in advance of Stage 1 becoming operational.

10.252 Mr Edwards pointed out that construction traffic would access the site either via the proposed Molloys Road intersection or via the Foleys Road intersection. He recorded he had asked Fonterra whether or not the intersection works are required in advance of construction commencing. Fonterra prefers to deal with the issue via a condition of

consent requiring a construction management plan. The condition promoted during the course of the hearing included lodging a traffic management plan with both WDC and NZTA at least 10 days prior to commencement of construction works, for approval.

10.253 It was his preference that the proposed provision for parking and site access for construction traffic ahead of Stage 1 becoming operational should be more definitive, including requiring an analysis of the performance of the access provided and identification of any necessary road network upgrades.

10.254 Mr Edwards did however note, and we agree, that if any road upgrade works are required then much longer than 10 days will be necessary for WDC and/or NZTA approval of these works, let alone to undertake the works. So this potentially delays the ability to commence construction on site because no works can occur on road reserve (either WDC controlled or NZTA controlled) without prior approval of the relevant Roading Authority. Essentially it becomes a self-policing issue and it would be in Fonterra's own interests to lodge a traffic management plan well in advance of the suggested period so these matters could be addressed.

Objectives and Policies

10.255 Mr Edwards also assessed the proposal against the objectives and policies of the district plan (paragraph 69-73 of his s42A report). He concluded that, subject to the various upgrades offered by Fonterra, that the proposal is consistent with the relevant transport related objectives and policies. Ms Harte agreed with this assessment and we accept her conclusions in this regard.

Conclusions Regarding Traffic Effects

10.256 It was Mr Edwards' opinion that, subject to suitable conditions of consent and in particular those sought by NZTA, the surrounding road network is able to accommodate the anticipated additional traffic expected to be generated by the original proposal (Stage 2) with less than minor effects on the operation of the road network. Having carefully considered the evidence and submissions we have reached the same conclusion in relation to the now reduced Stage 1 proposal.

Effects of Construction – Including the Ocean Outfall and Pipeline, Water Diversion and Taking of Dewatering Water

10.257 Resource consent applications CRC160873, CRC160875, CRC160940 and CRC160876 seek land use consent to undertake earthworks and a water permit to divert water and take dewatering water and to disturb, occupy and discharge contaminants to the CMA.

10.258 To date we referred to these applications in a general way and to provide context for our effects discussion we provide additional details of each application. We then consider what we think are the relevant effects arising from each application, comment on conditions where relevant and also consider the relevant objectives and policies.

10.259 Application CRC160873 addresses earth works including excavation of the stormwater ponds, levelling and re-contouring of the factory site, construction of earth bunds, construction of a swale and other stormwater management structures, and earthworks including pond construction at the WWTP site. This application also covers earthworks associated with the installation of the wastewater pipeline within 5m of the flood protection structures that run alongside Waimate Creek.

10.260 Significant earthworks were proposed as part of the original application. Mr Williams' 4 May 2016 reply states that Fonterra will proceed to seek consent for the Stage 1 proposal only. We note that as part of the Stage 1 proposal the northern portion of the factory site, where significant earthworks were to take place, will now be utilised in the main for landscape plantings. We note that the Northern stormwater retention pond and grass to swale, and paved areas for roadways and milk tanker parking remain as part of the Stage 1 proposal.

10.261 We also note that, notwithstanding the reductions of activities on the factory site, the other elements of the Stage 1 proposal such as the stormwater ponds, the WWTP site works and ocean outfall pipeline were not altered in scale from the original proposal.

10.262 We did not receive further evidence from Fonterra on how the Stage 1 proposal would impact upon the scale of the proposed earthworks. Therefore, we have proceeded to assess and consider the earthworks to be undertaken on the Site, including the Foleys Road Southern stormwater pond, the WWTP site and the ocean outfall pipeline as originally advanced. We think this is appropriate because it represents a worst case scenario and we do so in the knowledge that Fonterra will not utilise CRC160873 to its fullest extent.

10.263 Because CRC160873 relates primarily to activities which may occur on Fonterra's own sites, excluding sections of the pipeline works, we consider that no significant issues relating to effective and efficient use of resources would arise from granting a consent that is unlikely to be fully exercised in some respects.

10.264 Based on submissions and evidence received we consider the key effects arising to be:

(a) Effects of excavation and levelling works, including impact on drainage patterns;

(b) Effects on surface water quality;

(c) Effects on groundwater quality;

(d) Effects on existing structures and people; and

(e) Adverse effects on tangata whenua values.

10.265 Mr Haden Walters, a civil engineer with significant experience in relation to flood assessments, explained that the most important effect of earthworks on the Site is the impact of those earthworks on existing

drainage patterns. He set out details for us of the existing local drainage catchments, providing detailed information on the northern drainage channel catchment and some information relating to the Foleys Road catchment.

10.266 Existing culverts under SH1 and under Kiwi Rail bridge MSL 132 form part of the existing drainage network. We were told there had been flooding issues in the past relating to the SH1 culverts. Mr Walters provided photographs showing this flooding. Mr Walters explained that the excavation and fill works on the Site would have a positive effect because the works are designed to re-direct flows from the Site to the Fonterra Hannaton Road ponds (the WWTP). After treatment that stormwater would be either discharged to Waimate Creek or alternatively discharged via the ocean outfall directly to the sea.

10.267 Due to this redirection in flows, Mr Walters explained that the peak flow from the Northern catchment would significantly reduce. He noted that the aim of this redirection is to reduce the impacts of possible flooding on adjacent properties and the road and rail corridors. The proposed works include additional culverts at both SH1 and the rail crossings and a formed drainage channel (the grass swale) through the Fonterra site.

10.268 Mr Walters assessed the impact of these further culverts and channel upgrades on surrounding property and on SH1 and the railway, expressing the view that there would be a significant improvement. In other words, he considered that the impact and effect of flooding events would overall be significantly reduced as a consequence of the proposed works.

10.269 In terms of the earthworks for the Southern stormwater pond proposed on the Foleys Road site, after reviewing the "South of Foleys Road" catchment, Mr Walters was of the view that these works would not cause adverse changes to the existing drainage flow paths in this area.

10.270 In his evidence he fully addressed the concerns raised by submitters which related to increasing the volume of floodwaters being discharged onto their properties and also the adequacy of the proposed culverts for SH1 and the Main South railway line.

10.271 We accept Mr Walters' conclusion that the impact of the proposed earth works on local drainage and flooding effects is no more than minor and, in the case of SH1, the rail corridor and upstream properties, the developments will provide a significant improvement over the existing situation in regular flood events.

<u>Effects on Surface Water Quality</u>

10.272 Mr Woodlock in his s42A report explained that the excavation of soil poses potential risks in terms of sediment and other contaminants been discharged into nearby surface water bodies. If this does occur sedimentation can reduce the quality of existing habitats and amenity values of the water body concerned. He also noted that there are risks associated with potential oil and fuel spills from the use of machinery in or near waterways.

10.273 Fonterra propose to mitigate those potential effects through a suite of conditions, including: requiring preparation of a comprehensive CMP (including procedures to be adopted during construction in accordance with the requirements of the Canterbury Regional Council "Erosion and Sediment Control Guidelines" to minimise siltation and erosion; preventing storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river; and requiring that disturbed areas are stabilised and revegetated following completion of works. We agree with Mr Woodlock that these conditions satisfactorily address potential effects on surface water quality of the proposed earthworks.

Effects on Groundwater Quality

10.274 Excavation works over an unconfined aquifer system can potentially adversely affect groundwater quality, particularly in this case where there is little separation to groundwater. The applicant proposes to maintain a separation distance between earthworks and the seasonal high water table of at least 1m. Mr Woodlock accepted this would be a sufficient distance between the works and the highest potential groundwater level to avoid adverse effects on groundwater quality. We agree with him. We find that the proposed conditions, including the development of a CMP, will appropriately address potential effects on groundwater quality.

Effects on Existing Structures and People

10.275 Earthworks for the ocean outfall pipeline will occur on land not owned by the applicant. The provision of advice with adequate notice to persons who may be affected by the construction activity was the key issue that arose. The proposed CMP and the establishment of a community liaison group would help facilitate this outcome.

10.276 The installation of the ocean outfall pipeline will occur within 5m of a stopbank. This matter is evaluated in relation to CRC160875.

Adverse Effects on Tangata Whenua Values

10.277 Of the matters raised in the Te Rūnanga o Waihao submission related primarily to the pipeline construction, particularly stream crossings and coastal works. However, the rūnanga did note some issues of concern relating to the impact of sediment on water quality, potentially resulting from the proposed earthworks.

10.278 Mr Woodlock pointed out for us that there are no silent files or statutory acknowledgement areas which would be affected by the proposed earthworks. Fonterra have agreed to consult with the Waihao Rūnanga to develop an archaeological survey plan and archaeological assessment for the purposes of informing the final detail of the CMP.

10.279 As we have noted earlier, the CMP will focus on avoidance of adverse environmental effects and will seek to minimise the discharge of sediment into water during construction activities. Based on the proposed conditions, we consider that the matters raised by the Rūnanga in submission and evidence will be appropriately addressed.

Pipeline Construction Works – Stopbanks

10.280 Mr Graeme Jenner, an Engineer with more than 25 years' experience in consenting wastewater disposal systems, presented evidence for Fonterra. He explained that the pipeline will be trenched close to and through several stopbanks, including the Waihao Stopbank. These works are authorised under the ECan Flood Protection and Drainage Bylaw of 2013.

10.281 Mr Jenner explained that the ECan Rivers Engineering section had provided specifications to be included in the CMP and to be adopted by the contractor. He further noted that Environment Canterbury requires that the earthworks and excavations within the stopbanks be open for a limited period to minimise the risk from flood water intrusion.

10.282 Given that the ECan River Engineering section has had specific input into the proposed CMP, we are satisfied that earthworks within the stopbanks could be appropriately managed to ensure that the risks from flood water intrusion are minimized. Mr Woodlock confirmed this for us when he recorded at paragraph 88 of his s42A report that the ECan engineering advisor was satisfied that the applicant had included sufficient mitigation measures to address effects on the stopbank works adjacent to Waimate Creek.

10.283 Mr Woodlock's review of the assessment of effects is set out in detail within his s42A report in paragraphs 52 to 73. In his verbal presentation he did not alter that assessment. His overall conclusion was that, particularly taking into account the conditions proposed by Fonterra, the effects of the proposed earth works under consent CRC160873 on surface and groundwater quality, existing structures and people and tangata whenua values will likely be less than minor. He also found that the proposal is consistent with the relevant objectives and policies. We adopt his reasoning and we accept his conclusions in relation to this application. We also agree and accept that the proposed conditions relevant to this consent application are appropriate.

Pipeline Construction Works in River Beds

10.284 Application CRC160875 seeks consent to erect and place the outfall pipeline across or under watercourses. The applicant proposes to undertake earthworks to install the pipeline over or under Waimate Creek and under the Waihao Arm. The land-based portion of the pipeline consists of approximately 3km of pipe from the WWTP across Waimate Creek (either under the creek or by a pipe bridge) then in a covered trench along the Meyers Road route. The pipeline will then be installed under the bed of the Waihao Arm before heading out through the CMA to the sea. The route of the pipeline is shown on Plans CRC160876A and CRC160876B attached to the conditions. The bed crossing under the Waihao Arm and possibly at Waimate Creek is proposed to be at sufficient depth to ensure there is no risk of rupturing as a result of bed movement, flood flows or accidental damage by machinery. The pipe material and size is yet to be confirmed but will likely be of a polythene material with a diameter of between 600 and 700mm.

10.285 Mr Jenner explained that a temporary trestle will be constructed from an assembly area and erected over the Waihao Stopbank and the two channels of the Waihao Arm to facilitate the construction of the outfall pipeline. The location of the crossings of the waterways is identified in Figure 4 of Mr Woodlock's s42A report.

10.286 The proposed construction work in the Waihao Arm will involve the temporary closure of each of the channels to ensure that one of the channels remains open at all times. Fonterra proposes to prepare a flood management and evacuation plan to ensure the site can be left, in the event of a flood, with the completed works in a safe and stable condition. Works through the coastal gravel barrier to construct the pipeline will require the installation of sheet piling to provide a temporary dry working environment, namely a coffer dam. Coffer dams will be installed in turn in both the cut channel and the natural channel of the Waihao Arm.

10.287 Mr Jenner confirmed all of the above details. He also explained that the estimated overall construction period for the pipeline and marine outfall is approximately 9 months. He acknowledged that given the scale, nature, intensity and limited duration of the construction process some potential adverse construction effects will occur. However, he considered that such effects would be temporary and minor in nature. We accept that assessment. Given that these effects are temporary effects he also contended they could be effectively managed through the use of a CMP. We find that this approach is appropriate in relation to the proposed activity.

10.288 Mr Jenner explained that one of the key mitigation measures is to manage the works so that they are completed as quickly as possible, while allowing for weather stoppages. There will be some disruption to local residents but we consider that those matters can be adequately addressed through regular and timely communication to inform affected parties. He stated that the risk of discharge of significant volumes of sediment to groundwater is small and that any dewatering and subsequent discharge to local drains would be carried out in accordance with the latest ECan Erosion and Sediment Control Guidelines.

10.289 In our view the most significant issue arising from the pipeline construction is the management of effects on the Waihao Arm during construction. These effects are:

(a) Adverse effects on ecosystems, in particular impacts on fish;

(b) Adverse effects on tangata whenua values; and

(c) Effects on recreational values.

<u>Adverse Effects on Fish and Ecosystems</u>

10.290 The proposed coffer dams will impound water and will then be drained to create a dry working environment. Fish may be trapped by these works so fish salvage may be required.

To address this issue Fonterra proposes to provide a fish recovery procedure to be developed in consultation with the Department of Conservation and to be approved by the Waihao Rūnanga.

In addition, it is proposed that all works will be undertaken in a manner that does not prevent passage of fish or cause the stranding of fish in pools or channels.

10.291 Sediment discharged from works adjacent to the bed of a watercourse also has potential to cause adverse effects on aquatic life. To deal with this potential issue, sediment and erosion control measures are proposed via conditions for each phase of the works authorised by this consent. Procedures proposed will include those to be adopted following the ECan Erosion and Sediment Control Guidelines.

Effects on Recreational Values

10.292 The remaining issue concerns the need for any requirement for cessation of stream works in the Waihao Arm during July and August. Such an outcome was sought by the Central South Island Fish and Game Council to protect trout during the spawning season which occurs during July and August.

10.293 The evidence is that the intended construction methodology will not result in restrictions on flows, either upstream or downstream of the site, because one channel in the Waihao Arm will remain open at all times to allow water movement through the arm. Consequently, we see no justification for imposing a cessation of works in the waterways during the peak trout spawning season because the movement of the trout would not be impeded

10.294 Mr Greenaway, a consultant Recreation and Tourism Planner for Fonterra, provided his opinion on the potential effects of the pipeline construction activity on recreation. He accepted that the construction activities have the potential to disrupt recreational use of the immediate beach area for the construction period of nine months. However, he pointed out that this particular area is not heavily used and suggested mitigation measures, primarily notification to reduce inconvenience to visitors. He noted that the construction activities may be an attraction and consequently attract more walkers than is currently the case.

10.295 Mr Greenaway was of the view that the conditions requiring a cessation of works over the duck hunting season opening day and stopping of works on the whitebait season opening day were appropriate. We agree with him on this matter.

10.296 Mr Woodlock's opinion as to the extent of these effects, like ours, is heavily influenced by the conditions proposed by Fonterra to avoid, remedy or mitigate effects of these activities. His assessment of effects relating to this activity is set out in full in paragraphs 75 to 94 of his s42A report. We agree with that assessment and adopt it. Overall we find that effects on recreational values will likely be less than minor and we consider that the conditions proposed by Fonterra relevant to this resource consent application are appropriate.

Adverse Effects on Tangata Whenua Values

10.297 During the hearing Waihao Rūnanga representatives and Ms Te Maiharoa-Dodds were asked to further clarify their issues of concern. Waihao Rūnanga met further with Fonterra to discuss methods of mitigating the pipeline outfall construction effects on cultural values. It has already been identified that the waterway areas are somewhat degraded.

10.298 Submitters have stated that water quality, river biodiversity, taonga species and the ability to continue mahinga kai practices are important. In particular, the concerns expressed were:

(a) Need for protection of the quality of waters, both freshwater and the ocean environment;

(b) The importance of protecting the quality of springs, all watercourses, running or ephemeral and areas of significance to Waihao Rūnanga;

(c) Establishing, protecting and restoring native habitats of taonga species, indigenous biodiversity including mahinga kai;

(d) Ensuring that the taonga species which travel or spawn within the construction area are able to continue to move unimpeded during and after construction;

(e) Restoring areas where any development impacts have occurred; and

(f) Providing for a process should any koiwi, human remains, historical artefacts be uncovered during construction.

10.299 There is a suite of proposed pipeline and outfall construction mitigation measures which go towards alleviating the above cultural concerns as follows:

(a) Condition 2 of CRC160875 addresses prevention of sediment entering watercourses as far as practicable;

(b) Conditions 4-5 require that there be no construction work during the first weekend of white baiting season and that the final design of all waterway crossings does not obstruct fish passage.

(c) Conditions 6-7 require a CMP to be developed. Waihao Rūnanga would be consulted during preparation of the CMP to discuss construction of temporary coffer dams, ecological restoration of disturbed areas and their reinstatement and sediment and erosion control measures. It is proposed that the CMP will include fish recovery procedures developed in consultation with the Department of Conservation and approved by Waihao Rūnanga, whose representatives may participate in any fish recovery operations.

(d) Conditions 11-15 address the mitigation measures to be taken during works, including: minimising adverse effects on wildlife, vegetation and ecological values; minimising use of vehicles and machinery in flowing water; avoiding erosion of the banks and bed of the Waihao Arm and Waimate Creek; allowing the passage of fish and preventing fish stranding; and measures to prevent oil and fuel leaks from machinery.

(e) Conditions 16-17 require riparian planting after the completion of works, to be undertaken in consultation with Waihao Rūnanga with the aim of enhancing spawning opportunities for native fish species.

(f) Conditions 20-22 require the establishment of a Community Liaison Group to discuss construction management issues, monitoring, reporting of results and any community concerns regarding the effects of construction and the operation of the proposed plant, thus allowing the community to have input and to be informed.

10.300 Overall, we find that the conditions proposed are sufficient to ensure that any adverse effects on tangata whenua values will be no more than minor.

WDC Objectives and Policies

10.301 Mr Woodlock considers that the earthworks proposal is consistent with the objectives and policies of the NPS, RPS and LWRP and we accept this conclusion.

Pipeline Construction in the CMA – Coastal Hazards and Sea Level Rise

10.302 The resource consent application CRC160876 seeks consent to construct and establish the ocean outfall pipeline to enable the proposed discharge from the WWTP to occur.

10.303 The construction method for this part of the pipeline has been discussed above. In his evidence Mr Darryl Hicks, a River and Coastal Geomorphology Scientist, identified key effects of this part of the pipeline construction. He considered that the likely effects included impacts on coastal stability of the pipeline installation across the shoreline, both during construction phase and afterwards. He also identified future changes and coastal conditions relating to climate change, particularly rising sea level.

10.304 The main issue Mr Hicks identified related to the installation phase of the outfall pipe. He considered that northward transported beach sediment would accumulate against the coffer dam on its southern side and this could result in nearby foreshore erosion on its northern side. However, having identified the effect, he noted it would be possible to mitigate this effect by mechanical artificial means. In other words, heavy machinery would be used to shift the sediment as required based on weekly monitoring. It was his view that, once installed and buried underneath the beach ridge, the pipeline would have no more than minor effects on shore processes.

10.305 Mr Hicks considered that the main potential long-term issue was coastal retreat accelerated by sea level rise. In his opinion this issue could be satisfactorily addressed at the proposed design stage by firstly locating the surge chamber beyond the anticipated range of the retreating beach barrier during the 50-year project design life for predicted sea level rise scenarios, and secondly by burying the pipeline at depth before it crosses the Waihao Arm. He depended upon MFE guidance for the predicted sea level rise scenarios.

10.306 In any event Mr Hicks advised that if greater sea level rise and beach retreat did occur, then that would compel the CRC as the relevant regulator to shift the Waihao Arm channel landward in order to maintain drainage of the Wainono catchment out of the Waihao box. He noted that there was flexibility built into the pipeline design because of this situation.

10.307 He also suggested long-term monitoring to ascertain annually the height, condition and position of the beach barrier in the vicinity of the pipeline to confirm expectations of barrier retreat rates and warn of impending infilling of the Waihao Arm channel.

10.308 Some submitters challenged Mr Hicks' choice to use MfE guidelines in relation to sea level rise because they considered them to be outdated and likely to underestimate the rate of rise. However, after traversing various options, Mr Hicks satisfied us that his utilisation of MfE guidelines was appropriate in this case.

10.309 In any event Mr Hicks reminded us that, if reliance on MfE guidelines is misplaced and sea level does rise faster than planned, then there is a mitigation plan proposed. Effectively the Waihao Arm may require shifting earlier than anticipated and so the need to re-bury the pipeline under it would occur earlier as well.

10.310 Other submitters were concerned about the risk of a beach ridge overtopping tsunami occurring during the construction phase. We were however satisfied with Mr Hicks' evidence that the likelihood of such overtopping is very low and appropriate responses to such an event would be included within health and safety plans. He noted that back shore inundation by a tsunami during the project life would not affect the buried pipeline unless it significantly scours the ground surface.

10.311 Dr Seneviratna prepared the section 42A report on this application. She shared Mr Hicks' views that any exacerbation of coastal hazards from the proposed activities would likely be minor.

10.312 We also note that there was agreement between Mr Hicks and Dr Seneviratna relating to the proposed conditions to monitor continuously the condition of the beach for any weakening of the profile and gravel blowouts. They agreed that a condition should be included to keep a log of the materials excavated from the trench.

10.313 For reasons earlier discussed, the location in which pipeline construction works would occur is an area of interest to Waihao Rūnanga and we will return to that issued later.

10.314 We have already commented upon recreational impacts of the construction activity as it relates to the ocean outfall and we do not intend to repeat those points here.

10.315 Based on the evidence of Mr Hicks and the section 42A report of Dr Seneviratna we are satisfied that, with the imposition of the recommended consent conditions, the effects of this part of the pipeline construction would be no more than minor.

Procedures for Discovery of Archaeological Remains during Construction Works

10.316 Evidence was provided at the hearing from Waihao Rūnanga, expressing concerns about the potential to uncover archaeological remains during any construction works, particularly given the Waihao/Wainono Catchment's proximity to the local marae and the resources found within the area. Therefore, artefacts, remains or sites of significance maybe present within the local area[12]. We were informed that Fonterra and Waihao Rūnanga have consulted in relation to the expressed concerns. We find that the various conditions proposed in the relevant consents are appropriate in regard to any possible discovery of archaeological remains during construction works.

10.317 Fonterra proposes to work with Waihao Rūnanga to develop an archaeological survey plan (condition 54 of RMA150031) and to abide by an agreed Accidental Discovery Protocol for cultural remains or koiwi (condition 55). We are satisfied that the inclusion of these conditions appropriately provides for archaeological discoveries during construction works.

Water Diversion and Site Dewatering

10.318 Within the suite of consent applications addressing various effects associated with construction, CRC160940 seeks to divert Northern catchment surface water and undertake site dewatering. The diversion of water will occur on the factory site and will involve creating a swale to reclaim drainage passage on the northern part of the Site.

10.319 We have already addressed the primary effects related to this resource consent application when we considered application CRC160873 and we do not intend to further traverse them. However, for completeness we record that we have carefully considered the submissions, the Fonterra evidence and the Mr Woodlock's section 42A officer's report in relation to the diversion and dewatering activity proposed.

10.320 We consider that, based on the proposed conditions, the effects of this activity on the environment will be less than minor and the grant of consent would be consistent with the relevant objectives and policies as identified for us within Mr Woodlock's report.

[12] *Cultural Impact Assessment, p35.*

WDC Assessment of these Consents

10.321 Ms Harte stated that WDC had not independently assessed effects of these activities but would rather rely on Mr Woodlock's s42A report prepared for the above-mentioned consents. She supported Mr Woodlock's assessment and his recommendation to approve these applications subject to a series of conditions which include the requirement for a comprehensive construction management plan for approval. It was Ms Harte's view that the land use consent sought for earthworks associated with installing the pipeline crossings of the Waimate Creek and the Waihao Arm could be granted under the Waimate District Plan. We agree with her conclusions.

Positive Effects, Including Economic Benefits

Economic Benefits

10.322 Mr Michael Copeland provided us with a detailed brief of evidence identifying the economic benefits arising from Fonterra's proposed expansion of its operations and during the construction and operation phases of the project.

10.323 Like many other witnesses, Mr Copeland's assessment was based upon a consideration of the original proposal. However, many of the points he made remain relevant to the amended Stage 1 proposal.

10.324 Fonterra through its operations at Studholme is a significant contributor to the Waimate Township, district and broader South Canterbury area primarily through direct inputs such as payment of wages as well as the purchase of goods and services.

10.325 The Stage 1 proposal we were told is likely to cost around $390 million. The Stage 1 proposal will create demand for equipment and materials and services most of which are capable of being supplied from within New Zealand. According to Mr Copeland local Waimate and Timaru suppliers will be used wherever possible but realistically most suppliers from the Canterbury region will be located in Christchurch.

10.326 It was his opinion that the goods and services which may be supplied locally will be sourced from the Waimate district. The sorts of services he included in this category were excavation services, concrete, road construction materials, fencing, shelterbelt planting, re-grassing, catering services, laundry services, accommodation, security services and construction labour.

10.327 During the construction phase an on-site workforce numbering 50 would commence activity but that number may peak as high as 700 with an estimated monthly average of around 300. Mr Copeland estimates that wage and salary payments for these employees would be of the order of $18.75 million per year. He anticipates most of the construction workforce will reside permanently within either Waimate district or Timaru.

10.328 In his opinion, Mr Copeland estimated total impacts during each of the original construction phases to result in the creation of some 450

additional jobs for the local Waimate and Timaru district residents. He estimated a $28.125 million per annum impact in terms of additional wages and salaries paid.

10.329 Further afield Mr Copeland estimated total impacts within the Canterbury region could be 600 additional jobs for Canterbury residents and some $37.5 million per annum in additional wages and salaries for Canterbury residents.

10.330 After construction is completed and operation begins, he informed us the site will require additional inputs of material and services other than raw milk and employee labour. He considers that those services would likely be drawn from the Canterbury region with some of these goods and services provided by local Waimate and Timaru businesses. He estimated that approximately 70% of Fonterra's Studholme Plant maintenance expenditure is likely to be with contractors based within the Canterbury region.

10.331 Overall Mr Copeland calculated that both Stage 1 and 2 would result in an increase in direct plus indirect employment of 362 jobs and an increase in direct plus indirect household income of $27.2 million per annum within the Waimate and Timaru economies.

10.332 Other benefits he identified for us were that expansion of the factory and its milk processing capacity at Studholme would result in minimisation of milk collection costs. He calculated there would be a reduction of some 8859 vehicle kilometres per day travelled by milk tankers for the Stage 1 development.

10.333 He also identified for us that the finished product will travel by rail from the factory to the port of Lyttelton or perhaps Timaru and there would be a resultant reduction of some 16,000 truck movements per annum which currently occur. These vehicles travel some 2.4 million vehicle kilometres per year.

10.334 Mr Copeland was very clear that in his opinion the proposed expansion of the milk processing capacity at Fonterra's site will enhance the economic well-being of the Waimate, Timaru and Canterbury communities and will improve resource use efficiency.

10.335 Mr Fraser's economic evidence was based on his argument that from a project evaluation perspective the consent to expand the processing plant cannot be considered independently of the farm gate effects of the forecast milk supply growth as both are mutually dependent.

10.336 From that starting position he went on to consider the number of additional cows needed to meet the processing demands of the expanded factory. He had a range of scenarios but all of them included at least an additional 500,000 cows. Utilising an environmental multiplier he told us that this level of increase in the cow population was equivalent to increasing the regional population by some 8.3 million people. Mr Fraser said that consideration of the implications of these increases in social, economic and environmental terms were absent from the Fonterra analysis.

10.337 In any event Mr Fraser contended that, based on current international prices for whole milk powder, expansion of dairy cow herds was most unlikely. Consequently, he was of the opinion that the economic benefits of the expansion claimed by Fonterra are illusionary because they will never eventuate. He considered the application to be without merit and that it should be rejected.

10.338 Mr Copeland challenged Mr Fraser's evidence by contending that much of what Mr Fraser had to say when he referred to commercial or societal cost benefit analysis was not a matter ultimately for economists but rather was a matter for decision-makers. We do note that Mr Fraser did not contest the figures provided by Mr Copeland but rather it was Mr Fraser's view that the economic analysis undertaken by Mr Copeland was limited in its value because it was essentially a regional economic impact report.

10.339 He did not accept Mr Fraser's criticism that his analysis of economic effects of the expansion was restricted to or confined to the plant boundary. Mr Copeland in his rebuttal made it very clear that the effects discussed in his evidence related to impacts on parties other than Fonterra and shareholder farmers.

10.340 The economic benefits Mr Copeland identified, he said, included additional direct and indirect expenditure, employment and income effects of both construction and operational phases on the local businesses and residents. Mr Copeland in further rebutting Mr Fraser's views pointed to increases in local population and a greater diversity and resilience for the local economy, greater choice for local residents along with reduced externality costs associated with road transport including accidents, pollution and travel time.

10.341 Mr Copeland contended that Mr Fraser was wrong on his analysis relating to "new milk and old milk". Mr Copeland told us that the reason for the proposed expansion was to deal with existing milk or old milk and to provide capacity for new milk. In addition, because of change in processing capacity, milk will no longer be road transported to the Clandeboye plant for processing thus freeing up capacity at Clandeboye.

10.342 Mr Copeland also responded to Mr Fraser in respect of his contention that the proposed plant expansion will cause an increase in dairy farm conversions. Mr Copeland was of the opinion that the proposed plant expansion will not cause future increases of milk production but respond to them. He contended that the extent of intensification of farming is entirely independent of the proposed Studholme plant expansion. He was of the view that without the plant expansion this future increase in milk production would occur in any event and if the expanded plant were not available then milk would be collected and processed less efficiently at alternative locations provided either by Fonterra or its market competitors.

10.343 As to future milk prices, Mr Copeland was of the view that the milk price in future will ultimately be determined by the relevant market. Regarding uncertainty in milk prices given that New Zealand operates a market economy, he said that investment decisions are best left to

corporations and individuals "with skin in the game". He was of the view that they should be free to make their investment decisions and he did not see that it was the role of decision-makers under the RMA to second-guess these investment decisions.

10.344 Mr Bleeker, a submitter in opposition who operates a potato cropping farm immediately east of the existing factory site, was critical of the assertion that there would be economic benefits arising from consenting the proposal. So far as he was concerned any economic benefits, if there were in fact any, would be obtained by people outside of the district. When we discussed employment opportunities that the proposal could give rise to, it was his view that Fonterra will draw away employees who are already employed by local businesses and those businesses would then struggle to find replacements.

10.345 Mr van der Wal in his submissions on behalf of Mr Bleeker and others acknowledged that there will be some positive economic effects. However, in his submission he stated that whatever the social and economic benefits that may arise, they will be accompanied with definite social and economic costs for the local community and those costs have not been properly addressed by Fonterra.

10.346 Many submitters expressed views about the low international prices available for whole milk powder. Based on those views they contended that Fonterra was taking an undue financial risk in spending funds on the proposed expansion. In their view the project was not economically viable and should not proceed.

10.347 Submitters including Mr Bob Calkin and the Wise Response Group contended, based on research and evidence they referenced, that economic growth faces real limits which must be complied with otherwise adverse consequences will result. It was Mr Calkin's view and that of other submitters that those limits had been reached and perhaps exceeded, particularly with the intensification of agriculture. It was their view that the development proposed here would aggravate the consequent adverse effects on the environment.

10.348 While Ms Harte expressed some concerns about Mr Copeland's opinions, including that he had not taken into account costs that cannot be quantified in monetary terms, she nevertheless acknowledged that the economic and social well-being of the community is expected to benefit from the development. She agreed that the development would provide an economic boost to the district and region and she also agreed, given the location close to SH and the railway line, that there would be real benefits in terms of reducing road usage by milk tankers.

Our Findings on Economic Benefits

10.349 Mr Copeland's approach in assessing the economic effects, particularly the beneficial economic effects, is a standard approach taken for such applications. He does appropriately identify costs and matters he describes as intangible effects. He considers that these matters are best left to other experts to describe and assess. We do agree that these intangible effects are best left to other experts and we consider them elsewhere within this decision.

10.350 The key points in contention between Mr Copeland, Mr Fraser and those submitters who expressed opinions on economic matters relate to two key issues. The first is whether or not dairy farm expansion and the possible environmental effects which may accompany that expansion are valid and available effects for us to take into account, particularly when considering the economic benefits of the proposal.

10.351 We need not discuss this issue any further as we have made our determination earlier. We find that whatever the effects of dairy farm expansion, they are not relevant effects on the environment in relation to this proposal. We made the observation that such farm expansions are likely to be the subject of resource consent applications, particularly where the use of water for irrigation is required and where discharge consent applications need to be made. It therefore follows that the views expressed by submitters relating to environmental degradation and economic costs arising from dairy expansion are not a relevant consideration for us.

10.352 The second key issue is linked to the first. Many submitters contended that, given the depressed international market for whole milk powder, Fonterra's decision to expand the processing facility is a decision that will lead to economic failure. We are not in a position, nor are we able under the RMA, to review or critique the investment decisions made by applicants. Such decisions are decisions for the applicants themselves.

10.353 Overall then we prefer the economic analysis advanced by Mr Copeland in terms of his reviews relating to the economic benefits and general economic effects arising from the Stage 1 proposal. In our view those economic benefits are significant.

Other Benefits

10.354 Witnesses for Fonterra expressed the opinion that expansion of the Studholme factory site had the benefit of utilising or leveraging off the existing site, particularly when compared to building a processing plant on a Greenfields site. Utilising this location with the existing facility was seen as a significant benefit in terms of maximising utilisation of that existing resource. We accept this assessment.

10.355 We have earlier referred to the potential transportation benefits such as reduction in road tanker transport movements particularly brought about by utilisation of rail. This application inclusive of conditions will lead to better and safer utilisation of the roading networks.

10.356 Improvements to the existing WWTP through redevelopment of it to improve treatment and reduce localised odour effects, along with improved sewage effluent treatment and discharge to land, are also useful environmental benefits.

10.357 The now proposed landscaping treatment of the factory processing site along with planting enhancements at the stream crossing points for the pipeline are also noted benefits.

10.358 The earthworks, culvert improvements and grass swale proposed for the factory processing site also lead to benefits, particularly in terms

of improving control of surface waters at times of flooding. We accept the evidence that there will be benefits relating to reduced flooding at both SH1 and the rail network arising from those works.

11 SECTION 107 AND THE NESAQ

11.1 Section 107 restricts the grant of consents to discharge to water if the discharges would give rise to specified adverse effects in the receiving waters. We have discussed the section 107 specified effects in relation to the ocean outfall discharge in the body of our decision. We are satisfied that the discharge permits sought, including the discharge of stormwater to Waimate Creek and the combined wastewater discharge to the ocean, would be unlikely to give rise to the specified effects. In reaching this conclusion we have taken into account the comprehensive suite of consent conditions proposed.

11.2 We discussed the NESAQ regulations during our evaluation of the effects of contaminant discharges to air. The predicted PM_{10} concentrations caused by the combined Fonterra discharges (including discharges from a 50MW boiler and third dryer that are no longer proposed) at the Waimate Airshed are less than 2.5µg/m^3 (24-hour average). We accept that the modelling approach adopted by the applicant is likely to be conservative. Consequently, we find that the application does not trigger a requirement for "offsetting" under the Regulation 17 of the NESAQ. We conclude that the NESAQ regulations do not prevent granting of consent in this case.

12 SECTION 104D JURISDICTIONAL HURDLES

12.1 The preceding sections of this decision set out our key findings in respect of effects on the environment and the principal issues in contention. However, before we can proceed any further we must consider whether the applicant's proposal as a non-complying activity is able to meet one of the threshold tests specified in s104D of the RMA.

First Gateway Test: Adverse Effects

12.2 To pass this gateway, we must be satisfied that the effects of the proposal on the environment will be minor.

12.3 We acknowledge there have been a number of conflicting decisions of the Environment Court as to whether decision-makers should consider the positive effects of a proposal when deciding whether the threshold tests have been met. We are adopting the approach set out in *Stokes v Christchurch City Council*[13] where the Court said:

"The Court of Appeal's decision in Bayley must cast doubts on transferring the Elderslie Park approach to Section 105(2A) (now Section 104D) as this division of the Court did in Baker Boys. Especially since we have to consider the adverse effects we consider that while it is still appropriate to consider each adverse effect as mitigated there is no statutory authority for us to consider the positive effects of a

[13] *1999 NZRMA 409, at page 434.*

proposal when considering the threshold tests in Section 105(2A) (a) is met. To that extent we consider that in the light of Bayley we were wrong in Baker Boys in adopting a (qualified) net adverse effects approach to the first threshold test. The test is whether the adverse effect as proposed to be remedied and/or mitigated and taken as a whole are minor."

12.4 Thus we propose to consider the effects of the proposal as mitigated by the applicant's proposed conditions of consent but not the positive effects of this proposal.

Conclusions on First Gateway Test

12.5 As we understand it s104D(1)(a) is intended to impose a restraint on resource consents being granted for non-complying activities unless they have only a "minor" effect. This is a "very small eye in the needle."[14]

12.6 Having close regard to the words as they appear within s104D(1)(a), we are required to reach a point of satisfaction that the adverse effects of the activity on the environment in the future would be "minor".

12.7 The significant changes to the application restricting it to a Stage 1 proposal satisfy us, for the reasons we have traversed in detail above, that overall the effects of the proposal will be minor.

12.8 In particular, the now substantially reduced Stage 1 proposal combined with the enhanced in increased landscaping results in two outcomes. The first outcome is that with the substantial reduction in size and scale of the factory processing element the proposal is not significantly out of scale with its immediate surrounds. In our view the proposal can now properly be described as an expansion, albeit still a large expansion, of the existing processing factory.

12.9 The substantially increased landscaping for the Site results, we conclude, in visual and landscape effects which can assessed as minor. The now proposed landscaping will contribute to screening the plant from view, particularly when observers are in close proximity to the Site. We acknowledge that it is not possible to fully screen the higher structures such as the dryer tower from view. However overall we nevertheless conclude that adverse visual effects would be minor.

12.10 Taking into account the proposed conditions that include significant mitigation, we conclude that the effects of lighting and glare would ultimately be improved in relation to the effects of the existing plant. We are satisfied that these effects can properly be described as being no more than minor.

12.11 Discharges of contaminants to air from the boilers, powder plants and WWTP were a significant part of this proposal. The now proposed reduction in scale of the proposal has resulted in a decrease in the degree of effect originally predicted. Nevertheless, the effects of discharges of contaminants, particularly $PM_{10}$and SO_2, remain

[14] *Queenstown Central Ltd v Queenstown Lakes District Council [2013] NZHC 815.*

important considerations. Taking into account the proposed conditions of consent, including continuous in-stack monitoring of SO_2 emissions, we are satisfied that adverse effects of the SO_2 discharge are likely to be minor.

12.12 Turning to PM_{10}, we accept that the predicted concentrations will be well within the relevant air quality guidelines and the NES. We accept the evidence that the proposed use of bag filtration to control particulate matter emissions is consistent with current industry best practice. Therefore, we are able to conclude that the adverse effects of discharge of PM_{10} would be minor. We also record that the discharge of other combustion products and trace contaminants, including NO_2, CO, volatile organic compounds and metals, from the boiler plant is not predicted to cause adverse effects.

12.13 Odour from the WWTP was a significant issue, particularly because of the recent complaints of odour discharge from the existing wastewater plant at Hannaton Road. Overall we are satisfied that the conditions now proposed for the new WWTP are comprehensive and address specific design and operational aspects relevant to odour generation. We did note that recent complaints arose primarily because of sludge removal from the existing WWTP. To address this issue and improve certainty, we have decided to impose an additional condition requiring that sludge be removed from the WWTP site and not be stored on site for a period of more than 48 hours after its removal from the plant without full containment or treatment to reduce odour emissions. Overall we are satisfied that the proposed design and mitigation measures associated with the WWTP are likely to result in a significant reduction in odour effects recently experienced in relation to the existing treatment plant. Accordingly, we are satisfied that odour discharges from the proposed WWTP are likely to be of minor effect.

12.14 The potential effects of wastewater discharged from the ocean outfall were also a significant aspect of the proposal. We sought additional detail and assessment in relation to pathogens and chemicals forming part of the discharge and have carefully examined the expert evidence regarding predicted effects of all contaminants on the receiving environment. As addressed within the body of our decision, taking into account the evidence received and the conditions now proposed, we are satisfied overall that the effect of outfall discharge are likely to be minor.

12.15 The proposal involves a number of construction activities, including earthworks and construction within sensitive parts of the environment such as beds of rivers and the CMA. We have carefully weighed and considered the evidence from experts in relation to construction works in these areas. Based on the conditions we intend to impose, we find that these sensitive environments would be appropriately protected to the extent that adverse effects on the environment are likely to be minor.

12.16 Traffic effects and the efficient and safe utilisation of the roading network are issues that require consideration. Having carefully examined the evidence of the three experts we have reached the conclusion that potential traffic effects, particularly after considering

the proposed roading upgrades and conditions, are likely to be no more than minor.

12.17 Noise from the proposed dairy processing plant is also an important issue requiring our consideration. We have had regard to the assessment of noise effects provided in the evidence of noise experts for the applicant, WDC and submitters. The conditions now proposed include a comprehensive noise monitoring programme to determine if the predicted noise levels are met at the noise control boundary. Based on the evidence and the conditions we intend to impose, we conclude that the effects of noise on the environment, including the closest neighbour Mr Bleeker, are likely to be minor.

12.18 There are a range of other effects arising from the Stage 1 proposal which we have referred to within our decision. Taking into account the conditions we have decided to impose we are satisfied that these effects are likely to be minor

12.19 Overall then, for reasons advanced within this decision, we are able to reach the finding that the first gateway test is satisfied.

Second Gateway Test: Objectives and Policies

12.20 We now move to consider the proposed activity against the relevant national standards, national policy statements and the objectives and policies of the relevant plans.

12.21 Case law has established that the phrase "contrary to" in the context of s104D(1)(b) of the RMA is not to be given a restrictive meaning. Therefore, if a proposal does not comply with the objectives and policies of the relevant plan it does not necessarily mean it is contrary. In this context as we understand it the RMA envisages something that is "opposed in nature, different to, or opposite".

12.22 In addition, while an activity may be contrary to one or two objectives or policies, when all of a plan's objectives and policies are considered overall the proposal may not be contrary to them.

12.23 First dealing with the land use application, any concerns we had about this element of the proposal being contrary to the objectives and policies of the district plan were removed as a consequence of Fonterra substantially amending its proposal to the Stage 1 proposal with enhanced landscaping.

12.24 The relevant objectives and policies in the district plan are in our view focused on protection of the rural environment, particularly character and amenity, and on ensuring that activities that do locate in the Business 3 zone do not adversely affect the amenities of areas in the vicinity.

12.25 With the significant reduction in size and scale of the proposal, we find that visual effects on amenity will now be moderate and overall acceptable. There are other consequent reductions in terms of noise, discharges, stormwater run-off and vehicle and rail movements. We are able to conclude that the impact on the character of the rural area

forming part of the site will be largely limited to the point that we are satisfied that the effects can be considered less than minor.

12.26 There will be a significantly higher level of amenity provided via proposed landscaping both on the perimeter of the factory site and within that site. Landscaping will also occur around parts of the WWTP and ocean outfall pipeline, notably at the Waihao Arm crossing.

12.27 Accordingly, we conclude that the revised proposal is not contrary to the relevant objectives and policies of the WDC plan. We agree with Mr Chrystal that the proposal would meet the intent of the objectives and policies of the rural chapter and there is no significant degree of inconsistency. Specifically, those components of the Stage 1 proposal in the rural zone (namely roading, stormwater retention, office, tanker workshop and parking) are low scale and impact activities that are consistent with Policy 6I which contemplates industrial uses provided the amenity and character of the rural area is maintained. We are also able to conclude that the degree of tension with Objective 1 of the Business 3 zone is much reduced by the Stage 1 proposal to the extent that we can conclude Stage 1 is not contrary to that objective.

12.28 As to the Regional Council consents evaluated earlier within this decision, we identified in summary form the relevant planning framework for the consents to discharge domestic wastewater to land, to discharge contaminants to air, to discharge combined wastewater via the ocean outfall, and to discharge stormwater to Waimate Creek. There was little debate between the experts concerning both the identification of the relevant planning framework and whether or not these proposed activities, inclusive of conditions or consistent, are consistent with the relevant objectives and policies within that planning framework. As we have recorded throughout this decision, we have concluded that the grant of consent for these discharge permit applications would be consistent with the relevant objectives and policies within that planning framework.

12.29 The Regional Council planning framework related to the consents to undertake earthworks associated with the excavation of the stormwater ponds, levelling and construction of the earth bunds and construction of a swale on the factory processing site has been identified earlier than this decision. Similarly, the framework related to the consent applications to undertake earthworks on the beds and banks of water courses and their riparian margins, to divert Northern catchment surface water and undertake site dewatering, to construct the outfall pipeline and finally to disturb the CMA has been identified.

12.30 There was little debate between the experts regarding that relevant planning framework along with the relevant objectives and policies and we are satisfied that the relevant provisions have been considered. We also accept and agree that when these proposals inclusive of conditions are assessed against the relevant planning and statutory provisions, granting consent would be consistent with the relevant objectives and policies.

Conclusions on Second Gateway Test

12.31 For the reasons advanced above we are able to reach a finding that the second gateway test is also satisfied.

13 PART 2 RMA

13.1 Arising from the proposal before us the section 6 RMA matters that are relevant are:

Section 6(a) the preservation of the natural character of the coastal environment including the coastal marine area, wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;

Section 6(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;

Section 6(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers; and

Section 6(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.

13.2 Sections 6(a), 6(d) and(e) are relevant to the land use consents to undertake earthworks and the water permit to divert water and take dewatering water, CRC160873, CRC160875 and CRC160940. We conclude that, subject to the proposed conditions, the natural character of rivers and their margins will be preserved following the completion of the proposed earthworks and pipeline construction. So accordingly we consider that subsection (a) will be complied with. The proposed works will be temporary and the evidence is that they are unlikely to adversely affect the public access to and along rivers. Therefore, we find that subsection (d) will be complied with. We consider that the conditions we have imposed adequately deal with the relationship of Māori and their culture and traditions and thus conclude that the matters in subsection (e) have been provided for.

13.3 Subsections 6(a), (b), (c) and (e) are also relevant to the coastal permit CRC160876. We conclude that subsections (a) and (b) have been provided for as the overall assessed effects on natural character and outstanding natural landscapes will be minimal. In terms of subsection (c) we conclude that the mitigation proposed and required by the recommended conditions of consent will ensure the effects on ecology are minor.

13.4 In relation to subsection (e), having regard to the conditions we intend to impose, the proposal in the coastal marine environment is consistent with the values of Māori and their culture and traditions. Therefore, we conclude the proposal is consistent with subsection 6(e).

13.5 Section 7 lists various matters to which we are to have regard to in achieving the purpose of the RMA. We have addressed these matters in our assessment of environmental effects and our analysis of the

proposal in relation to the relevant policy documents. We conclude that all section 7 matters will be complied with.

13.6 Section 8 requires that we take into account the principles of the Treaty of Waitangi. Those principles include the principal of partnership, active protection by the Crown of Māori interests, compromise in relation to the needs of both Māori and the wider community being met, and finally early consultation.

13.7 We have concluded that Fonterra has demonstrated compliance with these principles through extensive consultation undertaken in relation to the proposed ocean outfall pipeline and discharges. The applicant prepared a CIA as part of this proposal and demonstrated that the concerns of Te Rūnanga o Waihao have been considered. During the course of the hearing the applicant further demonstrated that commitment by continuing to undertake productive discussions with all relevant cultural groups.

13.8 We have also considered these principles specifically when balancing the cultural effects of this proposal against the anticipated positive effects, finding that the principles of the Treaty are both met and satisfied.

13.9 Finally, we turn to section 5 which sets out the purpose of the RMA. We consider the purpose of the act will be met because the conditions we intend to impose are sufficient to ensure that the effects of the proposal will be no more than minor. The mitigation measures proposed are sufficient to safeguard the life-supporting capacity of air, water, soil and ecosystems. We are satisfied on the evidence that the positive effects of allowing the various consents sought, including the economic benefits, are significant.

13.10 Overall it is our view that the economic, social and cultural well-being of the community would be provided for by the proposal and the sustainable management purpose of the Act can be achieved.

14 OVERALL DECISION

Pursuant to the powers delegated to us by the Canterbury Regional Council and the Waimate District Council; and for all of the above reasons and pursuant to sections 104, 104B, 104D, 105 and 107 of the Resource Management Act 1991 we grant consent to the Stage 1 proposal.

14.1 Accordingly, we grant the following consents:

(a) land use consent to construct and operate a milk processing plant and associated infrastructure RMA150031;

(b) consent to discharge domestic wastewater to land CRC160874;

(c) consent to discharge stormwater to land and water CRC160872;

(d) consent to use land and to undertake earthworks CRC160873;

(e) consent to use land to erect and place a pipeline across or under the beds and banks of watercourses CRC160875;

(f) a coastal permit to disturb and occupy the foreshore and seabed, including the removal and deposition of material, and the placement and operation of structures in the coastal marine area and to discharge treated wastewater, stormwater and condensate through an ocean outfall pipeline and diffuser within the coastal marine area – CRC160876;

(g) consent to divert water and to take groundwater for site dewatering – CRC160940; and

(h) consent to discharge contaminants to air from a milk powder plant and associated infrastructure – CRC160871;

Subject to the conditions attached to this decision.

Lapse Dates

14.2 After considering these submissions and evidence received and taking into account the purpose of the RMA we have concluded that the appropriate lapse date for the for all of the consents is 10 years after the commencement date. This lapse date is included within the conditions.

14.3 We consider that 10 year lapse periods for all consents is appropriate due to the size and scale of works involved in implementing the consents.[15]

Duration

14.4 After considering submissions received and the evidence we have determined that for the Regional Council consents, having regard particularly to the size and scale of the project and the financial investment required to give effect to the proposal, an appropriate expiry date is 35 years from the commencement date. Specific comments in relation to the duration of the domestic wastewater discharge permit have been included earlier in our discussion.

14.5 We do not consider that a 35 year duration is out of the ordinary for applications of this nature, and note that this 35 year duration is only relevant if the proposal proceeds and the consents are given effect to. We have provided for the duration and expiry date within the attached consent conditions.

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[15] A similar period was sought in Crest Energy Kaipara Ltd v Northland Regional Council [2011] NZEnvC 26 with scale of the project and lengthy consenting processes being considerations in this determination.

DECISION DATED 16th JUNE 2016 AT CHRISTCHURCH

Paul Rogers 

John Iseli 

Gina Solomon 

APPENDIX 1

List of abbreviations and/or acronyms used in the decision

AQL	Air quality (related to air quality policies)
AEP	Annual exceedance probability
ASNV	Area of Significant Natural Value
AEE	Assessment of Environmental Effects
ANZECC	The Australian and New Zealand Guidelines for Fresh and Marine Water Quality document (ANZECC 2000 Guidelines)
CALPUFF	California Puff Model – complex air dispersion model
CRC	Canterbury Regional Council (Environment Canterbury)
CRPS	Canterbury Regional Policy Statement
CO_2	Carbon Dioxide
CIP	Clean in Place
CMA	Coastal Marine Area
CMP	Construction Management Plan
CIA	Cultural Impact Assessment
DOC	Department of Conservation
DAF	Dissolved Air Flotation
ETS	Emissions Trading Scheme
ECAN	Environment Canterbury (Canterbury Regional Council)
g/m^3	Grams per cubic metre
GLCs	Ground Level Concentrations
HAIL	Hazardous Activities and Industries List
HA	Hectares
HZNO	Hazardous Substances and New Organisms Act

IPCC	Intergovernmental Panel on Climate Change
IMP	Iwi management plan
Km	Kilometres
LWRP	Land and Water Regional Plan
LPG	Liquefied Petroleum Gas
l/s	Litres per second
m^3	Cubic metre
m	Metre
MW	Megawatt
mm	Millimetres
NES	National Environmental Standards
NESAQ	National Environmental Standards Air Quality
NPSFW	National Policy Statement Freshwater Management 2014
NPS - REG	National Policy Statement for Renewable Electricity Generation 2011
NRRP	Natural Resources Regional Plan
NZCPS	New Zealand Coastal Policy Statement
NES Drinking Water	The Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007
NZECC	New Zealand Environment and Conservation Council
NO_2	Nitrogen dioxide
ONL	Outstanding natural landscape
PM_{10}	Fine particulate matter (particles less than 10 microns in diameter)
PM	Particulate matter
PCARP	Proposed Canterbury Air Regional Plan

RAMSAR	The Ramsar Convention is an international treaty for the conservation and sustainable use of wetlands.
RCEP	Regional Coastal Environment Plan
RPS	Regional Policy Statement
RMA	Resource Management Act 1991
SH1	State Highway One
SO_2	Sulphur dioxide
TSS	Total suspended solids
t/hr	Tonnes per hour
$\mu g/m^3$	Micrograms per cubic metre of air
WDC	Waimate District Council
WWTP	Waste water treatment plant
WHO	World Health Organisation

APPENDIX 2

List of Submitters who appeared at the hearing

Week 1 – Monday 4-April – Friday 8 April 2016

Monday 4 April 2016

Applicant – Ben Williams, Legal Submissions

Applicant – Timothy Keir

Applicant – Ian Goldschmidt

Applicant – Alan Maitland

Applicant – Michael Copeland

Applicant – Linda Thompson

Applicant – Richard Chilton

Applicant – Aaron Staples

Applicant – Rob Hay

Tuesday 5 April 2016

Applicant –Richard Chilton

Applicant –Andrew Craig

Applicant – Michael Dent

Applicant – Andy Carr

Applicant – Andrew Brough

Applicant – John Russell

Wednesday 6 April 2016

Applicant –Haden Walters

Applicant – Graeme Jenner

Applicant – Rebecca Scott

Applicant – Ross Sneddon

Applicant – Murray Hicks

Applicant – Robert Greenway

Applicant – Dean Chrystal

Thursday 7 April 2016

Commissioners' Site Visit

Friday 8 April 2016

Submitter – Hans van der Wal, legal submissions (D & S Penno, J Bleeker, N Wilson)

Submitter – David Penno

Submitter – Jeffrey Bleeker

Submitter - Nigel Wilson

Submitter – Darran Humpheson (Bleeker)

Submitter – Ross Rutherford (Bleeker, Wilson)

Submitter – Donovan Van Kekem (Bleeker, Penno, Wilson)

Submitter – Robert Hall (Penno, Wilson)

Submitter – John Guthrie

Submitter – Rosemary Penwarden

Submitter – Hilary Iles

Submitter - Alexandra Macmillan (Climate and Health Council)

Submitter – Hayley Bennett

Week 2 – Tuesday 12-April – Friday 15 April 2016

Tuesday 12 April 2016

Submitter – Daniela Bagozzi

Submitter – Dr Kent Palmer

Submitter – Nerissa (Sophia) Carlson

Submitter – Emily Bayley (phone)

Submitter – Dr Elisabeth Slooten (Wise Response Society Ltd)

Submitter – Christopher Perley (Wise Response Society Ltd)

Submitter – Dr Christopher (Bob) Lloyd (Wise Response Society Ltd)

Submitter – Nelson John Peet (Wise Response Society Ltd)

Submitter - Dugald Tavish (Wise Response Society Ltd)

Submitter - Anne Te Maiharoa-Dodds (Wise Response Society Ltd)

Submitter - Dr Alison Dewes (Wise Response Society Ltd)

Wednesday 13 April 2016

Submitter – Tim Jones (phone)

Submitter – Robert (Bob) Calkin

Submitter – Sara Eddington, Anne Te Maiharoa-Dodds (Waihao Rūnanga)

Submitter – Catherine Cheung (phone)

Submitter – Anna MacLennan (phone)

Submitter – Jack (John) Fox

Submitter – Rosalee Jenkins (Generation Zero)

Submitter – Jeanette Fitzsimons (Coal Action Network Aotearoa)

Submitter – Peter Fraser (Coal Action Network Aotearoa)

Submitter – Christian Jirkowsky (Coal Action Network Aotearoa)

Submitter – Tim Jones (Coal Action Network Aotearoa)

Thursday 14 – Friday 15 April 2016

Submitter – Zella Downing

Submitter – Jenny Campbell

CRC Reporting Officer – Dr Deepani Seneviratna

CRC Reporting Officer – Simon Woodlock

CRC Reporting Officer – Stuart Edwards

WDC Reporting Officer – Patricia Harte

Submitters who advised they were not presenting:

Steve Goldthorpe

NZ Transport Agency

June Slee

Felicity Timings

Lyndon DeVantier

Te Ngaru Roa aa Maui

Bryan Pulham

Stuart Bramhall

Patricia Kane

Sarah Roberts

APPENDIX 3

WAIMATE DISTRICT COUNCIL

LANDUSE

RMA150031

GRANTS TO: Fonterra Limited

A LANDUSE CONSENT: To construct and operate a Milk Processing Plant and associated infrastructure (including a Wastewater Treatment Plant and pipelines)

COMMENCEMENT DATE: [XXXXX]

EXPIRY DATE: N/A (unlimited duration)

IN CONNECTION WITH: The Studholme Milk Processing Plant, Foleys Road, Waimate

This consent is subject to the following conditions.

	Interpretation
1	For the purposes of this consent: • **Construction Works** *means* the physical construction works associated with the proposed expansion area of the Studholme Milk Processing Plant (but excluding the earthworks associated with digging foundations or levelling the site). Construction Works includes but is not limited to the construction of any new buildings, facilities, pipelines, stormwater system and the Wastewater Treatment Plant associated with the proposed expansion. • **Operational** *means* the point in time at which: o the expanded areas commence accepting and processing milk on an ongoing basis (but excluding any testing or maintenance of equipment or machinery in the expanded area, or any activity undertaken in the milk processing facilities existing on site at the commencement date); and o the new Wastewater Treatment Plant is operating.
	General Conditions
2	The Milk Processing Plant and associated works (including the Wastewater Treatment Plant and associated pipelines) shall be constructed and operated generally in accordance with the information and site plans accompanying the application (as modified to show a reduced dry store area, the removal of Dryer 3 and the removal of a 50 MW boiler). Where there is inconsistency or ambiguity between that information and these conditions, the conditions shall prevail.

	Hazardous Substances
3	The consent holder shall ensure that the storage of hazardous substances or refuelling of vehicles and machinery does not occur within 50 metres on any ephemeral flowing surface water body.
4	The consent holder shall maintain on site at all times, measures to prevent spills entering land or water including: (a) spill kits to contain or absorb any spilled hazardous substance; (b) signs to identify the location of spill kits; and (c) written procedures that staff have been trained in which document how to contain, remove and dispose of any spilled hazardous substance.
5	Copies of any required Test Certificates for each storage system (required under the Hazardous Substances and New Organisms Act 1996 and associated regulations) shall be retained on site at all times and made available for inspection by the Waimate District Council.
6	The consent holder shall maintain a current inventory of all hazardous substances stored on the site, and a copy of the inventory shall be made available to the Waimate District Council (and Canterbury Regional Council) on request.
7	Any on-site hazardous substance storage area shall be bunded to prevent the release of a hazardous substance from the bunded area. Each bund shall be: (a) sized to contain at least 110 percent of the largest single container within the bund; and (b) constructed of robust material and made effectively impermeable to leakage through the bund material.
8	In the event of a spill of a hazardous substance within the site, the consent holder shall: (a) take all practicable measures to prevent the hazardous substance being further discharged into land or water; and (b) collect and remove the hazardous substance and any contaminated material as soon as practicable.
9	In the event of a spill of more than 50 litres or 50 kilograms of a hazardous substance on site, the consent holder shall record and provide to the Waimate District Council (with a copy being provided to the Canterbury Regional Council), within 24 hours of the spill: (a) the date, time, location and amount of the spill; (b) the substance spilt; (c) a description of the remediation measures taken in response to the spill; (d) a description of the measures taken to prevent the spilt substance being discharged into land or water; (e) the cause of the spill and measures that will be taken to prevent a reoccurrence; and (f) the timeframes for such measures.

10	Any contaminated material, resulting from a spill as specified in condition 9 and removed from the site, shall be disposed of at a facility authorised to receive such material. The consent holder shall provide the Waimate District Council with written confirmation of such disposal within 10 working days of the disposal (with a copy being provided to the Canterbury Regional Council).
	Construction Management Plan
11	No later than two months prior to the commencement of the Construction Works authorised by this consent, the consent holder shall prepare and submit to the Waimate District Council (with a copy being provided to the Canterbury Regional Council), a Construction Management Plan. The objectives of the Construction Management Plan shall be: (a) to ensure that the construction activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to minimise the release of sediment, either to water or to air, during construction activities; (d) to provide methods to ensure that persons under its control respect and apply the Construction Management Plan; and (e) to integrate good environmental practice into construction activities.
12	In achieving the objectives described in condition 11, the Construction Management Plan shall include, but not be limited to, the following: (a) the best practicable measures that will be adopted during Construction Works to avoid, remedy or mitigate construction effects on adjoining properties and surface water bodies; (b) the contact details of the Lead Contractor; (c) the phases in which work will be undertaken in regard to the required earthworks for the expanded factory and wastewater treatment plant; (d) the timing and duration for each phase, including the working hours within which works will be undertaken; (e) the sediment and erosion control measures that are to be implemented for each phase of the works authorised by this consent; (f) the dust control measures to be implemented for each phase of work, including but not limited to vehicle speed restrictions, application of water, ceasing work during strong wind conditions and establishment of vegetation on exposed soil areas; (g) how construction noise limits will be complied with and times when earthworks activities can take place, minimum buffer distances and attenuation measures for specific activities and areas in order to comply with NZS6803:1999 Acoustics – Construction Noise. The plan shall include those matters set out in Section 8 and Annex E of NZS6803:1999;

	(h) the establishment and retention of a sufficient water supply on site for dust control and methods of dust control to be used; (i) if operations which involve piling or the use of heavy vibrating rollers are to occur, the Construction Management Plan shall include details of vibration testing to confirm that the vibration standards set out in NBS2631:1985-89 Parts 1-3 or equivalent standard are not exceeded; and (j) identifying where on-site parking will be provided for all construction staff. The Construction Management Plan shall ensure all parking occurs on site. ***Advice note:*** *There shall be no construction parking on any public roadway.* ***Advice note:*** *The Construction Management Plan can be updated and provided in stages as development phases move through the project. A single Construction Management Plan may be prepared for all resource consents that relate to construction of the Milk Processing Plant and associated infrastructure.*
13	Construction Works shall not commence until: (a) the Waimate District Council has certified that the Construction Management Plan meets the objectives described in condition 11 and includes the matters described in condition 12; or (b) if the Waimate District Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
14	Any subsequent amendment to the Construction Management Plan will require certification from the Waimate District Council in accordance with the procedure outlined in conditions 11 to 13 (as if the reference to the Construction Management Plan were references to the amendment).
	Traffic Management
15	At least one month prior to the commencement of Construction Works on site, the Consent Holder shall submit to the Waimate District Council and the New Zealand Transport Agency a Traffic Management Plan to manage construction traffic movements. The purpose of the Traffic Management Plan shall be to set out and detail the extent and timing of traffic management during the period required for Construction Works including temporary traffic management provisions to be put in place during this time; and in particular: (a) ensuring that traffic and other activities associated with Construction Works on roads and accessways adjoining and surrounding the site are planned so as to cause as little disruption, delay or inconvenience as possible to other users (such as pedestrians, cyclists, neighbouring landowners and motorists); and (b) without unduly compromising safety, capacity and convenience.

16	Construction Works shall not commence until: (a) the consent holder provides evidence to the Waimate District Council that the New Zealand Transport Agency has approved the Traffic Management Plan; and (b) the Waimate District Council has certified that the Traffic Management Plan meets the purpose described in condition 15; or (c) if the Waimate District Council confirms receipt but then fails to provide any further response to the consent holder within a period of one month then the Traffic Management Plan shall be deemed to be certified.
17	Any subsequent amendment to the Traffic Management Plan will require certification from the Waimate District Council in accordance with the procedure outlined in conditions 15 to 16 (as if the reference to the Traffic Management Plan were references to the amendment).
	Foleys Road and State Highway 1 Intersection
18	Two months prior to construction starting on the Foleys Road and State Highway 1 intersection the consent holder shall provide the Waimate District Council and the New Zealand Transport Agency with the Engineering Design Plans of the new Foleys Road and State Highway 1 intersection. Those engineering design plans shall include the: (a) final road layout; (b) design; and (c) an assessment relating to geotechnical and engineering matters.
19	The works associated with the Foleys Road and State Highway 1 Intersection shall be constructed prior to Stage 1 of the site becoming Operational.
	New Northern State Highway 1 heavy vehicle access
20	Two months prior to construction starting on the New Northern State Highway 1 intersection the consent holder shall provide the New Zealand Transport Agency with the Engineering Design Plans of the New Northern State Highway 1 intersection. Those engineering design plans shall include: (a) final road layout; (b) lighting and design; and (c) an assessment relating to geotechnical and engineering matters.
21	The works associated with the New Northern State Highway 1 intersection shall be constructed prior to Stage 1 of the site becoming Operational.
	Foleys Road and Hansen Street intersection
22	Two months prior to the commencement of Construction Works on site, the consent holder shall provide to the Waimate District Council (for approval as roading authority) the detailed design for the proposed intersection upgrades to Foleys Road and the (former) Hansen Street.

23	Construction of the Foleys Road and Hansen Street access point shall be completed prior to the site becoming Operational.
	Other traffic management matters
24	The Packers Road intersection with State Highway 1 shall be physically closed.
25	The consent holder shall implement protocols that ensure tanker drivers do not access or leave the milk processing plant via Molloys Road, except in the event of emergency or other unforeseen events that mean that the State Highway 1 approaches to the New Northern State Highway 1 intersection are not able to be used.
	Noise
	Operational noise limits
26	Noise arising as a result of the operation of the Milk Processing Plant, including all ancillary equipment, any wastewater treatment plant, maintenance activities, and the operation of vehicles including rail whilst on land owned by the consent holder shall not exceed the following limits: • Daytime (0700-1900) 55 dB $L_{Aeq\ (15min)}$ when measured at the dairy factory noise contour; and • Night-time (1900-0700) 45 dB $L_{Aeq\ (15min)}$ and 75 dB L_{AFmax} when measured at the dairy factory noise contour as shown in the plan titled *Dairy Factory Noise Contour* attached to, and which forms part of this consent as **RMA150031A.** Measurement and assessment of noise shall be in accordance with NZS 6801:2008 *Acoustics – Measurement of Environmental Sound* and NZS6802:2008 – *Environmental Noise* respectively.
	Acoustic Assessment and Monitoring
27	One month prior to: (a) a new dryer, new boiler or the waste water treatment plant becoming Operational; (b) the commencement of rail operations on site in accordance with conditions 32 to 35; and (c) the completion of further attenuation under condition 36. the consent holder shall submit to the Waimate District Council, for certification, an Acoustic Assessment, prepared by a suitably qualified person, that demonstrates how the final design of each stage (and associated operational procedures) will meet the limits described in condition 26. ***Advice note:*** *A separate Acoustic Assessment may be provided in respect of each significant part of the Studholme Milk Powder Plant (as referred to in (a) to (c)).*

28	The matters provided under condition 27(a) to (b) shall not commence until: (a) the Waimate District Council has certified that the Acoustic Assessment demonstrates that Operations will meet the limits described in condition 26; or (b) if the Waimate District Council confirms receipt but then fails to provide any further response to the consent holder within a period of one month then the Acoustic Assessment shall be deemed to be certified.
29	The consent holder shall submit to the Waimate District Council by the 1st of December for each year required by condition 30, a Noise Monitoring Report, prepared by a suitably qualified person, stating the: (a) noise levels at key noise control locations around the site as required for determining compliance against the dairy factory noise contour as shown in the plan titled *Dairy Factory Noise Contour* attached to, and which forms part of this consent as **RMA150031A.** (b) the predicted or actual noise levels at the nominal boundary of residential dwellings not owned by the consent holder within a 1km radius of the site.
30	Provision of a Noise Monitoring Report under condition 30 will be required: (a) for the first three years that the Stage 1 Milk Processing Plant authorised by this consent is Operational; and (b) should a Noise Monitoring Report prepared under condition 30(a) show non-compliance with the limits set out in condition 26, the greater of: (i) a further period of two years; or (ii) such other period as required to demonstrate two consecutive years within which the limits set out in condition 26 have been met.
31	Noise level measurements required by condition 29 must be made while the plant is operating at or close to full capacity. The report required by condition 30 shall be presented to the Waimate District Council assessing compliance with condition 26 above.
	Rail Noise
32	At least two months prior to rail operations commencing on site, the consent holder shall submit Rail Operational Procedures to the Waimate District Council. The objectives of the Rail Operational Procedures shall be: (a) to ensure that the rail operations achieve compliance with the conditions of this resource consent; (b) to provide methods to ensure that persons under its control respect and apply the Rail Operational Procedures; and (c) to integrate best practice procedures into rail movements on the Studholme Milk Processing site.

33	In achieving the objectives described in condition 32, the Rail Operational Procedures shall include, but not be limited to, the following: (a) the nature and hours of the planned rail operations; and (b) best practice procedures, to ensure compliance with the noise limits specified in condition 26.
34	Rail movements shall not commence until: (a) the Waimate District Council has certified that the Rail Operational Procedures meet the objectives described in condition 32 and includes the matters described in condition 33; or (b) if the Waimate District Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Rail Operational Procedures shall be deemed to be certified.
35	Any subsequent amendment to the Rail Operational Procedures will require certification from the Waimate District Council in accordance with the procedure outlined in conditions 32 to 34 (as if the reference to the Rail Operational Procedures were references to the amendment).
36	No rail movements shall occur within the site between 1900 and 0700 unless suitable attenuation has been provided to ensure compliance with condition 26. That attenuation may include: (a) the construction of a bund along the eastern boundary of the site as shown on the plan titled *Concept Landscape Plan V2* attached to, and which forms part of this consent as **RMA150031B**; (b) the construction of any other attenuation device between the site and any dwelling located at 89 Foleys Road. ***Advice note:*** *The construction of an attenuation device in accordance with condition 36(b) that is on land not owned by the consent holder will require approval from the relevant land owner. Nothing in this consent authorises the consent holder to undertake those works or requires the landowner to provide its approval. The obligation on the consent holder is to ensure the limits in condition 26 are met.*
	Vehicle Noise
37	Vehicles owned or operated by the consent holder that operate in external (outdoor) areas that require audible reversing devices shall be fitted with a broadband or other device that minimises or avoids audible noise beyond the boundary of the site.

	Provision of Further Noise Insulation
38	In the event that following the commencement of this consent a residential dwelling is constructed or established in accordance with permitted activity rules: (a) on land not owned or controlled by the consent holder; and (b) within the dairy factory noise contour as shown in the plan titled *Dairy Factory Noise Contour* attached to, and which forms part of this consent as **RMA150031A**; then, should the indoor noise level at the residential dwelling exceed an internal night-time (1900-0700 hours) noise level of 35 dB $L_{Aeq(15min)}$, the consent holder shall offer to the dwelling owner further noise insulation or ventilation (at the consent holder's cost) that will ensure that a night-time (1900-0700 hours) internal noise level of 35 dB $L_{Aeq(15min)}$ is not exceeded. ***Advice note****: The obligation on the consent holder under this condition is to offer to fund further noise insulation or ventilation (if required) to meet an internal noise level not exceeding 35 dB $L_{Aeq(15min)}$. Nothing in this consent authorises the consent holder to undertake those works or requires the dwelling owner to provide approval.*
	Landscape and visual
39	The maximum height of: (a) Dryer 2 shall be no higher than 56 metres above the ground level, excluding a further allowance of an additional 3 metres above the building roof for 4 exhaust stacks; (b) the new boiler shall be no higher than 45 metres above the ground level; (c) the solid fuel-fired boiler stack shall be no higher than 68 metres above the existing ground level; (d) any building or storage facility associated with the Wastewater Treatment Plant shall be no more than 10m above ground level; and (e) all other buildings shall not exceed the heights shown in the elevations in Appendix B of Volume I of the application, as modified to show a reduced dry store area, the removal of Dryer 3 and the removal of a 50 MW boiler.
40	(a) The consent holder shall provide landscaping at the manufacturing site in general accordance with the plans titled *Concept Landscape Plan V4* and *Schematic Planting Detail – SH1 Frontage V4* attached to, and which form part of this consent as **RMA150031B**. (b) The consent holder shall undertake landscape planting around the anoxic tank and associated buildings or substantial structures at the wastewater treatment plant that have a height of more than 4 metres above existing ground level. The purpose of this landscape planting shall be to provide visual screening of these structures. A landscape plan of this planting shall be prepared and shall be provided to the Waimate District Council at least one month prior to the commencement of construction of the wastewater treatment plant.
41	All landscaping shall be completed during the first planting season (being the period beginning on 1 May and ending on 31 August) following the site becoming Operational.

42	Prior to planting the Landscaping Plans shall be given to Te Rūnanga o Waihao for comment on the proposed plant selection and landscaping. The consent holder shall have regard to any comments received when selecting and implementing the final Landscaping Plans.
43	All planting completed in accordance with condition 41 shall be maintained and any diseased or dead plant material shall be replaced within the next available planting season. This maintenance includes limbing all specimen trees planted along State Highway 1 and Foleys Road up to at least 3m above ground level as they mature.
44	Prior to the new dryer becoming Operational, earth bunds along the State Highway 1 and Foleys Road frontages (excluding any noise attenuation bund required along the eastern boundary of the site under condition 36) shall be constructed to the dimensions specified in the plans titled *Concept Landscape Plan V4* and *Schematic Planting Detail – SH1 Frontage V4* attached to, and which form part of this consent as **RMA150031B** and the Assessment included in Appendices D and D1 of Volume I of the application.
45	All bunds shall be planted with drought tolerant species within one month of the first appropriate planting season of their construction to prevent subsidence and dust emissions.
46	The colour of the exterior surfaces of the Milk Processing Plant shall be limited to Grey Friars (reflectively 8%), Coloursteel 'Gull Grey' (reflectivity 48%) and Titania (reflectivity 67%), with the exception of the Fonterra logo.
	Lighting/Glare
47	Two months prior to development commencing on the Milk Processing Plant the consent holder shall submit, for certification, a revised lighting plan (*Lighting Plan*) to the Waimate District Council. The revised lighting plan shall ensure that: (a) light spill at the site boundary does not exceed 3 lux; (b) exterior lighting is designed in accordance with the following standards: i. roadways – AS/NZS 1158.1.1 Cat V4; ii. parking areas - AS/NZS 1158.3.1 Cat P11A; iii. walkways - AS/NZS 1158.3.1 Cat P7; and iv. general outdoor work areas (e.g. loading/unloading) – AS/NZS 1680.5.
48	The mounting height for exterior lighting on poles or building structures shall not exceed 12m above ground, except for: (a) localised lighting on walkways and access facilities higher than 12 metres, which shall have automated control limiting operation to the duration of use; and (b) lighting associated with the rail loading and unloading area, which shall have lighting no higher than 15 metres above ground.
49	Exterior lighting for the railway spur shall be restricted to: (a) the area for loading or unloading activities; and (b) any time period where lighting is necessary for the loading or unloading activities.

50	Exterior luminaires shall be of a type and mounting that results in minimal output above the horizontal plane (e.g. roadway luminaires of AS/NZS 1158.3.1: 2005, type 5 or 6).
51	Emergency lighting on the outer stairs of Dryer 2 shall be automated so that it will only activate if there is a requirement to use the stairs.
52	Lamps for open area exterior lighting shall have an atmospheric refraction characteristic no greater than that of the high pressure sodium vapour type.
53	Operations shall not commence until: (a) the Waimate District Council has certified that the Lighting Plan meets the design requirements described in condition 47 and includes the matters described in conditions 48 to 52; or (b) if the Waimate District Council confirms receipt but then fails to provide any further response to the consent holder within a period of two months then the Lighting Plan shall be deemed to be certified.
	Archaeological and cultural
54	Prior to construction works associated with the pipeline (from the Waste Water Treatment Plant to the Ocean Outfall) the consent holder shall, in consultation with Te Rūnanga o Waihao, develop an archaeological survey plan for the purposes of informing the final design and the Construction Management Plan. The contents of the archaeological survey plan shall be approved by Te Rūnanga o Waihao.
55	If at any time during the site excavation authorised by this Consent potential historic artefacts or cultural remains or koiwi items are discovered then all earthworks within 20 metres of the discovery shall stop and the consent holder shall immediately advise the appropriate people at the Waimate District Council, Heritage New Zealand and Te Rūnanga o Waihao. In addition: (a) the consent holder shall engage an archaeological advisor approved by Te Rūnanga o Waihao to verify whether or not the objects form archaeological evidence; (b) further excavation work shall be suspended should Te Rūnanga o Waihao wish to carry out their procedures and tikanga for removing taonga; and (c) if an archaeological authority is required, work may only recommence once the written approval of Heritage New Zealand and Te Rūnanga o Waihao has been obtained and a copy provided to the Waimate District Council. Excavation work shall not recommence until approval to do so has been given by the Waimate District Council and Te Rūnanga o Waihao.

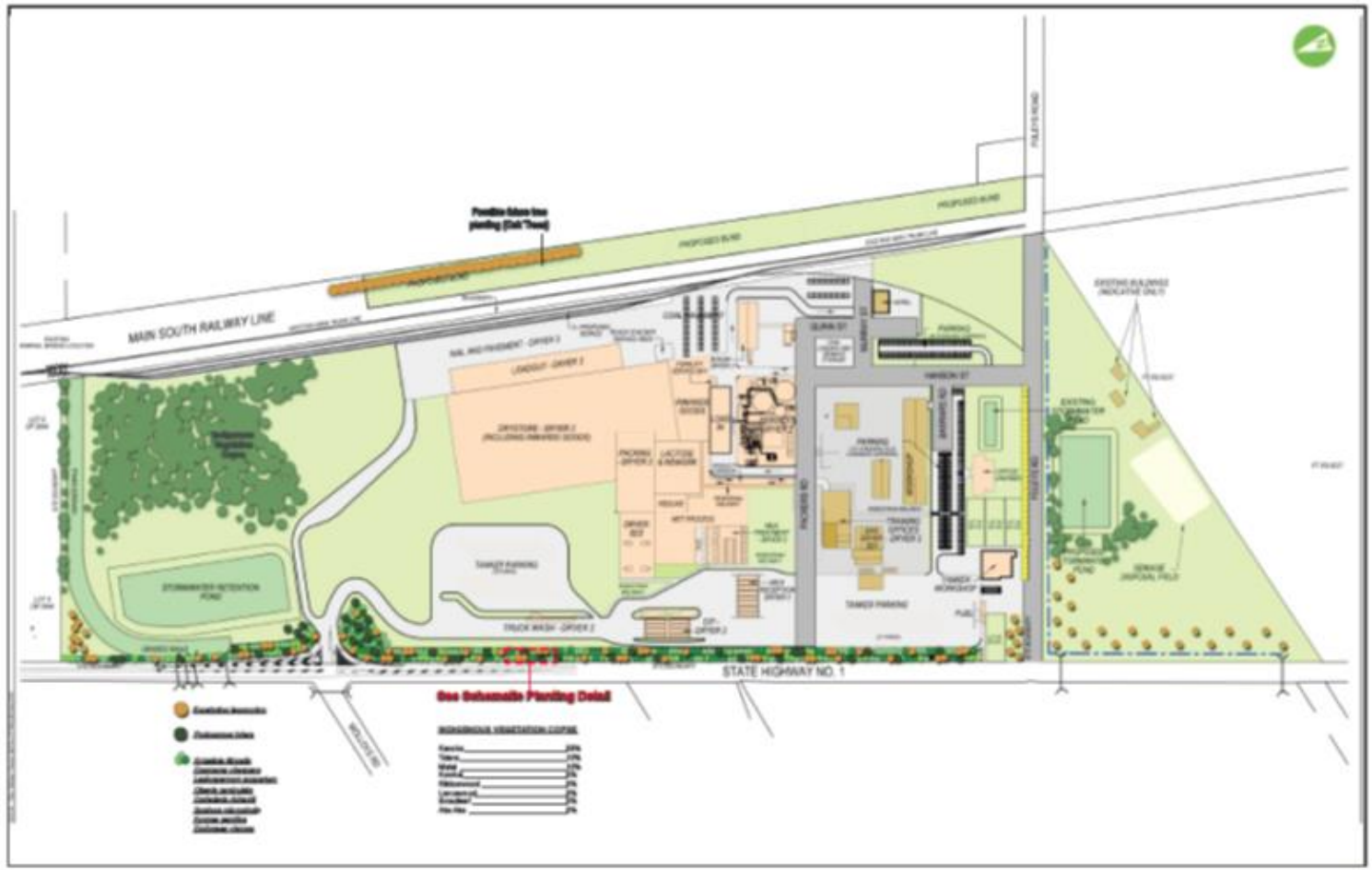
	Complaints Register
56	The consent holder shall maintain a Complaints Register for the purpose of recording and dealing with any complaints that are received by the consent holder in relation to the exercise of this resource consent. The Complaints Register shall record, where this information is available: (a) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
57	The Complaints Register shall be made available to the Waimate District Council (with a copy being provided to the Canterbury Regional Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
58	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
59	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.

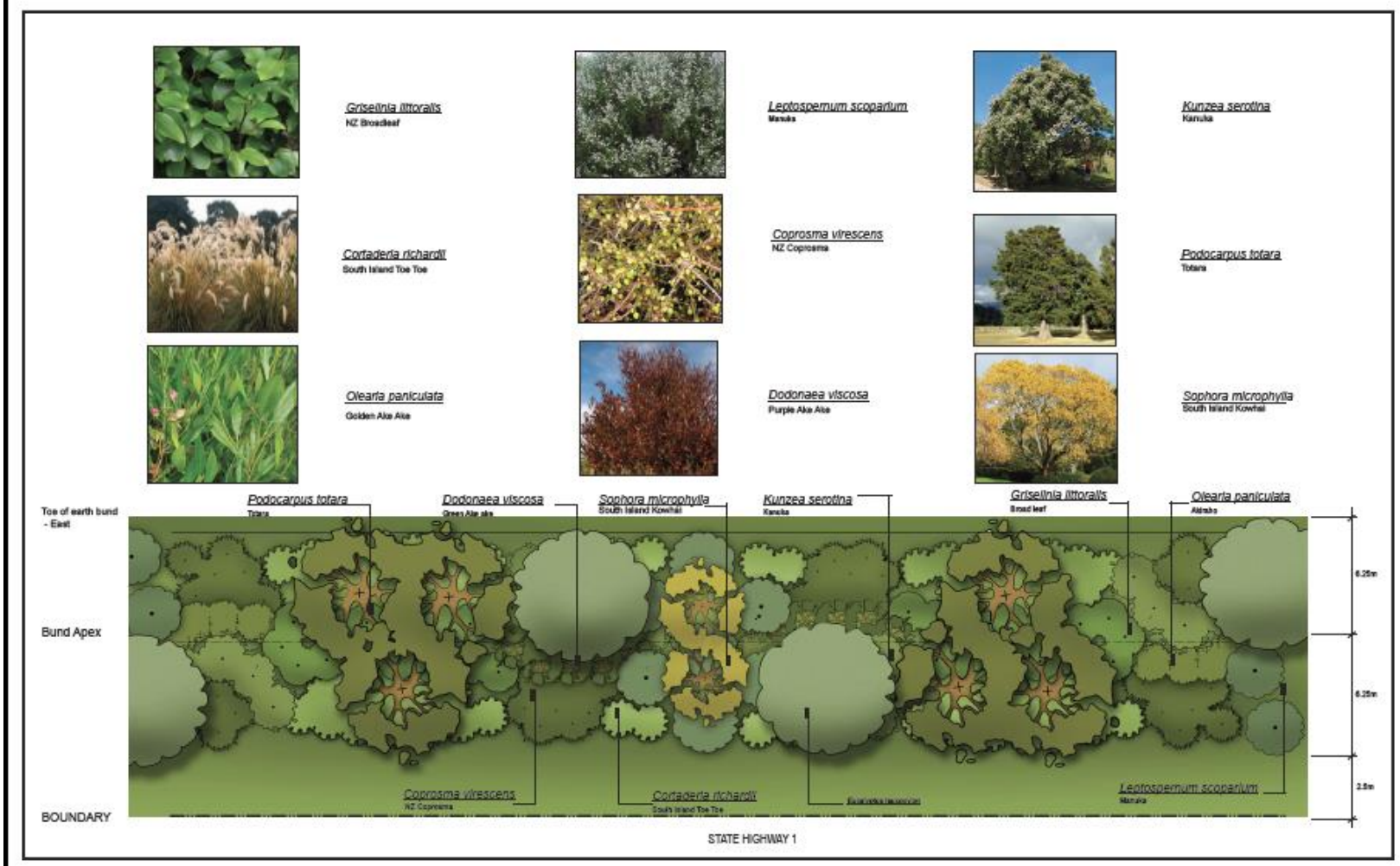
60	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
61	The Waimate District Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.
	Lapsing
62	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

RMA150031A – *Dairy Factory Noise Contour*

(from Volume 1, Appendix K, Figure 3 (report by Marshall Day Acoustics)

RMA150031B – *Concept Landscape Plan V4* and *Schematic Planting Detail – SH1 Frontage V4*

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Manuka
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Kanuka
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South Island Toe Toe
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NZ Coprosma
Podocarpus totara
Totara
Olearia paniculata
Golden Akeake
Dodonaea viscosa
Purple Akeake
Sophora microphylla
South Island Kowhai
Toe of earth bund - East
Bund Apex
BOUNDARY
6.25m
6.25m
2.5m
STATE HIGHWAY 1
ANDREWCRAIG
LANDSCAPE ARCHITECT LTD
DRAWING REVISIONS
INITIAL DATE
CLIENT NAME
FONTERRA
SCHEMATIC PLANTING DETAIL- SH1 Frontage V4

CANTERBURY REGIONAL COUNCIL
CRC160871

TO DISCHARGE CONTAMINANTS INTO AIR

GRANTS TO: Fonterra Limited

AN AIR DISCHARGE PERMIT: To discharge contaminants into air from a Milk Processing Plant (including a Wastewater Treatment Plant) and associated infrastructure

COMMENCEMENT DATE: [XXXXX]

EXPIRY DATE: 35 years from the commencement date

IN CONNECTION WITH: The Studholme Milk Processing Plant, Foleys Road, Waimate

This consent is subject to the following conditions.

	General Conditions
1	This consent shall not be exercised concurrently with resource consent CRC156721.
2	The Milk Processing Plant and associated works shall be constructed and operated generally in accordance with the information and site plans accompanying the application, submitted as additional information and expanded on at the hearing of the resource consent (as modified to show a reduced dry store area, the removal of Dryer 3 and the removal of a 50 MW boiler). Where there is inconsistency or ambiguity between that information and these conditions, the conditions shall prevail.
	Authorised Discharge Activities
3	The activities authorised by this resource consent shall be restricted to: (a) the discharge of contaminants to air resulting from the construction of Dryer 2 and the proposed expansion of the factory at State Highway 1, Studholme (at or about map reference NZTM :Easting: 1451560.85 / Northing: 5045750.87) including all other proposed site works described in the application; and (b) the discharge of contaminants to air resulting from the operation of: (i) two milk powder dryers with approximate production capacities of 5.5 tonnes per hour (Dryer 1) and 30 tonnes per hour (Dryer 2); (ii) three Coal and/or Wood Biomass fired thermal plants comprising of two 15MW boilers (Boilers 1 and 2) and a 65 MW boiler (Boiler 3) with a maximum combined net heat release when operating of 65 MW; (iii) general building heating and ventilation processes; (iv) cooling towers;

	(v) a Biological Wastewater Treatment Plant (for treating factory wastewater prior to the ocean outfall); and (vi) ancillary discharge to air and odours. ***Advice note:*** *Only one of the 15MW boilers may be run at maximum capacity at any time. The intent of the consent is for one of the 15MW boilers to be a standby boiler for the other 15MW boiler. One of the 15MW boilers may be fired up while the other is being cooled down or taken out of production.*
4	There shall be no offensive or objectionable: (a) odour; (b) particulate matter; or (c) other air discharge emission, As determined by a suitably experienced Council compliance officer, beyond the property boundary of the site or any property owned by the resource consent holder. ***Advice note:*** *An odour or particulate matter or other air discharge will only be considered offensive or objectionable after a Canterbury Regional Council officer has considered the frequency, intensity, duration, offensiveness and location of the odour, contaminant or particulate matter event (i.e. the FIDOL factors).*
	Operational Procedures
5	No later than two months prior to the commencement of air discharges from Dryer 2 or Boiler 3, the permit holder shall prepare and forward to the Canterbury Regional Council Air Discharge Operational Procedures, which shall detail the methods and procedures to be used to control discharges to air from the main site and the Wastewater Treatment Plant. The objectives of the Air Discharge Operational Procedures shall be: (a) to ensure that the air discharge activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensure appropriate mitigation or appropriate remediation is undertaken; and (c) to integrate good environmental practice into air discharge activities.
6	In achieving the objectives described in condition 5 the Air Discharge Operational Procedures shall include, but not be limited to, the following (a) management and operational procedures for cleaning, inspection, maintenance and monitoring, which are specific to the site's emission control systems; (b) operational procedures for air discharge management during system start up and shutdown or failure; (c) operational procedures for ensuring boiler optimisation and burner efficiency; (d) monitoring and reporting procedures; (e) procedures to monitor for baghouse failures and to manage contingency events; (f) ash handling procedures for all boilers; and

	(g) practices to ensure that odour and particulate matter discharges are maintained at the lowest practical levels.
7	Air discharge (as authorised by this resource consent) shall not commence until: (a) the Canterbury Regional Council has certified that the Air Discharge Operational Procedures meet the objectives described in condition 5 and include the matters described in condition 6; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Air Discharge Procedures shall be deemed to be certified.
8	Any subsequent amendment to the Air Discharge Operational Procedures shall be certified by the Canterbury Regional Council in accordance with the procedure outlined in conditions 5 to 7 (as if the reference to the Air Discharge Operational Procedures were references to the amendment).
9	Without limiting conditions 5 to 8 the Air Discharge Operational Procedures shall be reviewed at least once every two years. The consent holder shall ensure that a copy of any updated operational procedures is provided to the Canterbury Regional Council.
	Milk Powder Dryers
	Dryer 1
10	The Dryer 1 exhaust stacks shall have heights of not less than 31 metres above the local ground level and not less than 3 metres above the roof of the milk powder dryer building.
11	The minimum efflux velocity of exhaust air from each of the Dryer 1 exhaust stacks shall be no less than 13 metres per second when operating at the maximum continuous rating of the dryer.
12	The concentration of Total Suspended Particulate in any Dryer 1 stack discharge shall not exceed 25 milligrams per cubic metre corrected to zero degrees Celsius and 101.3 kilopascals on a dry gas basis.
13	The Dryer 1 Total Suspended Particulate emission rate (summed for all stacks associated with the dryer) shall not exceed 1.45 kg/hour.
14	The discharge to air from Dryer 1 shall be via bag filters. The outlets of the dryer bag filters shall each be fitted with a broken bag detector, and shall be alarmed to the Milk Processing Plant control room and set to ensure as far as practicable that any damage or deterioration to filter bags or other problems that could cause exceedance of the 25 milligrams per cubic metre total particulate emission standard is detected and that operators are advised immediately.
15	The consent holder shall install sampling port(s) in the dryer bag filter stack in accordance with Australian Standard AS4323.1-1995 or equivalent method for the provision and location of sampling ports, services, platforms and access.
	Dryer 2
16	The Dryer 2 exhaust stacks shall have heights of not less than 59 metres above the local ground level and not less than 3 metres above the roof of the milk powder dryer building.

17	The minimum efflux velocity of exhaust air from each of the Dryer 2 exhaust stacks shall be 14 metres per second when operating at the maximum continuous rating of the dryer.
18	The concentration of Total Suspended Particulate in each of the Dryer 2 stack discharges shall not exceed 15 milligrams per cubic metre corrected to zero degrees Celsius and 101.3 kilopascals on a dry gas basis.
19	The Dryer 2 Total Suspended Particulate emission rate (summed for all stacks) shall not exceed 5 kg/hour.
20	The discharge to air from Dryer 2 shall be via bag filters. The outlets of the dryer bag filters shall each be fitted with an in-stack particle meter, and shall be alarmed to the Milk Processing Plant control room and set to ensure as far as practicable that any damage or deterioration to filter bags or other problems that could cause exceedance of the 15 milligrams per cubic metre total particulate emission standard is detected and that operators are advised immediately.
21	The consent holder shall install sampling port(s) in the dryer bag filter stack in accordance with Australian Standard AS4323.1-1995 or equivalent method for the provision and location of sampling ports, services, platforms and access.
	Solid Fuel Fired Boilers
22	The solid fuel-fired boilers shall: (a) be operated such that the combined net maximum operating energy output is no greater than 65 megawatts; and (b) be fuelled by either coal and/or woody biomass material. The woody material shall not be treated with preservatives, impregnated with chemicals, or contain glues, paints, stains or added oils; and (c) be designed and installed such that they are capable of generating at least 20 percent of the total plant energy, being 13MW net output, from the burning of woody biomass.
23	Combustion gases from the boilers shall be: (a) discharged to air via bag filters, capable of achieving the PM_{10} emission concentration limits specified in conditions 27 and 30, and the particulate mass emission limits specified in conditions 28 and 31 (as might apply), and from two common boiler stacks: (i) stack one for the two 15MW boilers (Boilers 1 and 2), shall be a maximum of 1.5 metres inside diameter at its top and shall not terminate less than 50 metres above the local ground level; and (ii) stack two for the 65 MW boiler (Boiler 3), shall be a maximum of 3.03 metres inside diameter at its top and shall not terminate less than 68 metres above the local ground level; and (b) discharged from the stacks vertically into the air, and in a manner which is not impeded by any obstruction above the stack which decreases the vertical efflux velocity from that which would occur in the absence of such an obstruction.

24	The common boiler stack serving Boiler 1 and Boiler 2 shall have an efflux velocity at the combined maximum continuous rating of the two boilers of not less than 7 metres per second.
25	The boiler stack serving Boiler 3 shall have an efflux velocity at maximum continuous rating of not less than 15 metres per second.
26	Bypassing of the solid fuel-fired boilers' bag filters shall only occur: (a) in the event of an emergency situation such as if the flue gas temperatures are sufficiently high to damage filter bags but after boiler fuelling is stopped; (b) when drying out green refractory during commissioning of a boiler, following repairs to a boiler refractory, and during subsequent re-bricking, and only up to two days after commencing dry out at minimum output not exceeding 10 percent boiler capacity; (c) in the event of bag filter malfunction, providing the bypass shall not occur for more than two hours at any time; and (d) during start-up of a boiler until the flue gas temperature exceeds 140º Celsius but only at a minimum output not exceeding 10 percent of boiler capacity.
	Combined Boiler Stack 1 (two 15MW boilers)
27	The concentration of PM_{10} in the common boiler stack for the two 15MW boilers (Boiler Stack 1) shall not exceed 45 milligrams per cubic metre corrected to zero degrees Celsius and 101.3 kilopascals pressure on a dry gas basis, adjusted to 12 percent carbon dioxide or eight percent oxygen by volume, except when the bag filter is bypassed in accordance with condition 26.
28	The discharge of PM_{10} from Boiler Stack 1 shall not exceed 1.18 kg/hr.
29	The discharge of sulphur dioxide from Boiler Stack 1 (two 15MW solid fuel-fired boilers) shall not exceed 39.3 kilograms per hour when operating at maximum continuous rating. The sulphur dioxide discharge rate shall be calculated from the burning rate of the coal blend and the sulphur content of that coal blend.
	Boiler Stack 2 (65 MW boiler)
30	The concentration of PM_{10} in the boiler stack for the 65 MW boiler (Boiler Stack 2) shall not exceed 45 milligrams per cubic metre corrected to zero degrees Celsius and 101.3 kilopascals pressure on a dry gas basis, adjusted to 12 percent carbon dioxide or eight percent oxygen by volume, except when the bag filter is bypassed in accordance with condition 26.
31	The discharge of PM_{10} from the 65 MW boiler (Boiler Stack 2) shall not exceed 5.25 kg/hr.
32	The discharge of sulphur dioxide from Boiler Stack 2 (the 65 MW boiler) shall not exceed 139 kilograms per hour when operating at maximum continuous rating. The sulphur dioxide discharge rate shall be determined through in-stack monitoring.
33	In-stack monitoring of sulphur dioxide concentrations and combustion flow rates shall be undertaken in the boiler stacks. The meters shall be installed and operational from

	when the third boiler (65MW) is first operated. The method of sampling SO_2 concentrations shall comply with: (a) USEPA Method 6C "Determination of Sulphur Dioxide Emissions from Stationary Sources (Instrument Analyzer Procedure)" or equivalent standard, and (b) ISO 7935:1992 "stationary source emissions – determination of the mass concentration of sulphur dioxide – performance characteristics of automated measuring methods". Sulphur dioxide emission rates shall be calculated at all times the boilers are operated, using in-stack sulphur dioxide concentration and gas flow measurements. The data shall be calculated for each boiler stack as a one-hour average and as a 24-hour average.
	All Boilers
34	Each boiler shall have: (a) the outlet of the bag filter fitted with a particulate meter alarmed to the boiler control room so that the boiler operators can be advised of any bag failure as soon as practicable; and (b) the broken bag protector set to ensure, as far as practicable, that any damage or deterioration to filter bags or other problems that could cause an exceedance of the 45 milligrams per cubic metre PM_{10} emission standard is detected (corrected to zero degrees Celsius and 101.3 kilopascals pressure on a dry gas basis, adjusted to 12 percent carbon dioxide or eight percent oxygen by volume, as required by conditions 27 to 30).
35	During periods when a boiler bag filter is bypassed: (a) the dates and times that bag filter is bypassed and the reasons for the bypass shall be recorded and those records maintained; and (b) these records shall be made available to the Canterbury Regional Council on request and shall be included as part of the Annual Environmental Report required in accordance with condition 66.
36	Records shall be kept of: (a) the tonnage and type of solid fuel burned per month; (b) the average and maximum hourly rate of consumption of solid fuel based on both the average and maximum steam production rates; and (c) the average calorific value of the fuel used and if coal, the sulphur content by weight. This record shall be summarised in the Annual Environmental Report required in accordance with condition 66. The recorded data shall be retained and shall be made available to the Canterbury Regional Council on request.
37	Ash from the solid fuel-fired boilers shall be contained and managed to prevent the emission of fugitive dust and particulate matter.
38	After being brought on to the site, fuel for the solid fuel-fired boilers shall be covered (except for day bins attached to the boiler or any containers used to transport coal

	between the storage area and the boilers). All unloading of solid fuel on the site shall be completed within a solid roofed area.
	Monitoring Requirements for Boilers and Dryer Discharges
39	Any testing and analysis of samples required by virtue of the monitoring requirements of this resource consent shall be carried out by an organisation and laboratory accredited by International Accreditation New Zealand (IANZ) for the tests and analyses involved.
	Boilers
40	The concentration of PM_{10}, the concentration of condensable particulate matter and the concentration of sulphur dioxide, in combustion gas in any boiler stack or in the duct into any boiler stack shall be measured: (a) within four months of completing commissioning of Boiler 3 (65MW) and the associated bag filter and thereafter at least every 12 months to determine compliance with conditions 27 to 29, and conditions 30 to 32; and (b) when the tested boilers are operating at a rate of at least 75 percent of the applicable maximum continuous rating.
	Dryers
41	The concentration of total suspended particulate matter in each dryer emission stack shall be measured within six months after completing commissioning of Dryer 2 and its associated bag filter and thereafter at least annually.
	Monitoring Generally
42	The method of sampling and analysis for total particulate matter from the dryers shall be: (a) USEPA Methods 5 or 17, or ISO 9096:2003, ASTM D3685, or equivalent method, provided that such a methodology shall be provided to the Canterbury Regional Council on request; and (b) be based on a testing time of two hours continuous (within which at least three samples shall be collected).
43	The method of sampling and analysis for PM_{10} (including condensable particulate matter) from the boilers shall be: (a) USEPA Methods 201a and 202, or equivalent method, provided that such a methodology shall be provided to the Canterbury Regional Council on request; and (b) based on a testing time of two hours continuous (within which at least three samples shall be collected).
44	The method of sampling and analysis for sulphur dioxide from the boilers shall be: (a) USEPA Method 6, 6A, or 6C, or an equivalent method, provided that such a methodology shall be provided to the Canterbury Regional Council on request; and (b) be based on a testing time of one hour continuous (within which at least three samples shall be collected).

45	The: (a) volumetric flow of combustion gas and gas temperatures during each particulate and sulphur dioxide emission test shall be determined and recorded; and (b) for boiler emissions, oxygen (or carbon dioxide) concentrations in combustion gases shall be continuously monitored and recorded during each particulate and sulphur dioxide emissions test; and the results (as might apply) shall be presented as part of the particulate emission test report.
46	The results of the emissions tests and a description of the testing methods shall: (a) Be provided to the Canterbury Regional Council within 40 working days of the testing being completed; and (b) Be presented in summary form in the Annual Environmental Report.
	Waste Water Treatment Plant
	Design and performance requirements
47	The Waste Water Treatment Plant shall comprise: (a) an anoxic system to reduce the inflow nitrate level; (b) an aerated system where a number of micro-biologically mediated processes will occur in aeration tank(s) or pond(s); and (c) a clarification system where biomass (including biological organisms) generated in the processes described in condition 47(a) and (b) are separated from the waste water that is discharged; and (d) continuous removal of biomass (sludge) separated in accordance with condition 47(c) such that sludge is not stored on site without full containment or odour emission treatment for a period of more than 48 hours after removal.
48	The pipes delivering wastewater to the Waste Water Treatment Plant shall be flushed with clean water if the discharge to the Waste Water Treatment Plant is discontinued for a period of greater than 48 hours.
49	The dissolved oxygen concentration in the aerobic wastewater treatment system as required by condition 47(b) shall be continuously measured and recorded for all wastewater discharged from that system (as discharged for either further anoxic treatment or discharged to the ocean outfall).
50	The data collected under condition 49 shall be recorded electronically and this electronic data shall be supplied to the Canterbury Regional Council on request.
51	The consent holder shall maintain the aerobic wastewater treatment system as required by condition 47(b) within the following parameters: (a) the dissolved oxygen concentration in the aerobic wastewater treatment system by managing in-pond/in-tank aeration of the liquor such that the average dissolved oxygen concentration is not less than 0.7 grams oxygen per cubic metre of aerobic pond/tank liquor; and

	(b) the Food to Microbiological organisms (F:M) ratio shall be maintained in an average range of 0.05 to 0.2 kg BOD/kg MLSS/day (this number is calculated from the total number of bacteria in the system (MLSS times the reactor volume) and the Chemical Oxygen Demand (COD) or Biological Oxygen Demand (BOD)). dvice Note: MLSS means the Mixed Liquor Suspended Solids.
52	The aerobic wastewater treatment system as required by condition 47(b) shall: (a) be constructed such that the wetted area of any aerobic treatment pond(s) are sealed with an impervious layer so that there is no discharge to land from any pond(s); (b) have pond/tank liquor circulation (mixers) to evenly distribute dissolved oxygen throughout the pond/tank liquor.
53	Any anaerobic treatment process or device as required by condition 47(a) shall be fully enclosed. All air discharges from the treatment process or device shall be treated using best practice methods to ensure that there is no discharge of offensive or objectionable odour as determined by condition 4. *Advice note: Anoxic treatment processes (those parts of the process which have no oxygen for limited periods of time but form part of the treatment system) do not need to be enclosed provided compliance with condition 4 is achieved.*
54	The consent holder shall record and shall report to the Canterbury Regional Council on request the following wastewater treatment system daily, weekly and monthly summary data for the following monitoring parameters: (a) BOD and COD* (b) MLSS; (c) the F:M ratio; (d) dissolved oxygen levels in the aerated pond or tank liquor. *The applicant may use COD as a proxy for BOD once a statistical valid relationship is determined and demonstrated to the Canterbury Regional Council.
	Wastewater Treatment Plant and Odour Management Plan
55	No later than two months prior to the commencement of the air discharges authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council (with a copy being provided to the Waimate District Council), a Wastewater Treatment Plant and Odour Management Plan. The objectives of the Wastewater Treatment Plant and Odour Management Plan shall be: (a) to ensure that the operation of the Wastewater Treatment Plant complies with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken;

	(c) to provide methods to ensure that persons under its control respect and apply the Wastewater Treatment Plant and Odour Management Plan; and (d) to integrate good environmental practice into the operation of the Wastewater Treatment Plant and associated air discharge activities.
56	In achieving the objectives described in condition 55, the Wastewater Treatment Plant and Odour Management Plan shall include, but not be limited to, the following: (a) the management and operational procedures required to comply with the conditions of this resource consent that relate to the operation of the Wastewater Treatment Plant; (b) the training for staff to operate the Wastewater Treatment Plant (including the required response to any odour observations or complaints); (c) the frequency of monitoring odour observations and methods to be used (which shall be developed in consultation with the Canterbury Regional Council); (d) the identification of staff and contractor responsibilities; (e) process equipment inspection, maintenance, monitoring and recording; (f) procedures for responding to process contingencies; ***Advice note:*** *Any odour assessment observation methodology described in the Odour Management Plan shall conform to the techniques outlined in Schedule 2: Assessment of offensive and objectionable effects, (Source: Proposed Canterbury Air Regional Plan) or any equivalent or similar odour assessment methodology contained in a Canterbury Regional Plan.*
57	Air discharge (as authorised by this resource consent) shall not commence until: (a) the Canterbury Regional Council has certified that the Wastewater Treatment Plant and Odour Management Plan meets the objectives described in condition 55 and includes the matters described in condition 56; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Wastewater Treatment Plant and Odour Management Plan shall be deemed to be certified.
58	Any subsequent amendment to the Wastewater Treatment Plant and Odour Management Plan shall be certified by the Canterbury Regional Council in accordance with the procedure outlined in conditions 55 to 57 (as if the reference to the Wastewater Treatment Plant and Odour Management Plan were references to the amendment).

	Weather Station
59	Prior to the Wastewater Treatment Plant becoming operational, the Consent Holder shall install and operate instruments to continuously monitor and record wind speed and wind direction. The instruments shall be: (a) installed at a height of at least six metres above natural ground level and in accordance with AS 2923 – 1987 Ambient Air Guide for Measurement of Horizontal Wind for Air Quality Applications; (b) maintained in accordance with the manufacturer's specifications; and (c) record data using an electronic data logging system with an averaging time for each parameter of two minutes. The results shall be available to the consent holder in real time.
60	The meteorological data obtained under condition 59 shall be retained in the form of an electronic record for the duration of this resource consent and copies provided to the Canterbury Regional Council on request.
	Servicing
61	(a) All thermal heating plant shall be serviced at least once every year by a person competent in the servicing of such plant. The servicing shall include: (i) internal cleaning and replacement or repair of damaged equipment and services as necessary; (ii) adjustment of the air to fuel ratio to optimise energy efficiency and to minimise the emission of products of incomplete combustion; and (iii) adjustment and calibration of monitoring equipment to ensure it accurately reports the matters required under this consent. (b) Annual servicing reports shall be prepared and copies shall be provided to the Canterbury Regional Council on request. (c) Confirmation that this service has been undertaken and at least a summary of the service reports shall be provided in the Annual Environmental Report required by condition 66.
62	All filters shall be serviced in accordance with the manufacturer's recommendations. Servicing shall include but not be limited to: (a) inspection of all filter bags for general condition; and (b) replacement or repair of any defective bags.
63	(a) The Waste Water Treatment Plant shall be serviced at least once every year by a person competent in the servicing of such plant. The servicing shall include: (i) inspection of all equipment to ensure it is operating effectively (including the repair of any damaged equipment and services as necessary); (ii) adjustment of monitoring equipment to ensure it accurately reports the matters required under this consent.

	(b) Annual servicing reports shall be prepared and copies shall be provided to the Canterbury Regional Council on request. (c) Confirmation that this service has been undertaken and at least a summary of the service reports shall be provided in the Annual Environmental Report required by condition 66.
	Best practicable measures to avoid dust effects
64	Best practicable measures shall be used to avoid or mitigate the dispersal and deposition of dust resulting from construction activities beyond the property boundary. These dust control measures shall include, but are not limited to, the following: (a) application of water on exposed construction areas by water tanker and/or sprinkler systems during dry windy conditions; (b) restricting vehicle speeds to 20 kilometres per hour on unsealed surfaces; (c) restricting dust generating operations during strong wind conditions, in particular greater than a wind speed of 10 metres per second; and (d) rapid establishment of grass by "hydro-seeding" or similar methods on soil bunds and other unsealed areas following construction.
65	All boiler ash ('fly ash') from the three boilers shall, unless already wet, be passed through a pug mill or other similar process to ensure that dust emissions, while handling the ash on site, are avoided. There shall be no visible discharge of particulate matter from the ash handling areas.
	Annual Environmental Report
66	The consent holder shall provide an annual environmental report to the Canterbury Regional Council by 30 September each year. The report shall include, but not be limited to: (a) results of emission tests undertaken in relation to this consent over the previous processing season (from 1 August to 31 July inclusive); (b) a summary and interpretation of the data collected under the conditions of this resource consent; (c) a comparison of the results with results from previous years; (d) an explanation of any operational difficulties, changes or improvements made to the processes which could result in changes in effects; (e) the results of any test undertaken in relation to this consent that exceeds the relevant limit and the steps that were taken (or proposed to be taken within a timeframe for implementation) to correct any exceedance; and (f) a summary of any complaints received regarding discharges to air and any action taken in response to those complaints; and (g) details of dust control measures and monitoring included in the construction management plan.
	Complaints Register
67	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
68	The Complaints Register shall be made available to the Canterbury Regional Council (with a copy being provided to the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
69	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
70	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
71	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.

	Review (section 128 of the RMA)
72	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or (c) requiring monitoring in addition to, or instead of, that required by the consent; or (d) requiring ambient monitoring of sulphur dioxide for a period of at least one year in the event that there is a change to any national environmental standard (NES) or ambient air quality guideline set by the New Zealand Government or the Canterbury Regional Council that sets a guideline or standard for sulphur dioxide of less than or equal to 50µg/m^3 (24-hour average), if the boiler plant is fired on coal; or (e) requiring measures to reduce sulphur dioxide emissions from the solid fuel-fired boiler plant when fired on coal to a level that is predicted to comply with the standard or air quality guideline described in condition 72(d).
	Lapsing
73	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

CANTERBURY REGIONAL COUNCIL
CRC160874

TO DISCHARGE DOMESTIC WASTEWATER TO LAND

GRANTS TO: Fonterra Limited

A DISCHARGE PERMIT: To discharge domestic wastewater to land

COMMENCEMENT DATE: [XXXXX]

EXPIRY DATE: 35 years from the commencement date

IN CONNECTION WITH: The Studholme Milk Processing Plant, Foleys Road, Waimate

This consent is subject to the following conditions.

	Interpretation
1	For the purposes of this consent: • **Domestic Wastewater** *means* wastewater from ablution blocks including toilets, showers and hand basins; and wastewater from kitchen facilities. • **Qualified Person** *means* a person who holds a relevant tertiary qualification and who has expertise in environmental investigation and environmental sampling, or a person who has such experience and expertise to be equivalent to that qualification and expertise. The consent holder shall provide evidence of the person's qualifications, experience and expertise on request from the Canterbury Regional Council.
	Volume
2	The discharge shall be only Domestic Wastewater as defined in condition 1.
3	The volume of Domestic Wastewater discharged shall not exceed 8 cubic metres per day averaged over any 30 consecutive days.
4	For the purposes of demonstrating compliance with condition 3 the volume of Domestic Wastewater entering the land application system shall be continuously measured by a flow meter.
5	The flow meter specified in condition 4 shall be located at a point following exit from the treatment system and before discharge into the land application system and calibrated annually to a margin of error of ± ten percent.
	Design
6	The discharge shall be only into land as shown on site plan **CRC160874A,** attached to, and which forms part of, this resource consent.

7	The Domestic Wastewater shall be treated in a membrane bioreactor treatment system (MBR), Packed Bed Reactor (PBR) or an alternative wastewater treatment system that provides the same or better quality of treatment.
8	The Domestic Wastewater treatment system shall be fitted with an alarm to alert the consent holder to power failure or high water levels.
9	After exiting the Domestic Wastewater treatment system, the wastewater shall be discharged via a land application system: (a) the land application system shall include an area of at least 3,900 square metres for disposal through sub-surface drip irrigation with soil moisture monitoring capable of determining when the soil has reached field capacity; (b) lines of drip irrigation tubing shall be at least one metre apart; (c) the drippers on the drip irrigation tubing shall be spaced at intervals not more than 600 millimetres apart; (d) the Domestic Wastewater shall be discharged at a loading rate not exceeding 2.5 millimetres per day, with an average loading rate not exceeding 2 millimetres per day calculated as a monthly rolling average; (e) the drip irrigation tubing shall be covered with between 100 and 200 millimetres of soil; (f) the soil above the drip irrigation tubing shall be planted with grass. The grass shall be maintained in a healthy state. Replanting shall occur as soon as practicable when erosion or die-off has resulted in bare or patchy soil cover; and (g) the land application system shall be fenced to exclude stock.
10	Prior to the installation of the sewage disposal field, a suitably qualified person shall undertake a review of the land application area and the proposed system design and prepare a Design Report that demonstrates: (a) the design specifications described in condition 9 have been met or exceeded; and (b) the soil conditions found and proposed design are capable of meeting the conditions of this consent. The consent holder shall provide a copy of the Design Report to the Canterbury Regional Council (with a copy being provided to the Waimate District Council)
11	The discharge of Domestic Wastewater (as authorised by this resource consent) shall not commence until: (a) the Canterbury Regional Council has certified that the Design Report and proposed land application system is capable of meeting the design criteria described in condition 9; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Design Report shall be deemed to be certified.
12	Following installation, a certificate shall be provided to the Canterbury Regional Council within one month of completion of the Domestic Wastewater treatment and land application system signed by a suitably qualified person who has experience of

	designing and installing domestic wastewater treatment systems, certifying that the system has been designed and installed in accordance with conditions 6 to 11.
13	The disposal field shall be constructed to have a minimum upper ground level height of 12.8m AMSL.
14	The soil moisture in the land application area shall be monitored daily (using the soil moisture equipment required by condition 9(a). The results of this monitoring shall be recorded and made available to the Canterbury Regional Council on request.
15	The discharge shall avoid any Domestic Wastewater being visible at the land surface. If Domestic Wastewater is visible at the land surface or the soil moisture monitoring as required by condition 9(a) shows that the soil has reached field capacity, the consent holder shall immediately cease discharge and may only recommence discharge at a time when: (a) Domestic Wastewater is no longer visible at the land surface; and (b) The soil is no longer at field capacity; *Advice note: As an alternative, the consent holder may remove the Domestic Wastewater off site (for disposal through an authorised disposal system).*
16	The discharge shall not result in odour that is offensive or objectionable, as determined by a suitably experienced Council compliance officer, beyond the property boundary of the site or any property owned by the resource consent holder. ***Advice note:*** *An odour may be considered offensive or objectionable after a Canterbury Regional Council officer has considered the frequency, intensity, duration, offensiveness and location of the odour (i.e. the FIDOL factors).*
17	(a) There shall be no discharge to land within 20 metres of any permanent surface water body. (b) There shall be no discharge to land within 15 metres of the property boundary to the south of the disposal field.
18	There shall be no discharge directly to a surface water body.
19	The Domestic Wastewater treatment system and land application system shall be serviced at least once every six months or sooner determined by conditions on site, by a suitably Qualified Person who has experience of designing and installing Domestic Wastewater treatment systems. The servicing shall include, but shall not be limited to: (a) flushing and cleaning if necessary; (b) inspecting the filters and cleaning if necessary; (c) checking that the pump is working and replacing the pump as required; (d) checking the electrical equipment is working and replacing as necessary; and (e) checking the alarm system is working and replacing as necessary.
20	Following every service, a written report shall be prepared and kept by the consent holder (for the preceding 3 years). In addition, the consent holder shall keep written records of all repairs made to any part of the wastewater treatment and land application system.

21	The consent holder shall forward a copy of the written reports and records of repairs to the Canterbury Regional Council on request.
	Domestic Wastewater Operations Manual
22	No later than two months prior to operation of the Domestic Wastewater treatment system, the consent holder shall prepare and submit to the Canterbury Regional Council a Domestic Wastewater Operations Manual. The objectives of the Domestic Wastewater Operations Manual shall be to: (a) to ensure that the operation of the Domestic Wastewater system and land disposal system complies with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to provide methods to ensure that persons under its control respect and apply the Domestic Wastewater Operations Manual; and (d) to integrate good environmental practice into the operation of the Wastewater Treatment Plant and associated air discharge activities.
23	In achieving the objectives described in condition 22, the Domestic Wastewater Operations Manual shall include, but not be limited to: (a) a description of the wastewater treatment system; (b) procedures to ensure the efficient operation of the treatment and land application system; (c) methods of pasture management, including the harvesting and removal of grass from the land application system; (d) monitoring and reporting procedures including contingency plans for system malfunctions and breakdowns; (e) a list of the sampling required and how the records will be maintained. (f) a description of the reporting requirements as set out in this resource consent.
24	The Domestic Wastewater discharge shall not commence until: (a) the Canterbury Regional Council has certified that the Domestic Wastewater Operations Manual meets the objectives described in condition 22 and includes the matters described in condition 23; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then Domestic Wastewater Operations Manual shall be deemed to be certified.
25	Any subsequent amendment to the Domestic Wastewater Operations Manual will require certification from the Canterbury Regional Council in accordance with the procedure outlined in conditions 22 to 24 (as if the reference to the Domestic Wastewater Operations Manual were references to the amendment).
26	The consent holder shall ensure that prior to discharge of Domestic Wastewater:

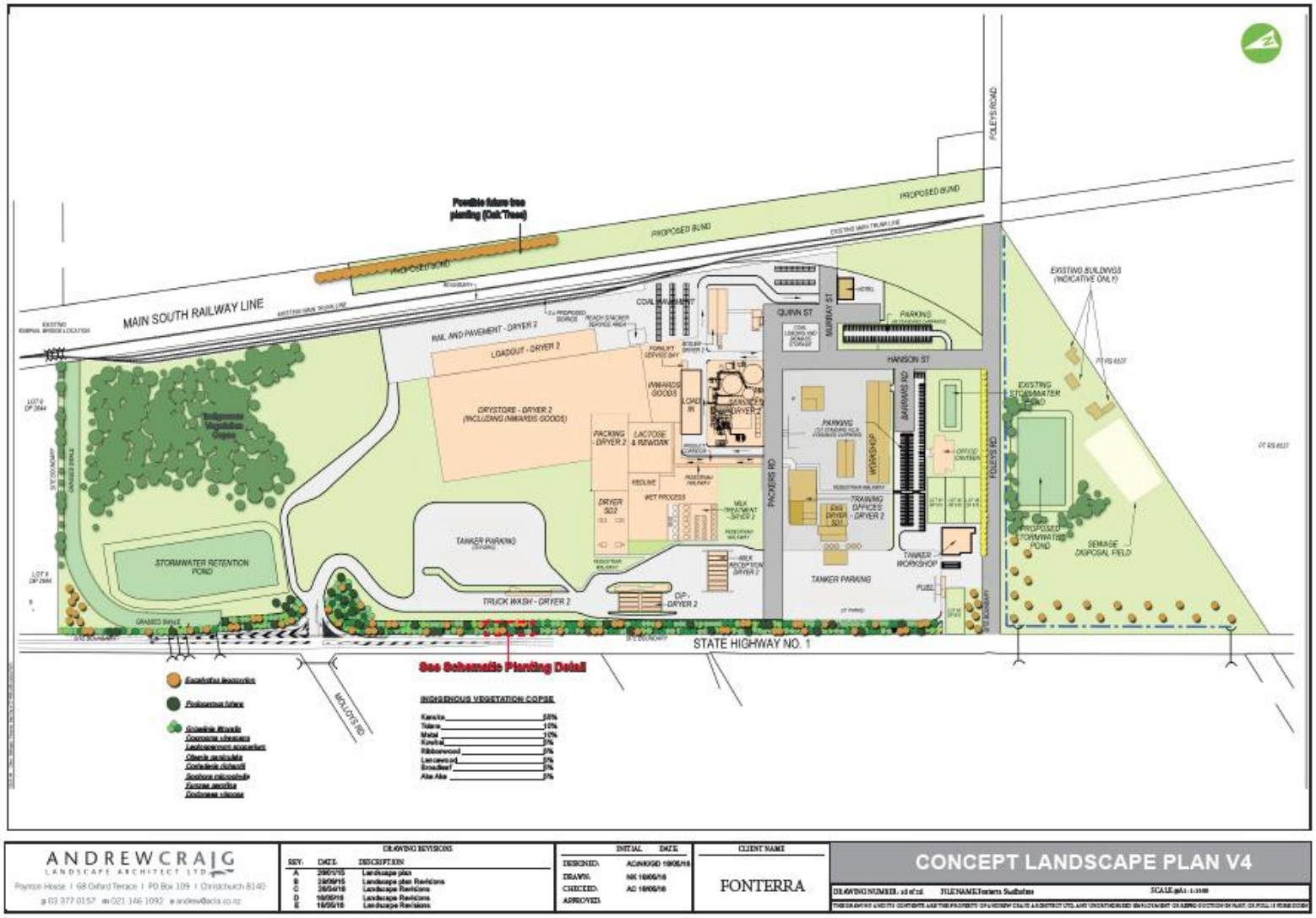
	(a) a drainage channel is formed along Foleys Road in accordance with the blue dashed line shown on the plan titled *Concept Landscape Plan V4* attached to, and which forms part of this consent (plan **CRC160874)** to divert flood waters from the western side of State Highway 1 away from the land application site; (b) topsoil is used to level off depressions in the land application site and/or to cover the disposal lines in accordance with condition 9(e) and (f), ensuring minimal compaction when this is undertaken; (c) if any pans or excessive compaction are observed at the land application site, subsoil is mechanically loosened; and (d) any material encountered relating to the historic railway use of the land application site that may negatively impact the performance of the disposal system is excavated and backfilled with topsoil.
	Monitoring
27	Records shall be kept of the following and supplied to the Canterbury Regional Council on request: (a) daily records of the volume of Domestic Wastewater discharged to land and the depth of rainfall (if any); (b) the wastewater nitrogen and phosphorous loading rates expressed as kilograms per hectare per year; and (c) the estimated quantity of pasture (kilograms dry weight) removed from the land application system area.
28	Representative samples of treated Domestic Wastewater shall be taken from a point following exit from the wastewater treatment system and before discharge into the land application system. The samples shall be taken by a qualified person at the following frequencies: (a) at least once every 30 days for the first 12 months following commencement of the discharge authorised by this consent; and (b) at least once: (i) every three months thereafter; or (ii) following any exceedance of the trigger values in condition 30, at least once every 30 days for the six months (at which time, if no further exceedances occur, sampling can continue in accordance with condition 28 (b)(i).
29	All samples taken in accordance with condition 28 shall: (a) be maintained prior to analysis by the most appropriate generally accepted method that ensures that the analysis result is representative of the wastewater at the time of sampling; (b) be analysed for: (i) BOD5; (ii) Faecal coliforms; (iii) Total suspended solids;

	(iv) Total nitrogen; (v) Total phosphorus. (c) any testing and analysis of samples required by virtue of the monitoring requirements of this resource consent shall be carried out by an organisation and laboratory accredited by International Accreditation New Zealand (IANZ) for the tests and analyses involved.
30	The results of the analyses carried out in accordance with conditions 28 to 29 shall be compared to the following trigger values: (a) a median of 20mg/L BOD5 in any 10 consecutive samples and a maximum of 35mg/L BOD5 in any one sample; (b) a median for faecal coliforms of 100cfu per 100ml sample in any five consecutive samples and a maximum of 1000cfu per 100ml in any one sample; (c) a median of 30mg/L total suspended solids (TSS) in any 10 consecutive samples and a maximum of 45mg/L TSS in any one sample; (d) no more than one sample over 25mg/L total nitrogen in any 10 consecutive samples; and (e) no more than one sample over 5mg/L total phosphorus in any 10 consecutive samples.
31	If any of the results of the sampling carried out in accordance with conditions 28 and 29: (a) exceed the trigger values in condition 30, the consent holder shall, within three working days of receiving the results, take another sample of the treated wastewater in accordance with condition 28 and have it analysed in accordance with condition 29. (b) If the results of the additional sampling and analysis carried out in accordance with condition 31(a) exceed the trigger values in condition 30, the consent holder shall immediately inspect, service, repair and/or modify the treatment system, as required, to reduce the concentration of water quality parameters in the discharge to less than the trigger values set out in condition 30.
	Annual Environmental Report
32	The consent holder shall provide an annual report to the Canterbury Regional Council by 30 September each year. The report shall include, but not be limited to: (a) a summary and interpretation of the data collected under the conditions of this resource consent; (b) an identification and discussion of any trends in results; (c) a comparison of the results with results from previous years; (d) an explanation of any operational difficulties, changes or improvements made to the processes which could result in changes in effects; and (e) if applicable, an outline of any measures undertaken to mitigate any adverse environmental effects to prevent a reoccurrence and comment on the effectiveness of these measures.

	Complaints Register
33	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
34	The Complaints Register shall be made available to the Canterbury Regional Council (and the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
35	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
36	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.

37	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
38	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.
	Lapsing
39	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

CRC160874 – *Concept Landscape Plan V4*



CANTERBURY REGIONAL COUNCIL
CRC160872

TO DISCHARGE STORMWATER

GRANTS TO:	Fonterra Limited
A DISCHARGE PERMIT:	To discharge stormwater to land and water
COMMENCEMENT DATE:	[XXXXX]
EXPIRY DATE:	35 years from the commencement date
IN CONNECTION WITH:	The Studholme Milk Processing Plant, Foleys Road, Waimate

This consent is subject to the following conditions.

	General
1	This consent shall not be exercised concurrently with resource consent CRC156714.
	Limits
2	The discharge of stormwater to land and surface water shall be only from roofs, impervious areas, carparks, roads and hard standing areas within the Fonterra Milk Processing Plant site (including the Wastewater Treatment Plant), State Highway 1, Studholme: (a) as shown on attached Plans **CRC1160872A** (*Location Map*)**, CRC1160872B** (*Concept Landscape Plan V4*) and **CRC116872C** (*Stormwater System Design and Operation*), attached to and which form part of this consent; (b) at or about map reference NZTM: Easting: 1451495.04 / Northing: 5045713.59.
3	Stormwater, following treatment through a wetland, may be discharged to Waimate Creek at or about map reference NZTM:Easting: 1452028.70 / Northing: 5044663.74, at a maximum discharge rate of 30 litres per second.
4	Treated stormwater discharges from the wetland to Waimate Creek shall not: (a) exceed 50 mg/L total suspended solids at the discharge point to the creek; (b) cause a reduction of visual clarity of Waimate Creek by more than 20 percent. (i) visual clarity shall be measured 10 metres upstream of the discharge point and 120 metres downstream using a clarity tube, or other approved visual or electronic measuring device approved by the Canterbury Regional Council; (ii) The difference between the upstream and downstream measurement shall be expressed as a percentage change to the upstream clarity measurement.

	Stormwater System
5	At least two months prior to construction of the stormwater system, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager (the Manager), design plans relating to the stormwater collection, treatment and disposal system.
6	The SH1 and rail crossings shall be upgraded as follows: (a) Rail crossing: (i) 4 box culverts, each with a 2.4m span x 1m rise; or (ii) any other dimensions that provide the same or increased flow rates; (b) SH1 crossing: (i) 2 box culverts, each with a 2.4m span x 1.2m rise; or (ii) any other dimensions that provide the same or increased flow rates; (c) Molloys road crossing: (i) 1 culvert, a minimum of 600 mm in diameter (as part of the SH1/Molloys Road upgrade); provided that the SH1 road crest in the vicinity of the intersection with Molloys Road shall also be raised to a minimum 9.7m above mean sea level.
7	In developing the final design of the culverts referred to in condition 6, the consent holder shall consult with Te Rūnanga o Waihao with regard to ensuring fish passage is maintained in the final design. ***Advice note**: The final design is conditional on approval from the New Zealand Transport Agency or the local roading authority (as might apply).*
8	Stormwater from roofs, hardstand, pervious areas and roads north of Packers Road (non-legal road), as shown on site layout plan CRC160872B, which forms part of this consent, shall be discharged to the North Pond as follows: (a) roof stormwater shall discharge directly to the North Pond; (b) grassed areas shall discharge to the North Pond forebay (first flush basin); (c) hardstand areas, excluding any refuelling catchments, shall discharge by way of a grit interceptor, to the North Pond forebay; (d) the tanker queuing and parking area shall discharge by way of a grit interceptor, to the North Pond forebay; (e) vehicle refuelling catchments shall discharge to the North Pond forebay by way of an oil/water separator; (f) any spills on the tanker queuing area shall be directed by way of a catchment isolating valve, to a 50 cubic metre isolation tank or lined pond. The contents of this tank shall only be discharged to the wastewater treatment plant after any significant spill material has been removed for authorised off-site disposal.
9	The oil separator specified in condition 8(e) shall be of an American Petroleum Institute type, or equivalent, designed to retain no less than 2,500 litres of diesel fuel in a one hour duration 10 percent Annual Exceedance Probability rainfall event. The American Petroleum Institute interceptor, or equivalent, shall be capable of reducing the

	concentration of total petroleum hydrocarbons in the discharge to below six milligrams per litre in the discharge, as measured by the American Society for Testing and Materials (ASTM) Method D4281 or American Public Health Association (APHA) 5520B.
10	Stormwater from roofs, hardstand, pervious areas and roads south of what was known as Packers Road (non-legal road), as shown on site layout plan CRC160872B, shall be discharged to the South Pond.
11	The stormwater attenuation and treatment ponds shall be constructed as follows: (a) North Pond as shown on plan CRC160872C, which forms part of this consent: (i) shall have sufficient capacity, including the pumped discharge to the Hannaton Road attenuation ponds, of one cubic metre per second, to attenuate stormwater discharges, from all contributing catchments, for all rainfall events up to and including a one percent annual exceedance probability four day rainfall event; (ii) have a forebay that is an additional volume of 10 percent of the design volume of the North Pond; (b) South Pond, as shown on plan CRC160872C, shall have sufficient capacity, including pumped discharge to the Hannaton Road attenuation ponds of 0.15 cubic metre per second, to attenuate stormwater discharges, from all contributing catchments, for all rainfall events up to and including a two percent annual exceedance probability four day rainfall event; (c) the Hannaton Road stormwater attenuation ponds shall consist of three connected ponds, stormwater flowing sequentially from pond one to pond three: (i) the three ponds shall have a total capacity to attenuate stormwater flows from all contributing catchments for all rainfall events up to and including a two percent annual exceedance probability four day rainfall event; (ii) pond three shall have two discharge points as follows: a. to the wetland such that the wetland discharge rate (from the wetland to Waimate Creek) does not exceed 30 litre per second; and b. to the ocean outfall discharge pipe such that the maximum discharge rate to the ocean outfall (including treated wastewater) does not exceed the maximum consented discharge rate for the outfall. (d) The wetland shall be designed and constructed to include, but not be restricted to, the following criteria: (i) a two day stormwater retention time; (ii) a length to width ratio of 10:1; (iii) an operating depth of 0.25 metres but may have some benching to one metre depth; (iv) wetland vegetation porosity of 0.75;

	(v) a base flow of at least 3 litres per second or such lesser flow that can be demonstrated to be sufficient to ensure that a sufficient water body is maintained; (vi) have a single outlet to Waimate Creek. ***Advice note:*** *The application proposed a 9000 cubic metre North Pond volume plus a 900 cubic metre forebay, a 5900 cubic metre South Pond Volume and a total attenuation capacity of 72,000 cubic metres for the Hannaton Road storage ponds.*
12	Prior to undertaking any works associated with the wetland the consent holder shall prepare draft wetland design based on the criteria in condition 11(d) above: (a) the draft wetland design shall be provided to the Te Rūnanga o Waihao for comment; and (b) the draft wetland design and Te Rūnanga o Waihao comments (if any) shall be provided to the Canterbury Regional Council (Biodiversity Division).
13	Works associated with the wetland shall not commence until: (a) the Canterbury Regional Council has certified that the design meets the requirements described in condition 11(d); or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the wetland design shall be deemed to be certified.
	Maintenance
14	All attenuation ponds shall be maintained such that the vegetation is as far as possible maintained in a healthy and uniform state. This maintenance may include but not be limited to: (a) where required, the removal of any cut vegetation; (b) where erosion or significant die-off has resulted in bare or patchy vegetation cover, replanting of vegetation, at least annually; and (c) removal of any accumulated sediment such that the attenuation capacity is maintained at least 90 percent of the design capacity.
15	(a) The oil separator and grit interceptors shall be inspected at least once every month. At a minimum the interceptors shall be cleaned out three monthly and after spills of greater than 50L. (b) All sediment and/or accumulated hydrocarbon in the separator and grit interceptors shall be removed when it occupies more than one quarter of the storage volume.
	Reporting
16	The parameters specified by condition 4 shall be measured and recorded weekly when discharges are occurring. These records shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring Manager, on request.
17	Within ten working days of the installation of the stormwater system a certificate shall be provided to the Canterbury Regional Council, attention: RMA Compliance and Monitoring Manager, to certify that the stormwater system complies with the conditions

<table>
<tr><td></td><td>of this consent. The certificate shall be signed by a Chartered Professional Engineer (CPEng) with stormwater system construction experience. This CPEng shall also sign a statement confirming that they are competent to certify the engineering work.</td></tr>
<tr><td>18</td><td>The consent holder shall keep electronic records of all inspections and maintenance carried out and make these available for inspection by the Canterbury Regional Council on request. If requested the consent holder shall provide a written report to the Canterbury Regional Council summarising the inspections and maintenance carried out for the previous twelve months. The report shall include but not be restricted to:
(a) maintenance and repairs made to any part of the stormwater management system; and
(b) information that demonstrates compliance with this consent.</td></tr>
<tr><td>19</td><td>The base of all stormwater attenuation ponds shall be sampled as follows:
(a) at least once every ten years and within six months prior to the expiry of this consent, representative soil samples shall be taken from two locations within each stormwater attenuation pond (the area of lowest elevation) at a depth of between zero and 50 millimetres below the ground surface; and
(b) soil samples shall be analysed in milligrams per litre (mg/L) using the United States Environmental Protection Agency method 1312, Synthetic Precipitation Leaching Procedure (SPLP), using reagent water, by a laboratory accredited by Telarc for the appropriate methods.</td></tr>
<tr><td>20</td><td>The results of analyses undertaken in accordance with Condition 19 shall be compared against the following trigger concentrations:
<table>
<tr><td>Contaminant</td><td>Leachate Trigger Concentration (milligrams per litre)</td></tr>
<tr><td>Total Copper</td><td>40</td></tr>
<tr><td>Total Lead</td><td>0.2[1]</td></tr>
<tr><td>Total Zinc</td><td>30[2 T]</td></tr>
<tr><td>Benzo(a)pyrene</td><td>0.014[1, 4]</td></tr>
<tr><td>Total Petroleum Hydrocarbons;</td><td></td></tr>
<tr><td>C7-C9</td><td>360[3]</td></tr>
<tr><td>C10-C14</td><td>7[3]</td></tr>
<tr><td>C15-C36</td><td>14</td></tr>
</table>
(1) 20 x MAV (Maximum Acceptable Value) for determinand of health significance
(2) 20 x GV (Guideline Value) for aesthetic determinand
(3) 20 x Adopted guideline value sourced from MfE Oil Industry Guidelines 1999 (Table 5.2)
(4) The leachate Trigger Value relates to Benzo[a]pyrene only (not Benzo[a]pyrene equivalent concentration).</td></tr>
<tr><td>21</td><td>If any of the trigger concentrations listed in condition 20 are exceeded, the soils shall be considered to be contaminated. Within 60 working days of receiving the results of analyses undertaken in accordance with condition 19 that show contaminated soils:</td></tr>
</table>

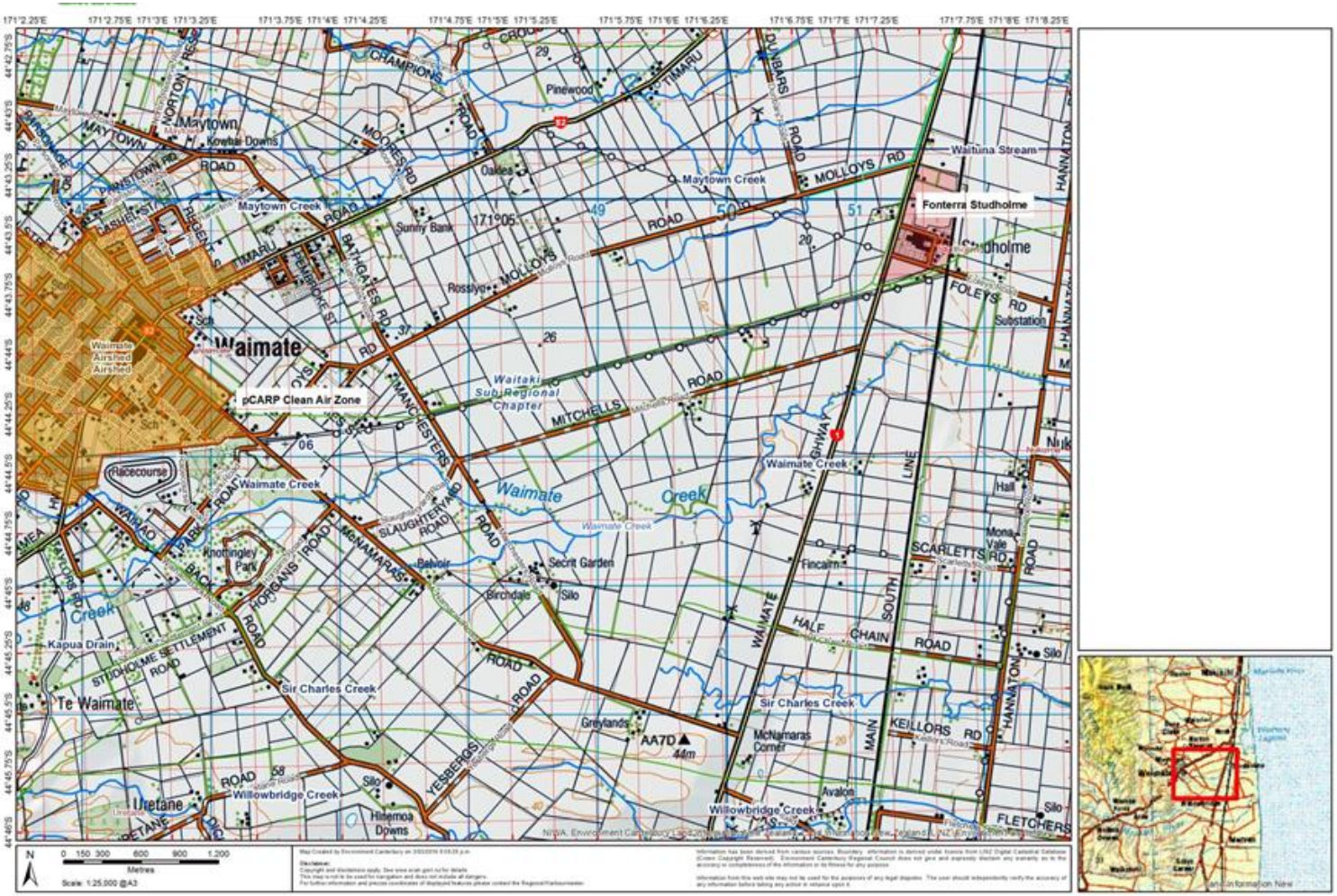
	(a) additional sampling shall be carried out to determine the lateral and vertical extent of contamination, with respect only to the contaminant(s) that exceeded a trigger concentration, in accordance with condition 20; (b) all contaminated soils identified in accordance with condition 21(a) shall be removed; and (c) the stormwater treatment system component shall be reconstructed in accordance with condition 5 and conditions 8 to 11.
22	Any material removed in accordance with condition 21(b) shall be disposed of at a facility authorised to receive such material, and the consent holder shall provide the Canterbury Regional Council, Attn: RMA Compliance and Monitoring Manager, with written confirmation of such disposal within 10 working days.
23	Any soils imported on site to backfill any excavation as a result of condition 21(b) shall not be sourced from: (a) a site where activities included in Schedule 3 of the Canterbury Land and Water Regional Plan or the Ministry for the Environment's Hazardous Activities and Industries list have been, or are being, undertaken; or (b) any site on the Listed Land Use Register, unless the soil has been analysed for the appropriate contaminants and has been shown to be not contaminated, defined as at or below background concentrations and residential use guideline values.
24	In the event of a spill of a hazardous substance within the site, the consent holder shall: (a) take all practicable measures to prevent the hazardous substance being further discharged into land or water; and (b) collect and remove the hazardous substance and any contaminated material as soon as practicable.
25	Any contaminated material, resulting from a spill as specified in condition 24 and removed from the site, shall be disposed of at a facility authorised to receive such material. The consent holder shall provide the Canterbury Regional Council with written confirmation of such disposal within 10 working days of the disposal (with a copy being provided to the Waimate District Council).
26	In the event of a spill of more than 50 litres or 50 kilograms of a hazardous substance on site, the consent holder shall record and provide to the Canterbury Regional Council (with a copy being provided to the Waimate District Council), within 24 hours of the spill: (a) the date, time, location and amount of the spill; (b) the substance spilt; (c) a description of the remediation measures taken in response to the spill; (d) a description of the measures taken to prevent the spilt substance being discharged into land or water; (e) the cause of the spill and measures that will be taken to prevent a reoccurrence; and (f) the timeframes for such measures.

	Annual Environmental Report
27	The consent holder shall provide an annual environmental report to the Canterbury Regional Council by 30 September each year. The report shall include, but not be limited to: (a) a summary and interpretation of the data collected under the conditions of this resource consent; (b) an identification and discussion of any trends in results; (c) a comparison of the results with results from previous years; (d) an explanation of any operational difficulties, changes or improvements made to the processes which could result in changes in effects; (e) a description of any uncontrolled discharges from the stormwater system and an assessment of the environmental effects of these discharges; (f) if applicable, an outline of any measures undertaken to mitigate any adverse environmental effects to prevent a reoccurrence and comment on the effectiveness of these measures; (g) a description of any maintenance of the stormwater system that was carried out during the review period; and (h) the report for the first year following the completion of Stage 1 construction shall include a review of potential environmental benefits to Waimate Creek that may occur if the stormwater discharge regime is altered. This review shall be provided to Waihao Rūnanga.
	Waimate Creek Report
28	Following the expiry of a period of 5 years from the first discharge to Waimate Creek under this resource consent, the consent holder shall engage a suitably qualified person (with a tertiary level qualification in freshwater ecology and knowledge of the cultural values of freshwater) to prepare, in consultation with Te Rūnanga o Waihao, a Report providing an outline of: (a) the impact of the discharge on the ecological values of Waimate Creek; and (b) the impact of the discharge on the cultural values of Waimate Creek (as informed by Te Rūnanga o Waihao); (the *Waimate Creek Cultural Values Report*).
29	A copy of the Waimate Creek Cultural Values Report required by condition 28 shall be submitted to the Canterbury Regional Council and Te Rūnanga o Waihao no later than 6 months after the expiry of the 5 year period referred to in condition 28.
	Complaints Register
30	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) the date, time and duration of the incident that has resulted in a complaint;

	(b) the location of the complainant at the time of the incident; and Any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
31	The Complaints Register shall be made available to the Canterbury Regional Council (and the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
32	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and The consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
33	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and Any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
34	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
35	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.
	Lapsing
36	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

CRC160872A – Location Map



CRC160872B – *Concept Landscape Plan V4*

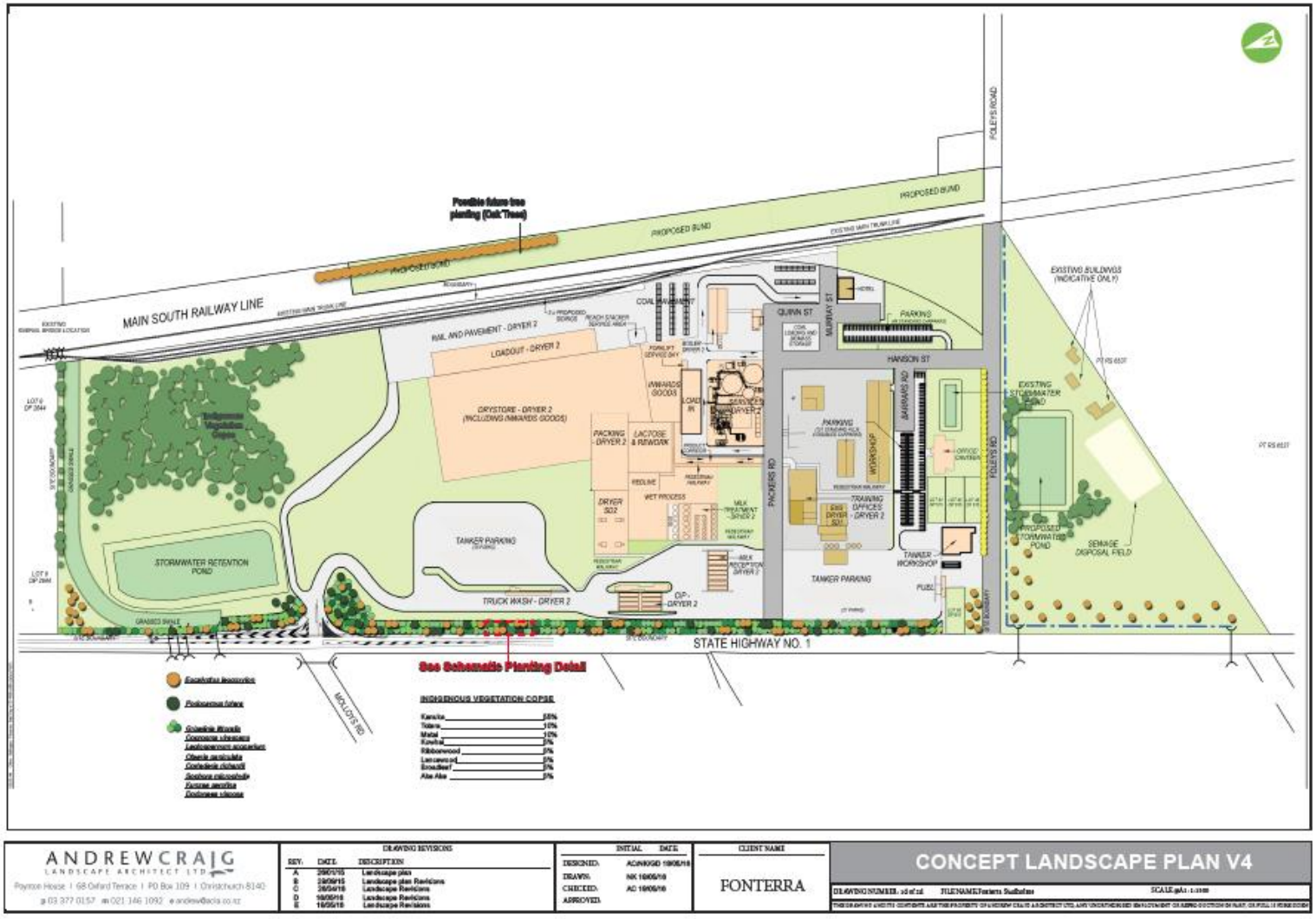


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Figure15: Proposed Stormwater Configuration Plan

CANTERBURY REGIONAL COUNCIL
CRC160873

TO USE LAND (EARTHWORKS)

GRANTS TO: Fonterra Limited

A LANDUSE CONSENT: To undertake earthworks and to use land in relation to the construction and operation of the Studholme Milk Processing site (including waste water treatment plant, pipeline and ocean outfall)

COMMENCEMENT DATE: [XXXXX]

EXPIRY DATE: 35 years from the commencement date

IN CONNECTION WITH: The Studholme Milk Processing Plant, Foleys Road, Waimate

This consent is subject to the following conditions.

1	The works shall be limited to earthworks associated with: (a) The installation of a wastewater pipe within five metres of a flood protection structure; (b) The excavation of stormwater ponds located at or about map reference Topo 50 CA19:5156-4640 and Topo50 CB19:5135-4546; (c) Site levelling and re-contouring; (d) Construction of earth bunds; and (e) Construction of a swale and other stormwater management structures, at a milk processing plant site and wastewater treatment site. *Advice note: This consent does not regulate works that can be undertaken as a permitted activity under the Land & Water Regional Plan and any other relevant or subsequent planning document.*
2	Works carried out in accordance with condition 1 shall be located within the areas outlined on Plan **CRC160873A** (*Concept Landscape Plan V4*) and **CRC160783B** (*Stormwater System Design and Operation*), attached to and which form part of this consent.
3	No later than two months prior to the commencement of the construction works authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council (with a copy being provided to the Waimate District Council), a Construction Management Plan. The objectives of the Construction Management Plan shall be: (a) to ensure that the construction activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken;

	(c) to minimise the release of sediment, either to water or to air, during construction activities; (d) to provide methods to ensure that persons under its control respect and apply the Construction Management Plan; and (e) to integrate good environmental practice into construction activities.
4	In achieving the objectives described in condition 3, the Construction Management Plan shall include, but not be limited to, the following: (a) a description of the location of works in or near waterways; (b) the best practicable measures that will be adopted during construction to avoid, remedy or mitigate construction effects on adjoining properties and surface water bodies; (c) the contact details of the Lead Contractor; (d) the sediment and erosion control measures that are to be implemented for each phase of the works authorised by this consent (including detail on the procedures to be adopted during construction in accordance with the requirements of the Canterbury Regional Council "Erosion and Sediment Control Guidelines" to minimise siltation and erosion); (e) the dust control measures to be implemented for each phase of work, including but not limited to vehicle speed restrictions, application of water, ceasing work during strong wind conditions and establishment of vegetation on exposed soil areas; (f) the types of construction method(s) to be adopted, including, but not limited to the reinstatement of the disturbed surfaces; (g) a description on the use of any hazardous chemicals (including fuels and oils) stored or used and their storage requirements; (h) emergency procedures; and (i) an accidental discovery protocol, developed in consultation with Te Rūnanga o Waihao. ***Advice note**: The Construction Management Plan can be updated and provided in stages as development phases move through the project. A single Construction Management Plan may be prepared for all resource consents that relate to construction of the Milk Processing Plant and associated infrastructure.*
5	Construction Works shall not commence until: (a) the Canterbury Regional Council has certified that the Construction Management Plan meets the objectives described in condition 3 and includes the matters described in condition 4; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
6	Any subsequent amendment to the Construction Management Plan will require certification from the Canterbury Regional Council in accordance with the procedure

	outlined in conditions 3 to 5 (as if the reference to the Construction Management Plan were references to the amendment).
7	Prior to construction works associated with the pipeline (from the Waste Water Treatment Plant to the Ocean Outfall) the consent holder shall, in consultation with Te Rūnanga o Waihao, develop an archaeological survey plan/archaeological assessment for the purposes of informing the final design and the Construction Management Plan. The contents of the archaeological survey plan shall be approved by Te Rūnanga o Waihao.
8	All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery, including, but not limited to: (a) ensuring that there is no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river; and (b) ensuring that fuel is stored securely or removed from the site overnight.
9	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
10	On the completion of works: (a) all disturbed areas shall be stabilised and/or revegetated; and (b) all spoil and other waste material from the works shall be removed from site.
	Complaints Register
11	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
12	The Complaints Register shall be made available to the Canterbury Regional Council (and the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.

	Community Liaison Group
13	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
14	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
15	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
16	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.

	Lapsing
17	This consent shall lapse ten years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

CRC160873A – *Concept Landscape Plan V4*

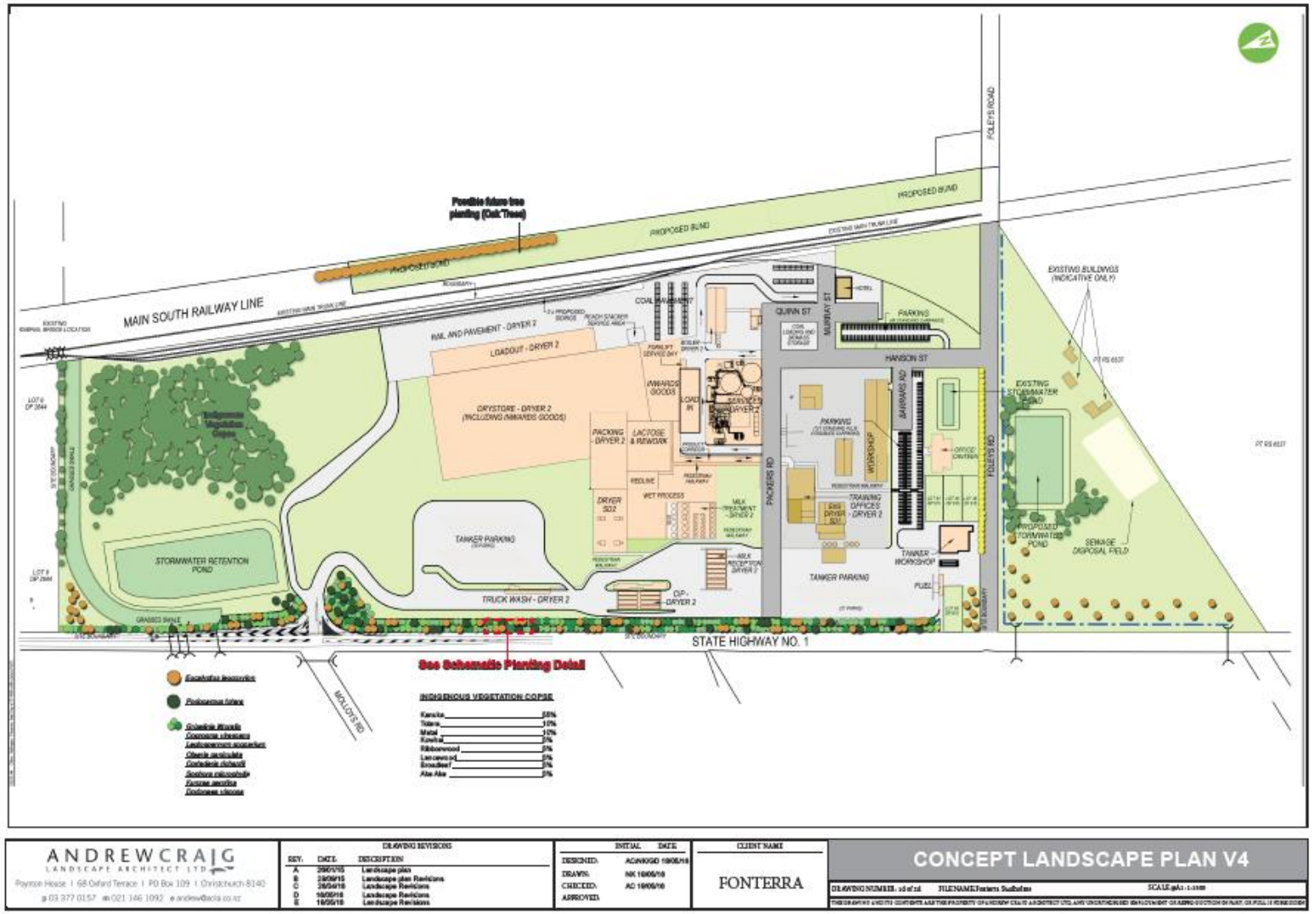

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Figure15: Proposed Stormwater Configuration Plan

CANTERBURY REGIONAL COUNCIL
CRC160875

TO USE LAND (INCLUDING THE BEDS AND BANKS OF WATERCOURSES)

GRANTS TO:	Fonterra Limited
A LANDUSE CONSENT:	To erect and place a pipeline across or under various watercourses, including those: • circled in red on plan **CRC160875A** *Outfall Pipeline Route Consented Pipeline Crossings of Waimate Creek*; • along the route identified and marked in yellow on plan **CRC160875B** *Outfall Pipeline Route Corridor & Locations of RMA Activities*; and • circled in red on plan **CRC160875C** *Outfall Pipeline Route Crossing of Waihao Arm and Consented Works Within Coastal Hazard Zone* **attached** to, and which form part of, this resource consent (but not including any area within the coastal marine area).
COMMENCEMENT DATE:	[XXXXX]
EXPIRY DATE:	35 years from the commencement date
IN CONNECTION WITH:	The Studholme Milk Processing Plant, Foleys Road, Waimate

Subject to the following conditions:

1	The works shall be limited to: (a) the erection and placement of a pipeline and ocean outfall across or under various water courses as shown on plans **CRC160875A** (*Project Goldie Outfall Pipeline Route Consented Pipeline Crossings of Waimate Creek*), **CRC160875B** (*Project Goldie Outfall Pipeline Route Corridor & Locations of RMA Activities*) and **CRC160875C** (Project Goldie Outfall Pipeline Route Crossing of Waihao Arm and Consented Works Within Coastal Hazard Zone, attached to and forming part of this consent. (b) the alteration of two existing culverts located at or about map reference Topo50 CA19:5153-4643 and Topo50 CA19:5185-4645.
2	Sediment from any works adjacent to the bed of a watercourse shall be prevented from entering the watercourse as far as practicable.

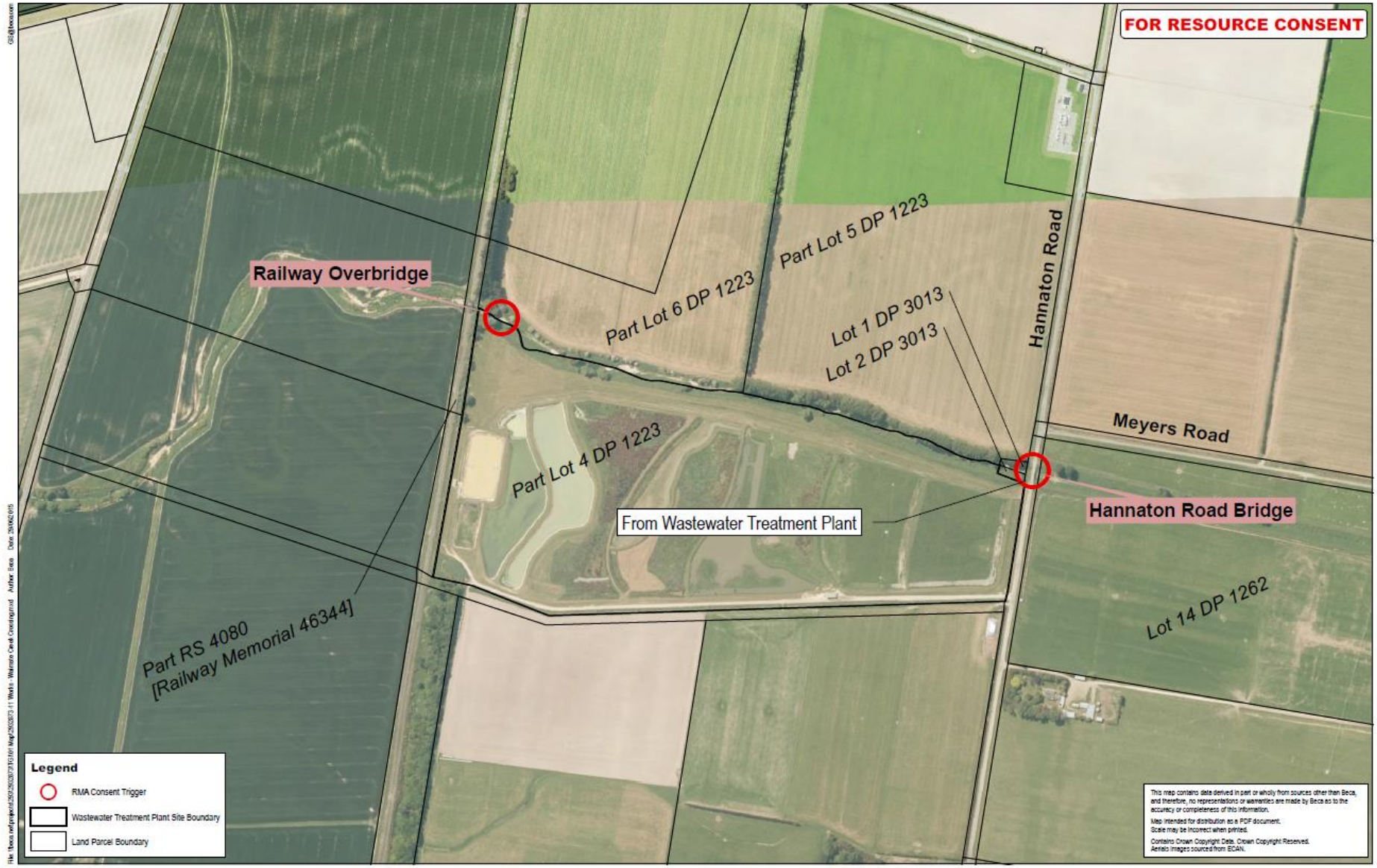
3	There shall be no works in any waterways during the first week of the duck shooting season.
4	There shall be no works in any waterway during the first weekend of the white baiting season.
5	The consent holder shall ensure that the final design of all waterbody crossings does not impede fish passage.
6	No later than two months prior to the commencement of the construction works authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council (and the Waimate District Council), a Construction Management Plan. The objectives of the Construction Management Plan shall be: (a) to ensure that the construction activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to minimise the release of sediment, either to water or to air, during construction activities; (d) to provide methods to ensure that persons under its control respect and apply the Construction Management Plan; and (e) to integrate good environmental practice into construction activities.
7	In achieving the objectives described in condition 6, the Construction Management Plan shall be prepared in consultation with the Canterbury Regional Council and shall include, but not be limited to, the following: (a) a description of the location of all crossings and works in or near waterways; (b) the best practicable measures that will be adopted during construction to avoid, remedy or mitigate construction effects on adjoining properties and surface water bodies; (c) the contact details of the Lead Contractor; (d) the timing and duration for each phase, including the working hours within which works will be undertaken; (e) the sediment and erosion control measures that are to be implemented for each phase of the works authorised by this consent (including detail on the procedures to be adopted during construction in accordance with the requirements of the Canterbury Regional Council "*Erosion and Sediment Control Guidelines*" to minimise siltation and erosion); (f) the dust control measures to be implemented for each phase of work, including but not limited to vehicle speed restrictions, application of water, ceasing work during strong wind conditions and establishment of vegetation on exposed soil areas;

	(g) the types of construction method(s) to be adopted, prepared in consultation with Te Waihao Rūnanga including, but not limited to: (i) a description and operation of any temporary coffer dams or other works required to implement the pipeline construction; (ii) pipeline protection methods; and (iii) the ecological rehabilitation of disturbed areas and reinstatement of the disturbed surfaces (including the beach barrier, where not located within the coastal marine area. (h) public access and pipeline signage during the construction period; (i) a description on the use of any hazardous chemicals (including fuels and oils) stored or used and their storage requirements; (j) emergency procedures; (k) fish recovery procedures, developed in consultation with the Department of Conservation and approved by Te Rūnanga o Waihao (including the opportunity for Te Rūnanga o Waihao representatives to participate in any fish recovery operation(s)); and (l) an accidental discovery protocol, developed in consultation with the Department of Conservation and approved by Te Rūnanga o Waihao. ***Advice note:*** *The Construction Management Plan can be updated and provided in stages as development phases move through the project. A single Construction Management Plan may be prepared for all resource consents that relate to construction of the Milk Processing Plant and associated infrastructure.*
8	Construction Works shall not commence until: (a) the Canterbury Regional Council has certified that the Construction Management Plan meets the objectives described in condition 6 and includes the matters described in condition 7; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
9	Any subsequent amendment to the Construction Management Plan will require certification from the Canterbury Regional Council in accordance with the procedure outlined in conditions 6 to 8 (as if the reference to the Construction Management Plan were references to the amendment).
10	At least two weeks prior to construction, the consent holder shall notify the public of the location, duration and nature of the proposed works, and possible restrictions on access that might apply during that time.
	During works
11	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
12	All practicable measures shall be undertaken to minimise vehicles and machinery entering river channels containing flowing water.

13	Works shall not cause erosion of the banks and bed of the Waihao Arm or Waimate Creek.
14	The works shall not prevent the passage of fish, or cause the stranding of fish in pools or channels.
15	All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery, including but not limited to: (a) ensuring that there is no storage of fuel or refuelling of vehicles and machinery within 20 metres of the bed of a river; and (b) ensuring that fuel is stored securely or removed from the site overnight.
	Planting in relation to Te Rūnanga o Waihao
16	Following the completion of works relating to the disturbed areas associated with the Waihao Arm crossings and the construction of coffer dams the consent holder shall consult with Te Rūnanga o Waihao for the purpose of developing a Riparian Planting Plan with the aim to enhance spawning opportunities for native fish species.
17	A copy of the Riparian Planting Plan shall be provided to the Canterbury Regional Council. The planting required under the plan shall be implemented by the consent holder within the first planting season following the completion of works.
	Complaints Register
18	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
19	The Complaints Register shall be made available to the Canterbury Regional Council (and the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.

	Community Liaison Group
20	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
21	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
22	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
23	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.

	Lapsing
24	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.



Map Scale @ A3: 1:5,000

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Metres

N

Revision	Author	Verified	Approved	Date
1.0	JS	GJ	GJ	22.06.2015

Title:

Project Goldie
Outfall Pipeline Route
Consented Pipeline Crossings of Waimate Creek

Client: Fonterra Co-operative Group Ltd

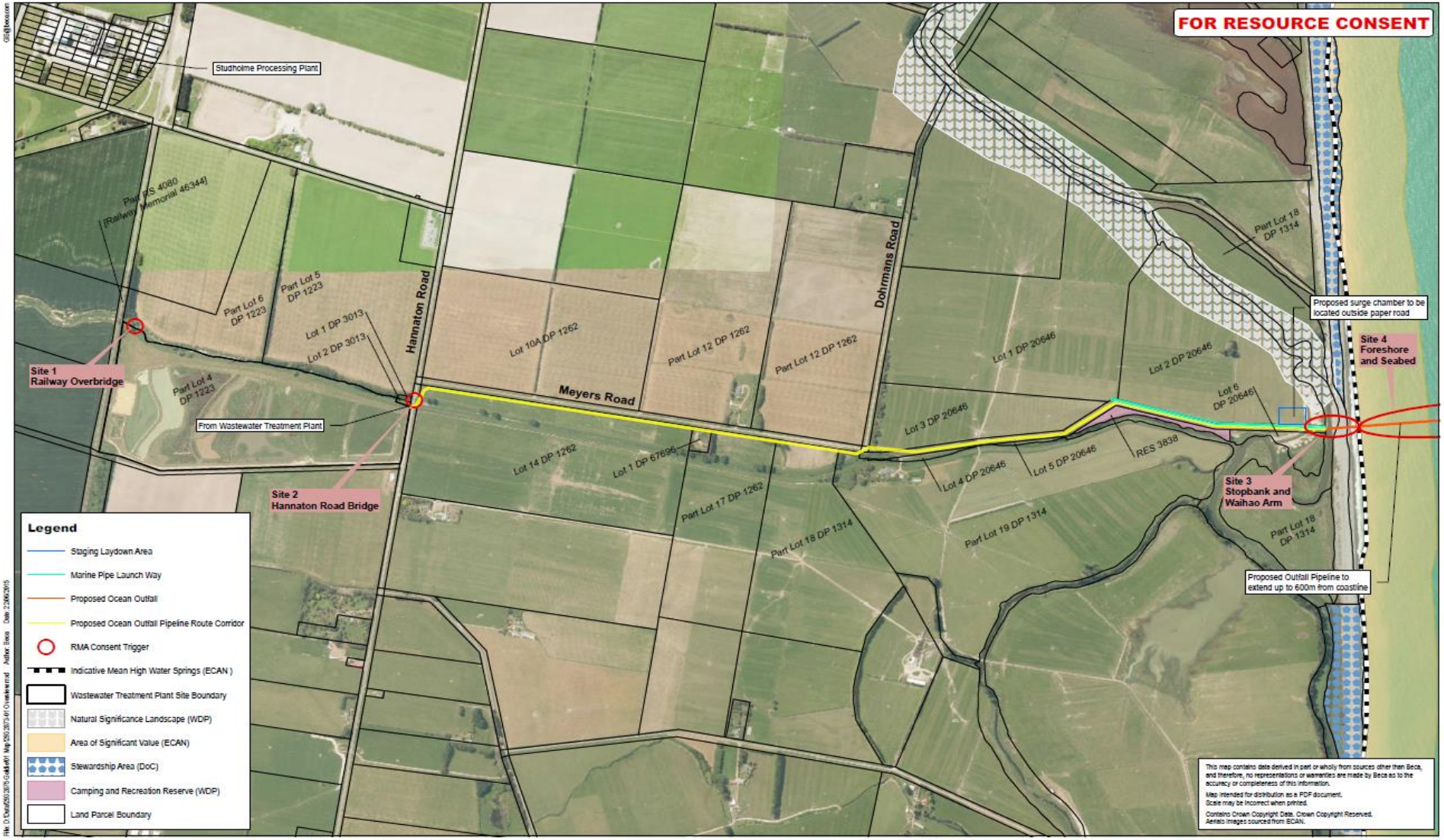
Project: Project Goldie

Beca

Discipline: GIS

Drawing No: GIS-2932873-11

Plan CRC160875B



Map Scale @ A3: 1:10,000

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Metres

N

Revision	Author	Verified	Approved	Date
1.0	JG	GJ	GJ	22.06.2015

Title: **Project Goldie**
Outfall Pipeline Route Corridor & Locations of RMA Activities

Client: Fonterra Co-operative Group Ltd

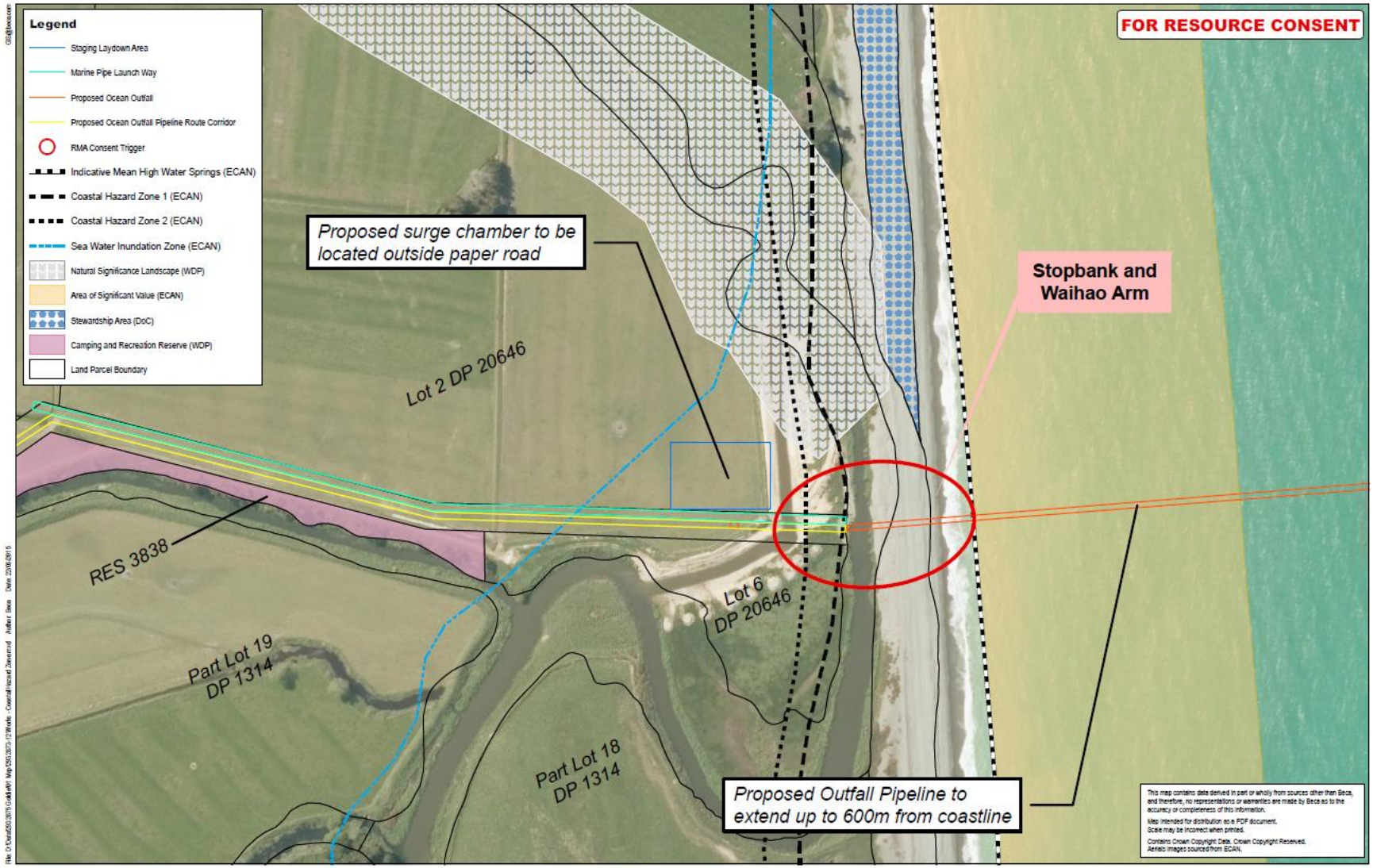
Project: Project Goldie

Beca

Discipline: GIS

Drawing No: GIS-2932873-01

Plan 160875C



Map Scale @ A3: 1:2,500

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Metres

N

Revision	Author	Verified	Approved	Date
1.0	JG	GJ	GJ	22.06.2015

Title: **Project Goldie**
Outfall Pipeline Route
Crossing of Waihao Arm and
Consented Works Within Coastal Hazard Zone

Client: Fonterra Co-operative Group Ltd

Project: Project Goldie

Beca

Discipline: GIS

Drawing No: GIS-2932873-12

CANTERBURY REGIONAL COUNCIL

WATER PERMIT

CRC160940

GRANTS TO:	Fonterra Limited
A WATER PERMIT:	To divert water and take groundwater for dewatering purposes associated with the construction of a pipeline.
COMMENCEMENT DATE:	[XXXXX]
EXPIRY DATE:	35 years from the commencement date
IN CONNECTION WITH:	The Studholme Milk Processing Plant, Foleys Road, Waimate

Subject to the following conditions:

	General
1	This consent authorises: (a) the diversion of water into a new channel located at or about map reference Topo50 CA19:5153-4643 as shown on Plan **CRC160940A**, attached to and forming part of this consent; and (b) the taking of groundwater for dewatering purposes during the installation of an ocean outfall pipe located between map reference Topo50 CB19:5241-4458 and Topo50 CB19:5498-4457, as shown on Plan **CRC160940B**, attached to and forming part of this consent.
	Diversion
2	The new channel shall be constructed in accordance with Plan **CRC160940A** and shall have the following dimensions: (a) channel base width: eight metres; (b) channel depth: 1.8 metres minimum (including 0.2 metres freeboard); (c) side slopes: 1(vertical):3(horizontal); Channel slope: 0.2 percent.
3	The works authorised under condition 1 shall not result in any decrease in the flood carrying capacity in up to a 1:10 year AEP event of the waterway that existed prior to any works commencing.
4	The consent holder shall ensure that: (a) all practicable measures are taken to minimise erosion of the bed and banks of the new channel as a result of these works in accordance with the Canterbury Regional Council "Erosion and Sediment Control Guidelines"; and

	(b) in the event of any erosion occurring to the bed and/or banks of the new channel as a result of the works, the consent holder shall: (i) take all practicable measures to minimise the extent of erosion; and (ii) take all practicable measures to remediate the area where erosion has occurred; and (c) advise the Canterbury Regional Council, Attention: Regional Manager RMA Monitoring and Compliance, of the erosion and/or instability created.
5	Works shall not prevent fish passage or cause stranding of fish in pools or channels.
6	All practicable measures shall be undertaken to minimise the adverse effects on property, amenity values, wildlife, vegetation, and ecological values.
7	All disturbed bank areas shall be stabilised and re-grassed following completion of the works.
8	No later than two months prior to the commencement of the construction works authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council (and the Waimate District Council), a Construction Management Plan. The objectives of the Construction Management Plan shall be: (a) to ensure that the construction activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to minimise the release of sediment, either to water or to air, during construction activities; (d) to provide methods to ensure that persons under its control respect and apply the Construction Management Plan; and (e) to integrate good environmental practice into construction activities.
9	In achieving the objectives described in condition 8, the Construction Management Plan shall include, but not be limited to, the following: (a) a description of the location of all works in or near waterways; (b) the best practicable measures that will be adopted during construction to avoid, remedy or mitigate construction effects on adjoining properties and surface water bodies; (c) the contact details of the Lead Contractor; (d) the timing and duration for each phase, including the working hours within which works will be undertaken; (e) the sediment and erosion control measures that are to be implemented for each phase of the works authorised by this consent (including detail on the procedures to be adopted during construction in accordance with the

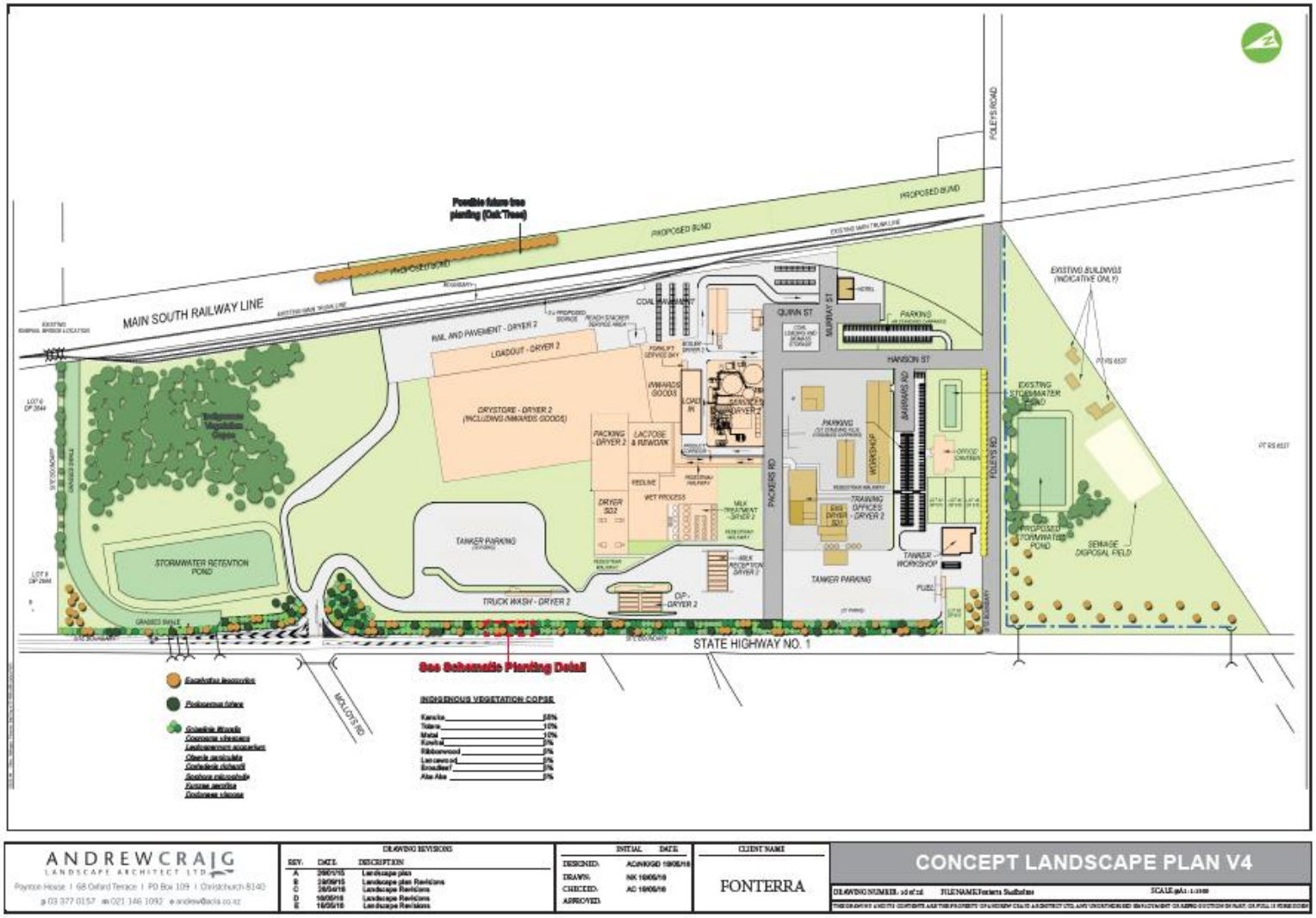
	requirements of the Canterbury Regional Council "*Erosion and Sediment Control Guidelines*" to minimise siltation and erosion); (f) the dust control measures to be implemented for each phase of work, including but not limited to vehicle speed restrictions, application of water, ceasing work during strong wind conditions and establishment of vegetation on exposed soil areas; (g) the types of construction method(s) to be adopted, prepared in consultation with Te Waihao Rūnanga including, but not limited to: (i) a description and operation of any temporary coffer dams or other works required to implement the pipeline construction; (ii) pipeline protection methods; and (iii) the ecological rehabilitation of disturbed areas and reinstatement of the disturbed surfaces (including the beach barrier, where not located within the coastal marine area. (h) public access and pipeline signage during the construction period; (i) a description on the use of any hazardous chemicals (including fuels and oils) stored or used and their storage requirements; (j) emergency procedures; (k) fish recovery procedures, developed in consultation with the Department of Conservation and approved by Te Rūnanga o Waihao (including the opportunity for Te Rūnanga o Waihao representatives to participate in any fish recovery operation(s); and (l) an accidental discovery protocol, developed in consultation with the Department of Conservation and approved by Te Rūnanga o Waihao ***Advice note:*** *The Construction Management Plan can be updated and provided in stages as development phases move through the project. A single Construction Management Plan may be prepared for all resource consents that relate to construction of the Milk Processing Plant and associated infrastructure.*
10	Construction Works shall not commence until: (a) the Canterbury Regional Council has certified that the Construction Management Plan meets the objectives described in condition 8 and includes the matters described in condition 9; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
11	Any subsequent amendment to the Construction Management Plan will require certification from the Canterbury Regional Council in accordance with the procedure outlined in conditions 8 to 10 (as if the reference to the Construction Management Plan were references to the amendment).

	Dewatering
12	If dewatering is determined necessary, at least one month prior to commencing site construction, the consent holder shall submit a Dewatering Management Plan to the Canterbury Regional Council, attention: RMA Monitoring and Compliance Manager. The Dewatering Management Plan shall contain the following: (a) the methodology for dewatering, including: (i) a map showing the location of any wells, sumps or well pointing equipment; and (ii) a description of how the pump rate will be monitored; and (b) a programme of works, including an indicative timeframe; and (c) a report from a suitably qualified ecologist or surface water scientist that: (i) establishes a suitable turbidity level for the discharge of any water back into a waterway; (ii) identifies the minimum flow levels for Waimate Creek and the Waihao Arm that will ensure compliance with Condition 15(b); and (iii) includes a monitoring programme that specifies how the limit determined in accordance with Condition 12(c)(i) will be monitored; and (d) a report from a suitably qualified person that: (i) identifies methods to ensure that the drawdown effect of dewatering does not exceed the limits set out in Schedule 12 of the Land and Water Regional Plan (LWRP) on neighbouring wells; or (ii) provides sufficient evidence that dewatering will not cause drawdown effects on neighbouring wells that exceed the limits set out in Schedule 12 of the LWRP.
13	Dewatering shall not commence until: (a) the Canterbury Regional Council has certified that the Dewatering Management Plan meets includes the matters described in condition 11; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
14	Any subsequent amendment to the Dewatering Management Plan will require certification from the Canterbury Regional Council in accordance with the procedure outlined in conditions 12 and 13 (as if the reference to the Dewatering Management Plan were references to the amendment).
15	The dewatering operation shall: (a) be limited to that reasonably necessary to lower and sustain the level of groundwater to no more than 0.5 metres below the deepest excavation; (b) not restrict fish passage, fish spawning or cause any adverse effects on stream health;

	(c) not exceed the stream flow levels determined in accordance with Condition 12(c); and (d) not, in combination with other takes, cause ground subsidence.
16	At least five working days prior to the commencement of dewatering, the Consent Holder shall inform the Canterbury Regional Council, Attention: RMA Monitoring and Compliance Manager in writing, of the start date of works.
17	The consent holder shall ensure that all personnel undertaking dewatering on site are made aware of and have access to the contents of this consent document and associated plans, including the Dewatering Management Plan.
	Complaints Register
18	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
19	The Complaints Register shall be made available to the Canterbury Regional Council (and the Waimate District Council) at all reasonable times on request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
20	Within one month of commencing construction works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.

21	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
22	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
	Review (section 128 of the RMA)
23	The Canterbury Regional Council may, once per year, on any of the last five working days of April 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 and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.
	Lapsing
24	This consent shall lapse **ten** years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

CRC160940A (insert V4)



ANDREWCRAIG
LANDSCAPE ARCHITECT LTD
Paynter House | 68 Oxford Terrace | PO Box 109 | Christchurch 8140
p 03 377 0157 m 021 146 1092 e andrew@acla.co.nz

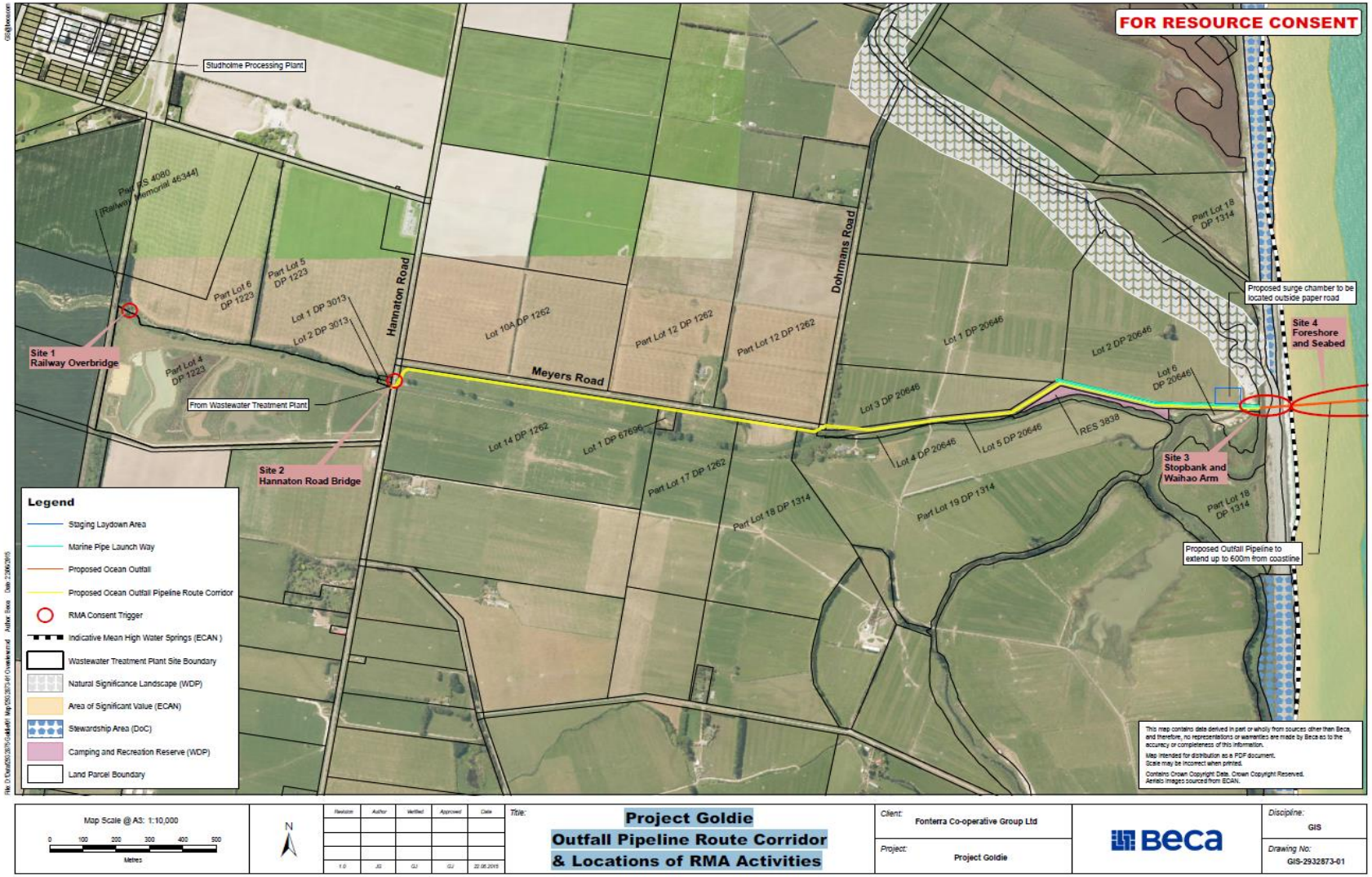
DRAWING REVISIONS		
REV.	DATE	DESCRIPTION
A	29/07/15	Landscape plan
B	23/09/15	Landscape plan Revisions
C	26/04/16	Landscape Revisions
D	16/05/16	Landscape Revisions
E	19/05/16	Landscape Revisions

	INITIAL	DATE
DESIGNED:	AC/NK/GD	19/05/16
DRAWN:	NK	19/05/16
CHECKED:	AC	19/05/16
APPROVED:		

CLIENT NAME: FONTERRA

CONCEPT LANDSCAPE PLAN V4

DRAWING NUMBER: v4 of 1st FILENAME: Fonterra Sudbrook SCALE @ A1: 1:1000


FOR RESOURCE CONSENT
Studholme Processing Plant
Part WS 4080 (Railway Memorial 46344)
Part Lot 6 DP 1223
Part Lot 5 DP 1223
Lot 1 DP 3013
Lot 2 DP 3013
Hannaton Road
Dohrmans Road
Lot 10A DP 1262
Part Lot 12 DP 1262
Part Lot 12 DP 1262
Part Lot 18 DP 1314
Proposed surge chamber to be located outside paper road
Site 4 Foreshore and Seabed
Site 1 Railway Overbridge
Part Lot 4 DP 1223
Meyers Road
From Wastewater Treatment Plant
Lot 1 DP 20646
Lot 2 DP 20646
Lot 6 DP 20646
Lot 3 DP 20646
Lot 14 DP 1262
Lot 1 DP 67696
Lot 4 DP 20646
Lot 5 DP 20646
RES 3838
Site 3 Stopbank and Waihao Arm
Site 2 Hannaton Road Bridge
Part Lot 17 DP 1262
Part Lot 18 DP 1314
Part Lot 19 DP 1314
Part Lot 18 DP 1314
Proposed Outfall Pipeline to extend up to 600m from coastline
Legend
Staging Laydown Area
Marine Pipe Launch Way
Proposed Ocean Outfall
Proposed Ocean Outfall Pipeline Route Corridor
RMA Consent Trigger
Indicative Mean High Water Springs (ECAN)
Wastewater Treatment Plant Site Boundary
Natural Significance Landscape (WDP)
Area of Significant Value (ECAN)
Stewardship Area (DoC)
Camping and Recreation Reserve (WDP)
Land Parcel Boundary
This map contains data derived in part or wholly from sources other than Beca, and therefore, no representations or warranties are made by Beca as to the accuracy or completeness of this information.
Map intended for distribution as a PDF document.
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Aerials Images sourced from ECAN.
Map Scale @ A3: 1:10,000
0 100 200 300 400 500
Metres
N
Revision
Author
Verified
Approved
Date
Title:
Project Goldie
Outfall Pipeline Route Corridor
& Locations of RMA Activities
Client:
Fonterra Co-operative Group Ltd
Project:
Project Goldie
Beca
Discipline:
GIS
Drawing No:
GIS-2932873-01

CANTERBURY REGIONAL COUNCIL
CRC160876

COASTAL PERMIT

GRANTS TO:	Fonterra Limited
A COASTAL PERMIT:	To disturb and occupy the foreshore and seabed, including the removal and deposition of material, and the placement and operation of structures in the coastal marine area; and To discharge treated wastewater, stormwater and condensate through an ocean outfall pipeline and diffuser within the coastal marine area.
COMMENCEMENT DATE:	[XXXXX]
EXPIRY DATE:	35 years from the commencement date
IN CONNECTION WITH:	The Studholme Milk Processing Plant, Foleys Road, Waimate

Subject to the following conditions:

	General
1	The activities shall be limited to: (a) the disturbance and deposition of material on the foreshore and seabed; (b) the construction and placement of structures in, on or over the foreshore and seabed; (c) the erection and placement of structures in Coastal Hazard Zones 1 and 2; (d) the discharge of treated Milk Processing Plant process water, condensate and stormwater (referred to in this consent as Combined Wastewater); and (e) the permanent occupation of the Coastal Marine Area by the new structures.
2	The construction, erection and placement of structures shall be limited to: (a) the structures required for the operation of the outfall pipeline and outfall diffuser (located between mean high water springs and the end of the diffuser); and (b) any temporary structures required during the construction period.
3	The structures referred to in condition 2 shall be located approximately four kilometres north of Byrnes Rd, and shall extend up to 600 metres offshore, as shown in the area circled in red on Plan CRC160876A and Plan CRC160876B, which form part of this resource consent.
4	The Combined Wastewater shall be discharged into the Coastal Marine Area via an outfall pipeline and an ocean outfall diffuser attached to the sea bed. The landward end of the outfall diffuser shall be located not less than 300 metres from the shoreline at mean sea level, as shown on Plan CRC160876A.

	Final outfall design
5	Prior to construction the consent holder shall, through numerical or physical modelling, demonstrate that the diffuser design will achieve a minimum dilution of 100:1 (measured at a point 50 metres horizontally from the diffuser) at a discharge rate of 280 litres per second with a longshore current of 4.8 centimetres per second.
	Prior to construction
6	No later than two months prior to the commencement of the construction works authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring Manager, a Construction Management Plan. The objectives of the Construction Management Plan shall be: (a) to ensure that the construction activities achieve compliance with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to minimise the release of sediment, either to water or to air, during construction activities; (d) to provide methods to ensure that persons under its control respect and apply the Construction Management Plan; and (e) to integrate good environmental practice into construction activities.
7	In achieving the objectives described in condition 6, the Construction Management Plan shall be prepared in consultation with the Canterbury Regional Council and shall include, but not be limited to, the following: (a) a description of the location and areal extent of the works; (b) the best practicable measures that will be adopted during construction to avoid, remedy or mitigate construction effects within the coastal marine area; (c) the contact details of the lead contractor; (d) the timing and duration of each phase, including the working hours within which works will be undertaken; (e) the construction method(s) to be adopted including, but not limited to: (i) the mitigation measures to be adopted, including but not limited to dust and sediment control; (ii) the proposed monitoring of shoreline erosion and deposition during the construction period; (iii) the replacement of any depleted beach materials by excavator or other suitable means (including the filling of any eroded areas around temporary works following storm events); and (iv) the reinstatement of the beach barrier such that no structural weakness

	remains when any temporary structures are removed; (f) public access and pipeline signage during the construction period; (g) details of all Maritime Safety Authority permits and notices to mariners that have been obtained in relation to the works; (h) details of any permanent maritime signage required; (i) a description of the use of any hazardous chemicals, including fuels and oils, stored or used and their storage requirements; (j) emergency procedures; and (k) an accidental discovery protocol, developed in consultation with the Department of Conservation and Te Rūnanga o Waihao. ***Advice note:*** *The Construction Management Plan can be updated and provided in stages as development proceeds. A single Construction Management Plan may be prepared for all resource consents that relate to construction of the Milk Processing Plant and associated infrastructure.* ***Advice note****: In preparing the Construction Management Plan, the consent holder is encouraged to consult with the Canterbury Regional Council (River Engineers and Coastal Hazard Scientist(s)) prior to submitting to the Canterbury Regional Council.*
8	Construction Works shall not commence until: (a) the Canterbury Regional Council has certified that the Construction Management Plan meets the objectives described in condition 6 and includes the matters described in condition 7; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the Construction Management Plan shall be deemed to be certified.
9	Any subsequent amendment to the Construction Management Plan shall require certification from the Canterbury Regional Council in accordance with the procedure outlined in conditions 6 to 8 (as if the reference to the Construction Management Plan were references to the amendment).
10	At least two weeks prior to construction commencing, the consent holder shall by way of a public notice in the local newspaper, and signage at locations of public entry, notify the public of the location, duration and nature of the proposed works and possible restrictions on access that might apply during that time.
	Construction works
11	The construction works shall be undertaken in general accordance with the Construction Management Plan required under condition 6 of this consent.
12	During beach excavations, the consent holder shall maintain a log of the material excavated out of the trench and this log shall be submitted to the Canterbury Regional Council, on request.

13	Erosion and sediment control measures shall be constructed in accordance with Environment Canterbury's "Erosion and Sediment Control Guidelines for the Canterbury Region" Report No. CRC R06/23, February 2007.
14	During construction, all practicable measures shall be undertaken to minimise discharges of sediment-laden stormwater to the Coastal Marine Area or beyond the boundaries of the site.
15	During construction and while any coffer dam is in place within the coastal marine area, the consent holder shall survey the foreshore topography 200 metres either side of the coffer dam: (a) weekly; and (b) following any significant storm event; for the purposes of informing when beach sediments shall be mechanically moved across the coffer dam to realign the beach face contours.
16	Realignment of beach sediments required under condition 15 shall occur when either: (a) the 1 metre (above mean sea level) contour on the beach face on the north side of the coffer dam becomes offset by 10 or more metres landward from its location on the south side of the coffer dam; or (b) when the beach barrier on the north side of the coffer dam begins falling in height.
17	In the event of the beach barrier being reinstated under condition 16(b), the reinstatement shall occur under the supervision of a suitably qualified person for the purpose of minimising the risk of structural weaknesses remaining in the beach barrier when any temporary structures are removed. The consent holder shall keep records of any reinstatement procedures undertaken and provide those records to the Canterbury Regional Council on request.
	Certification
18	At least two months prior to the commencement of construction of the ocean outfall and associated works, the consent holder shall submit to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring Manager, all design plans and certification for the wastewater treatment plant, outfall pipeline and associated works. This shall include: (a) the details/installation specifications of the treatment system; and (b) details of the works undertaken within the Coastal Hazard Zones and Coastal Marine Area. The certificate shall be signed by a suitably qualified Engineer, certifying that the design plans comply with, or enable compliance with all the conditions of this consent. The certificate shall include sufficient technical information to demonstrate the basis for the certification.
19	Within two months of completion of construction of the ocean outfall and wastewater treatment plant, a certificate signed by a suitably experienced Engineer, certifying that the systems have been constructed in full accordance with the design, and installation specifications submitted in accordance with condition 18 of this consent, shall be

	submitted to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring Manager. This engineer shall also sign a statement confirming that they are competent to certify the engineering work.
	Beach Signage and Marine Charts
20	Immediately following construction of the outfall, the consent holder shall: (a) erect warning signage on the beach, in a position clearly visible from the coastal marine area, as is required by the Director of Maritime Safety as defined in the Marine Transport Act and Land Information New Zealand (LINZ), as the National Hydrographic Authority for New Zealand; (b) ensure the signage includes, for any recreational users of the beach, notice that the outfall for the Studholme Milk Processing Site is located at that location; and (c) provide map references of the position of the outfall pipeline and outfall diffuser to the Director of Maritime Safety as defined in the Marine Transport Act and Land Information New Zealand (LINZ).
	Inspection and Maintenance of the Outfall Pipeline and Outfall Diffuser
21	The consent holder shall undertake a visual inspection of the outfall pipeline and outfall diffuser at or about the five year anniversary of commissioning of the outfall pipe, to ensure that the structures are maintained in good working order. The consent holder shall, within two months of this inspection, submit a report to the Canterbury Regional Council Attention: RMA Compliance and Monitoring Manager describing the outcome of the inspection.
22	For the duration of this consent, the consent holder shall undertake (for the purposes of determining if there is any evidence of beach weaknesses and gravel washout): (a) six monthly visual inspections of the beach; and (b) inspections of the beach following any significant overtopping event into the Waihao Arm/Wainono Lagoon; where the pipeline has been laid and 100 metres north and south of the beach crossing point.
23	The consent holder shall, within two months of any inspection undertaken in accordance with condition 22 above, submit a report to the Canterbury Regional Council Attention: RMA Compliance and Monitoring Manager that includes but is not limited to detail on: (a) the date and time of the inspection; (b) the condition of the outfall pipeline and outfall diffuser; and (c) should there be any evidence of beach weakness or gravel washout, this shall be repaired or removed by the consent holder to the satisfaction of the Southern Area Engineer within one month of the weakness or washout being identified.
	Operation of the Wastewater Treatment Plant and Discharge
24	The Waste Water Treatment Plant shall comprise: (a) an anoxic system to reduce the inflow nitrate level;

	(b) an aerated system where a number of micro-biologically mediated processes will occur in aeration tank(s) or pond(s); and (c) a clarification system where biomass (including biological organisms) generated in the processes described in condition 24(a) and (b) are separated from the waste water that is discharged.
25	The pipes delivering wastewater to the Waste Water Treatment Plant shall be flushed with clean water if the discharge to the Waste Water Treatment Plant is discontinued for a period of greater than 48 hours.
26	The dissolved oxygen concentration in the aerobic wastewater treatment system as required by condition 24(b) shall be continuously measured and recorded for all wastewater discharged from that system (as discharged for either further anoxic treatment or discharged to the ocean outfall).
27	The data collected under condition 26 shall be recorded electronically and this electronic data shall be supplied to the Canterbury Regional Council on request.
28	The consent holder shall maintain the aerobic wastewater treatment system as required by condition 24(b) within the following parameters: (a) the dissolved oxygen concentration in the aerobic wastewater treatment system by managing in-pond/in-tank aeration of the liquor such that the average dissolved oxygen concentration is not less than 0.7 grams oxygen per cubic metre of aerobic pond/tank liquor; and (b) the Food to Microbiological organisms (F:M) ratio shall be maintained in the average range of 0.05 to 0.2 kg BOD_{5}/kg MLSS/day (this number is calculated from the total number of bacteria in the system (MLSS times the reactor volume) and the Chemical Oxygen Demand (COD) or Biological Oxygen Demand (BOD)). Advice Note: MLSS means the Mixed Liquor Suspended Solids.
29	The aerobic wastewater treatment system as required by condition 24(b) shall: (a) be constructed such that the wetted area of any aerobic treatment pond(s) are sealed with an impervious layer so that there is no discharge to land from any pond(s); (b) have pond/tank liquor circulation (mixers) to evenly distribute dissolved oxygen throughout the pond/tank liquor.
30	Any anaerobic treatment process or device as required by condition 24(a) shall be fully enclosed. All air discharges from the treatment process or device shall be treated using best practice methods.
31	The consent holder shall record and shall report to the Canterbury Regional Council on request the following wastewater treatment system daily, weekly and monthly summary data for the following monitoring parameters: (a) BOD and COD*; (b) MLSS; (c) the F:M ratio;

	(d) dissolved oxygen levels in the aerated pond or tank liquor. *The applicant may use COD as a proxy for BOD once a statistical valid relationship is determined and demonstrated to the Canterbury Regional Council.
	Wastewater Treatment Plant and Odour Management Plan
32	No later than two months prior to the commencement of the air discharges authorised by this consent, the consent holder shall prepare and submit to the Canterbury Regional Council (with a copy being provided to the Waimate District Council), a Wastewater Treatment Plant and Odour Management Plan. The objectives of the Wastewater Treatment Plant and Odour Management Plan shall be: (a) to ensure that the operation of the Wastewater Treatment Plant complies with the conditions of this resource consent; (b) to avoid, where possible, adverse environmental effects and, where not possible, ensuring appropriate mitigation or appropriate remediation is undertaken; (c) to provide methods to ensure that persons under its control respect and apply the Wastewater Treatment Plant and Odour Management Plan; and (d) to integrate good environmental practice into the operation of the Wastewater Treatment Plant and associated air discharge activities.
33	In achieving the objectives described in condition 32, the Wastewater Treatment Plant and Odour Management Plan shall include, but not be limited to, the following: (a) the management and operational procedures required to comply with the conditions of this resource consent that relate to the operation of the Wastewater Treatment Plant; (b) the training for staff to operate the Wastewater Treatment Plant (including the required response to any odour observations or complaints); (c) the frequency of monitoring odour observations and methods to be used (which shall be developed in consultation with the Canterbury Regional Council); and (d) the identification of staff and contractor responsibilities. ***Advice note:*** *Any odour assessment observation methodology described in the Odour Management Plan shall conform to the techniques outlined in Schedule 2: Assessment of offensive and objectionable effects, (Source: Proposed Canterbury Air Regional Plan) or any equivalent or similar odour assessment methodology contained in a Canterbury Regional Plan.*
34	Marine discharge (as authorised by this resource consent) shall not commence until: (a) the Canterbury Regional Council has certified that the Wastewater Treatment Plant and Odour Management Plan meets the objectives described in condition 32 and includes the matters described in condition 33; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the

	Wastewater Treatment Plant and Odour Management Plan shall be deemed to be certified.
35	Any subsequent amendment to the Wastewater Treatment Plant and Odour Management Plan shall be certified by the Canterbury Regional Council in accordance with the procedure outlined in conditions 32 to 34 (as if the reference to the Wastewater Treatment Plant and Odour Management Plan were references to the amendment).
36	The consent holder shall advise the Canterbury Regional Council in writing of the date of commencement of the discharge authorised by this consent prior to the first discharge taking place.
	Flow Limits and Measurement
37	The discharge shall not exceed a maximum daily volume of 24,000 cubic metres per day and a maximum flow rate of 280 litres per second.
38	A continuous measurement of the flow discharged to the outfall pipeline shall be maintained. Such records shall be retained and made available to the Canterbury Regional Council on request.
	Combined Wastewater Monitoring
39	The Combined Wastewater shall be sampled prior to the discharge to the outfall pipeline using the method ("Reported as" and "Type") and frequencies identified in this condition and these samples shall be analysed for the contaminants listed in Table 1:
	Table 1: Combined Wastewater Sampling Requirements

Parameter	Reported as	Frequency	Type
COD	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
BOD	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
TSS	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
Total Nitrogen	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
Nitrate-N	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
DIN	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
Ammonium-N	Grams per cubic metre (g/m^3)	Weekly	24 hour composite
pH	pH units	Weekly	24 hour composite

	Total Phosphorus	Grams per cubic metre (g/ m^3)	Weekly	24 hour composite
	DRP	Grams per cubic metre (g/ m^3)	Weekly	24 hour composite
	Cu	Milligrams per Litre (mg/L)	Weekly	24 hour composite
	Zn	Milligrams per Litre (mg/L)	Weekly	24 hour composite

Wastewater Trigger Values

40 The results of analysis of the Combined Wastewater in accordance with condition (39) shall be compared with the trigger values provided in Table 2:

Table 2: Combined Wastewater Trigger Values

Parameter	Reported as	Median	95%ile
COD	Grams per cubic metre (g/ m^3)	125	135
BOD	Grams per cubic metre (g/ m^3)	30	50
TSS	Grams per cubic metre (g/ m^3)	50	70
Total Nitrogen	Grams per cubic metre (g/ m^3)	15	20
Nitrate-N	Grams per cubic metre (g/ m^3)	10	15
DIN	Grams per cubic metre (g/ m^3)	12	15
Ammonium-N	Grams per cubic metre (g/ m^3)	<2	4
pH	pH units	Range of 7-9	
Total Phosphorous	Grams per cubic metre (g/ m^3)	2	4
DRP	Grams per cubic metre (g/ m^3)	2	4
Cu	Milligrams per litre (mg/L)	0.03	
Zn	Milligrams per litre	0.7	

	The median value shall be calculated on a rolling basis from the previous 10 consecutive samples. The 95th percentile value shall be calculated on a rolling basis from the previous 20 consecutive samples.
41	If any of the trigger values identified in condition 40 are exceeded more than three months after commissioning the WWTP, the consent holder shall: (i) as soon as possible: (A) increase the frequency of wastewater sampling and analysis to one composite sample per day for a period of seven days, for the contaminant for which the exceedance was recorded; (B) advise the Canterbury Regional Council of the trigger value exceedance; and (C) determine the reason for the exceedance of the trigger value; (ii) prepare a report on the results of the additional sampling and analysis and any other investigations carried out and identify all practical measures to reduce the concentration of the contaminant in the final discharge to prevent a recurrence of the exceedance. This report shall be prepared by a suitably qualified person and shall include a thorough assessment of the cause of the exceedance and that the identified measures are appropriate to prevent a recurrence of the exceedance; (iii) submit the report and the certification specified to the Canterbury Regional Council within two months of receiving the results of the analysis required for the completion of the report under condition 41(ii). ***Advice note:*** *While monitoring according to the requirements of condition (39) is required during commissioning of the WWTP, the treated wastewater may not be fully compliant with the trigger values during this period. A three month period will be required to commission the biological components of the WWTP.*
42	The measures identified in the report required under condition 41(ii) shall be implemented as soon as practicable and confirmation of that implementation shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Monitoring Manager as soon as possible after completion of the measures.
	Further Sampling of Wastewater Treatment Plant Effluent for Indicator Bacteria and Pathogens
43	The Combined Wastewater shall be sampled prior to the discharge to the outfall pipeline for the parameters and frequencies identified in this condition and these samples shall be analysed for the biological contaminants listed in Table 3:
	Table 3: Combined Wastewater Pathogen Sampling Frequency and Trigger Values (for first 2 years of discharge)

<table>
<tr><td></td><td>
<table>
<tr><th>Parameter</th><th>Frequency</th><th>Interim trigger value</th></tr>
<tr><td>Faecal indicator bacteria:
• Entercococci
• Faecal coliforms
• E coli</td><td rowspan="2">Fortnightly (for 12 months following first discharge)

Monthly (for the period between 12 and 24 months following first discharge)</td><td>No trigger in interim period</td></tr>
<tr><td>Pathogens:
• Pseudomonas aeruginosa
• Listeria spp</td><td>Pseudomonas aeruginosa
10,000/100mL

Listeria spp
1,000/100mL</td></tr>
</table>
</td></tr>
<tr><td></td><td>Evaluation of Initial Monitoring Data</td></tr>
<tr><td>44</td><td>At the end of the two year initial monitoring period required by condition 43, the consent holder shall engage a suitably qualified person with experience in the operation of Wastewater Treatment Plants to advise on;
(a) The relationship between indicator bacteria and pathogens (from the data collected); and
(b) The need for ongoing future monitoring of pathogens and/or indicator bacteria (and the duration of that monitoring); and
(c) The triggers that should apply; and
(d) When further reviews of the monitoring and limits should take place.
This shall be presented in a report (Future Monitoring Report) and be submitted to the Canterbury Regional Council within 2 months after the expiry of the 24 month period.</td></tr>
<tr><td>45</td><td>If during the two year initial monitoring period required by condition 43, sampling demonstrates that the wastewater has exceeded the trigger(s) specified in column 3 of Table 3, the consent holder shall engage a qualified person with experience in the operation of waste water treatment plants to prepare a report advising on the possible causes of the exceedance(s), system changes and management techniques to avoid future exceedances (the Exceedance Report):
(a) the qualified person shall prepare and submit to the Canterbury Regional Council an Exceedance Report within 1 month of the exceedance;
(b) the consent holder shall implement any changes recommended in the report.</td></tr>
</table>

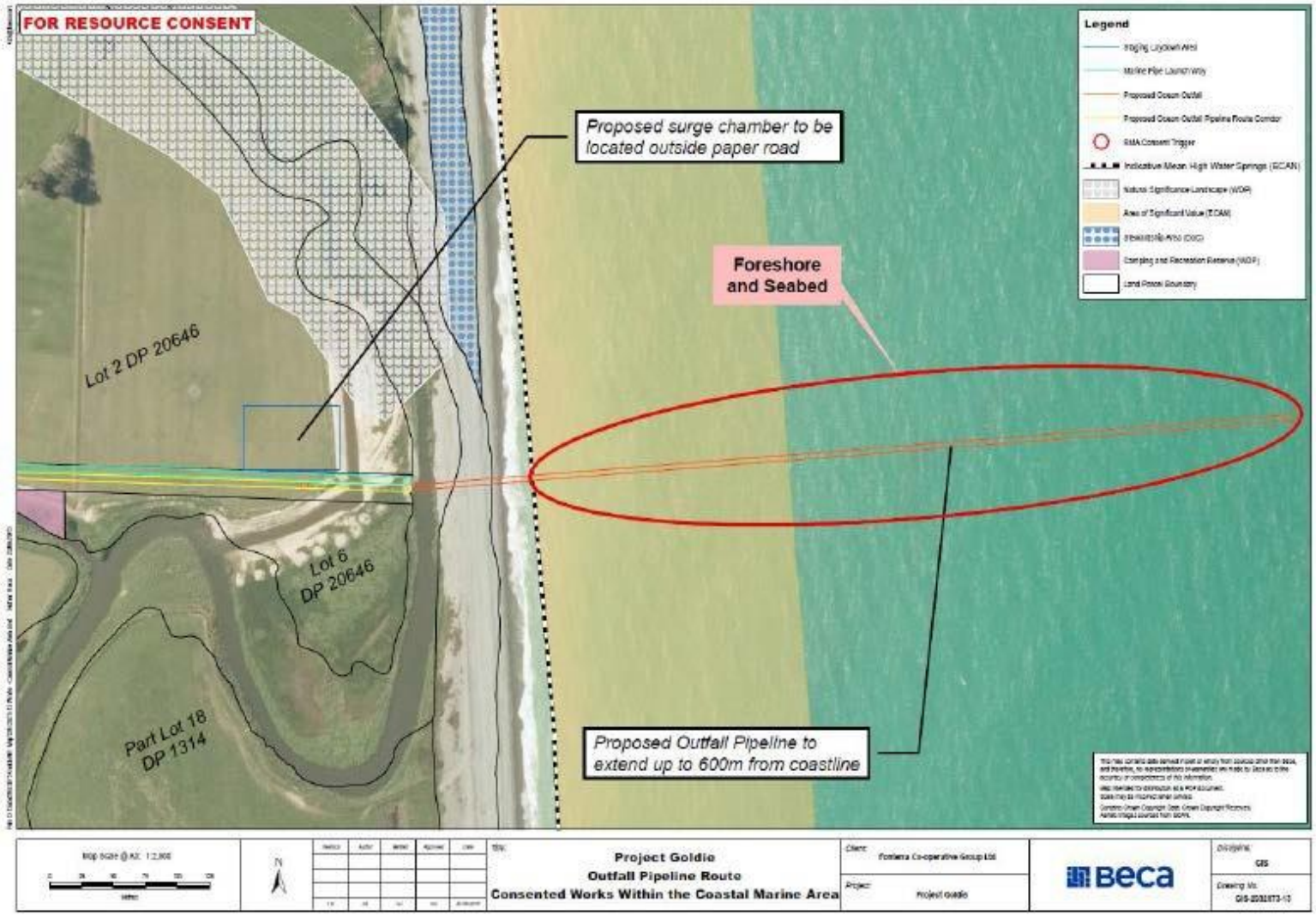
46	In the event that: (a) the Canterbury Regional Council certifies (and accepts the recommendations (if any) set out in the Future Monitoring Report, the consent holder shall implement the recommendations for ongoing monitoring, limits and monitoring reviews at the time certification is provided; or (b) if the Canterbury Regional Council confirms receipt but then fails to provide any further response to the consent holder within a period of 2 months then the consent holder shall implement the recommendations for ongoing monitoring, limits and future reviews.
47	In the event that there are no exceedances of the trigger values during the two year initial monitoring period required by condition 43, the consent holder shall, as a minimum, at the fifth anniversary of that period and thereafter every five years, do further sampling of the wastewater prior to the discharge to the outfall pipeline to assess: (a) *Pseudomonas aeruginosa; and* (b) *Listeria spp.* The results of this sampling shall be presented in a report (Five Year Anniversary Report) and be submitted to the Canterbury Regional Council within 2 month after the expiry of each five year period.
48	If a Five Year Anniversary Report shows exceedances of the trigger values for pathogens identified in column 3 of Table 3, the consent holder shall engage a qualified person with experience in the operation of waste water treatment plants to prepare a Future Monitoring Report. The Future Monitoring Report shall be prepared in accordance with the process set out in conditions 44 to 46.
	Benthic Monitoring
49	Five years after the commissioning of the outfall, and thereafter at ten yearly intervals, the consent holder shall undertake a benthic monitoring survey to determine the infauna/epifauna species composition and abundance, sediment grain size and sediment quality. The consent holder shall follow the same benthic monitoring methodology used in the baseline monitoring. Benthic sampling and analysis shall be undertaken by an appropriately qualified person. The survey data shall be collated into a report including: (a) data from, and results of, the survey work (including a discussion of those results); (b) an evaluation of any impacts on the benthic environment; and (c) Recommended measures to avoid, remedy or mitigate any impacts identified. The report containing the results of the survey shall be provided to the Canterbury Regional Council within three months of undertaking each survey.

	Sampling and Analysis
50	All sampling required under this consent shall be undertaken by a suitably qualified person who has completed appropriate training.
51	Any testing and analysis of samples required by virtue of the monitoring requirements of this resource consent shall be carried out by an organisation and laboratory accredited by International Accreditation New Zealand (IANZ) for the tests and analyses involved.
52	Notwithstanding any other conditions in this resource consent, the discharge authorised shall not give rise to any of the following effects beyond the mixing zone: (a) the production of conspicuous oil or grease films, scums or foams or floatable suspended materials; (b) any conspicuous change in the colour or visual clarity; (c) any emission of objectionable odour; and (d) any significant adverse effects on aquatic life.
	Annual Environmental Report
53	The consent holder shall provide an annual report to the Canterbury Regional Council by 30 September each year. The report shall include, but not be limited to: (a) a summary and interpretation of the data collected under the conditions of this resource consent; (b) a comparison of the results against results from previous years; (c) an explanation of any operational difficulties, changes or improvements made to the processes which could result in changes in environmental effects; (d) if applicable, an outline of any measures undertaken to mitigate any adverse environmental effects to prevent a reoccurrence and comment on the effectiveness of these measures; and (e) a discussion of any practical measures implemented to address standards or trigger value exceedances during the period.
	Complaints Register
54	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) the date, time and duration of the incident that has resulted in a complaint; (b) the location of the complainant at the time of the incident; and (c) any corrective action undertaken by the consent holder in response to the complaint, including timing of that corrective action.
55	The Complaints Register shall be made available to the Canterbury Regional Council (with a copy being provided to the Waimate District Council) at all reasonable times on

	request. Complaints relating to the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.
	Community Liaison Group
56	Within one month of commencing Construction Works, the consent holder shall place a public advertisement in the relevant local Waimate Community Newspaper inviting local residents and interested people to attend a meeting to establish a Community Liaison Group: (a) the invitation to attend and establish a Community Liaison Group shall be extended to include: (i) all property owners with boundaries adjoining, or but for the presence of roads and railway lines, immediately next to the site; (ii) local residents and businesses of Waimate; (iii) Waimate District Council and Canterbury Regional Council; (iv) Department of Conservation and Fish and Game; and (v) Te Rūnanga o Waihao; (b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and (c) the consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least twice per year.
57	The main purposes of the Community Liaison Group shall be to discuss with the consent holder: (a) construction management issues; (b) the results of all monitoring and reporting required under the resource consents relating to the Milk Processing Plant; and (c) any community concerns regarding the effects of the construction and operation of the Milk Processing Plant, including any road network issues arising from heavy vehicle movements.
58	Following establishment, the consent holder shall facilitate the continuation of the Community Liaison Group for the term of the consent. Other members of the community shall be able to enter and exit the group as they feel fit.
59	No water testing reagents containing 1,10-phenanthroline or other chemicals known to have high toxicity in the aquatic environment shall be discharged to the wastewater treatment plant.
	Archaeological Discovery
60	Prior to construction works associated with the pipeline (from the Waste Water Treatment Plant to the Ocean Outfall) the consent holder shall, in consultation with Te Rūnanga o Waihao, develop an archaeological survey plan for the purposes of informing the final design and the Construction Management Plan. The contents of the archaeological survey plan shall be approved by Te Rūnanga o Waihao.

61	If at any time during the site excavation authorised by this Consent potential historic artefacts or cultural remains or koiwi items are discovered then all earthworks within 20 metres of the discovery shall stop and the consent holder shall immediately advise the appropriate people at the Canterbury Regional Council, Waimate District Council, Heritage New Zealand and Te Rūnanga o Waihao: (a) the consent holder shall engage an archaeological advisor approved by Te Rūnanga o Waihao to verify whether or not the objects form archaeological evidence; (b) further excavation work shall be suspended should Te Rūnanga o Waihao wish to carry out their procedures and tikanga for removing taonga; and (c) if an archaeological authority is required, work may only recommence once the written approval of Heritage New Zealand and Te Rūnanga o Waihao has been obtained and a copy provided to the Canterbury Regional Council and Waimate District Council. Excavation work shall not recommence until approval to do so has been given by the Canterbury Regional Council and Te Rūnanga o Waihao.
	Review
62	The Canterbury Regional Council may annually, on the last five working days of April 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 adoption of the best practicable option to remove or reduce any adverse effect on the environment, or (c) requiring monitoring in addition to, or instead of, that required by the consent.
	Lapsing
63	This consent shall lapse ten years after the commencement date, unless the consent is given effect to before that lapsing date in accordance with section 125 of the Resource Management Act 1991.

Plan CRC160876A – Pipeline and diffuser location in the foreshore and seabed area



Plan CRC160876B – Pipeline location in the Coastal Hazard Zone