Before an Independent Commissioner
appointed by the Selwyn District Council

Under	the Resource Management Act 1991
In the Matter of	of Proposed Private Plan Change 50 to the Selwyn District Plan

Statement of Evidence of Elizabeth Stewart on behalf of Charlie and Sue Buttle

22 March 2017

Introduction

1 My name is Elizabeth Anne Stewart. I am a Senior Planner at Aston Consultants.

2 Mr and Mrs Buttle (the Buttles) have asked me to provide planning evidence in relation to their submission in opposition to Plan Change 50. The Plan Change is opposed for a number of reasons, including:

(i) the AEE and PC50 provisions fail to consider potential odour effects resulting from the expanded operations permitted under PC50;

(ii) the AEE is inadequate with respect to the assessment of landscape and visual effects;

(iii) the AEE Noise Assessment proposes a Noise Control Boundary. The Noise Assessment does not assess noise effects for outdoor living areas; and

(iv) the Traffic Assessment only considers the effects of PC50 on the operation of the SH73/Fonterra site intersection. There is no assessment of the effects of the anticipated increase in traffic movements on the amenity of neighbouring properties.

3 Before preparing my evidence, I have familiarised myself with the Application and have visited the properties owned by the Buttles.

4 In addition to reviewing the Plan Change, I have considered the S 42A Report prepared by Ms Foote and the evidence circulated on behalf of the Applicant on 8th March 2016.

5 I participated in Expert Conferencing on 23rd February 2017. The outcome of this was that Fonterra maintained:

(i) The extent of development could not be defined, as development contained within the Dairy Processing Management Area could encompass all aspects of the dairy industry and not necessarily limited to the assumption of driers and boilers;

(ii) Potential amenity issues generated as a result of offensive or objectionable odours would be mitigated or remedied through Regional Council approval;

(iii) The actual level of increase in vehicular (inclusive of tankers) and rail movements cannot be reasonably quantified as the proposed extent of development cannot be clarified. The Plan Change may not generate an increase in vehicle movements;

(iv) Fonterrra would review Rule E26.4 with respect to providing greater clarity on whether the creation of additional vehicle access points not in accordance with the ODP and its status and assessment matters;

(v) Fonterra would review Rule E26.1.5B in respect of providing certainty to the level of landscaping required in the ODP; and

(vi) Fonterra would review the relevant rules package in respect of colour restrictions to signage.

6 Although this is a Council hearing, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2014 and that I have complied with it when preparing my evidence. Other than when I state that I am relying on the advice of another person, this evidence is entirely within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Qualifications and experience

7 I have the following qualifications/experience:

(i) Bachelor of Science from University of Canterbury, Christchurch; and

(ii) Post Graduate Diploma in Resource Studies, from Lincoln University, Lincoln.

8 I have 14 years resource management and planning experience working in both local authorities and private consultancy firms.

9 I have had previous and ongoing experience working on subdivision and land use proposals both within and outside of greater Christchurch. I have also been involved in the preparation of private Plan Change Applications within the Selwyn District.

Scope of evidence

10 My evidence addresses the following matters:

(i) a brief background on the Submitter and a description of the receiving environment, and in particular the Submitter's property;

(ii) a brief outline of the Proposal; and

(iii) a consideration of matters of relevance including:

(A) Assessment of Environmental Effects;

(B) Section 32 Evaluation; and

(C) Statutory Considerations.

Summary

11 The proposed Plan Change will enable development which has the potential to change the rural and rural residential amenity of the Buttle properties principally in terms of odour, outlook, traffic generation and noise.

12 The level of potential change enabled under PC50 has not been adequately assessed by the Applicant, and is not in accordance with the requirements of Schedule 1 of the RMA. In particular, the assessment of traffic is incomplete and there is no assessment of odour effects which is a matter to be addressed by the District Plan. PC 50 will potentially result in an unacceptable and irreversible loss of amenity for the Buttles.

13 The extent of the proposal is not considered to be the most appropriate way to achieve the purpose of the Plan Change or the purpose of the Act. It is inconsistent with relevant District and Regional Plan and Regional Policy Statement provisions. The status quo is more appropriate than notified PC50.

Background to submitters/ description of local environment

14 Mr and Mrs Buttle own and reside at the adjoining farm to the south of Fonterra, legally described as Lot 2 DP 60325 and Lot 1 DP 434071. This is an existing 150ha block of land, presently used for dryland sheep farming. The Buttles' existing farm dwelling is located on the northern boundary of Homebush Road. The northwestern portion of this farm block is located within the PC50 proposed Noise Control Boundary.

15 I have discussed with Mr Buttle his experience of living on Homebush Road. He has advised that both he and his wife value the general quiet rural nature of the area, with little passing traffic, and generally pleasant fresh air qualities.

16 In addition to above, the Buttles have developed 157ha (Lot 2 DP 460046) of L2 zoned land at North Darfield located between Homebush Road, the Midland Railway line and Kimberley Road, approximately 1.7km south east of the Fonterra site. This has been developed as the Landsborough rural residential subdivision (currently 76 lots). There is a further 152 ha of Deferred L2A land to be developed. Deferred status is until a suitable potable water supply is available to service the subdivision and Outline Development Plan for the land has been included in the District Plan1. I understand that both of these requirements have been met so the deferment in effect no longer applies. The average allotment size is not less than 1 ha for the Deferred L2A land.

17 The Malvern Area Plan (adopted September 2016) identifies the Deferred L2A land as Darfield AR2. It states that this is an *"obvious area for future intensification….As the area has yet to be developed for residential purposes there is the potential for consideration to be given to more intensive development, such as an average allotment sizes of 5,000m2, to better utilise the finite land resource and achieve efficiency gains in respect to the provision of infrastructure services."* The Buttles submitted in support of the average allotment size here being reduced to 5000m2, more in keeping with market demand. The Hearing Panel reported that where a need is identified for additional residential development then the location and type of growth will be considered through the DPR process in line with strategic growth objectives and policies of the proposed Selwyn District Plan (pSDP). It is anticipated that the requested zoning 'intensification', which is supported by the Malvern Plan, will be considered as part of the Proposed District Plan Review which is likely to notify in 2018.

18 It is understood from the Buttles, that the existing developed parcels of L2 zoned land are (amongst other matters) enjoyed for their rural/residential lifestyle benefits and associated outlooks and rural residential amenities, including fresh air qualities.

19 In my view the Buttle land is sensitive to the further expansion of an existing industrial activity and caution is required to ensure that a tipping point is not reached beyond which the existing level of rural/rural residential amenity is unduly compromised for the Buttles and surrounding land. This is a particularly important consideration in the determination of this plan change.

Background to original Fonterra resource consents

20 The Darfield Fonterra Milk Powder Factory was established pursuant to land use and discharge consents issued in a joint Selwyn District Council/ECAN

[1] Rule 12.1.3.9

decision issued on 2 December 2010 (herafter referred to as the 2010 Decision). A total of eight consents were granted. 93 submissions were received on the SDC resource consent application with 60 in opposition. A total of 88 submissions were received on the ECan resource consent applications with 64 in opposition.

21 Key issues raised in respect of opposition to the proposal principally related to increase in traffic movements (in particular impacts of increased traffic through Darfield and tanker movements) landscape effects and air discharge concerns.

22 The Applications were granted with a suite of conditions to address matters raised in objections including management plans covering construction and operational phases relating to traffic, noise, dust and the establishment of a Community Liasion Group (see **Appendix A** for copy of the consent including conditions). These conditions address (amongst other matters):

(i) detail all best practice procedures, mitigation and methodologies required to ensure compliance with the proposed construction noise limits during both daytime and night time periods;

(ii) best practice procedures, mitigation and methodologies required to ensure compliance with the noise limits;

(iii) the results of all monitoring and reporting required under these consents;

(iv) any community concerns regarding the effects of the construction and operation of the Milk Powder Plant, including any road network issues arising from heavy vehicle movements;

(v) ensure that construction traffic and associated activities on roads and access ways adjoining and surrounding the site are planned so as to cause as little disruption, delay or inconvenience as is practicable to other users (such as pedestrians, cyclists and motorists) without unduly compromising safety, capacity and convenience on the adjoining road network; and

(vi) best practicable measures shall be taken to avoid or mitigate the dispersal and deposition of dust resulting from construction activities beyond the property boundary.

23 Subsequent to this Fonterra has obtained various landuse consents and discharge applications for Stage 2 to expand the Darfield Milk Processing Plant. It is understood the latest ECAN consent granted was CRC165424 for discharge of contaminants to air.

Brief outline of proposal

24 The proposal has been summarised in Ms Foote's 42A Report, so I need not repeat the detail here.

25 PC50 manages existing development and future expansion of the Dairy Factory operations largely through a proposed Outline Development Plan (ODP). While the land use consent conditions for the existing factory continue to apply to that development (assuming that it is not permitted under the plan change and continues to rely on that consent), they will not apply to any expansion permitted under PC50. This is a significant change in approach to management of environmental effects. PC50 introduces a generally more 'hands off' approach. There are no requirements for construction or operational management plans, and no provision for a complaints register or establishment of a Community Liaison Group for the purpose of discussing any community concerns regarding the construction and operation of the plant.

26 PC50 largely adopts the provisions of PC43, which introduced the ODP management approach for the existing Dunsandel Synlait Dairy Factory. I accept that the notified version of PC43 did include rules requiring approval of management plans with respect to some aspects of the factory operations, and that this was found by Commissioner Milligan to be ultra vires due essentially to lack of certainty with implementation of permitted activity rules.[2] The practical consequence is that for both PC43 and PC50 there is a heavy reliance on the ODP to manage effects, with a limited package of supporting rules.

27 The ODP defines the Dairy Processing Management Area and within this a Rural Buffer Area (where buildings must meet the Rural Outer Plains standards) and a Height Control Area containing sub-areas with different height limits. Mr Van Kekem notes in his evidence that the building height envelopes illustrated in the proposed ODP would allow for at least three additional 30 t/hr dryers (based on the current building foot prints). This would equate to a 295% increase in drying capacity. PC50 does not include a 'cap' on the scale of permitted expansion.

28 I note that the Marshall Day noise report included with PC50 assumes a doubling of the existing plant.

29 A development scenario based on a 'conservative' doubling of the plant size would result in:

[2] Commissioner Recommendation on PC43 23 February 2015

(i) two additional dryers (four total);

(ii) two additional boilers (four total);

(iii) a doubling of total daily traffic movements, from 460 to 920;

(iv) a doubling of daily tanker movements to and from the site from 260 to 520; and

(v) a doubling of rail movements to and from the Fonterra site.

30 The above estimates of traffic movements are based on extrapolation of figures referenced in the 2010 Decision as no figures are included in the PC50 application. There is no information on the total number of anticipated rail movements, with the only limit being a restriction on night time movements to two. Rail movements are exempted under PC50 from compliance with District Plan noise standards. The 2010 Decision notes that the peak times for workers cars and heavy vehicle movements are at shift change times i.e. 7am and 5pm.

31 A factory expansion would also presumably require expansion of the existing wastewater treatment and disposal facilities, including the wastewater treatment plant and wastewater irrigation. This is not addressed in notified PC50. The Applicant notes however that any additional discharges will require either a variation to the existing consents or a new consent. At the time of any expansion an assessment of any proposed activities will be in the context of the relevant statutory plan and their objectives and policies at the time.

32 I note that PC43 included an expert storm water report which demonstrated that there was sufficient area within the plan change area to manage runoff from future development. There is nothing equivalent for PC50.

Effects associated with PC50 development

33 I accept that there will be some beneficial effects associated with the potential Dairy Factory expansion enabled by PC50.

34 In terms of adverse effects, I consider that the impact on surrounding rural and rural residential character and amenity is the key adverse effect. Multiple factors can contribute to the overall amenity of an area. Amenity values include "*those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence"*.[3] In this case, in my opinion, noise, traffic, landscape and visual, and odour effects have the

[3] RMA s2

greatest potential to adversely affect amenity values of the receiving environment.

35 The Buttles' principal area of concern is the overall cumulative effects generated in respect of loss of amenity values as a result of the generation of offensive or objectionable odours, increase in traffic generation, noise associated with permitted development, particularly for future potential residential development within the Noise Control Boundary (NCB), and loss of rural outlook.

Rural and Rural Residential Character

36 As noted above, reports provided as part of the AEE have made the assumption that the proposal could facilitate a doubling of the size of the Darfield Fonterra Dairy Factory operation, which is already a major industrial complex in a farming locality close to Darfield Township. I accept that the potentially enlarged plant (say 4-6 dryers) will not be inconsistent with the size of other dairy factories in rural environments.

37 The nature of the receiving environment will clearly impact on what type and scale of development can be accommodated. I am not especially familiar with the PC43 site but note that it is a greater distance (7.5km) from a much smaller township (Dunsandel, 2015 population 496[4]) than the PC50 plant which is stated in the PC50 application as being 3.5km from Darfield, a growing rural service township, with a 2015 population of 2909 persons, projected to increase to 4141 by 2031.[5]

38 PC50 is substantially closer to zoned rural residential land located on the northern boundary of the existing developed Darfield township area. The existing Landsborough rural residential subdivision is 3.1 km to the south, and the northern extent of the undeveloped Deferred L2A land owned by the Buttles (which extends to Homebush Road) is 1.5km south. The substantially increased industrial scale of the plant will be clearly visible from the southern eastern quadrant of these undeveloped Deferred L2A rural residential sections (in particular the cluster of driers which will be at a height which cannot be mitigated by screen planting). Existing and anticipated dwellings are likely to be oriented towards the Dairy Factory, ie. north and west to the sun, and westerly views to the Southern Alps. A large industrial complex, albeit associated with rural activity, is not considered by Mr Buttle to be a desirable or anticipated outlook for this existing zoned rural residential area.

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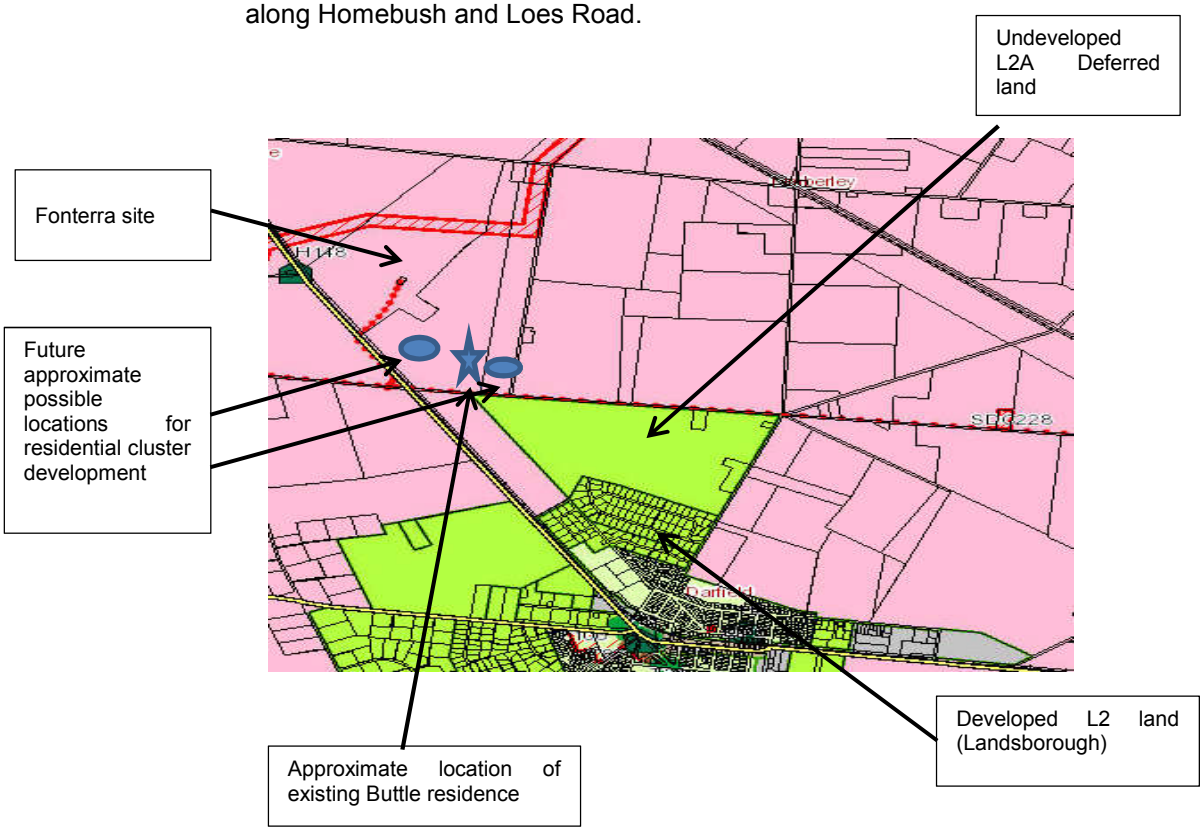
[4] Ellesmere Area Plan

[5] Malvern Area Plan

39 The Buttle farm dwelling is located approximately 1.3km south of the existing factory building complex. The significant intensification of built development and associated activities (roading, infrastructure, traffic, on site operations including loading and unloading activities) will further detract from the Buttles' appreciation of their otherwise rural living environment.

40 The Buttles are also concerned about the impact on possible future development on their property. They can establish a further 6 dwellings based on the Rural Outer Plains minimum allotment size of 20ha per dwelling. Alternatively they could establish two clusters of up to three dwellings each (this would require a restricted discretionary consent under District Plan Rules 10.11.23 and 3.10.3.6). On the basis that phone and power services are available along Homebush Road and that the Sheffield town water supply runs along that part of the land adjacent to the NCB in proximity to Homebush Road, it is not unreasonable to anticipate a potential residential cluster in the south west part of the Buttle's Outer Plains property. By virtue of the location of services along Homebush Road, it would not be unreasonable to further anticipate a second potential cluster in the south eastern part of the Buttles' site along Homebush and Loes Road.



41 The expectation of a rural setting for future dwellings would likely be negatively impacted by the proximity to the large industrial scale dairy factory, in addition to other impacts as discussed below.

Landscape and Visual Effects

42 On becoming operative the plan change will enable further development and alterations within the application site. This will be subject to the parameters set out in the ODP.

43 The ODP defines the location and extent of buildings and accessory structures. Within prescribed areas it further identifies the maximum heights of these structures. The height limits are generally pyramidal in form where the tallest buildings and structures are centrally located and descending toward the site periphery.

44 Based on the primary assumptions for the purpose of informing the ODP, the following is noted in the Application:

(i) Up to 2 additional dryers (total 4 dryers) and 2 additional boilers (total 4 boilers) with associated reception, drystores, roading, infrastructure etc.;

(ii) All major buildings and activities required for processing are located in accordance with the ODP i.e. within the Height Control Area in the ODP and with the tallest structures concentrated to the centre of that Area adjacent to the existing dryers; and

(iii) Landscape planting is established around the perimeter of the site and will be maintained to a high standard.

45 There is no proposed cap on factory size of production capacity proposed with the plan change and associated ODP. Mr Van Kekem has demonstrated that a production increase of 295% (three additional dryers and boilers) is not unrealistic.

46 The 2010 Decision discussed the proposed use of the Fonterra logo on each face of the dryer tower. The commissioner agreed with the Council's expert Landscape Architect that this would increase the adverse effect on the landscape and draw attention to the plant. A condition of consent required the Fonterra Blue (Cyan) colour of the signs be replaced with Grey Friars (reflectivity 8%) and/or Titania (reflectivity 67%) to mitigate these effects. These restrictions do not apply under PC50 which simply restricts all signage to corporate logos or colours. I also note that relative to the 2010 decision the plan change allows for an increase in signage on the building facade from 12m² (as noted in the 2010 decision) to 50m². Given the previous finding regarding impact of signage, and the potential for this to significantly increase under PC50, the proposed measures to mitigate the landscape effects of potential signage, in particular on the dryer towers, are in my opinion inadequate.

47 The 2010 Decision notes that the drier tower would not be lit at night.6 There are no night time lighting restrictions under the PC50 rules package. The only control is that (a) Light spill from any activity does not exceed 3 lux on any adjoining property or any road reserve; and (b) All exterior lighting is directed away from adjacent properties and roads. The visual and associated amenity effects of lighting of structures, in an otherwise predominantly unlit rural environment, has not been considered.

48 The Landscape Assessment states that the existing dairy plant is screened or on the verge of being screened by existing planting required under previous consent conditions. However, this is not at all apparent from a number of the visual graphics included in the Landscape Assessment (e.g see Photographs 7, 9 10, 13 and 16). In particular, having visited the Buttles' site and receiving environment, I note that the factory is in my opinion particularly evident from the corner of Homebush and Kimberley Road (ie L2a Zoned land), Loes Road and parts of Auchenflower Road. It is also particularly evident from eastern paddocks (ie by the NCB). This has not been fully detailed in the Applicant's landscape assessment.

49 The Landscape Assessment states that the dairy plant does not affect views of the Southern Alps from SH73. However, views of the Southern Alps from existing and potential future neighbouring dwellings are not considered, with the Assessment simply noting the closest existing dwellings are surrounded by existing vegetation. Mr Craig contends that if neighbours elect to remove vegetative screening then they do so knowing that visibility, or increased visibility, of the Dairy Plant may occur. I agree, however this ignores practical considerations such as the natural life of some plantings, or their intended purpose (eg firewood or sale). It also ignores an established planning principle that mitigation of environmental effects should not rely on 'off site' mitigation outside the control of the applicant, as this can be removed at any time.

50 I note that the Commissioners for the 2010 applications found that *"the effect of the proposed plant on what is an attractive and coherent landscape would be negative and this counts against granting consent, but we consider the landscape effects would not be as adverse as suggested by some submitters."* PC50 concentrates potential tall buildings and activity in the same part of the site (the Height Control Area) to avoid the 'dispersal' of visual and landscape effects to other parts of the site. Whilst I am not a landscape expert, I note that there will inevitably be an adverse cumulative visual and landscape effect resulting from the increased concentration of buildings and associated structures which cannot be mitigated in full by screening.

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[6] Paragraph 5.32 2010 Decision

Odour – planning matters

51 The AEE and PC50 provisions fail to consider potential odour effects resulting from the expanded operations permitted under PC50. It is understood that the Applicant does not consider potential odour effects to be a matter for assessment at the Plan Change stage as any future development that generates additional discharges to air will require separate air discharge consent from the Regional Council. Council's reporting officer in her S42A report considers that potential odour effects are relevant to consideration of PC50, but concurs with Mr Curtis's view that this can be addressed at the regional consenting stage and that no further controls are required as part of the Plan Change.

52 While I do not disagree with the role of the Regional council and their overarching responsibilities under s30 of the RMA for the control of discharges of contaminants to air, territorial authorities do have the primary responsibility for land use, which includes the location of activities that may discharge odours. Land use activities are therefore required to be managed through the District Plan to avoid adverse reverse sensitivity and amenity effects, including odour effects.

53 This approach is consistent with the function of territorial authorities under s31 of the RMA which include:

> (a) *"the establishment, implementation and review of objectives, policies and methods to achieve integrated management of the effects of the use, development or protection of land and associated natural and physical resources of the district…".*

54 This includes effects of land use on air quality and on amenity values[7].

55 The District Plan objectives, policies and rules framework is clear that odour effects are a matter to be considered by the District Plan. Specifically, Objective B3.4 – 'Quality of the environment' seeks to ensure that effects of activities maintain a 'pleasant place to work and live', amenity values and environmental quality. The Explanation and Reasons explain that this *"is achieved by policies and rules to manage effects such as noise, vibration, outdoor signage; glare and odour."*

56 The Plan rules include controls over other potentially odorous activities such as intensive livestock farming. For example, expansion of an existing intensive piggery production is a controlled activity under specified conditions, including

[7] those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

that the applicant has obtained an air discharge consent or if no consent is required a Certificate of Compliance from the Canterbury Regional Council, covering the discharge of odour from the proposed expanded piggery; and that the proposed expansion would result in a nil increase in overall odour emission rate from the site; and that the applicant has prepared a management plan to deal with activities that have the potential to produce an offensive or objectionable odour. The matters of control include any adverse effects from odour on surrounding properties and the effectiveness of any proposed mitigation measures incorporated into the management plan to address potential adverse effects. These matters also apply to restricted discretionary consents required for the established of new intensive livestock farming activities or expanding existing farms which do not comply with the controlled activity standards (see **Appendix B** for a full copy of the relevant rules).

57 Clearly, with respect to intensive livestock farming activity, District Plan rules are in addition to and complementary to regional council discharge consent requirements. The Reasons for Rules explains that this is because these activities have the potential for effects on surrounding properties or the environment, which therefore need to be managed through a resource consent process so that effects on surrounding properties and amenity values can be considered and affected parties identified.

58 It is my opinion that an integrated approach to management of effects of odour requires consideration of all available methods to control potential offensive and objectionable sources of odour, as opposed to the applicants' sole reliance on a future air discharge application to the Regional Council. If PC50 is approved now, ahead of any future discharge consent, then this may forego potential land use solutions (eg appropriate separation distances or a cap on potential expansion) for managing effects of odours resulting from future expansion permitted under PC50. This is particularly pertinent given that the existing operation is already at a level which is generating adverse odour effects for the Buttles.

59 Mr Van Kekem considers that the existing odour discharges from the site are at or about the offensive and objectionable threshold beyond the boundary of the site. This is despite the 2010 Decision condition 3(b) that "*discharges, including construction activities, shall not cause particulate matter or odour that is objectionable or offensive, in the opinion of a Canterbury Regional Council Enforcement Officer, beyond the boundary of the milk processing plant site".*

60 Mr Van Kekem has identified the limitations in enforcement of this condition. Reliance on the same condition to internalise odour effects from future operations is likely to have the same limitations.

61 Best practice is to utilise a 'bundle' of methods for addressing future odour effects. This could include internalisation of odour within the site; appropriate separation distances; and management of potential odours at 'source' i.e. by process design and management including management plans and odour treatment and control. [8]

62 Alternatively, where effects cannot be adequately identified (as is the case with PC50), or mitigated (not known in the case of PC50 given the absence of assessment) then there needs to be a 'cap' on the permitted level of development contained within the Dairy Processing Management Area, to a level where PC50 establishes that odour effects that can be internalised. PC50 rules should specify that development beyond this 'cap' will require resource consent so that actual and potential effects of a particular proposal can be addressed. As the Applicant has not produced any odour evidence regarding effects of future development 'enabled' under PC50, that cap should be the existing level of development consented under the 2010 Decision.

63 Clause 22 (2) of the RMA First Schedule clearly states that for a private plan change request *"Where environmental effects are anticipated, the request shall describe those effects, taking into account clauses 6 and 7 of Schedule 4, in such detail as corresponds with the scale and significance of the actual or potential environmental effects anticipated from the implementation of the change, policy statement, or plan."*

64 The assessment of effects arising from PC50 should be based on the full extent of development permitted under the plan change. It is not acceptable to simply state that the *'future is unknown and therefore potential effects associated with the future development are unknown'*. I note that with respect to noise, PC50 has a future development scenario based on a doubling of the scale of operations. It has not attempted to do this for odour effects.

Odour – existing effects on Buttle land

65 Based on review of all available information and site observations, in Mr Van Kekem's assessment, odour discharges from the existing operations are at or about the threshold of generating nuisance effects beyond the boundary of the Fonterra site.

66 In Mr Van Kekem's opinion, should the scale of plant increase allowed for under PC50 occur there will be significant increases in the frequency, intensity and duration of offensive odours detected beyond the boundary. The potential for further adverse effect is significant and likely to be widespread. The application

[8] The Ministry for the Environment Best Practice Guide Assessing and Managing Odour (2016)

is also silent on any potential effects associated with the likely corresponding increases in wastewater treatment and disposal, and energy plant capacity which both have the potential to emit odour.

67 As noted by Mr Van Kekem, the sensitivity of the receiving environment to odour varies, with residential land generally more sensitive than rural land. In accordance with the Ministry of Environment Good Practice Guide for Assessing and Managing Odour, it is noted that *Territorial authorities do, however, have the main responsibility for land use, which includes the location of activities that may discharge odours. District councils also have primary responsibility for managing the location of activities that are sensitive to discharges to air (eg, residential zones). Through managing land use therefore, district plan provisions manage the air quality effects of activities on sensitive land uses.*

68 The Ministry of Environment Good Practice Guide for Assessing and Managing Odour - Table 4, includes "Types of land use and the general sensitivity of the receiving environment". In this it is noted that residential land uses have a high sensitivity to the receiving environment and expect a high level of amenity in their homes and immediate environs.

69 The Buttle's Deferred L2A land and L2 land as residential land, is particularly sensitive to odour effects arising from potential air discharges. Sensitivity between different zones is reflected in the District Plan through different objectives, policies and rules and the subsequent general outcomes expected in those zones. The District Plan acknowledges that Townships in Selwyn are pleasant places to live and work in with, generally, low levels of pollution or nuisance effects and high aesthetic and amenity values. In this instance the Living 2 zones are noted as having character and amenity values most pleasant for living in (residential activities)[9].

70 In comparison to this, the District Plan acknowledges that Rural zoned land is principally a business area and the policies and rules are designed to allow people to undertake farming and other rural business activities relatively freely. In addition, the policies and rules acknowledge sites established for dairy processing activities and provides for the continued development of these sites in the Rural Outer Plains for the processing, testing, storage, handling and packaging and distribution of milk and dairy products, related by-products and ancillary activities. The District Plan has provisions to manage potential reverse sensitivity effects when the effects may be significant enough to create an unpleasant living or working environment. The District Plan does not address

[9] District Plan – Quality of Environment - Strategy

effects which the Council considers are a typical or normal part of the rural environment, and which are mild or of short duration. In my opinion, the dairy factory is potentially on the threshold of going beyond this test of effects that are mild or of short duration, due to unknown effects associated with future expansion, in particular with respect to odour. This is discussed further in Mr Van Kekem's evidence. Although the Rural zone provides for rural based business activities, the nature and extent of their environmental effects should not create an unpleasant living or working environment.

Traffic

71 The AEE does not address traffic generation arising from development under PC50, although the noise assessment assumes a doubling of tanker (heavy vehicle) and rail movements to and from the Fonterra site. At the expert conferencing on 24th February, experts for the Applicant could not clarify the actual level of movements to and from the site, on the basis that the future prospective level of development remained unknown. I note however that Ms Buckley states that "Fonterra has assessed that the maximum development scenario (ie maximum development in accordance with the ODP) would need the service of only two rail movements per night", indicating that Fonterra do have a maximum development scenario in mind.

72 I note that the Traffic Assessment only considers the effects of PC50 on the operation of the SH73/Fonterra site intersection. Relative to this, I note that PC43 (Synlait) included a traffic assessment that assessed traffic generation under eight different development scenarios.

73 There is no assessment of the effects of the anticipated increase in traffic movements (both rail and tanker) on the amenity of neighbouring properties, including the Buttle property, or any associated vibration effects. I also note that there is no assessment of tanker movement routes and effects on the wider receiving environment, including Darfield Township. This is considered to be an important issue given that tanker movements were of a matter of objection by submitters to the original Fonterra application.

74 The 2010 Decision notes that at that time there were approximately 29 Fonterra tanker trips passing through Darfield per day, and that, depending on the time of year, the proposed factory would lead to 111 additional tanker trips through Darfield. Assuming a conservative doubling of tanker movements, development permitted under PC50 would potentially result in around 222 tanker movements passing through Darfield on a daily basis. Submitters to the 2010 application raised safety concerns at road crossing points for children. The Commissioners found that at the level of 111 additional tankers, the main adverse effect would be on the amenities of the main street of Darfield. There will clearly be an adverse cumulative effect arising from the additional level of tanker movements

resulting from PC50 development, which could extend beyond adverse amenity effects for the main street.

75 The AEE states the following additional increases/principal access configuration is proposed as a part of the Plan Change:

(i) an anticipated total of 235 additional operational staff (total 435 staff);

(ii) increased vehicle generation managed within a threshold of up to 170+ vehicles exiting the site within 30 minutes; and

(iii) the primary vehicular access is maintained in the current configuration from SH1.

76 The 2010 Decision notes that the peak times for workers cars and heavy vehicle movements are at shift change times i.e. 7am and 5pm.

77 In the absence of any information from the Applicant to the contrary, in my assessment of the proposal I have adopted the assumption of an anticipated doubling of tanker and rail movements as anticipated in the noise assessment contained within the Application. This seems to be a conservative estimate, in light of Mr Van Kekem's estimate of additional plant capacity permitted under PC50 (up to 295% if there are 3 more dryers and other associated plant). I have made the following estimates of traffic movements based on extrapolation of figures referenced in the 2010 Decision as no figures are included in the PC50 application

(i) a doubling of total daily traffic movements, from 460 to 920; and

(ii) a doubling of daily heavy vehicles movements (including tankers) to and from the site from 260 to 520;

78 I have concluded that PC50 is inadequate in terms of its assessment of potential traffic effects.

79 I note that PC50 provides scope to create additional access points along the local roads which bound the Dairy Processing Management Area ie Auchenflower Road.

80 The proposed text changes to the Selwyn District Plan, as attached to the evidence of Mr Chrystal, include:

Outline Development Plan

E26.1.2 The location of all buildings, activities, and vehicle access points to the Dairy Processing Management Area, shall be in general accordance with the Outline Development Plans in Appendix 26A and 26B.

E26.4 DISCRETIONARY ACTIVITIES

Buildings and activities not located in accordance with Rule 26.1.2 and/or 26.1.3 shall be a discretionary activity.

81 Rule E26.4 specifically refers to 'buildings and activities'. In contrast to this the ODP general rule (E26.1.2) specifically refers to 'buildings', 'activities' and 'vehicle access points'. In light of this, it remains unclear as to whether the creation of additional 'vehicle access points' not in general accordance with the ODP would be assessed as a restricted discretionary, discretionary or non-complying activity by virtue of the specific elimination of the wording vehicle access points in Rule E26.4.

82 At present, it could be interpreted that non-compliance with Rule E26.1.2 could be assessed as restricted discretionary activity under rule E26.1.13 Access Design. In which case, assessment matters are limited to the effects on the safety and efficiency of traffic on the road network, safety of access to and from the State Highways, and intersection and road design.

83 The restriction in the assessment matters fails to consider any potential adverse effects of traffic on the amenity values of surrounding residents, in particular the Submitter (ie noise, dust, vibration). Recommendations included by Mr Chrystal do not seek to amend the relevant rules to cover amenity aspects.

84 I am therefore of the opinion that the proposed Plan Change in its current form has the capacity to adversely affect the amenities of the Submitters in terms of increased traffic generation, dust and noise as a result of the ability to allow for additional access points from Auchenflower Road.

Noise

85 Controls will be placed upon any new dwelling that seeks to establish within the NCB to ensure that it meets achieve specified internal acoustic criteria.

86 I acknowledge Mr Chrystal's evidence which notes that a NCB approach has been applied to a number of Fonterra factories in rural settings. However, the appropriateness in each case needs to be considered 'on its merits' having regard to the nature of the receiving environment.

87 Having viewed the extent of the NCB, I note that the southern portion of the NCB extends some 200m into the Buttles' adjoining 150h ha block of Rural

Outer Plains zoned land. While there are no dwellings currently in this area, new houses could be constructed in the future (see discussion above under paragraph 41). The potential to undertake a permitted activity should be considered as part of the anticipated receiving environment. Mr Buttle has owned his land prior to any Fonterra factory on the adjacent site, and the noise effects of its expansion are now being imposed on his land. This impacts on the potential to establish new dwellings, and the enjoyment of those dwellings, which would otherwise be permitted.

88 Mr Buttle's advice is that their Homebush property is already affected by noise associated with on site loading and unloading activities, including the use of fork lifts and trucks, with such activities commencing regularly at 6.30am. The Buttles are understandably concerned about the potential noise effects on their properties of significant potential future expansion permitted under PC50.

89 As part of the 2010 Decision, a number of submissions were received in respect of increase in noise levels. In determining the application, the Commissioners considered that it is important in this receiving environment that the noise is minimised, notwithstanding compliance with the District Plan standards which are more permissive that the rules for rural zones in many districts, and more permissive than World Health Organisation recommendations for residential areas. As such, the Commissioners imposed conditions requiring a complaints register with respect to noise (amongst other matters), Environmental Construction Management Plan to manage construction noise limits, a Construction Noise and Vibration Management plan, Operational Noise Management Plan and noise monitoring.

90 It is uncertain the extent to which these conditions would apply in respect of future development, although it is my assessment that at least the construction management plans would not. Mr Hay considers that the NCB will enhance the practicality of enforcement and certainty for all parties, which suggests that the NCB is to be applied going forward, rather than consent conditions. As such, I am of the opinion that the proposed Plan Change does not sufficiently address mitigation of adverse noise effects.

Conclusion on Effects

91 In terms of the key effect on amenity, I am of the opinion that development enabled under PC50 will result in potential cumulative adverse effects that will adversely affect the amenities of the Buttles' property when put into the context of the level of change to the existing receiving environment, including as appreciated by the Buttles.

92 The principle elements of amenity which will be adversely affected arise from the potential for adverse odour, traffic, noise and landscape and visual effects.

There will be an adverse cumulative effect resulting from the effects of the potential dairy factory expansion in combination with the effects of the existing level of development.

Relevant provisions of the Selwyn District Plan

93 In examining whether the provisions in the proposal are the most appropriate to achieve the objectives of the existing District Plan to the extent that those are relevant (s32(3)), I evaluate the proposal against the relevant objectives and policies of the District Plan. I have reviewed the PC50 s32 assessment against the relevant District Plan objectives and policies and also provide comments on this as appropriate. For a comprehensive list of the relevant objectives and policies please refer to **Appendix C**.

Plan Section - B2 Physical Resources: Transport Networks

94 PC50 only considers objectives and policies which seek to protect the efficient and safe operation of the transport network (Objective B2.1.1, Policy B2.1.2, Policy B2.1.3), requirements for roading standards necessary to meet the needs of activities utilising the road (Policy B2.1.4(a)) and encouragement of viable alternatives to road transport such as movement of freight via rail (Policy B2.1.19).

95 In my opinion, Objectives B2.1.2 and B2.1.4 are also relevant. These consider the effects of the transport network on adjoining land uses, requiring an integrated approach to land use and transport planning, and that adverse effects of land transport networks on natural or physical resources or amenity values, are avoided, remedied or mitigated.

96 In this case, the PC50 AEE has not addressed traffic effects of development enabled under PC50 on the surrounding network and adjoining land uses, focussing almost entirely on the capacity of the existing primary access point shown on the ODP.

B3 People's Health, Safety and Values

Quality of the Environment

Objective B3.4.1

Objective B3.4.2

97 In my opinion, Plan Change 50 cannot be considered as contributing to the rural area as a pleasant place to live and work in (Objective B3.4.1), maintaining rural character and avoiding reverse sensitivity effects (Objective B3.4.2).

98 The Explanation and Reasons notes that Objective B3.4.1 is to be achieved by maintaining the quality of the rural environment as a pleasant place to live and work through policies and rules to manage effects such as noise, vibration, outdoor signage; glare and odour. My assessment of the environmental effects of PC50 development is that the proposed ODP and rules package is inadequate in addressing potential effects relating to noise, traffic, landscape and visual effects (including signage and potential night time lighting) and fails entirely to address potential odour effects.

99 There are specific policies with respect to particular environmental parameters, including noise and vibration, glare and nightglow, and dust. With respect to Policy B3.4.12 Noise and Vibration, I note that continuous or regular noise is to be at a level which does not disturb people indoors on adjoining properties. Within the NCB area, this may only be achievable by requiring future dwellings be acoustically insulated to meet the relevant noise standards, and provision of a ventilation system that enables bedroom windows to remain closed. In my opinion, the 'polluter', in this case Fonterra should be responsible for mitigation of noise effects, not adjoining landowners.

Rural Character

Policy B3.4.1

Recognise the Rural zone as an area where a variety of activities occur and maintain environmental standards that allows for primary production and other business activities to operate.

100 Environmental standards must be set having regard to Policy B3.4.3 which requires significant adverse effects of activities on the amenity values of rural areas to be avoided, remedied or mitigated; and Policies B3.4.4 and B3.4.5 which respectively deal with rural based industry and more specifically, with established dairy plant sites. Policy B3.4.5 was introduced as part of PC43. It requires the integrated management of effects on the environment at the boundary of the Dairy Processing Management Areas through ODPs. In my opinion, PC50 does not achieve this. Not all potential effects are adequately addressed by the ODP and rules package (e.g. in relation to traffic, noise and landscape and visual effects) and some effects are not addressed at all (principally odour effects).

101 The rules package proposed does not accurately reflect the potential scale of development and consequential environmental effects that may be result. To that end, I do not consider that the proposed Plan Change provides certainty to the community and landowners that the future pattern of development will avoid remedy or mitigate adverse effects.

102 The Explanation and Reasons notes that the key element of rural character which distinguishes it from urban areas is rural outlook. Policy B3.4.7 seeks to avoid high rise buildings within the rural environment as these are generally out of character. Buildings within Dairy Processing Management Areas are exempted. However, this does not mean that any height and scale of building within the DPMAs is acceptable. There is still on overall obligation under Objective B3.4.2 and Policy B3.4.3 to maintain rural character and avoid, remedy or mitigate significant adverse effects of activities on the amenity values of the rural area. A significant portion of the additional tall buildings within the 55m height control area under an expanded dairy factory scenario cannot be screened and have the potential to be highly visible as viewed from surrounding existing and potential dwellings including zoned L2A land north of the existing Landsborough L2A subdivision.

Reverse Sensitivity Effects

Policies B3.4.19 and B3.4.20

103 These policies seek to ensure that new and expanding activities (including in this case an expanded Darfield dairy factory) are located and managed to mitigate potential adverse effects on surrounding properties; and that existing lawfully established activities (including in this case dwellings on the Buttle properties) are protected from such activities seeking to establish in close proximity.

104 It is my opinion that the proposal has not addressed all potential environmental effects which go beyond the Fonterra site boundary and therefore has not established the future potential development permitted under PC50 will be located and managed to mitigate potential adverse effects on surrounding properties.

Township Volume - Quality of the Environment

Objective B3.4.1

105 The explanation associated with Objective B3.4.1 states that townships in the Selwyn District are pleasant places to live and work in with, generally, low levels of pollution or nuisance effects and high aesthetic and amenity values, compared with metropolitan areas. Objective B3.4.1 seeks to maintain this quality of the environment.

106 The discussion above of environmental effects establishes that the as yet undeveloped further 150 ha of Deferred L2A land has the potential to be adversely affected by expansion enabled under PC50, in particular with respect to odour. I also discuss the potential for adverse traffic effects arising from significant increases in tanker movements through the township, including the

main street. These matters have not been adequately identified and addressed by PC50. I have concluded that PC50 is not in accordance with B3.4.1.

Objective B3.4.3

107 Objective B3.4.3 states that reverse sensitivity effects are to be avoided. Based on the discussion above, I do not consider PC50 is in accordance with this objective, as future expansion of the Dairy Factory may result in reverse sensitivity effects on existing residentially zoned L2 and L2A land.

Other Statutory Considerations

108 Section 74(2) requires the District Council to also have regard to proposed regional plans, management plans, the Historic Places Register, regulations or the Plans of adjoining territorial authorities to the extent that these may be relevant.

109 Regional Plans of partial relevance are as follows (please refer to **Appendix C** for a comprehensive list of relevant objectives and policies):

Canterbury Regional Policy Statement;

Objective 5.2.1 - Location, design and function of development;

Policy 5.3.2 – Development conditions (Wider Region); and

Policy 5.3.3 – Management of development (Wider Region).

110 The above objective and policies refer to the 'twin' requirements to enable rural based business which supports rural production, and avoiding reverse sensitivity effects or conflicts between incompatible activities thereby maintaining amenity values, the quality and character of the rural environment. For the reasons discussed above, I do not consider PC50 achieves this.

Objective 14.2.2 – Localised adverse effects of discharges on air quality

111 PC50 notes that Fonterra holds consents for discharge of contaminants to air from its established plant and that as development occurs within the DPMA over time, variations or additional consents may be required, depending on the nature of the activities and processes proposed.

112 As noted above, it is my understanding that whilst regional council air discharge consents may be required for additional facilities, land use activities are required to be managed through the District Plan to avoid adverse reverse sensitivity effects, including odour effects.

113 Other than reference to existing discharge consents held by ECAN the Applicant has not sought to consider potential adverse effects generated as a result of the proposed expansion of the Fonterra factory which could potentially adversely affect the amenity values of the Buttles. The proposal is considered to be inconsistent with Objective 14.2.2 which only enables discharges of contaminants to air where there are no significant localised adverse effects on social, cultural and amenity values and other natural and physical resources.

Proposed Canterbury Air Regional Plan

114 The following objectives and policies are of relevance:

Objective 5.8

115 The proposed Plan Change does not seek to provide any level of information which determines how additional discharges from the proposal will be managed in response to the receiving environment. Without this level of detail, it is considered that the proposal is inconsistent with Objective 5.8 which requires discharges from new activities to be appropriately located to take account of adjacent land uses and sensitive activities.

Objective 5.9

116 Amongst other matters, the criteria for assessing offensive or objectionable odour effects beyond the property boundary include the frequency of odour events, the intensity of events, the duration, and the location of the odour, having regard to the sensitivity of the receiving environment.

117 I am of the opinion that in this instance the Applicant has not assessed in any form or detail any of the above matters to determine if the proposal would generate an offensive or objectionable odour. To that end, I consider the proposal to be inconsistent with Objective 5.9 of the Canterbury Air Regional Plan (CARP).

Policy 6.1

118 Policy 6.1 of the Air Quality Plan seeks to ensure discharges of contaminants do not (amongst other matters) cause adverse effects on human health and wellbeing.

119 In my opinion that the proposal has neglected to consider the wider environmental implications of the proposed discharges to air which can adversely affect the general wellbeing of the Buttles and potentially others (eg existing and future residents with north Darfield L2 zoned areas), through the potential generation of offensive or objectionable odour.

Policy 6.14

120 Policy 6.14 seeks to ensure that in the absence of any information in respect of discharges, that a precautionary approach to assessing the effects should be adopted if there is a risk of high probability or high potential impact.

121 It is my opinion that due to insufficient information on the Applicants part with respect to potential impacts on air discharges than a precautionary approach should be adopted with respect to the expansion of the proposal. As outlined by Mr Van Kekem there is potential for further significant adverse odour effects in addition to those already experienced by the Buttles in relation to the existing Fonterra operations, with such effects likely to be widespread.

Industrial and trade activities and large scale fuel burning devices

Policy 6.20

122 Policy 6.20 specifically relates to the discharge of contaminants into air from large scale fuel burning devices and industrial activities. Policy 6.20 goes on to note that industrial activities shall identify the best practicable options to minimise effects.

123 In my opinion PC50 does not establish any practicable options to minimise effects on the receiving environment, other than to identify that consents may be required from the Regional Council. The opportunity to adopt land use controls to manage these effects, and provide certainty to both the Applicant and neighbours as to the acceptable extent of effects arises now and will have passed by the regional consenting stage. I therefore consider that the proposal is contrary to Policy 6.20.

Section 32 evaluation

124 As is required by Clause 22 of the First Schedule of the Act, the request for the Plan Change contained a s32A evaluation report. In summary the report concluded that:

(i) That the provisions of the proposal (to recognise the existing Fonterra Darfield dairy plant and to provide for its continuing efficient use and development) would be efficient and effective in achieving the objective of the proposal in respect of their environmental, social, cultural, and economic effects; and

(ii) That the provisions in the proposal are the most appropriate to achieve the objectives of the existing District Plan and the purpose of the Act.

Assessing the efficiency and effectiveness of the provisions in achieving the objective of the proposal (s32(1)(ii) and s32(2))

125 Section 32 of the Act requires consideration of the benefits and costs of the proposal when assessing efficiency and effectiveness. These benefits and costs apply to the proposed provisions in respect of their environmental, social, cultural, and economic effects. The most efficient and effective provisions incur the least costs and the most benefits.

126 Overall, I am of the opinion that the provisions assessed are not effective at recognizing and protecting the environment or social needs of the Buttles and potentially other residents in the vicinity and at Darfield.

127 With respect to environmental effects, I do not consider that the proposal has undertaken a robust assessment in respect of increase traffic volumes including tankers and rail movements in terms of loss of amenity values associated with noise, dust, vibration and capacity of local roads to accommodate potential increase in traffic. Nor has the proposal considered any environmental effects associated with the potential generation of odours.

128 I also consider that the proposal has not provided a robust assessment in terms of loss of amenity values in respect of reduced rural/rural residential character in respect of the Buttles' land, particularly in respect of land within and adjoining the Noise Control Boundary, the Buttle dwelling and existing Deferred L2 A and L2 zoned land.

Identifying other reasonably practical options for achieving the objectives of the proposal

129 In my opinion, PC50 does not provide for the Fonterra Darfield dairy factory's continuing efficient use and development in a manner that is consistent with the Act or the existing objectives and policies of the District Plan (see discussions under 'Relevant District Plan Provisions' and 'Part 2'). The PC50 s32 considers alternatives to achieving the objectives of the proposal as being retain the status quo, establish in an alternative location or inclusion of the DPMA in the Selwyn District Plan Review. I agree that all of these alternatives do have some disadvantages.

130 The key disadvantage of the status quo option is the ongoing costs and potential time delays associated with resource consents required for future expansion. However, consents will still be required for discharges associated with future expansion, and a joint hearing process will ensure an integrated approach, as occurred under the 2010 Decision. As both District and Regional Plans require consideration of amenity aspects, it is anticipated that there will be affected parties in the event of future expansion.

131 I accept that the DPMA approach has been accepted in principle as appropriate through PC43. However, it is critical that the ODP and rules package 'captures' and deals with all potential environmental effects of the maximum development capacity enabled within the DPMA (and NCB), as appropriate having regard to the receiving environment. This can be difficult when details of future expansion are unknown. However, the Applicant must have a reasonable idea of future development scenarios in order to have developed the Height Control sub-areas shown on the ODP. Environmental assessments are required of such matters as noise, odour and traffic and assumptions are inevitably made. There need to be controls on development to mitigate or avoid adverse environmental effects and it may be that an overall 'cap' needs to be placed on development capacity or other method to properly manage environmental effects. This has not occurred for PC50. With respect to potential odour effects, I do not support sole reliance on the air discharge consent process and a condition that the activity does not generate objectionable or offensive odours beyond the boundary of the site in the opinion of an ECAN enforcement officer. It is clear that this condition has limitations in relation to the existing consented development. On occasions an enforcement officer has not been available to visit a site to investigate an odour complaint, or the wind conditions changing between the time the complaint was made and the enforcement officer contacting the complainant. In my opinion maintaining the status quo is a more effective and efficient way of achieving the objective of PC50 than the notified PC50 ODP and rules package.

Risk of acting or not acting (s32(2)(c)

132 The Act requires assessment of the risk of acting or not acting if there is uncertain or insufficient information. In relation to this request for plan change I am of the opinion that there is insufficient information provided to determine the actual level of effects of the proposal and therefore uncertainty as to environmental outcomes if PC50 is approved. Approval of PC50 based on the notified plan change would carry the unnecessary risk of potential adverse environmental effects beyond the DPMA boundary, in circumstances where robust analysis could be undertaken to properly assess and address those environmental effects.

Examine whether the provisions in the proposal are the most appropriate to achieve the objectives of the existing District Plan to the extent that those are relevant (s32(3))

133 I am of the opinion that the proposal does not align itself with the District Plan objectives and policies for the District (as discussed above under 'Relevant District Plan Provisions').

Part 2 of the Act

134 In my opinion PC50 does not achieve the purpose and principles of Part 2 of the Act, in that

(i) it is inconsistent with sections 7(c) and 7 (f) of the Act as the proposed development neither maintains nor enhances amenity values or the quality of the environment; and

(ii) there will be obvious industry efficiencies in concentrating the Fonterra existing and future expanded processing operations at the one existing site. Notwithstanding, insufficient information has been provided to determine the actual level of effects of the proposal and therefore uncertainty as to environmental outcomes if PC50 is approved. In light of this, I cannot accurately determine if the proposal is an efficient use and development of natural and physical resources.

Section 42A Report

135 I have read the S42A report. I do not agree with the conclusions drawn from the report and supporting statements. I shall expand on this below:

Assessment of Effects

136 I note that in Ms Foote's assessment there has been no discussion on the scope of future expansion of the proposal, and whether Plan Change 50 has adequately considered the effects of the same. Instead it would appear that Ms Foote has accepted that the scope of potential development addressed in the technical reports is adequate - ie. Doubling stated in noise report.

Landscape and Visual Amenity Effects

137 The S42A report notes that Ms Foote concurs with both Mr Craig's and Mr Head's assessment that with the existing and proposed measures put in place, the effects on the landscape character will be acceptable and appropriate.

138 However, it remains my opinion that the plan change has not provided sufficient certainty with respect to landscape outcomes in terms of the proposed level of signage permitted, lighting and certainty into existing and proposed landscaping in terms of species and height. Furthermore, I maintain that the proposal has not given any specific regard to potential impacts on the Buttles' properties with respect to future potential residential development scenarios.

Traffic

139 Ms Foote concludes that she concurs with Mr Mazey that any transportation related effects will be acceptable.

140 Mr Mazey, Councils Asset Manager - Transportation sought clarification from Council's planner as to whether the Plan Change could allow additional site vehicle access points to be created without any controls or transport assessments being required. It is understood that Council's Planner noted that any additional access points would not be in accordance with the ODP. Therefore resource consent would be required and assessed as a fully discretionary activity.

141 As noted in section 85 of my evidence the PC50 rules need to be amended to provide certainty regarding this.

142 Mr Mazey also goes onto note that that *any alternative use of the Auchenflower Rd access would be a restricted discretionary activity. In either advent this allows any traffic effects to be assessed and conditions applied to protect the Councils and the public's interests. For example if there was a significant increase in traffic then the unsealed road(s) could be sealed and/or other upgrades undertaken by the Applicant. I believe this then caters for the submitters concerns on this issue if the situation changes significantly in the future.*

143 However, Mr Buttles concern also relates to increased tanker movements and resulting adverse effects on the quiet rural environment. The matters of discretion are not sufficiently broad to address this and imposition of such condition relating to road sealing would not resolve this matter.

144 Mr Mazey also goes onto state *that "there is also a proposed rule that requires the NZTA and KiwiRail's approval when site facilities and/or operations are expanded relating to the adequacy of the main accessway to SH73 and the rail level crossing. I would suggest this is expanded to also include any secondary access and/or impacts to local roads like Auchenflower Road. By Council being part of the approval process this also provides a further level of protection to the public - plus it avoids the possibility of solving a problem with any additional use of the main access by somehow transferring it to a secondary access (and adjoining roads)".*

145 1While this is noted as an improvement, this rule only relates to traffic safety and efficiency matters not amenity effects of traffic on the wider area.

Noise

146 I acknowledge the technical report prepared Acoustic Engineering Services that noise standards will be acceptable with respect to outdoor living and increased traffic.

147 With respect to the latter, I note that Acoustic Engineering Services Limited have indicated that if traffic on these roads doubles (ie local roads) , then this would result in an increase of 3 dB over the existing consented activity (and less than 3 dBA if there is already other traffic on these roads). Acoustic Engineering Services goes onto state that, typically if a traffic noise increase remains below 3 dBA, then we would consider noise effects will be acceptable without further assessment.

148 However, given Fonterra have not defined the maximum scope of development it is difficult to quantify the level and type of vehicle movements, or to confirm that increased noise would remain within the acceptable bounds identified by Mr Mazey.

Odour

149 Ms Foote concludes that overall she concurs with Mr Curtis's comments and considers that odour is a matter that is best dealt with by the Regional Council at the time any resource consent is sought from the Regional Council and that no further controls are required as part of the Plan Change.

150 Paragraph 87 of the S42A report states that *a number of submissions raise concerns about compliance with existing consents, citing this as a reason for requiring greater controls within the Proposed Plan Change*. I would however state that the concerns raised by Mr Buttle merely identify that there are likely to be odour concerns with any future expansion and that these potential effects should be considered now as part of the land use controls included as part of PC50. This would, for example, ensure provision is made for adequate setbacks accommodate future expansion in a manner that mitigates or avoids odour effects.

Air quality requirements in District Plan

151 Andrew Curtis notes that there is nothing in the operative Selwyn District Plan, from an air quality perspective which would impact on the operation of Fonterra, or any other milk processor, or large coal fired boiler operator. He goes onto note that there is a requirement in Sections 9.9 and 9.10 of the Plan to consider odour and dust effects from expanded or new intensive farms. I have discussed these rules under 'Odour effects – planning matters' above.

152 The approach of PC50 in relying soley on ECAN consents air discharge consents to address odour is inconsistent with the District Plan approach to other rural based activities that have the potential to generate odour.

How are Dairy Processing Sites dealt with in Other Regions?

153 Mr Curtis compares the Darfield site with other existing Dairy Processing sites around the country. Most are located within general industrial or business zones, with the Fonterra Studholme site being partly located in rural and Business 3 zones but having discretionary activity status. I note that Synlait dairy Processing site is located on the Rural Outer Plains zone.

154 Mr Curtis concludes by stating that *in essence this review has indicated that the proposal by Fonterra for a business type zone around its Darfield site is consistent with land zoning that has been applied to the majority of other dairy factories in Canterbury and Southland.*

155 In my opinion PC50 is not comparable. It is a 'spot zone' for the dairy factory contained within a rural and rural-residential receiving environment in close proximity to a township. In contrast to this, industrial and or business zones highlighted provide a dedicated area for a wide range of compatible business activities with an accordingly lower level of amenity anticipated within the zone. The respective zones are in some cases located adjoining lighter industry zoning to act as buffers and to ensure industry will not adversely affect the wider environment beyond the industrial/business zone.

156 Mr Curtis concludes that:

> *…having specific amenity requirements within the proposed Plan change would not provide any additional air quality related amenity protection over and above that contained in the resource consents; and*
>
> *this is because Condition 3 in Condition CRC 156761 essentially controls air quality amenity issues, with clause (a) requiring that there are no offensive odours or spray drift from irrigation of waste water, and clause (b) requiring that there are no offensive odours from the operation of the processing plant, beyond the consented areas. These are the same tests that would likely be applied by the district council, if some form of amenity control were included in the proposed plan change.*

157 I disagree. The District Plan rules and matters of control/discretion for other potentially odorous activities such as intensive livestock farming are wider – addressing odour effects, requirement for odour management plans, mitigation measures etc. Similar provisions but tailored to the circumstances of the dairy factory could be included. In particular, land use controls (including scale) to

mitigate odour effects are dealt with in the District Plan, providing greater certainty of potential for development to both the Applicant and neighbours.

Applicant's evidence

158 I have read the evidence of Mr Chrystal, Mr Craig, Mr Chilton and Mr Hay. I shall discuss these matters where relevant. To avoid duplication, I shall only discuss matters not already addressed.

Landscape – Andrew Craig

159 Paragraph 30 of Andrew Craig's statement of Evidence states:

> *…the plan change will result in a more permissive planning context for an enlarged version of what currently exists – colloquially: 'more of the same'. So apart from a potential size increase, the appearance of the Dairy Plant will stylistically remain the same.*

160 I note that the landscape assessment appears to have neglected to consider potential impacts of signage on the amenities of the wider landscape.

161 In respect of Mr Craig's comments in paragraph 72 which state that:

> *.... The conditions of consent are sufficient in my opinion to properly implement the landscape plan subject to them and to maintain the landscaping thereafter.*

162 It is my opinion however that in order to provide a high degree of certainty the ODP should be precise in terms of species required with respect to landscaping (both existing and proposed). Without this monitoring compliance is problematic. At present, the ODP remains vague. I note that for Plan Change 28 (Denwood Trustees, proposed Rural Residential (Living 3) zone, Lincoln), the ODP included a list of the permitted species to be planted (copy attached as **Appendix D**).

Planning – Dean Chrystal

Noise Control Boundary

163 Paragraph 52 of Mr Chrystal's Statement of Evidence states:

> *In terms of PC50 the control of noise through an NCB provides greater certainty and is beneficial for existing neighbours because it requires a standard to be met at the NCB rather than the notional boundary, which in most cases, including the Buttles, is much closer to existing dwellings.*

164 I note that that this statement is excludes consideration of future development potential within the noise control boundary, as is the foreseeable case for the Buttles. At present, the inclusion of a Noise Control boundary on the Buttles' land limits future development potential in terms of reduced amenity.

Odour

165 With respect to issues raised in regard to odour and in particular Mr Chrystal's commentary that *any future air discharge will require a further consent to be obtain from CRC and at this stage it is simply unknown as to what if any discharge that might be*. I would again reiterate that it is my understanding that in accordance with Schedule 1 (22) (2) of the RMA where environmental effects are anticipated, the request shall describe those effects, in such detail as corresponds with the scale and significance of the actual or potential environmental effects anticipated from the implementation of the change. In my opinion it is not sufficient to state it is unknown what the discharge might be.

Landscape and visual effects

166 Paragraph 56 of Mr Chrystal's evidence notes that *PC50 requires that the landscaping identified on the ODP to be retained or resource consent sought if it is to be removed.* As noted earlier in my statement of evidence, I remain unsure how this will effectively be implemented through Rule E26.1.5B given the ODP does not provide sufficient clarity as to the species that are sought to be retained or replaced if removed.

Traffic

167 Mr Chrystal notes in paragraph 59 that *Any increase in traffic or rail on the site and outside of designations will be required to meet the noise requirements set by the NCB as referred to above thus ensuring the impact on neighbouring properties is taken into account in this regard*. It is my understanding from the intent of the relevant noise rules that rail movements are excluded from the noise requirements.

168 Mr Chrystal also goes onto note that Condition 46 of RC 115199 (the Stage II consent for the existing operation) remains applicable regardless of PC50, thus limiting any adverse effects of tankers. At present I consider there is potential for uncertainty as to when Fonterra is operating under existing consent conditions and when it is simply relying on Plan Change provisions. This uncertainty could be addressed by incorporating those conditions which should also apply to future development into the rules of the proposed Plan Change.

Access Design

169 In respect of Rule E26.1.13 and E26.1.14 scope is potentially given to create additional access points from local roads and potentially change the function of the identified secondary access point as a restricted discretionary activity. I note that amendments made by Mr Chrystal do not address the effect of potential alternative access routes on the amenity of neighbouring properties, including the Buttles.

Conclusion

170 A key feature of the PC50 is the potential to at least double the size of the existing operations.

171 Development enabled by PC50 has the potential to substantially diminish the Buttles' amenity, with respect to potential odour effects, potential for increase in traffic generation along Homebush Road (in the event that future restricted discretionary consents are granted for changes to the ODP access arrangements without any requirement to consider amenity effects arising), noise and landscape and visual effects, particularly associated with the tall dryers and flues and potential signage on these buildings. I consider potential effects of the proposal in terms of loss of amenity values are significant.

172 PC50 does not address how adverse effects arising from future 'enabled' development will be established or carried on in such a way as to avoid, remedy or mitigate any adverse effects on the environment, with particular reference to the effects on the Buttles' property.

173 Overall, I consider the level of potential change enabled under PC50 has not been adequately assessed by the Applicant, and is not in accordance with the requirements of Schedule 1 of the RMA. In particular, the assessment of traffic is incomplete and there is no assessment of odour effects which is a matter to be addressed by the District Plan.

174 On the basis of that I conclude that the extent of the proposal is not considered to be the most appropriate way to achieve the purpose of the Plan Change or the purpose of the Act. It is inconsistent with relevant District and Regional Plan and Regional Policy Statement provisions. The status quo is more appropriate than notified PC50.

175 In my overall view therefore, the Application should be declined.

Liz Stewart

14 March 2017

Appendix A Decision on Fonterra Darfield Milk Powder Plant Resource Consents

In the matter of	Applications to the Selwyn District Council (R105211) and the Canterbury Regional Council (CRC103450, CRC103589, CRC103592, CRC103594, CRC103596, CRC103695, CRC103696) by the Fonterra Cooperative Group Limited for a proposed Milk Powder Plant near Darfield.

DECISION OF HEARINGS COMMISSIONERS DAVID WILLIAM COLLINS, MICHAEL CONRAD FREEMAN AND JOHN GRAHAM ISELI

Hearing:	**18 - 22, 26 - 28 October 2010, Darfield Recreation and Community Centre**
Site:	**680 hectares, 3.5 kilometres north-west of Darfield, fronting State Highway 73, near Racecourse Hill**
Zoning:	**Rural (Outer Plains) Zone in Selwyn District Plan**
Activity Status:	**All the applications are for discretionary activities**
Decision:	**All the consents sought are granted for the durations sought, with conditions**

1. APPOINTMENT

1.1 We have been jointly appointed and empowered by both consent authorities to determine all the land use consent and discharge permit applications associated with the proposed Darfield Fonterra Milk Powder Plant.

1.2 We have visited the site and the surrounding area, and in particular we have viewed the position of the proposed plant within the site and we have visited "The Oaks" property.

1.3 The proposal is for a major development and we have had the benefit of comprehensive application documentation, stringent assessments by council reporting officers, and some detailed critiques by submitters in opposition. All of these documents are currently available on the Environment Canterbury website and will always be publicly available from the records of the two consent authority councils. We have therefore not attempted to set out all the information and evidence in this decision; rather we have focussed on the central facts and key evidence relating to the aspects of the proposed development in contention, and the aspects where we consider there is potential for adverse environmental effects.

2. THE PROPOSAL

2.1 The proposal is fully explained in the comprehensive application documents, but in summary, the applicant, Fonterra Co-Operative Group Ltd, (referred to as "Fonterra" in this decision), propose to construct and use a large milk powder factory on the site and use the site for the treatment and disposal of wastewater generated by the milk drying process.

2.2 The 680 hectare site straddles State Highway 73 approximately 3.5 kilometres north-west of Darfield, near Racecourse Hill. It is made up of a number of parcels of land which Fonterra has bought or has an option to buy. Most of the site is a grazing and cropping farm with pivot irrigation. The land is gently sloping and is divided with fences and shelter belts. There are five dwellings and some farm buildings within the site.

2.3 Legal access to the site is available from several roads but the proposal is to take access for the main block on the north-eastern side of the State Highway where the factory would be sited from a proposed upgraded access from the State Highway. There would be an emergency access from Auchenflower Road. While the current intention is to bring in milk, fuel

and other materials by road, and transport the milk powder away by road, consent is also sought for a rail siding from the Midland Railway which runs alongside the State Highway next to the site.

2.4 The factory would occupy about 12 hectares of the main area of the site, and would be set back about 650 metres from State Highway 73 and about 680 metres from the nearest dwelling outside the site – "The Oaks" - an historic accommodation house. The milk powder plant would process up to 2.2 million litres of milk per day (depending on the season) and would be capable of producing up to 16 tonnes of milk powder per hour. It is noted in the application that Fonterra may wish to increase production on the site in the future, and considers the site is large enough to handle liquid waste disposal and traffic from a larger operation, but the proposal we have assessed is limited to what is described in the application.

2.5 The main features of the proposed development are:

- 30MW nett solid fuel fired boiler (emission stack 60m high), coal/biomass delivery and associated bag house filtration of the discharge;
- A milk powder drier building (maximum 52.25m high) with two stacks extending 7m above the building and associated bag house filtration;
- Wet process plant;
- Silos and associated pumps;
- Waste water and sewage treatment systems and disposal to land;
- Ancillary plant, including milk delivery, tanker washing, pump sheds, storage areas and workshops. Gas plant and chilled water plant;
- Stormwater disposal areas;
- Earthworks of approximately 60,000m^3 of material;
- Rail sidings, parking and internal access roads;
- Storage of hazardous substances; and
- Landscaping and signage

3. NOTIFICATION AND THE HEARING

3.1 The resource consent applications were lodged with the Selwyn District Council (SDC) and the Canterbury Regional Council (ECan) in early July 2010. The applications were publicly notified on the 31st of July 2010, and the 3rd and 4th of August in various newspapers.

3.2 There were 93 submissions on the SDC resource consent application, four were neutral, 29 were in support, and 60 were in opposition. There were 88 submissions on the ECan resource consent applications with one neutral, 23 in support, and 64 in opposition.

3.3 Two written approvals were lodged. One was from Ms Deborah Francis and the other from Central Plains Water Ltd. Ms Francis' property is opposite one corner of the application site, on the south-eastern corner of the State Highway and Gunns Road. Central Plains Water Ltd is a Requiring Authority under the Resource Management Act (the Act) and has issued a Notice of Requirement for a Designation for a proposed irrigation canal through the application site. This is subject to appeals, but has interim effect. In accordance with section 104(3)(a)(ii) of the Act we have had no regard to potential adverse effects on Ms Francis or Central Plains Water Ltd.

3.4 Further information on mainly traffic matters was requested by SDC on the 15th and 21st of September 2010, after the application was publicly notified. Responses were received from the applicant on the 16th and the 22nd of September 2010. In addition, the applicant provided a plan on the 29th of September 2010 of the proposed sign at the site access which was inadvertently left out of the application. The Applicant also provided further information on the 29th of September 2010 about the stability of the land following the earthquake on the 4th of September.

3.5 On the 30th of September the applicant provided an amended site plan, which moved and extended the proposed rail siding, removed the rail link to the boiler (coal would be in containers on trains and the containers transferred to the boiler), and relocated a proposed earth bund. We are satisfied that these amendments are within the scope of the application notified because they would tend to reduce potential adverse effects and would not introduce any significant new effects.

3.6 The following is a summary of some key points made by hearing participants. Our conclusions about the evidence and submissions are discussed mainly under the various headings later in this decision. However, we have also included some specific commentary in relation to points made by some submitters in this section where we consider it particular relevant.

The Applicants' Representatives

3.7 Ms Jo Appleyard – legal counsel. Ms Appleyard presented an overview of the applications and the legal assessment framework. She noted that the proposed factory would be of similar size to the Synlait plant on State Highway 1 near Dunsandel which also has the capacity to process 2.2 million litres of milk per day, and would be much smaller than the Clandeboye plant which can process up to 13 million litres of milk per day. She submitted that in considering the "receiving environment" for the plant we cannot take into account the development aspirations expressed by the owners of some adjoining land (the Buttles). We accept that,

although as she acknowledged, we can and should take into account permitted development on nearby land as discussed below.

3.8 Mr Brent Taylor – Fonterra Director of New Zealand Operations. Mr Taylor described the nine existing Fonterra milk processing plants in the South Island, the increasing milk supply and the current inefficiencies of transporting large volumes of milk for long distances to where there is processing capacity. He described why it would be most efficient to locate a new milk processing plant in the general area of Darfield, stating: "*... it is likely the furtherest any tanker based at Darfield will have to drive to a supply farm is 40 kilometres*". Mr Taylor described the advantages of the Darfield site, and discussed other sites considered: rural properties and the IZONE near Rolleston.

3.9 Mr Barry McColl – Fonterra National Transport Manager for New Zealand Operations. Mr McColl described the complex computer programme used to schedule tanker pickups from farms efficiently, noting that the routes to be used by a driver are displayed on a dashboard mounted electronic route map which does not provide for short cuts using metal roads (a concern mentioned in some submissions). The Global Positioning System (GPS) transponder mounted on each tanker allows the route and progress of each tanker to be monitored in real time. Mr McColl noted that there is approximately 2.2 million litres of milk being produced and supplied to Fonterra from within a 40 kilometre radius of the application site now and that the proposed plant would lead to a reduction of almost 20,000 kilometres per day (on current milk volumes) travelled by Fonterra tankers on Canterbury roads.

3.10 Mr Ian Goldschmidt – Fonterra Environmental Manager – Southern. Mr Goldschmidt described the factors used in selecting the site and reasons for selecting the area within the site to be used for the plant itself. This has to be within the part of the site on the north side of the state highway so as to avoid a rail spur across the highway. Mr Goldschmidt described the consultation with neighbours and other parties, which he co-ordinated.

3.11 Dr Robert Fieldes – consultant mechanical engineer. Dr Fieldes described the energy requirements of the proposed plant and the options available, concluding that although the boiler could be fired with biomass, for security of supply it is more likely to be fired by coal. He noted that the fuel bunkers would be underground and covered.

3.12 Mr Rob Hay - acoustic consultant. Mr Hay described the existing noise environment noting that the present night time noise measured is highly variable. He described the predicted noise sources and levels at the proposed factory based on the experience of measuring noise at other dairy factories, especially new facilities at Edendale in Southland. He confirmed that the relocation of the proposed rail siding would lead to lower noise at the nearest dwellings. Mr Hay noted that as the plant would operate 24

hours per day, the night time maximum noise standards in the Selwyn District Plan would be the control on operational noise. His computer modelling predicts that the standards for the Rural (Outer Plains) Zone would be met at the nearest dwellings and that the Living Zones are too far away from the plant for the standards applying to them to be relevant. His modelling was based on a worst case assumption that all the tankers based at the plant would leave within 15 minutes of each other.

3.13 Mr Richard Chilton – air quality consultant. Mr Chilton described the proposed discharges to air, and the methodology he used to assess and model these. He considered that the dispersion modelling methodology and the assumptions he had made resulted in conservative predictions of contaminant concentrations. Mr Chilton explained that the modelling had assessed the effects of both possible drier building options (38m and 52m high) and the effects of burning either coal and/or wood fuel.

3.14 Mr Michael Dent – electrical engineer. Mr Dent described the proposed lighting of the plant, indicating that although it is necessary for safety to light stairs, walkways, building entries, vehicle circulation areas, etc, it is not proposed to light the entrance drive (apart from the intersection) or to light the drier tower.

3.15 Mr Jason Blair – visual simulation specialist. Mr Blair described the process used to provide the computer-generated photo-simulations used by landscape architect Mr Craig for his assessment.

3.16 Mr Andrew Craig – landscape architect. Mr Craig described the "receiving environment" within a 2 kilometre radius, which he described as a "*fully modified*" landscape. In his assessment there is no viewpoint where one can appreciate the full extent of the site because of the shelter belts around and within the site. He noted that the curve in the access road would mean that there is no view of the plant up the access road. Mr Craig noted that when travelling on State Highway 73 from Darfield, the plant would be screened by McHugh's Plantation, and from the end of the plantation the proposed factory would be to the north east of the observer and not viewed against the mountains. He noted that the nearest public viewing point of the plant would be Auchenflower Road – a distance of 600 metres, compared to the 180 metre set back of the Synlait factory at Dunsandel. Mr Craig expressed the view that although the drier tower at 52 metres (or 38 metres, depending on the supplier) would be significantly higher than the 12 metre District Plan standard, the substantial distances from the boundaries of the site would mean that the tower had similar dominance and shading effects to potential complying buildings. He acknowledged that 29 submissions expressed concerns about effects of the factory on landscape, but expressed the opinion that the substantial additional planting proposed would completely screen all the factory structures apart from the drier tower and the three flues from all boundaries within a few years.

3.17 Mr Andrew Carr – traffic engineer. Mr Carr described the traffic expected to be generated by the proposed plant, the proposed intersection of the 1.2 kilometre 2-way sealed access road and State Highway 73, and the proposed upgrade of the railway crossing. In his assessment the operation of the plant would not cause any traffic safety or road capacity issues. He put forward matters to be covered in a construction management plan in order to minimise adverse traffic effects. Mr Carr also addressed proposed use of the Waimakariri Gorge bridge which Mr McColl had earlier described as important for minimising travel distances to the proposed factory. Mr Carr's evidence was that at present there are between 11 and 29 Fonterra tanker movements per day across the bridge and this would increase to between 29 and 60 movements (depending on the season). At present the bridge carries an average of 1,530 vehicles per day, of which 153 are heavy vehicles. The District Council's website indicates that the bridge deck is due for renewal. The applicant has offered the sum of $40,000 to the Selwyn District Council if consent is granted to fund a study of the bridge and its approaches. We note this is volunteered; it is not something that could be required by a condition of consent. Mr Carr addressed road safety concerns raised by submitters, noting that the greatest number of tanker movements would occur shortly before and after shift changes, which do not coincide with the start or end of the school day.

3.18 Mr Allen Ingles – storm water and waste water engineer. Mr Ingles described the proposed storm water and domestic waste water disposal systems for the proposed factory. He expressed the view that no wells are close enough downstream to be affected by the discharges to land and that the nitrogen loading would be similar to that under grazing. He indicated that the proposed sewage disposal to sub-surface irrigation would not create any detectable odour.

3.19 Dr John Russell – environment scientist. Dr Russell addressed the proposed systems for treatment and disposal of two streams of wastewater from the proposed plant – wastewater generated by cleaning of the plant and the relatively clean wastewater produced during the evaporation process. The wash-down water would be treated before mixing with the cleaner process wastewater, and then irrigated onto a minimum area of 211 hectares. During periods of wet weather and snow fall the volume irrigated would be reduced by storing some or all of the clean process water in a 50,000m^3 storage lagoon. Dr Russell described the soils of the application site and the irrigation regime proposed, noting that only 25mm of waste water would be applied during each irrigation cycle (15mm during wet weather) and the average return cycle for irrigation would be 16 days. Dr Russell described how the AgResearch OVERSEER^{TM} nutrient budget model has been used to estimate nitrate leaching and various nitrogen balance parameters for the irrigation area. A dry stock/cropping system is proposed with approximately 10.5 stock units per hectare and with about half of the available pasture being harvested and removed from the site. Dr Russell

noted that at times it would be necessary to supplement the water produced by the plant with water from the Waimakariri River available under two existing resource consents to maintain farm production. (Some submissions expressed concern that the factory would require water in an area where water is already substantially allocated, but Dr Russell provided evidence demonstrating that the factory would apply far more water to land than it uses).

3.20 Mr Richard Heslop – Project Manager, Kiwirail Limited. Mr Heslop described how the proposed rail spur would operate. A "*rake exchange*" system is proposed where wagons remain coupled as "*rakes*", which reduces shunting and the coupling and uncoupling of wagons. He described the increasing volumes being carried on the Midland Rail Line, and indicated that with 35 trains passing the crossing every 24 hours and a projected 440 vehicle movements generated by the proposed factory, the crossing will require the installation of flashing lights and bells. Understandably, Mr Heslop expressed enthusiasm for the rail option for the movement of fuel and product.

3.21 Mr Robert Bower – water resource engineer. Mr Bower described the nature of the hydrogeology and groundwater resources in the Darfield locality and computer modelling undertaken to predict the effects of the proposed waste water irrigation. His conclusion was that even using conservative modelling assumptions the proposed wastewater disposal would not lead to nitrate-nitrogen concentrations greater than 11.3g/m^3 – the standards specified in Objective WQL2 of the Proposed Natural Resources Regional Plan.

3.22 Mr Robert Greenaway – recreation consultant. Mr Greenaway discussed potential adverse effects on recreation and tourism, expressing the view that potential effects would arise only from visibility of the plant and traffic generation. On the basis that the plant would be well screened, he expressed the opinion that visibility would not significantly affect the experience of visitors to the area. In relation to traffic, he noted that State Highway 73 is a heavy traffic route as well as a tourist route. He noted that the application site is not near one of the recreation and tourism focal points, and that local use of the McHugh's forestry block would not be undermined because once within the plantation users have only limited visibility of the areas beyond.

3.23 Ms Justine Ashley – planner. Ms Ashley described the relevant provisions in the Selwyn District Plan and expressed the view that this is a proposal for a rural-based activity so is in accordance with the intentions of the Selwyn District Plan.

3.24 Dr Sarah Phear – archaeologist. Dr Phear's evidence focussed on the three heritage items in the vicinity of the application site listed in the Selwyn District Plan. They are The Oaks historic homestead, the Racecourse Hill

homestead, and the Railway "long drop" within the railway reserve. In her assessment the heritage values of these items would not be adversely affected by the proposed development, provided the visual effects are mitigated as proposed. In her assessment the two heritage houses would retain their rural context.

3.25 Ms Fiona Stewart – valuer. Ms Stewart provided an analysis of the market for farmland in various sized blocks in this area, noting that the District Plan allows subdivision and housing to a density of 20 hectares. Her conclusion was that, given the underlying value of farmland in this area for production compared to the value of large rural-residential lots, there is no incentive for subdivision to the minimum 20 hectare size. Ms Stewart also suggested that the land zoned Deferred Rural-Residential between the site and Darfield could be expected to gain value because of demand created by the employment provided by the proposed plant.

3.26 Mr Michael Copeland – economist. Mr Copeland described the expected economic impacts of the development, in particular discussing the benefit from reducing tanker travel and the economic benefits of dairying.

3.27 Mr Dean Chrystal – planner. Mr Chrystal provided a comprehensive overview of the planning issues raised by the applications, particularly the application for land use consent. He noted that "*rural-based industrial activity*" is provided for by the District Plan and in fact a dairy factory is given in the Plan as an example. He indicated that in his view the large signs on each side of the drier tower are just a technical non-compliance with the signage rules. Mr Chrystal noted that the District Plan allows silos to a height of 25 metres, indicating an allowance for structures with a need for additional height. He acknowledged that Policy B3.4.6 does indicate an intention of to "*avoid*" high rise buildings but suggested that this policy does not fit comfortably with other policies such as B3.4.4. He expressed the view that consent would provide no precedent for general industrial development.

3.28 Submitters

3.29 Ms Sissi Stein-Abel explained her concerns, including the cumulative effect of several minor effects.

3.30 This is an interesting point, which we mentioned in our first Memorandum to the Parties in relation to several effects on The Oaks heritage accommodation house.

3.31 Ms Johanne Donaldson expressed concern over the possibility that tankers would use Telegraph Road, Charing Cross Road, Wards Road and Clinton Road to by-pass Darfield.

3.32 These are public roads so that must be a possibility, but Mr Barry McColl's evidence for Fonterra about the way routes are chosen suggests to us that that route would only be used if there were suppliers on those roads.

3.33 Mr Art Kuiper raised the possibility of combining the effluent treatment facilities proposed with the needed sewage treatment plant for Darfield township.

3.34 That may be a good idea but it is not something we could require so we can only record that it was raised. Mr Kuiper also expressed concern about the visibility of the factory and commented in answer to a question that even if only the drier tower was readily visible it would still be a reminder that there is a major industrial facility on the site.

3.35 Ms Rosalie Snoyink appeared for the Malvern Hills Protection Society Incorporated. She discussed concerns about landscape and discharges, noting that the Central Plains Water canal designation crosses the State Highway and the railway near The Oaks and trees would have to be removed for the canal, opening views toward the proposed factory.

3.36 Mr Jules Snoyink – discussed his concern that the factory would lead to more dairying.

3.37 Ms Sarah Walters discussed landscape concerns, noting that this is an attractive rural area and the landscape opens up once an observer is past Darfield. She discussed the McHugh's Plantation which was apparently established in 1893. It is owned by the Selwyn Plantation Board which is currently being wound up. As a district councillor she was able to report that the District Council intends to take over the plantation and formalise recreational use. Ms Walters suggested it would be better not to trim the proposed shelter belts so as to provide more screening.

3.38 We accept that is true for shelter in the immediate vicinity of the plant, but it is the shelter around the periphery that is intended to provide most screening and it can do that when trimmed because observers on the peripheral roads will be so close to the shelter belts that only a few metres of height is needed to completely screen the plant from those viewpoints.

3.39 Ms Lisa-Marie Brooks discussed her concerns about landscape effects, traffic, air and water discharges and the likelihood that the factory would encourage more dairy conversions.

3.40 Mr Noel Dalley, who is a dairy farmer from Brookside, expressed support for the Fonterra proposal. He discussed the difficulties of establishing a factory in Christchurch, and spoke about the pressure from rural-residential development on farming activities.

3.41 Mr Robert Gunn, a farmer from Gunns Road near Racecourse Hill, spoke in opposition to what he referred to as a factory in his backyard. Mr Gunn expressed the view that the factory would adversely affect recreational use of McHugh's Plantation.

3.42 Mr Vaughan Snowdon, an engineering student and incoming President of the University of Canterbury Tramping Club, discussed the club's concern that the dairy factory would be visible from viewpoints such as Mr Hutt and the Port Hills, diminishing the recreational experience of trampers/walkers.

3.43 Mr Edward Snowdon (speaking also on behalf of Ms Penelope Snowdon-Lait) discussed his concern over the effect of the discharge to land on groundwater. His concern is that in an area of unconfined aquifers there is potential for contaminants to move down to deep groundwater. In his view the factory would be better located lower down on the Plains.

3.44 Mr Philip Baldwin expanded on a number of concerns. He was critical of the consultation undertaken by the applicant company. Mr Baldwin suggested that "*either the plant's wastes can be made safe or they can't*".

3.45 We accept that sometimes more consultation is undertaken, particularly for a project of this scale, but we note that there is no legal obligation to consult at all. Our assessment of the proposed discharges to air and to land are set out later in this decision but it can be noted at this point that we do not see the issue as simply whether discharges are safe or unsafe. We have assessed the proposed discharges against accepted standards for the safety of people and the quality of the environment, and we have been particularly careful to review the confidence we can have in those standards being met, the monitoring necessary to ensure they are being met, and the scope for modifications if difficulties arose, such as the ability to use larger areas of the site for effluent irrigation if that proved necessary.

3.46 Mr Ruben Hunt presented a detailed explanation of his multiple concerns and analysed the proposal within an assessment framework called "The Natural Step" (TNS).

3.47 Mr Colin Morris focussed on landscape concerns. He is a climber and considers views of the plant would undermine the experience of people climbing peaks in this part of Canterbury.

3.48 Ms Liz Weir discussed traffic, landscape and air discharge concerns. In relation to the latter, she drew our attention to provisions in the chapters 13 and 14 of the Regional Policy Statement relating to greenhouse gases. We are aware of those but since the Regional Policy Statement was prepared, Parliament has added section 104E to the Resource Management Act which states that when considering an application for "… *the discharge into air of greenhouse gases, a consent authority must not have regard to*

the effects of such a discharge on climate change, except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of greenhouse gases…".

3.49 We understand that the intention is that the issue will be addressed at a national level through mechanisms such as the carbon credits trading regime, rather than as part of assessment of individual proposed discharges such as what is proposed here.

3.50 Mr Ron Stewart elaborated on his concern to protect the new Darfield water supply well. This is located downstream and close to the part of the application site on the south-west side of the State Highway and Mr Stewart indicated that although it is not operating, a pump has been installed.

3.51 There can be no doubt about the importance of protecting this facility and it has been in our minds when considering matters such as the nature of the wash down water and the relatively clean water from the milk evaporation process, the rate and method of application, the location of monitoring wells etc, as discussed later in this decision.

3.52 Ms Madeleine de Jong presented the submission from The Oak Family Trust, the owner of "The Oaks" historic homestead on the corner of Clintons Road and State Highway 73, opposite the application site. Ms de Jong outlined the visitor accommodation business she operates from the homestead, which is also her home. The trust is concerned that the dairy factory would undermine the setting of The Oaks and the market niche business relying on that environment.

3.53 As noted below, we have been informed that the applicant now has a sale and purchase agreement to purchase this property and we can assume that the applicant will be unconcerned about the adverse effects of concern to The Oak Family Trust. There is one issue however that goes beyond the effects on the owner of the property – the building is a listed historic building as discussed below.

3.54 Mr Terence Stone presented a submission in support lodged by Federated Farmers. He described the support provided for local businesses by the Synlait plant near Dunsandel, especially during the construction phase.

Council Reporting Officers

3.55 Ms Jocelyn Douglas supplemented her report on the applications to discharge factory waste water and clean process water, to discharge stormwater, to excavate and fill land and to store clean process water. She indicated that she still recommended a term of consent less than the maximum 35 years because of uncertainties. Ms Douglas reminded us that the application has to be assessed against a background of existing groundwater contamination downstream from the individual household

effluent disposal systems of Darfield. She noted that the cumulative effects of storm water and "domestic" sewage discharge as proposed also have to be taken into account when considering the factory discharges. Ms Douglas continued to support granting the consents.

3.56 Ms Catherine Challies discussed the proposals for treatment and disposal of "domestic" effluent. The $12m^3$ volume proposed is equivalent to the discharge from between 6 and 12 dwellings and Ms Challies remained of the view that consent should be granted.

3.57 Mr Neil Whitaker discussed the applications to discharge contaminants to air and to store a hazard substance – diesel - in an above ground tank. He reiterated his view that the proposals for diesel storage are appropriate. Mr Whitaker discussed various aspects of the air discharge such as the possibility of having a multi-cyclone as well as bag filters on the new boilers. He confirmed that his modelling using the AUSPLUME model predicted significantly lower contaminant concentrations than the applicant's modelling using the more complex CALPUFF model, giving him confidence that the discharges would be acceptable. Mr Whitaker noted that sulphur dioxide (SO_2) is of greatest concern because the predicted concentrations are nearest to the various guidelines While he remained of the view that the consents should be granted, he noted that an area that is currently almost pristine in terms of air quality would have some degradation of air quality, albeit at levels within recognised guidelines.

3.58 Dr Jeremy Trevathan, acoustic consultant, discussed his report and the evidence presented. He noted that operational noise would be "*quite audible*" at quiet times but acknowledged that it would meet the District Plan standards. He expressed the view that the noise from early morning tanker movements would be a "*significant change*".

3.59 Mr Jeff Owen, traffic engineer, confirmed the analysis in his report that the proposed development would not create significant traffic safety or efficiency concerns.

3.60 Mr Tony Milne, landscape architect, indicated that he was confident that the photo-simulations presented on behalf of the applicant are accurate, including the growth rates assumed for proposed screen planting. He noted that four of his six recommendations had been adopted by the applicant. Discussing the other two recommendations, he confirmed his preference for changing the colours of the Fonterra logos proposed for the top of the drier tower because he considers that the proposed bold colours would draw attention to the tower. Turning to his other recommendation that a proposed shelter belt along the State Highway should be moved back, he acknowledged this would take a considerable area out of production and indicated that he is more comfortable with the current shelter belt proposal now that it is proposed that it would be broken up with some broadleaf plantings. We discussed how best to minimise the visual impact

of the factory from "The Oaks" with Mr Milne, but in the event that is no longer a concern because of the impending purchase of the property by the applicant company.

3.61 Ms Sarah Totty, planner, discussed various planning matters raised during the hearing. She noted the 20 hectare minimum area for subdivision and housing in the District Plan, which would allow, for example, for five additional houses on the adjoining Buttle land.

3.62 Following this presentation of further advice by the reporting officers, we adjourned the hearing. It is normal practice, particularly with larger hearings, to review the evidence and consider whether any further information is required. Earlier in the hearing we had indicated that we were open to the applicant's right of reply being made in writing (again, common practice in the case of longer hearings) and Ms Appleyard indicated that a statement in reply with a revised set of conditions in response to various concerns raised about possible conditions discussed during the hearing would be provided next day. Those documents were duly received and circulated to submitters.

Memoranda to the Parties

3.63 On the 1st of November we issued a Memorandum to the Parties seeking further information from the applicant and a submitter, Ms de Jong, about possible further measures to mitigate adverse visual and noise effects on the nearest residential property – The Oaks historic homestead. The applicant responded with some additional volunteered conditions, and then subsequently advised us that the applicant has come to an agreement to purchase Ms de Jong's property. Given our conclusions later in this report, this appears to be a satisfactory outcome for Ms de Jong.

3.64 We consider that with a proper acoustic fence along the boundary with the State Highway and double glazing of the upstairs bedroom windows, road noise would be reduced to an extent that the noise situation with the addition of factory traffic could be little different from the present situation. In relation to the range of other concerns raised by Ms de Jong and others, as discussed below we have come to the view that the dairy factory would be unlikely to have effects as dire as they fear.

3.65 On the 17th of November we issued a second Memorandum to the Parties noting that we had been informed about the agreement for the sale and purchase of The Oaks property, indicating that we had formally closed the hearing on the 12th of November, noting that we were not able to receive a package of additional material in support of a submission after the hearing was closed, and addressing correspondence from Mr Murray Withers, counsel for immediate neighbours, C R and S M Buttle. The Buttles lodged a detailed submission opposing the application, but this was withdrawn by Mr Withers on the 27th of October with a statement that *"We have recently*

reached agreement with Fonterra over certain issues relating to protection of our client's farming interests." Subsequently Mr Withers sought to re-instate the submission and the 2nd Memorandum set out our understanding that we have no power to do that, although noting that *"...we continue to have an obligation to consider the effects of the applicant's proposal on the environment, including the Buttles' property."*

4. STATUTORY ASSESSMENT FRAMEWORK

Status of the applications and key sections of the Resource Management Act 1991 ("RMA")

4.1 The applicant and reporting officers agree that although some elements of the proposal have controlled or restricted discretionary status, overall each of the applications has fully discretionary status. This was not disputed by any submitter.

4.2 Section 104(1) of the RMA requires that the consent authority must, subject to Part 2 of the Act, have regard to:

"a) any actual and potential effects on the environment of allowing the activity; and
b) any relevant provisions of –
(i) a national policy statement;
(ii) a New Zealand Coastal Policy Statement;
(iii) a regional policy statement or proposed regional policy statement;
(iv) a plan or proposed plan; and
c) any other matter the consent authority considers relevant or reasonably necessary to determine the application."

4.3 Section 104B of the RMA states that:

"After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority-
(a) may grant or refuse the application, and
(b) if it grants the application, may impose conditions under section 108.

4.4 Section 105(1) of the RMA states that:

"If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—
(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

(b) the applicant's reasons for the proposed choice; and
(c) any possible alternative methods of discharge, including discharge into any other receiving environment."

4.5 Section 107 of the RMA states that:

"*(1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit [or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—*
(a) The discharge of a contaminant or water into water; or
(b) A discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or
(ba) The dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,—
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:
(c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
(d) Any conspicuous change in the colour or visual clarity:
(e) Any emission of objectionable odour:
(f) The rendering of fresh water unsuitable for consumption by farm animals:
(g) Any significant adverse effects on aquatic life.

(2) A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A
that may allow any of the effects described in subsection (1) if it is satisfied—
(a) That exceptional circumstances justify the granting of the permit; or
(b) That the discharge is of a temporary nature; or
(c) That the discharge is associated with necessary maintenance work—
and that it is consistent with the purpose of this Act to do so."

4.6 Consideration of applications under section 104 of the Act is *"subject to"* the purpose and principles of the Act set out in Part 2 of the Act – sections 5 to 8. Relevant Part 2 matters in this case are the sustainable management of resources purpose of the Act set out in section 5, *"the protection of historic heritage from inappropriate subdivision, use, and development"* (a declared "matter of national importance" in section 6(f)), *"the efficient use and development of natural and physical resources"*

(section 7(b)), *"the maintenance and enhancement of amenity values"* (section 7(c)), *"the maintenance and enhancement of the quality of the environment"* (section 7(f)), and *"the finite characteristics of natural and physical resources"* (section 7(g)).

4.7 We have had regard to these matters and the matters specified in sections 104(1), 104B, 105(1) and 107 and are satisfied that the proposal, with amended conditions, would on balance meet the purpose of the Act. We are quite satisfied that granting the application would not result in any of the adverse effects specified in section 107(1)(c-g).

Regional Policy Statement Selwyn District Plan and the Natural Resources Regional Plan

4.8 Detailed analyses of the relevant objectives of the Canterbury Regional Policy Statement (CRPS), the Proposed Natural Resources Regional Plan (PNRRP) and the Selwyn District Plan (SDP) have been provided in the section 42A reports and in the evidence of Mr Chrystal. It is not necessary for us to repeat all the provisions of the CRPS and the regional/district plans here.

4.9 Both the reporting officers and the applicants' legal and planning representatives agree that the proposed development is generally consistent with the relevant objectives and policies in the CRPS, the PNRRP and the SDP. After having had regard to those provisions and considering the detailed revised proposal and conditions that we consider appropriate, we are satisfied that the proposal is consistent with almost all the relevant plan objectives and policies.

4.10 We conclude, as detailed in section 5 of this report and in the context of consideration of the objectives and policies of the RPS, the PNRRP and the SDP, that provided that there is full compliance with all the proposed conditions (with changes we have made as discussed in section 6 below), the adverse effects of the proposed activity on the environment would be acceptable.

5. PRINCIPAL ISSUES, EVALUATION, AND FINDINGS OF FACT

5.1 In summarising and evaluating the principal issues we have considered the application and the associated assessment of environmental effects, the further information provided in response to section 92 requests, all submissions made in response to the applications, the section 42A reports and all the information provided at and subsequent to the hearing.

5.2 The principal issues or actual or potential adverse effects were discussed in some detail in the section 42A reports and in the evidence provided by the applicant and the submitters, and can be summarised as:

- Rural character and amenity
- Landscape and visual amenity effects
- Noise effects
- Transportation effects
- Economic and social effects
- Cultural, archaeological and heritage effects
- Air quality effects
- Groundwater quality effects
- Surface water quality effects

5.3 The first six of these are relevant primarily to the application for land use consent under the Selwyn District Plan. The last three relate primarily to the applications required from Environment Canterbury.

Land Use Consent under the Selwyn District Plan

5.4 The Selwyn District Plan was made partially operative on the 10th of June 2008. Ms Totty's evidence was that there are no outstanding appeals relating to any of the provisions of the District Plan relevant to this application, and that there are no relevant publicly notified plan changes or variations. Section 86F of the Resource Management Act therefore applies and the rules relevant to this proposal are deemed to be operative. No assessment of the proposal under the Transitional District Plan is required.

5.5 The site is located in the Rural (Outer Plains) Zone on District Plan Planning Map 17. The District Plan (Rural Volume) permits any activities in the Rural Zone as long as they comply with all relevant rules and are not listed as discretionary or non-complying activities Rule 9.1.1 on page C9-001).

5.6 Ms Totty and Mr Chrystal were both of the view that the activity falls within the definition of a "Rural Based Industrial Activity". This is defined in the District Plan (page D-006) as "*an Industrial Activity that involves the use of*

raw materials or primary products which are derived directly from the rural environment, including agricultural, pastoral, horticultural, forestry, viticultural and crops." We agree. This is quite important because one of the arguments advanced by submitters in opposition was that because the proposed factory is a large industrial activity it has no place in the Rural Zone and should be located in an industrial zone. It is clear from Rule 9.5 on page C9-004 of the District Plan that the Plan provides specifically for "Rural Based Industrial Activities" and intends a more permissive regime for them. We see no danger of consent for this dairy factory having any weight as a precedent for non rural-based industrial (or commercial) developments.

5.7 The aspects of the proposed development requiring consent under the various standards in the District Plan are:

- Volume of earthworks exceeding 5,000m^3 limit (60,000m^3 proposed);
- Maximum height of buildings will exceed 12m (flues up to 60m proposed);
- Total area of outdoor signs on the site exceeds 6m^2 maximum (a 4.5m^2 sign at the entrance and two 12m^2 Fonterra logos painted on the drier tower, which are technically signs);
- Lettering on the sign at the entrance from SH73 would be less than the 150mm minimum height (100mm proposed);
- Quantity of hazardous substances stored would exceed maximum limits;
- Quantity of solid waste generated on site would exceed 3m^3 per week, averaged over any calendar year;
- Maximum number of vehicle movements exceeds the 30 equivalent car movements/day on a Strategic Road (under the Plan's definition, a milk tanker and trailer is equivalent to 12 cars).

5.8 Although individually some of these elements requiring consent have restricted discretionary status, there is no dispute that overall the land use proposal has the status of a discretionary activity.

5.9 Before discussing the various types of environmental effects listed above we should address a broad issue that underpinned many of the submissions.

Would the Factory lead to more Dairying?

5.10 A significant number of submitters expressed concern that the granting of resource consents for the proposed milk processing plant would result in an increase in the number of dairy farms in the immediate and wider area and that those dairy farms would have significant adverse effects on water quality and water availability. In principle we see no reason to limit

consideration of environmental effects to the immediate vicinity of the application site or any arbitrary area such as a kilometre radius so we questioned the applicant in some detail on the issue of whether or not the development of a milk powder plant could result in the stimulation of more dairying in the Darfield area or the wider region.

5.11 If that was the case, our enquiry could expand to consideration of the effects of more dairying, although before embarking on that we would have to take into account the fact that dairying is already controlled through the Proposed Natural Resources Regional Plan and related consent processes. Many submitters obviously consider that these controls are not protecting surface and ground water adequately, but we would have to be cautious about making a judgement about that as part of the present process.

5.12 We have examined the applicant's explanation and the Dairy Industry Restructuring Act 2001 (DIRA) that was provided to us. The legal situation is summarised in the applicant's right of reply. We are satisfied that the applicant's summary of the situation is accurate, i.e., Fonterra is effectively obliged to collect milk from any new dairy farm that is established within an existing 'catchment' and is obliged to pay the same price regardless of the collection cost. The development of a new dairy factory at Darfield would not therefore encourage dairy conversions in the Darfield area or the wider milk collection area for the factory. The only link we can see between the proposed factory and an increase in the number of dairy farms is the very small likely effect on the payout to suppliers nationally from improved transport efficiency in Canterbury (discussed below).

Rural Character and Amenity

5.13 The proposed dairy factory would have several types of potential adverse effects on the environment. These are inter-related and some overlap but we will discuss them under headings below so as to give our assessment some structure. The first group of potential environmental effects relate to the land use consent required from Selwyn District Council.

5.14 The purpose of the Act set out in section 5 requires that adverse effects on the environment are avoided, remedied, or mitigated. Most effects on the physical environment such as noise, effects on landscape, and noticeable pollution affect amenity values. The Act defines "amenity values' as:
"…those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."

5.15 Many of the submissions in opposition focus on the potential for the proposed factory to undermine the amenity values of the immediate locality of the application site, while a few suggest that the effect would extend further.

5.16 The proposal is to introduce a major industrial complex into a farming locality so it is obvious that there would be some adverse effects on that "receiving environment". The Resource Management Act is not however about preventing all adverse effects on the environment. The stated purpose of the Act is "*sustainable management of natural and physical resources"* and this is defined (section 5(2)) as:
"*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 wellbeing 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; and

(b) Safeguarding the life-supporting capacity of air, water, soil, and eco-systems; and

(c) Avoiding, remedying or mitigating any adverse effects of activities on the environment."

5.17 This broad purpose requires us to come to an overall view on whether the essential provisos (a), (b) and (c) can be met, and if so, whether when the enabling benefits of the proposed development are taken into account as well as the likely and possible adverse effects, the consents should be granted.

5.18 Section 5(2)(c) quoted above, raises the question of alternative sites. Quite a number of submissions in opposition identified adverse effects on the environment then suggested that these could be avoided by locating the plant in an industrial zone or expanding the capacity of existing dairy factories.

5.19 There is no obligation on an applicant to prove that the chosen site is the "best" site, but the absence of alternatives can be seen as a positive factor where significant benefits can be achieved only at the cost of some adverse effects and these cannot be avoided by using another site. Conversely in situations where there are realistic alternatives, particularly if consent is sought for something with non-complying status (which is not the case here), the existence of alternative sites where adverse effects could be avoided or mitigated can be a factor against granting consent.

5.20 In our assessment the applicant's case dealt convincingly with the option of using an industrial zone. There would be major difficulty in dealing with the huge volumes of lightly contaminated wastewater generated by a milk powder plant through any existing council sewerage systems. We accept that there could also be traffic problems, depending which industrial area is under consideration. If it is accepted that the plant needs to be located near a state highway and needs a substantial area, and that it is desirable that it adjoins the railway network, the site

options narrow considerably. The size of the factory is such that it is desirable that it is located well away from neighbouring dwellings, and preferably even away from public roads, especially well-used roads. This necessitates a large site such as the site that is proposed here and we accept that it would be difficult to find an alternative site meeting all of these requirements, particularly further down the plains where population density is generally higher.

5.21 In assessing potential adverse effects on the environment we have considered the "receiving environment"; both the characteristics of the site itself (soils, groundwater, existing vegetation etc.) and the setting of the land in relation to surrounding land uses. In particular, we were interested on our site visit to the locality to consider the locations of the most sensitive nearby land uses – dwellings relative to the location of the proposed factory and the location of the proposed access road intersection with the state highway.

5.22 We have also considered the potential for more houses in the immediate locality. It would be speculative to take into account potential development that would require resource consent, but we note that the Selwyn District Plan allows subdivision for rural-residential development in the Rural Outer Plains Zone to a minimum lot size of 20 hectares, subject to various other standards and requirements. This would permit, for example, five new dwellings on the area between Loes Road and the application site, with the nearest potential house being only about 100 metres further away from the proposed plant than the nearest existing dwelling. We note too that the Living 2A Deferred Zone extends up to about 1.5 km from the proposed plant, in the vicinity of the intersection of Loes Road and Homebush Road.

Effects on Landscape

5.23 Twenty-nine submissions raised concerns over the effect of the proposed plant on landscape. The proposal is for a cluster of very large buildings, which together with parking and circulation areas for milk tankers would cover 12 hectares, so on the face of it a major effect on landscape could be expected. Obviously that 12 hectare area and its immediate surrounds would be completely changed, but the more important issue in our assessment is the effect on landscape as perceived from beyond the site.

5.24 The 680 hectare site allows for over 600 metres of separation between these large buildings and the site boundaries. Mr Craig's landscape evidence for the applicant and the photo-simulations provided, show that apart from the drier tower and three flues, the buildings, the milk tankers, and potentially the railway wagons within the site would be almost completely screened from the site boundaries within a few years. This would be achieved through the screening provided by existing shelter belts, and screening by proposed noise bunds and additional screen

planting. The proposed mainly pinus radiata and cypress screen planting would reach 15 metres in about 10 years, but would have some significant screening effect before this when planted around the boundaries. It is important to appreciate that the screening achieved depends as much on the position of the planting relative to an observer as on the height of the planting relative to the height of the buildings.

5.25 We accept the point made by Mr Kuiper that even if only a small part of the complex is visible, it is a reminder that a factory is there. The same would apply to milk tankers visible as they enter and leave the site. We do not however believe that visitors and tourists driving past the site (tourists were mentioned by several submitters) would appreciate the scale of the factory by glimpsing the drier tower, flues, or tankers.

5.26 We are familiar with the Clandeboye and Synlait dairy factories and we have used these to compare likely visual impact of the proposed plant. Both are substantially more visible than what is proposed because of less screening, the substantially greater size of the Clandeboye plant, and proximity to the highways. The Synlait plant in particular has a lower drier (39.6 metres compared to potentially 52 metres), but it is only 275 metres from State Highway 1, compared to the 700 metres in this application.

5.27 Our impression from the photo-simulations is that about half of the 52 metre high drier tower would be visible from some public viewpoints – in the order of the top 26 metres. The application indicates that a 38 metre tower might be installed if a different supplier is contracted and this would lead to only about 12 metres of the tower being visible. This would be a significant difference – about half as much of the drier tower visible.

5.28 We have considered whether we ought to require the lower tower by way of a condition. Such a condition would have to provide for a higher tower if the lower one proved to be significantly more expensive at detailed design stage or if some technical difficulty arose, but on balance we have decided that such a condition is not warranted because we do not consider the drier tower would be particularly offensive. Mr Craig referred to it as a "*clean, simple structure*". We agree; it would not be particularly industrial looking, although we also agree with Mr Milne (the District Council's landscape architect) that a colour restriction would make the drier tower less obvious in most weather conditions.

5.29 At one level, we do not see a need to prevent the use of the Fonterra logo, which makes each face of the drier tower technically an advertising sign, because from a distance of at least 700 metres it will appear no larger than a complying sign at the boundary. However, we accept the opinion of Mr Milne and the views of a number of the submitters that the addition of the blue logo at the top of the tower would in many situations be likely to increase the adverse effect on the landscape. In addition, we consider that the effect is not just a matter of size; the tower, if visible, would draw

attention to the plant. Our impression is that the three flues, although taller than the buildings in order to provide for dispersion, would be less visible than the drier tower because of their relatively narrow diameters.

5.30 There was some discussion at the hearing about the District Plan's intentions for the height of structures. There is a big difference between the 12 metre height limit specified to most buildings and the 52 metres proposed (60 metres including flues). The explanation for the height rule (Rule 3.12, page C3-025) notes that:
"The Plan restricts building height as it is considered that multi-storeyed buildings are not "in keeping" with the character of the Rule Zone."
"The plan also has a policy to also avoid multi-storeyed buildings in the western part of the District, as this area contains more known active fault lines and epicentres for earthquakes."
"The rule allows greater heights for buildings which are not occupied by people, because some tall structures are typically part of the rural area."

5.31 While we find these explanations not entirely consistent, it is clear that the District Plan discourages tall structures, while providing specifically for grain silos to be 25 metres tall, and providing for greater height as a discretionary activity. Unlike some other district plans, there is no height at which proposals become non-complying. Like grain silos, milk drying towers have to be tall in order to function so this proposal appears to us to be exactly the kind of structure requiring additional height that the discretionary activity status anticipates.

5.32 We note that the drier tower would not be lit at night. In our assessment, while the drier tower would be visible from nearby viewpoints in the foothills and the Southern Alps it would be seen in the context of the mosaic of colours and textures, towns and smaller clusters of buildings. We do not believe it would seriously undermine the landscape experience of people looking across from those areas.

5.33 The drier tower, flues, and possibly some roof areas of other buildings would be visible from Racecourse Hill, which is much nearer. In our assessment that would be a significant detraction from the view, but the significance of that is lessened by the fact that Racecourse Hill is not a public viewpoint.

5.34 In assessing the landscape impact of the proposal, two other factors strike us as important. The main "viewpoint" would be the state highway, which has a 100km speed limit so views of the plant and entrance road would be fleeting. We also note that because of the huge size of the site, coverage by buildings would amount to only 0.3% coverage, which can be compared to the 5% coverage permitted by the District Plan. The openness of most of the site would compensate to some extent for the intensive development of a relatively small part of the site. Most of the site would

look more open and rural than it would under permitted 20 hectare rural-residential development.

5.35 Overall, in our assessment the effect of the proposed plant on what is an attractive and coherent landscape would be negative and this counts against granting consent, but we consider these landscape effects would not be as adverse as suggested by some submitters.

Noise Effects

5.36 The applicant's acoustic consultant Mr Hay and the report prepared for our assistance by Dr Jeremy Trevathan both discussed the noise limits set out in the District Plan and concluded that, with the proposed noise bunds, the standards would be met. We accept that these standards are a clear indication of the limits the District Plan deems acceptable, but we do not believe that compliance is the end of the matter.

5.37 As Dr Trevathan's report notes, the Selwyn District Plan noise limits are more permissive than the rules for rural zones in many districts, and are more permissive than World Health Organization recommendations for residential areas. It is clear from the District Plan that it is intended that the rural zones will be used for some business activities and therefore higher noise limits are set than for the Living Zones. It is also clear that the intention is to ensure that noisy seasonal activities in the rural environment are catered for, and that levels are such that people indoors on adjoining properties are not unduly disturbed (Objective B3.4.1 and B3.4.2, and Policy B3.14.11). We suspect however that the L_{10} standard (the noise level that is equal to or exceeded for 10% of the 15 minute monitoring period) may not have been intended to cover the proposed situation of continuous noise, night and day throughout the year.

5.38 The evidence was that noise environment, particularly during the day, in the locality of the application site is dominated by traffic noise on the state highway, with an important contribution from the coal trains. Both road and rail traffic are steadily increasing. There are times however, particularly at night, when there is no traffic or train noise so noise from the factory would be audible. We understand the character of this noise would be in the nature of a low hum which in still conditions would carry to the nearest dwellings and beyond.

5.39 Mr Hay described the anticipated sources of this noise. In our assessment it is important in this receiving environment that the noise is minimised, notwithstanding compliance with the Plan standards. We have imposed a condition requiring that the items of plant generating significant noise are checked within six months of the factory commencing operation, and then at intervals of no less than three years.

5.40 Some submissions raised the question of noise from the milk tankers. The tankers are owned and operated by the applicant company so it is practical to impose a condition requiring that the consent holder requires the drivers to avoid unnecessary noise. Specifically, we have imposed an obligation on the consent holder to instruct drivers to not use engine braking as they slow to approach the entrance intersection or as they travel through Darfield, except in an emergency.

Transport Effects

5.41 The application included a comprehensive analysis of anticipated road traffic generated in both the construction and operational phases and we have also been provided with a peer review of this assessment by Mr Jeff Owen, a traffic engineer retained by the Selwyn District Council. Unlike the situation with some types of development, such as proposed retail developments, it is possible to predict the traffic that would be generated by the proposed milk drying plant with some confidence because there is experience with the construction and operation of similar facilities elsewhere and the capacity of the plant and thus the maximum number of tanker movements is known.

5.42 It is estimated that during construction there would be about 480 vehicle trips per day to and from the site, including about 40 heavy vehicle trips. The main concern expressed by submitters is the effect of traffic travelling through Darfield. This construction traffic would increase the traffic volumes passing through Darfield from about 2,500 vehicle per day to about 3,000 vehicles per day. Although this increase might be noticeable, particularly as the traffic would be concentrated at work start and finish times, as Mr Owen's report pointed out, these volumes are well below traffic volumes carried on roads within larger settlements. For example, he noted that some minor arterial roads in Christchurch City now carry more than 25,000 vehicles per day. While any increase in traffic from a low base can be expected to have some adverse effect on the amenity of Darfield's main street, the evidence was that there is no issue about road capacity. We also note that this road is a State Highway.

5.43 Turning to the traffic expected to be generated when the plant is operational, the evidence was that total traffic would be similar, at about 460 vehicles per day, to traffic during the construction phase. However a much higher proportion - about 260 vehicle trips per day - would be heavy vehicles: up to 200 milk tanker movements, about 40 movements of trucks taking milk powder away, and roughly 20 movements related to the delivery of coal, and chemicals.

5.44 It is anticipated that about 17 tankers with trailers would be based at the plant, and they would make between three and six return trips per day. There are currently about 29 Fonterra tanker trips passing through Darfield per day collecting milk for the Clandeboye factory and, depending on the

time of year, the proposed factory would lead to up to 111 additional tanker trips passing through Darfield. This is a significant increase in tankers, but has to be seen in the context of existing, and steadily increasing, flow of about 280 heavy vehicles passing through Darfield per day.

5.45 The submitters raised a particular concern for the safety of the road crossing points in Darfield particularly the crossing used by school children. Mr Carr indicated that the peak times for both workers' cars and heavy vehicle movements would be either side of the shift change times of 7am and 5pm. We accept that any more traffic increases the risk of accidents, but in our assessment the main effect would be an adverse effect on the amenities of the main street of Darfield.

5.46 One of the submitters, Mr Hunt, raised the matter of delays to traffic caused by tankers, which are restricted to travelling at a maximum speed of 90kph. We accept that is an adverse effect, but a factory at Darfield would significantly reduce this effect by reducing the distance travelled by Fonterra tankers by up to 20,000 km per day.

Economic and Social Effects

5.47 It is clear from the submissions that a considerable number of people, mainly from the Darfield area, oppose the proposed development. They believe it would undermine their well-being. As discussed in this decision, we consider that their fears are overstated and the plant will not affect them as much as they believe it will. However even allowing for that, some people will always resent the factory so they should be considered adversely affected.

5.48 On the other hand, the applicant's case is that the development would lead to very significant economic benefits. The applicant's economist, Mr Copeland, focussed on the likely economic benefits to the Selwyn District, because the site is within Selwyn. We see no great logic in that except to the extent that benefits to the Darfield area should perhaps be given a weighting to reflect the fact that the adverse effects of noise, additional traffic, etc. fall on the community in that area. Experience elsewhere has been that people will travel long distances to work, but other things being equal people will favour living close to their work. It can be expected that some of the 50 permanent employees at the plant will live in the Darfield area, adding support to local businesses, schools and other organisations.

5.49 Mr Copeland described the economic advantages of developing a milk processing plant on the Darfield site. They include the substantial reduction in daily tanker travel compared to the present situation, or a future situation where the additional processing capacity was built elsewhere, access to the state highway and the rail network, proximity to

the Port of Lyttelton, proximity to a labour force and specialised services, and room for possible future expansion.

5.50 We accept that these factors can be expected to lead to economic benefits to Fonterra shareholders, future employees, and through multiplier effects and exports the whole New Zealand economy. Although it is difficult to quantify these economic benefits, we accept that they add up to a formidable positive factor to consider when making an overall judgement about whether the adverse effects we have identified should mean the applications are declined.

Cultural, Archaeological and Heritage Effects

5.51 As already noted, there are three buildings in the vicinity of the application site that are scheduled in the Selwyn District Plan as heritage items: The Oaks accommodation house, Racecourse Hill homestead, and the "long drop" within the railway corridor. The protection of such structures is a matter of national importance under section 6(f) of the Act.

5.52 The applicant's heritage consultant, Dr Phear, assessed the likely impact of the proposed dairy factory on these buildings and came to the view that there would be no significant impact. This was challenged only by Ms de Jong who expressed the view that the anticipated reduction in the amenities of the area would make her accommodation business less viable, possibly leading to an inability to continue the necessary maintenance of The Oaks. This is difficult for us to assess. We accept that it is possible that maintenance would be reduced if the accommodation business became less viable, or if Fonterra as the new owner was not prepared to put in the effort required to keep buildings such as The Oaks up to the present standard. That is not the same thing as putting the building at risk however. Even if the Fonterra management have no interest in heritage buildings, it seems unlikely that they would let this valuable property fall into serious disrepair.

5.53 Dr Phear's evidence also considered the effect of the proposed plant on the landscape setting of the heritage buildings. We agree that this can be important in some situations. Her conclusion was that the distances from the factory and the proposed screening will mean that the heritage buildings will retain their rural context. We accept that conclusion.

5.54 The site is unlikely to contain any items indicating pre-European occupation, but the applicant has appropriately offered a standard accidental discover protocol condition.

Consent to Discharge Contaminants to Air and Air Quality Effects

5.55 It was agreed by the applicant and the reporting officer that the discharge of contaminants to air from operation of the dairy plant requires consent as a discretionary activity. That consent would authorise the primary discharges to air from the site, including emissions from the biomass-fired boiler plant and the milk powder driers.

5.56 Discharges to air from other activities would also occur in association with the proposed development. Those discharges primarily include odour and aerosols from the spray irrigation of wastewater and dust from construction activities.

5.57 We will evaluate the evidence in relation to air quality effects of all proposed discharges of contaminants to air in the following sections.

Effects of Sulphur Dioxide Discharges

5.58 The effects of SO_2 emissions from coal combustion in the boiler have been assessed by Mr Chilton based on the results of dispersion modelling. The modelling was reviewed by Mr Whitaker, who concluded that the predictions were likely to be conservative. We consider that the modelling approach using CALPUFF was robust and accept the evidence that the predicted contaminant concentrations are likely to be conservative, i.e., more likely to underestimate actual concentrations.

5.59 The effects of both the possible 38m and 52m high drying tower options were assessed in the evidence presented by Mr Chilton. This enabled different emission stack heights and building downwash influences to be taken into account. In response to questioning, Mr Chilton also confirmed that the effects of burning wood fuel (rather than coal) in the boiler plant had been assessed by dispersion modelling.

5.60 The dispersion modelling predicted maximum SO_2 ground level concentrations (GLCs) at neighbouring properties that are well within the NES and relevant New Zealand air quality guidelines. The maximum predicted short-term (1-hour average) GLC at neighbouring dwellings is 200µg/m^3. Mr Whitaker explained that the Regional Ambient Air Quality Target (RAAQT) in the NRRP: Air Chapter is set at the 'acceptable' level of 66% of the NES or 230µg/m^3 (1-hour average). We find that any degradation of local ambient air quality would be minor and that short-term effects of SO_2 are not likely to be significant.

5.62 Turning to longer-term impacts of SO_2, the modelling predicted a maximum 24-hour average GLC at the most affected neighbouring dwelling of 46µg/m^3. This value is well within the current New Zealand guideline of 120µg/m^3 (24-hour average), but exceeds the World Health Organisation

(WHO) guideline of 20µg/m^3 (24-hour average). However Mr Chilton noted that predicted concentrations would be within the WHO interim guideline of 50µg/m^3 (24-hour average) and less than the 20µg/m^3 guideline for more than for 97% of the time. We accept the evidence that the WHO guideline has limited applicability to New Zealand conditions, particularly in relation to relatively isolated industrial discharges. Nevertheless we consider it appropriate, in line with the applicant's suggestion, to add a clause to the review condition that requires ambient SO_2 monitoring to be implemented in the event of a revised guideline being adopted in New Zealand.

5.63 Overall we find that, based on the evidence presented, any adverse effects of SO_2 discharged from the dairy plant would be minor.

Effects of Particulate Matter Discharges

5.64 Fonterra is proposing to control particulate matter (PM) emissions from the powder driers and the boiler by bag filtration. The filtration is designed to achieve PM emission concentration limits (adjusted to standard conditions) of 20mg/m^3 for the driers and 50mg/m^3 for the boiler. Monitoring would include detection of the pressure differential across the filter bags (to indicate leakage) and a continuous PM monitor in the boiler stack. We accept that these controls are consistent with good practice for modern dairy plants.

5.65 The dispersion modelling presented by Mr Chilton predicted that discharges from the plant would cause a maximum PM_{10} GLC of approximately 3µg/m^3 (24-hour average) at the most affected neighbouring dwelling. Cumulative concentrations (including background) are predicted to be well within the NES of 50µg/m^3 (24-hour average). We find that any adverse health effects caused by PM_{10} discharges would be minor.

5.66 Some submitters raised concerns regarding potential degradation of ambient air quality in Darfield. We have considered this issue carefully. The modelled PM_{10} concentrations caused by the Fonterra discharges at the nearest part of the township were in the order of 0.5µg/m^3 (24-hour average). The dairy plant would be relatively distant from Darfield. We note that the modelling assumed PM_{10} discharge all year round at the maximum emission rates, whereas plant operation is normally significantly reduced during the winter period when ambient concentrations would be elevated in the township. Overall we consider that adverse effects of PM_{10} on ambient air quality are acceptable.

5.67 The evidence detailed the circumstances where it might be necessary to bypass the boiler bag filter unit for brief periods of time, resulting in increased PM emissions. We examined this issue in detail during the hearing, and also posed questions regarding the need for a multicyclone

grit arrestor unit prior to the baghouse. In response the applicant proposed to significantly tighten the conditions under which a baghouse bypass could occur. We have considered this matter carefully and determine that a multicyclone (in addition to the baghouse) is not essential in this case because the periods of filter bypass would be brief and infrequent and normally when the boiler operates at low load. The applicant's proposed condition is considered to be sufficient to ensure that adverse effects of bypass operation are minor.

Effects of Other Combustion Products

5.68 As noted earlier, section 104E of the Act prevents us from having regard to the effects of the discharge of greenhouse gases on climate change. Accordingly we have not had regard to the effects of CO_2 or other greenhouse gases discharged from the boiler.

5.69 Both Mr Chilton and Mr Whitaker concluded that any effects of combustion products, other than PM_{10} and SO_2, would be minor. We accept the evidence that the discharge of these relatively minor contaminants from the boiler plant is unlikely to cause adverse effects.

Effects of Dust Discharges

5.70 Solid fuel would be stored in an underground bunker with covered transfer to the boiler plant via conveyers. Given the mitigation proposed and the distance to neighbouring properties, we consider that dust from fuel handling is unlikely to cause adverse effects.

5.71 Construction activities are predicted to be the primary source of any dust impacts that might be experienced beyond the site boundary. Fonterra proposes to undertake standard dust control practices during the construction phase, including application of water, setting of vehicle speed limits on unsealed surfaces, and establishing vegetation on bunds. These measures would be incorporated in a construction management plan. Taking into account the temporary nature of any dust effects and the separation from neighbours, we find that dust could be controlled via a management plan to prevent significant adverse effects.

Effects of Odour Discharges

5.72 The primary sources of potential odour from the plant were assessed as the sewage treatment and disposal system, the wastewater treatment plant and wastewater irrigation. With regard to treatment of wastewater in the dissolved air flotation plant, the aerated method of treatment and the location of the plant are such that any off-site odour impacts are likely to be minimal. We have reached the same conclusion in relation to the sewage treatment and disposal system. We accept the evidence that

odour from this source is unlikely to be detected at neighbouring properties.

5.73 Spray irrigation of wastewater onto land can cause odour to be detected in some circumstances. The applicant proposes to control these effects by regular flushing of the irrigation lines to prevent the onset of anaerobic conditions, adhering to restrictions on ponding of wastewater on the ground surface, and by setting minimum separation distances from roadways and dwellings. We consider that proposed conditions of consent to that effect are appropriate, including requiring a minimum buffer distance from irrigated areas to neighbouring dwellings of 100m. Provided those conditions are met, we find that any adverse effects of odour and other contaminants discharged to air from wastewater irrigation are likely to be minor.

Concluding Comments Regarding Air Quality Effects

5.74 The issue of potential synergistic effects caused by the combined effects of contaminants discharged from the plant was raised. We questioned Mr Chilton regarding this matter. We accept his evidence that the predicted concentrations of individual contaminants (such as SO_2 and PM_{10}) are small relative to accepted guidelines and therefore synergistic effects are not likely to arise to any significant degree.

5.75 With regard to visible emissions, Mr Chilton's evidence was that bag filtration and would result in no significant visible emissions from either the boiler or the driers during normal operation. A condition of consent has been proposed to that effect. We consider that visual impact of the discharges would be minor.

5.76 The mitigation measures proposed are in line with current industry best practice for dairy plants. Given that modelling predictions, based on conservative assumptions, indicate maximum GLCs that are well within current New Zealand air quality guidelines, we do not consider that ambient monitoring of SO_2 or other contaminants is necessary from the outset. However we find that it would be appropriate to include specific provision for ambient monitoring of SO_2 in the review condition, to allow for the possibility that tighter SO_2 guidelines (such as the WHO 24-hour average guideline) might be adopted in New Zealand in future.

5.77 Overall we find that the discharges to air from the proposed activities, undertaken in accordance with the conditions of consent we have determined, would result in adverse effects that are acceptable in terms of the purpose and principles of the Act.

Groundwater Quality Effects

5.78 There are three proposed wastewater discharges that have the potential to cause adverse effects on groundwater quality. Briefly they are:

Proposed discharge	Proposed main treatment system	Key contaminant(s)
Stormwater	Swales and infiltration basins	Heavy metals and petroleum products
Factory wastewater (including stormwater from one small area)	Land treatment	Nitrogen
Sewage	Membrane biological reactor plus sub-surface irrigation	Microorganisms

5.79 We have seen the proposed layout of the three discharges onto or into land and we are satisfied that they are sufficiently separated so that there would not be any physical 'overlap' between each discharge. We are also satisfied that because the key contaminants of concern are different for each proposed discharge they can essentially be treated as separate discharges.

5.80 The proposed stormwater discharge system is in accordance with recognised best practice with separate roof stormwater being discharged (up to a 10% annual exceedence probability event) directly into the ground with the balance of the stormwater up to the 25 mm first flush being treated in swales and an infiltration basin. The (high infiltration rate) soakage basins are designed to accept stormwater up to 10% annual exceedence probability events with any stormwater above that amount being discharged onto the surrounding farmland separate from any other discharge area. The overall conceptual approach and the proposed treatment systems are well established, and provided that the systems are constructed properly and well maintained we are confident that the proposed systems would provide an appropriately high level of treatment that would protect the underlying groundwater from any significant contamination.

5.81 The proposed sewage treatment system provides for a high level of treatment with a membrane biological reactor or equivalent system. This type of treatment system produces effluent with total nitrogen concentrations less than 25 g/m^3 and faecal coliforms less than 1,000 cfu/100ml. The nitrogen loading from the proposed sewage treatment system is less than approximately 0.1% of the proposed wastewater nitrogen loading so it is valid to consider the wastewater discharge alone when considering the potential adverse effects of discharged nitrogen on groundwater quality.

5.82 Membrane biological reactors have been in use for many years and provided that they are installed and maintained properly they are generally accepted as a reliable and robust treatment method.

5.83 The proposed wastewater discharge is the most significant proposed discharge to land because of the potential effects on groundwater nitrate nitrogen concentrations. The applicant has undertaken appropriate modelling of the nitrogen loading and groundwater quality. This modelling has been reviewed and accepted by the s42A reporting officers. We are also satisfied that the modelling has been undertaken using appropriate models and input assumptions, and that the conclusions that the effects on groundwater quality will be less than minor. We are generally satisfied that the assessment of environmental effects is robust and that, with some changes, the proposed conditions provide appropriate monitoring and control provisions.

5.84 We have incorporated the following substantive changes to the proposed conditions to enhance the level of assurance that potential adverse effects would be, and would continue to be, less than minor:

- Clarified and strengthened the qualifications needed to undertake Overseer® modelling,
- Required wastewater flow monitoring,
- Require soil moisture monitoring of the wastewater irrigation area,
- Required certification of the design and installation of the proposed lysimeters, and
- If the proposed 2 g/m^3 nitrate nitrogen increase trigger is still exceeded after the proposed response measures have been instigated to reduce down-gradient nitrate nitrogen concentrations then the annual nitrogen areal loading would be reduced by 10%. If two years after such a loading reduction, the 2 g/m^3 nitrate nitrogen increase trigger is still being exceeded then there would be a further similar loading reduction to reduce the initial loading by 20%. A final 30% nitrogen loading reduction would be required if after a further two years the down-gradient nitrate nitrogen concentration was still exceeding the 2 g/m^3 nitrate nitrogen increase trigger.

5.85 We do not think that the latter provision would ever be activated in its entirety. However, we think that such a measure is a prudent 'backstop' to provide confidence to all parties that the anticipated environmental results would be maintained and that any potentially significant adverse effects would be addressed via consent conditions rather than having to rely on resource consent review procedures (which we consider to have fundamental limitations).

5.86 We are generally satisfied that the combination of the nature of the proposed discharges, the level of treatment proposed, and the proposed conditions, subject to some changes, means that there would not be any significant adverse effects on groundwater quality.

Surface Water Quality Effects

5.87 We are satisfied that given the limited surface water resources in the vicinity of the proposed discharges into and onto land and the proposed conditions that limit discharges to specific distances from surface water bodies, the adverse effects on current or future (taking account of the consents that have been granted to Central Plains Water Limited and the Designation for the proposed canal) water resources would be insignificant.

7. PROPOSED CONDITIONS AND CONSENT ADMINISTRATION

7.1 With the exceptions outlined in section 4 above, we were generally satisfied with the final suite of proposed consent conditions. However, there were some proposed conditions that we had reservations about (that have not been highlighted earlier). These are outlined in the next few paragraphs.

Amendments to the Volunteered Conditions

7.2 We made changes to the conditions to implement the substantive decisions that we made on the following specific issues:

1. As noted in the discussion of the key issues, we have changed the proposed condition that refers to the colour of the drying towers and required that the proposed blue colour be deleted and that colours be limited to the less imposing neutral colours.

2. The proposed general conditions that would apply to each resource consent have not been incorporated as ‘general conditions’. We think that it is more appropriate to have consents that are as specific and self-contained as possible. In addition, we were concerned that many of the general conditions were not applicable to some resource consents.

3. We added a requirement for construction vibration to comply with the relevant New Zealand Standard (NZS2631:1985-89 Parts 1-3).

4. We have added a condition requiring the adoption of best practicable measures to avoid or mitigate dust being deposited on adjoining properties and surface water bodies. While the proposed management plan would require those measures to be included in a plan, that is not the same as a requirement to implement such measures.

5. We have amalgamated and clarified the requirements for noise monitoring and reporting.

6. We made a number of changes to the proposed 'accidental discovery' condition to provide greater certainty for all parties regarding the appropriate entities to contact, to ensure that there is a recommencement option in the event that there is no response from Taumutu Runanga, and to ensure that decisions to allow recommencement of work are made by an appropriately qualified person.

7. We have added to and clarified a number of provisions that relate to specific technical certification requirements to improve consistency and clarity.

8. We have changed the reference to the New Zealand Drinking Water Standards in consent CRC103594 to specify the trigger concentration rather than have a reference to unspecified variables in an external document. In addition, we have limited the variables to solely nitrate. Our understanding of the processes involved and the proposed groundwater monitoring programme is that monitoring of water quality variables other than nitrate nitrogen is not necessary. Lastly we have changed the trigger from the proposed 80% of the relevant drinking water standard, which would equate to a nitrate nitrogen trigger of approximately 9.2 g/m^3 nitrate nitrogen to 8.5 g/m^3 of nitrate nitrogen. We think that in the light of the existing information on groundwater quality that that trigger would be more appropriate.

9. We have added a condition requiring that any woody biomass material burned in the boiler plant is not treated with preservatives, impregnated with chemicals, or contaminated with glues, paints, stains or added oils. This would prevent the discharge of potentially toxic compounds (such as copper, chromium and arsenic from timber treatment) that were not assessed in the application.

10. We have included a clause in the review condition that specifically provides for ambient monitoring of SO_2 for at least a year in the event that there is a change made to any national environmental standard 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 50$\mu g/m^3$ (24-hour average). In addition a clause has been added that provides for review to require measures to reduce sulphur dioxide emissions from the boiler to a level that complies with such a revised standard or air quality guideline.

11. We have added a condition requiring coal or biomass to be stored in covered bunkers, to minimise potential dust emissions from this source.

12. We have made a number of relatively minor changes to the qualification requirements for various technical certifications to ensure that these are certain and matched to the specific technical requirements.

13. We have made a number of minor changes to conditions that relate to sampling and analysis to provide greater clarity and certainty about those requirements.

14. We have required that all annual reports are required to be provided by 30 September rather than at a range of dates.

15. We corrected a number of minor typographical and technical errors and omissions, for example, we corrected the reference to a minimum seepage rate of 10-8 metres per second to 10^{-8} metres per second.

7.3 We have also made a number of minor changes to the wording of some proposed conditions to improve the effectiveness and/or certainty of those conditions.

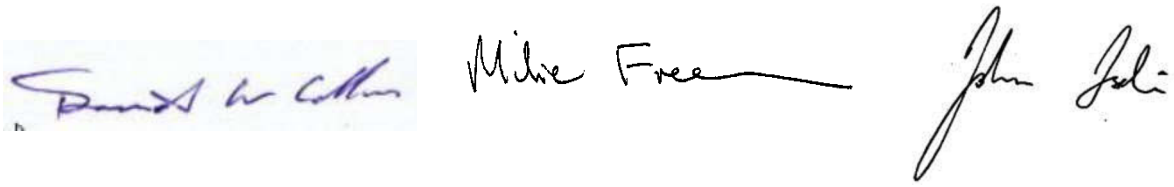
Duration

7.4 We have considered the question of whether we should grant consent for the discharge permits for lesser periods than the maximum 35 years sought by the applicant. In our assessment the very substantial capital investment in the proposed plant means that the consent holder should be given as much security as possible, but subject to our obligation to protect the environment. As discussed above, we are satisfied that the proposed discharge systems provide substantial margins for safety and will be subject to robust monitoring regimes. We see no need to limit the durations sought for those applications.

8. DECISION

For the reasons detailed in this report we grant resource consent applications R105211, CRC103450, CRC103589, CRC103592, CRC103594, CRC103596, CRC 103695, and CRC103696, under sections 104, 104B, 105, 107 and 108 of the Resource Management Act 1991, subject to the following attached conditions.

Signed:



David Collins **Mike Freeman** **John Iseli**

2 December 2010

Selwyn District Council

R105211 Land use consent to construct, operate and maintain a rural-industrial activity being a Milk Powder Plant near Darfield

General

Definitions

(1) For the purposes of this resource consent:

(a) **HSNO** means the Hazardous Substances and New Organisms Act 1996 and associated regulations.

(b) **Hazardous substances** means a substance that is subject to HSNO.

Hazardous Substances

(2) The consent holder shall ensure that:

(a) all practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles, storage vessels and machinery; and

(b) storage of hazardous substances or refuelling of vehicles and machinery shall not occur within 50 metres of any ephemeral or flowing surface water body.

(3) 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 in a clearly visible location that are to be undertaken to contain, remove and dispose of any spilled hazardous substance.

(4) Copies of HSNO Test Certificates for each storage system where required shall be retained on site at all times and made available for inspections by officers or agents of the Consent Authority.

(5) 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 Consent Authority on request.

(6) 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.

(7) 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, Attention: RMA Compliance and Enforcement Manager, and to the Selwyn District Council, Attention: Environmental Policy and Approvals Manager, 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.

(8) Any contaminated material, resulting from a spill as specified in condition (7), removed from the site shall be disposed of at a facility authorised to receive such material and the consent holder shall provide the Canterbury Regional Council and the Selwyn District Council with written confirmation of such disposal within 10 working days of the disposal.

Complaints Register

(9) The consent holder shall maintain a Complaints Register for any complaints about the construction activities or operation of the milk powder plant received by the consent holder in relation to traffic, noise, vibration, glare, dust and odour.

The 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.

(10) The Register shall be made available to both the Selwyn District Council and the Canterbury Regional Council at all reasonable times on request. Complaints received by the consent holder which may relate to compliance

with the conditions of this resource consent shall be forwarded to the appropriate Council within 48 hours of the complaint being received.

Community Liaison Group

(11) Within one month of commencing construction of the Milk Powder Plant, the consent holder shall place a public advertisement in the relevant local Darfield 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, boundaries immediately next to the site; and

(ii) local residents and businesses of Darfield.

(b) a representative of the consent holder shall attend all meetings of the Community Liaison Group; and

(c) the Selwyn District Council and the Canterbury Regional Council shall be invited to each send a representative to attend all meetings.

(12) 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.

(13) 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 these consents; and

(c) any community concerns regarding the effects of the construction and operation of the Milk Powder Plant, including any road network issues arising from heavy vehicle movements.

(14)

(a) The proposal shall proceed in general accordance with the following plans that were submitted to the consent authority as part of the consent hearing on 29 October 2010, are held by the consent authority and form part of this consent:

(i) Elevation Plans numbered **E1 to E4**, subject to condition (14)(b) and subject to the colour change specified in condition (25);

(ii) Site Layout Plans numbered **SL1 to SL2**;

(iii) Landscape Plans numbered **L1 to L2**; and

(iv) Sign Entry Plan numbered **SE1**.

(b) Should the consent holder choose to construct the milk powder drier at a height lower than that set out in the Elevation Plans **E1 to E4**, the consent holder shall provide an updated version of those plans, with the sole change being a reduced drier height, to the Selwyn District Council, prior to commencing construction (the *Revised Plans*). The Revised Plans provided in accordance with this condition shall replace the Elevation Plans numbered **E1 to E4**, shall be renumbered accordingly, and shall form part of this consent.

Traffic

(15) At least 10 working days prior to the commencement of construction works on site, the consent holder shall prepare and submit to the Selwyn District Council, Attention: Asset Delivery Manager a Traffic Management Plan that has been approved by New Zealand Transport Agency and KiwiRail.

The Plan shall:

(a) set out in appropriate detail the extent and timing of traffic during the construction period and any temporary traffic management provisions to be put in place during that time, including, but not limited to:

(i) contact details of the Lead Contractor and the Site Traffic Management Supervisor;

(ii) internal road and vehicle parking and manoeuvring area layouts;

(iii) the phases in which work will be undertaken;

(iv) the timing and duration for each phase, including the working hours within which works will be undertaken;

(v) traffic controls at any site access, including temporary traffic management, any signage, and timing of upgrades;

(vi) measures to prevent deposition of debris on the State Highway and local roading networks; and

(vii) processes and procedures for updating the plan.

and

(b) ensure that construction traffic and associated activities on roads and access ways adjoining and surrounding the site are planned so as to

cause as little disruption, delay or inconvenience as is practicable to other users (such as pedestrians, cyclists and motorists) without unduly compromising safety, capacity and convenience on the adjoining road network.

(16) No construction shall commence on site until the following has been completed:

(a) the intersection of the main site access of the Milk Powder Plant with State Highway 73 has been upgraded in accordance with the relevant New Zealand Transport Agency standards;

(b) the railway crossing where the main access of the Milk Powder Plant crosses the Midland Railway Line has been upgraded in accordance with the requirements of KiwiRail; and

(c) written evidence provided to the Selwyn District Council, Attention: Environmental Policy and Approvals Manager, confirming that the requirements of conditions (16)(a) & (b) have been met.

(17) The proposed sign adjacent to State Highway 73 shall:

(a) be installed in accordance with **SE1**; and

(b) have a minimum lettering height of no less than 160mm, and contain a maximum of 8 words or symbols, with a maximum of 40 characters.

(18) Prior to the commencement of the operation of the plant, all vehicle parking and manoeuvring areas shall be constructed, formed and sealed (with drainage).

(19) All parking shall be on site, and the number of parking spaces to be provided on site shall meet the anticipated parking demand for the operation of the Milk Powder Plant, including staff, visitors, tankers and loading. This shall be demonstrated through the provision of a Car Parking Plan submitted to the Selwyn District Council's Asset Delivery Manager at least 10 working days prior to construction of the vehicle parking and manoeuvring areas.

(20) Prior to commencement of construction works on site, the consent holder shall contribute a one off total payment of $40,000 (plus GST, if any) to the Selwyn District Council to be used for a study into the requirements of, and timing for, the upgrading of the Waimakariri Gorge Bridge and its southern approach.

Environmental Construction Management Plan

(21) Best practicable measures shall be taken 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 by water tanker and/or sprinkler systems during dry windy conditions;
b) Restricting vehicle speeds on unsealed surfaces;
c) Restricting dust generating operations during strong wind conditions; and
d) Rapid establishment of grass by 'hydroseeding' or similar methods on soil bunds and other unsealed areas.

(22) At least 10 working days prior to the commencement of construction works on site, the consent holder shall prepare and submit to Selwyn District Council, Attention: Asset Delivery Manager, an Environmental Construction Management Plan. This shall include, but not be limited to:

(a) the best practicable measures that shall be adopted during construction to avoid, remedy or mitigate dust related adverse effects on adjoining properties and surface water bodies, as well as outlining:

(i) the contact details of the Lead Contractor;

(ii) the phases in which work will be undertaken for the purposes of constructing the Milk Powder Plant and associated infrastructure on the site;

(iii) the timing and duration for each phase, including the working hours within which works will be undertaken;

(iv) the disturbed area in square metres, including location, area and volume of earthworks associated with each phase of the construction;

(v) the sediment and erosion control measures that are to be implemented for each phase of the works authorised by this consent. Including, but not limited to swales and soakage pits (if required);

(vi) construction noise limits, minimum buffer distances and attenuation measures for specific activities and areas in order to comply with NZS6803:1999 *Acoustics – Construction* Noise;

(vii) details of vibration testing of equipment to confirm that the vibration standards set out in NZS2631:1985-89 Parts 1-3 or equivalent standard are not exceeded;

(viii) detailed methods for monitoring and reporting on construction noise and vibration throughout the process following any request by the Selwyn District Council;

(ix) the establishment and retention of a water supply on site for dust control;

(x) a 20 kilometre per hour speed limit on unsealed roads and surfaces left exposed during the construction period;

(xi) the compaction and establishment of pasture and vegetation of the bunds set out in Site Layout Plan **SL1**;

(xii) details of locations and quantities of cuts and fills, including backfilling techniques to ensure fugitive dust controls are prevented as much as is practicable;

(xiii) how the stockpiling of soil shall be located a minimum of 100 metres from the site boundaries and a minimum of 20 metres from water races (other than soil required for the establishment of the bunds referred to in Site Layout Plan **SL1**); and

(xiv) processes and procedures for updating the plan

and

(b) a copy of the Environmental Construction Management Plan shall be provided to adjoining landowners/residents and the Community Liaison Group.

Landscape

(23) The consent holder shall undertake shelter belt planting and landscaping within the first available planting season after commencement of this consent. All shelterbelts and landscaping shall be planted and maintained in accordance with the Landscape Plans **L1 to L2**; and

(24) All landscaping required for this consent shall:

(a) be maintained, with any dead, diseased, or dying landscaping and being replaced within the next available growing season with plants of a similar species and at the minimum height at time of planting as specified on Landscape Plans **L1 to L2**; and

(b) for any shelter belt adjacent to SH73, the maximum height shall be 6 metres to avoid any shading on SH73 during the period of 10am-2pm on the shortest day of the year.

(25) The colour of the exterior surfaces of the Milk Powder Plant shall be limited to *Grey Friars* (reflectively 8%) and *Titania* (reflectivity 67%) as shown, with the exception of Fonterra Blue (Cyan), on the Elevation Plans **E1 to E4**. The Fonterra Blue (Cyan) shown on the Elevation Plans E1 to E4 shall be replaced with *Grey Friars* (reflectively 8%) and/or *Titania* (reflectivity 67%).

(26) The maximum height of:

(a) the dryer building shall be 52.25 metres above the existing ground level, with an allowance for an additional 7 metres above the building roof for two exhaust stacks; and

(b) the solid fuel-fired boiler stack shall be 60.1 metres above the existing ground level.

Lighting/Glare

(27) 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 operation restricts relating 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.

(28) Lighting shall be excluded on the main access road entering the site from the point where the access crosses the site boundary for a length of 650 metres.

(29) 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 and unloading of rail wagons.

(30) Exterior luminaires shall be of a type and mounting that results in minimal output above the horizontal plane (e.g. roadway luminaries of AS/NZS 1158.3.1: 2005, type 5 or 6).

(31) Lamps for open area exterior lighting shall have an atmospheric refraction characteristic no greater than that of the high pressure sodium vapour type.

(32) Any night time lighting shall be designed so that the light spill onto any adjoining property is no more than 3-lux light spill.

Solid Waste

(33) Prior to the commencement of operations to provide the Selwyn District Council, Attention: Asset Delivery Manager with a copy of its Eco-Efficiency System documentation.

Noise and Vibration

Construction Period

(34) Construction noise shall comply with NZS 6803:1999 *Acoustics – Construction Noise*.

(35) Construction vibration shall comply with NZS2631:1985-89 Parts 1-3 or equivalent standard.

(36)

(a) At least 10 working days prior to the commencement of construction works on site, the consent holder shall prepare and submit to the Selwyn District Council's Monitoring Officer a Construction Noise and Vibration Management Plan. The Plan shall detail all best practice procedures, mitigation and methodologies required to ensure compliance with the proposed construction noise limits during both daytime and night time periods; including:

(i) setting out the extent of hours and days of operation per week for construction activities;

(ii) setting out and detailing the extent, location and timing of noise and vibration producing construction activities during the construction period, including any specific measures identified to avoid, remedy or mitigate adverse vibration effects on dwellings adjoining the site;

(iii) outlining noise complaint procedures; and

(iv) procedures and processes for updating the plan.

and

(b) a copy of the Construction Noise and Vibration Management Plan shall be provided to adjoining landowners and the Community Liaison Group.

(37) Noise bunds shall be constructed in the locations set out in the Site Layout Plans **SL1** and in accordance with the following dimensions:

(a) 4m high;

(b) a minimum slope gradient of a 1:2; and

(c) a minimum width of 2.5m (flat) on the top.

(38) All noise bunds shall be planted with appropriately drought tolerant grass as soon as reasonably practicable following their construction to prevent subsidence and dust emissions.

Operational noise limits

(39) At least 10 working days prior to the commencement of the operation of the Milk Powder Plant, the consent holder shall submit to the Selwyn District Council, Attention: Environmental Policy and Approvals Manager an Operational Noise Management Plan.

(40) The plan shall detail all best practice procedures, mitigation and methodologies required to ensure compliance with the noise limits in condition (41) during both the daytime and night time periods, and including but not limited to:

(a) noise monitoring requirements, including the locations, timing and duration of the noise monitoring required by condition (42);

(b) noise complaints procedures including 24 hour contact details for the site;

(c) staff training procedures including:

(i) safe, effective, and noise conscious use of tankers; and

(ii) minimising the use of engine and exhaust braking at the entry and exit of the site

(d) maintenance and operational procedures to ensure:

(i) all vehicles operate according to the relevant Manufacturers' specifications; and

(ii) all plant and equipment capable of generating noise is kept in good working order and repair.

(e) the use of Auchenflower Road in emergency situations including when access to or from State Highway 73 is not available; and

(f) procedures and processes for updating the plan.

(41) Noise arising as a result of the operation of the Milk Powder Plant, including all ancillary equipment and associated activities, maintenance activities, and the operation of road and rail transport on site shall not exceed the following limits, measured at the notional boundary of any dwelling, excluding any dwelling owned by the consent holder:

- Daytime (7.30am – 8.00pm) 60dB $L_{Aeq(15\ minutes)}$ and 85 dB L_{AFmax}
- Night-time (8.00pm – 7.30am) 45dB $L_{Aeq(15\ minutes)}$ and 70 dB L_{AFmax}

Noise Monitoring and Reporting

(42) (a) Noise monitoring shall be undertaken on at least two separate days with at least one week between each day by a suitably qualified Acoustic Consultant during the November or December peak activity of the Milk Powder Plant operation and ancillary activities with all significant noise sources from the site clearly identified and included.

(b) The noise monitoring shall be undertaken in accordance with the following:

(i) at no less than four key control locations around the consent holder's site,

(ii) shall be undertaken during both the daytime and night time worst case periods identified during peak activity,

(iii) on a yearly basis for the first three years of operation and every two years afterwards, and

(iii) the measurement and assessment of noise shall be in accordance with NZS 6801:2008 *Acoustics – Measurement of Environmental Sound* and NZS 6802:2008 *Acoustics – Environmental Noise*.

(43) The consent holder shall submit to the Selwyn District Council, Attention: Monitoring Officer by 31 January a report prepared by a suitably qualified and experienced acoustic consultant on noise monitoring undertaken in accordance with condition (42). The report shall identify any activities that have the potential to cause a breach of the noise limits specified in

condition (41) and identify any action taken to minimise noise created at the site.

Rail Noise

(44) At least 3 months prior to rail operations commencing on site, the consent holder shall submit a Rail Operations Noise Management Plan to the Selwyn District Council, Attention: Monitoring Officer. The plan shall include:

(a) the nature and hours of the planned rail operations;

(b) best practice procedures including mitigation and attenuation measures to be undertaken to ensure compliance with the noise limits specified in condition (41);

(c) noise complaint procedures; and

(d) procedures and processes for updating the plan.

(45) No rail movements shall occur within the site during the hours between 8.00pm and 7.30am.

Tanker engine braking

(46) The consent holder shall instruct all drivers of milk tankers delivering product to the factory to not use engine braking (except in emergencies) as they slow to go through Darfield Township and as they slow before the entrance to the factory, and the consent holder shall use their best endeavours to ensure that there is compliance with that instruction.

Accidental Discovery - Archaeological and Cultural

(47) If at any time during the site excavation authorised by this consent historic artefacts, cultural remains, koiwi tangata (human bones) or taonga (treasured artefacts) are discovered then:

(a) All work in the immediate vicinity (20 metres) of the discovery shall stop.

(b) The consent holder shall as soon as possible inform the Selwyn District Council, Attention: Environmental Policy and Approvals Manager, and if the discovery includes koiwi tangata (human bones) or taonga (treasured artefacts), the consent holder shall also inform the Taumutu Rūnanga (contact information can be obtained by contacting the Selwyn District Council (phone (03) 318-8338) or the Canterbury Regional Council (phone 0800 324 636)).

(c) The consent holder shall contract a suitably qualified and experienced archaeologist (i.e., a person with a post graduate degree in archaeology, and who is a member of the New Zealand

Archaeological Association) to the site to assess the significance of the findings.

(d) If the discovery includes koiwi tangata (human bones) or taonga (treasured artefacts), further excavation work within the immediate vicinity of the discovery shall be suspended until either (i) a certificate signed by a representative of Taumutu Rūnanga stating that appropriate action has been undertaken in relation to the discovered culturally sensitive material, or (ii) after five working days after advising the Taumutu Rūnanga, a certificate signed by an archaeologist (i.e., a person with a post graduate degree in archaeology, and who is a member of the New Zealand Archaeological Association) is provided to the Selwyn District Council, Attention: Environmental Policy and Approvals Manager, that states that in the archaeologist's professional opinion appropriate action has been undertaken in relation to the discovered culturally sensitive material. That certificate shall detail the action that has been undertaken by the consent holder. A copy of the archaeologist's qualifications shall also be provided with any such certificate.

Note: This condition is in addition to any agreements that are in place between the consent holder and the Taumutu Rūnanga, (Cultural Site Accidental Discovery Protocol) or the New Zealand Historic Places Trust. This condition does not replace other legal responsibilities, such as those under the Historic Places Act

Review (section 128 of the RMA)

(48) The Selwyn 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; and/or

(b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment, and/or

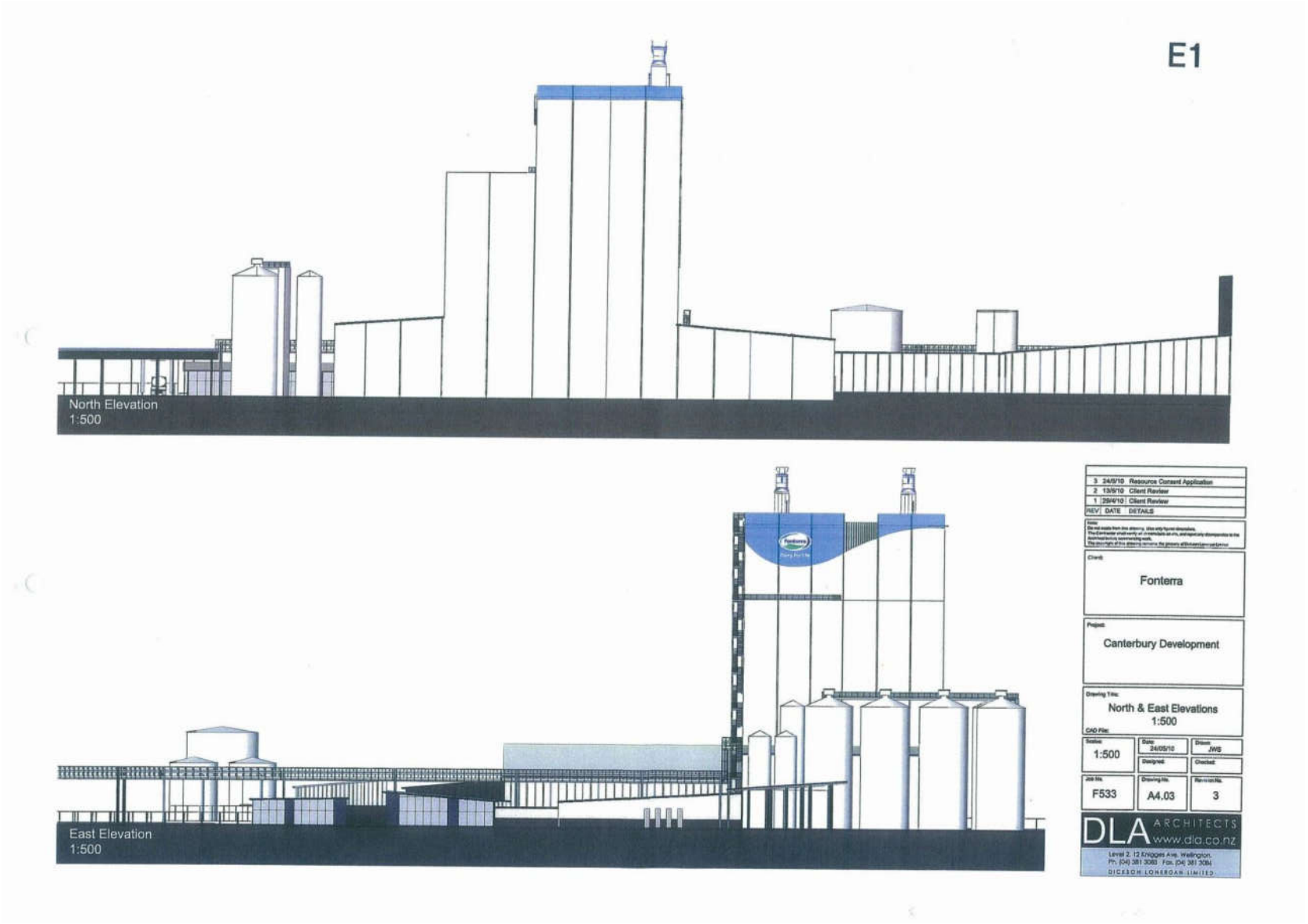
(c) requiring monitoring in addition to, or instead of, that required by the consent.

Lapsing

(49) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Advice note

Where any relocation of current water races on site is proposed, the consent holder needs to make an application to the Selwyn District Council's Asset Management Co-ordinator Water Races and Drainage.


E1
North Elevation
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East Elevation
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3 24/9/10 Resource Consent Application
2 13/9/10 Client Review
1 29/4/10 Client Review
REV. DATE DETAILS
Client:
Fonterra
Project:
Canterbury Development
Drawing Title:
North & East Elevations
1:500
CAD File:
Scales:
1:500
Date:
24/05/10
Drawn:
JWB
Designed:
Checked:
Job No.
F533
Drawing No.
A4.03
Revision No.
3
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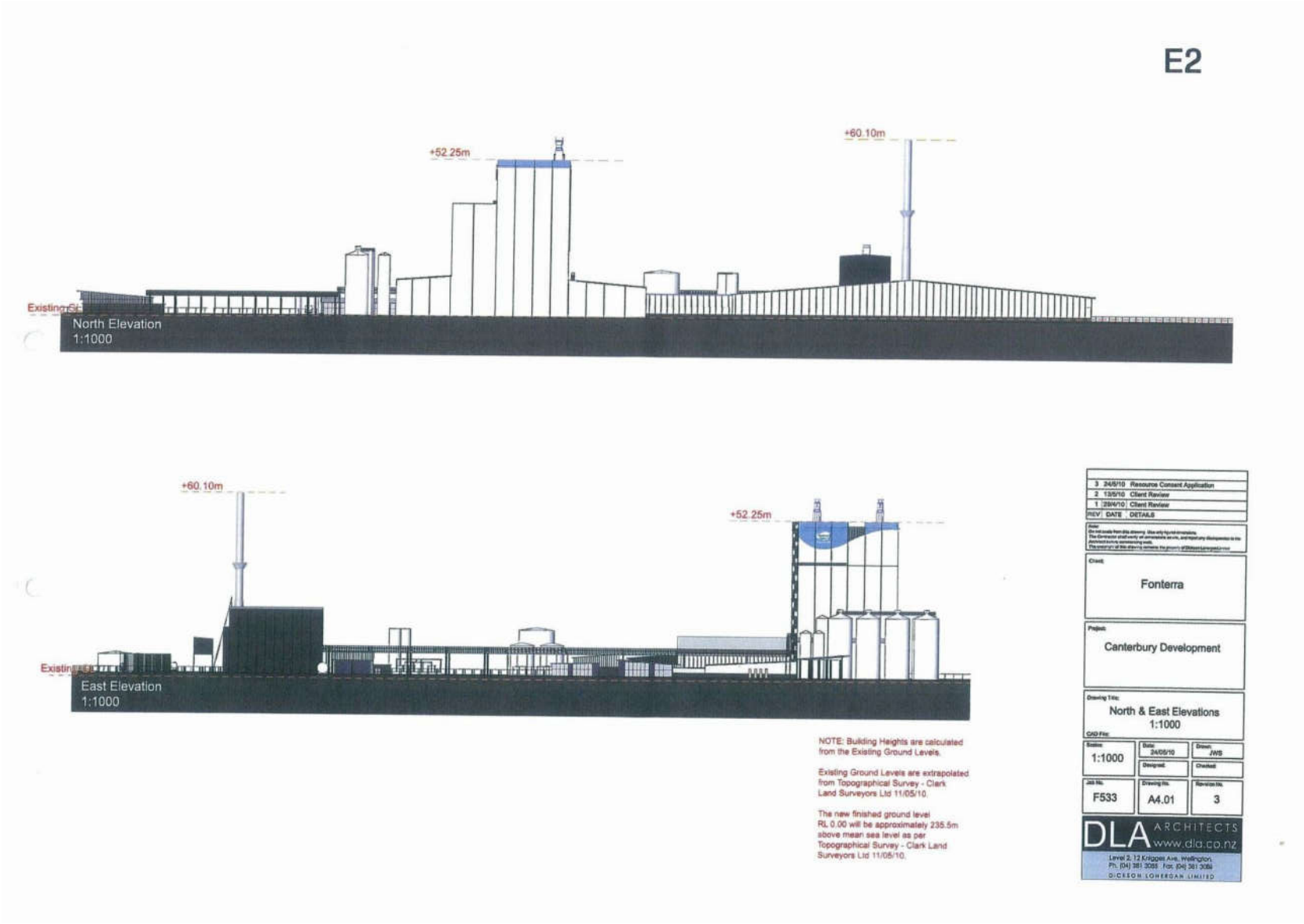
www.dla.co.nz
Level 2, 12 Kringles Ave, Wellington.
Ph. (04) 381 3083 Fax. (04) 381 3084
DICKSON LOHEREAN LIMITED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+52.25m
+60.10m
North Elevation
1:1000
+60.10m
+52.25m
East Elevation
1:1000
NOTE: Building Heights are calculated from the Existing Ground Levels.
Existing Ground Levels are extrapolated from Topographical Survey - Clark Land Surveyors Ltd 11/05/10.
The new finished ground level RL 0.00 will be approximately 235.5m above mean sea level as per Topographical Survey - Clark Land Surveyors Ltd 11/05/10.
3 24/5/10 Resource Consent Application
2 13/5/10 Client Review
1 29/4/10 Client Review
REV DATE DETAILS
Client:
Fonterra
Project:
Canterbury Development
Drawing Title:
North & East Elevations
1:1000
CAD File:
Scale: 1:1000
Date: 24/05/10
Drawn: JWS
Designed:
Checked:
Job No. F533
Drawing No. A4.01
Revision No. 3
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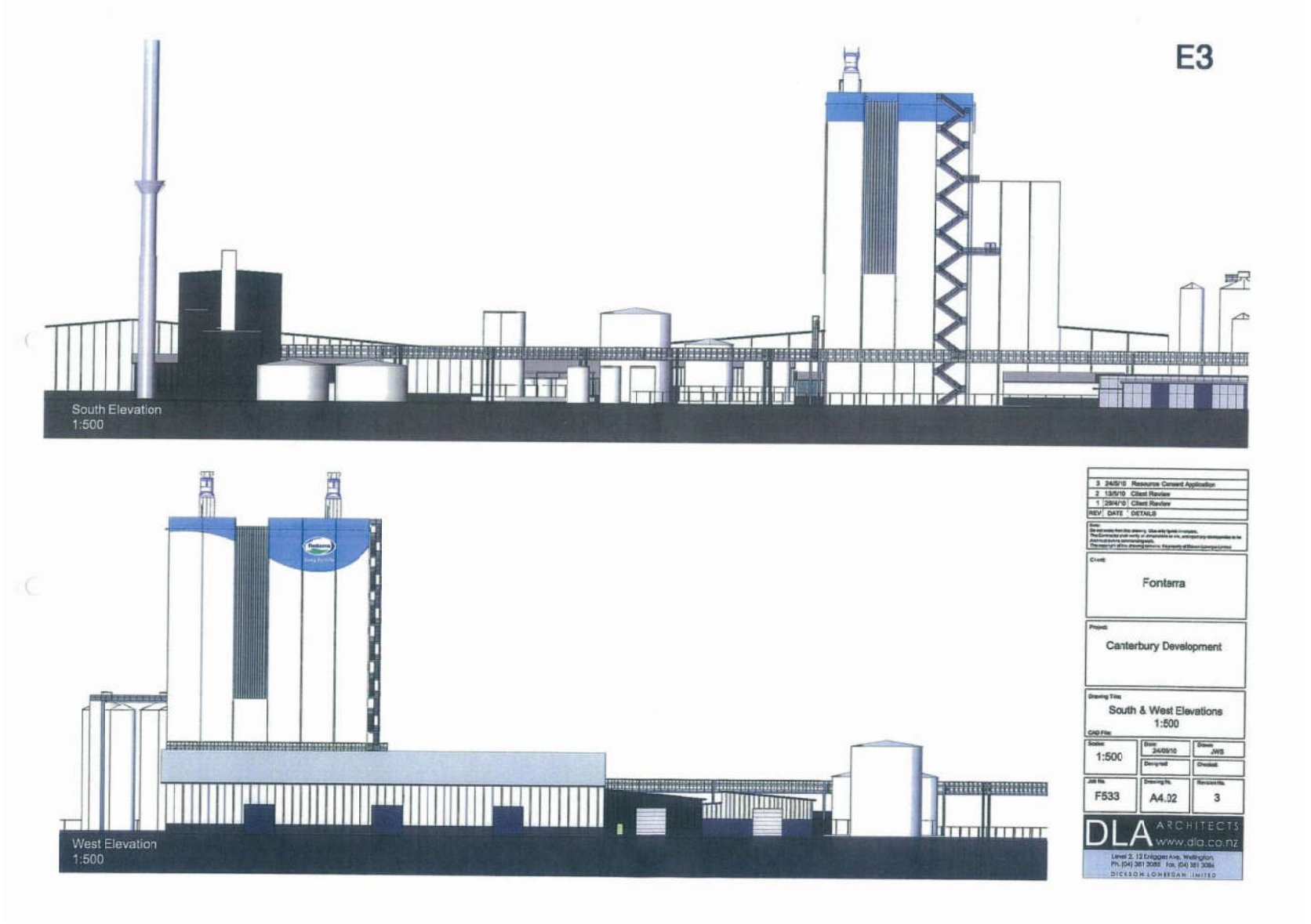
E3
South Elevation
1:500
West Elevation
1:500
3 24/5/10 Resource Consent Application
2 13/5/10 Client Review
1 29/4/10 Client Review
REV DATE DETAILS
Client:
Fonterra
Project:
Canterbury Development
Drawing Title:
South & West Elevations
1:500
CAD File:
Scale: 1:500
Date: 24/05/10
Drawn: JWS
Designed
Checked
Job No. F533
Drawing No. A4.02
Revision No. 3
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www.dla.co.nz
Level 2, 12 Edgeler Ave, Wellington,
Ph (04) 381 3083 Fax (04) 381 3084
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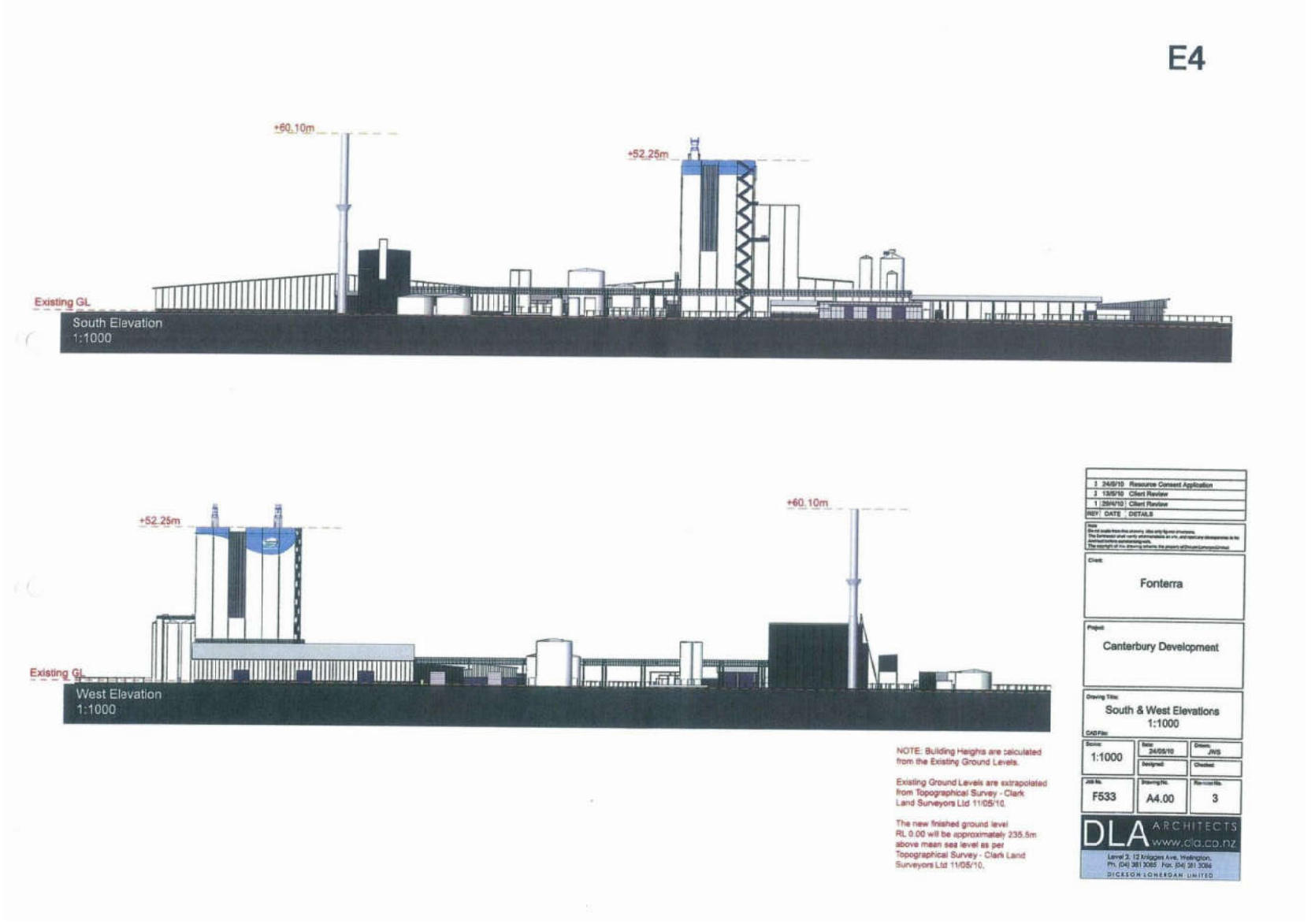
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Existing GL
South Elevation
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Existing GL
West Elevation
1:1000
NOTE: Building Heights are calculated from the Existing Ground Levels.
Existing Ground Levels are extrapolated from Topographical Survey - Clark Land Surveyors Ltd 11/05/10.
The new finished ground level RL 0.00 will be approximately 235.5m above mean sea level as per Topographical Survey - Clark Land Surveyors Ltd 11/05/10.
3 24/5/10 Resource Consent Application
2 13/5/10 Client Review
1 29/4/10 Client Review
REF DATE DETAILS
Client:
Fonterra
Project:
Canterbury Development
Drawing Title:
South & West Elevations
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CAD File:
Scale:
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Date:
24/05/10
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Checked:
Job No.
F533
Drawing No.
A4.00
Revision No.
3
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www.dla.co.nz
Level 3, 12 Kriggies Ave, Wellington,
Ph. (04) 381 3085 Fax. (04) 381 3084
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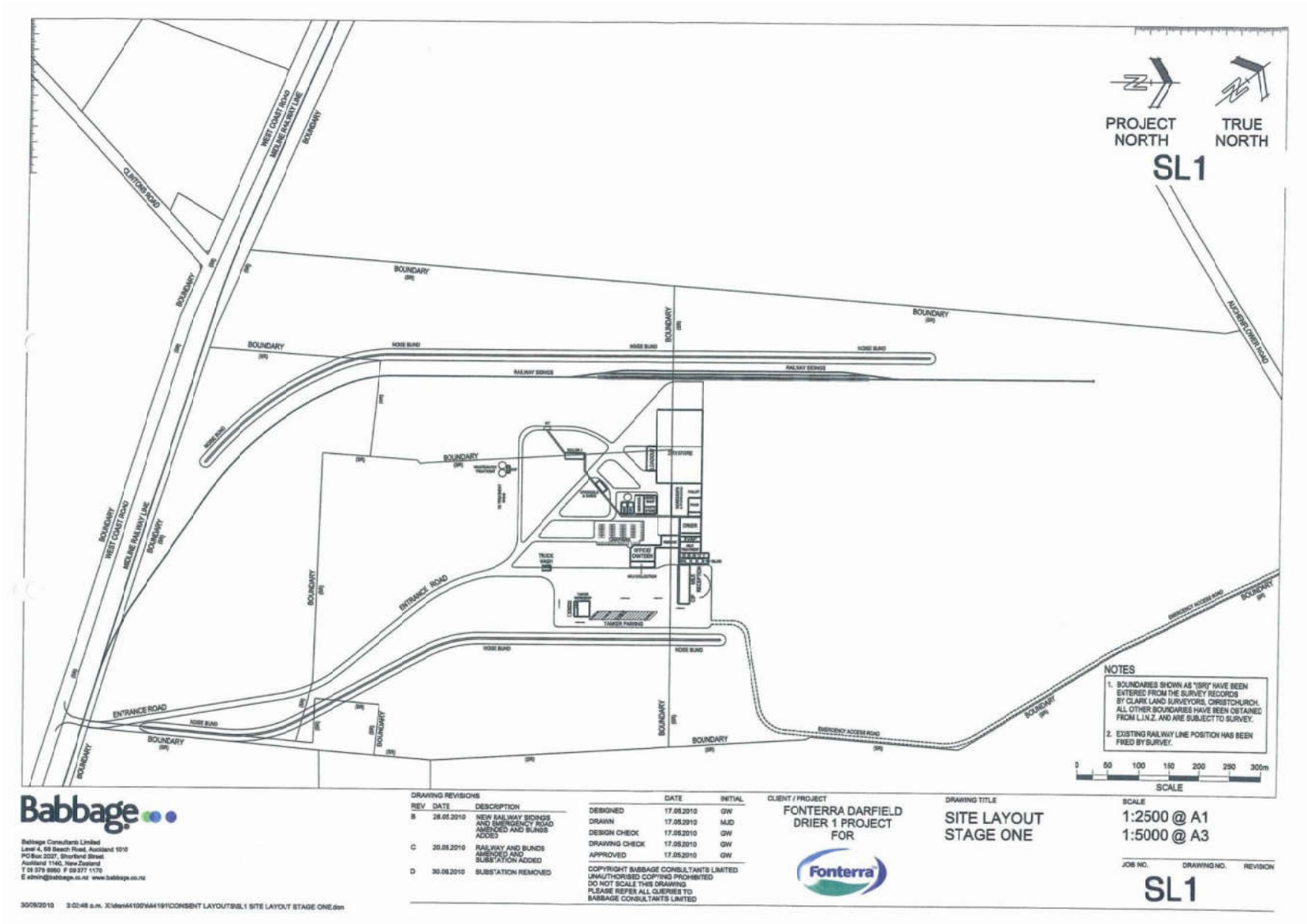
PROJECT NORTH
TRUE NORTH
SL1
WEST COAST ROAD
MIDLINE RAILWAY LINE
CLINTONS ROAD
BOUNDARY
NOISE BUND
RAILWAY SIDINGS
ENTRANCE ROAD
EMERGENCY ACCESS ROAD
AUCHENBY LOWES ROAD
NOTES
1. BOUNDARIES SHOWN AS "(SR)" HAVE BEEN ENTERED FROM THE SURVEY RECORDS BY CLARK LAND SURVEYORS, CHRISTCHURCH. ALL OTHER BOUNDARIES HAVE BEEN OBTAINED FROM L.I.N.Z. AND ARE SUBJECT TO SURVEY.
2. EXISTING RAILWAY LINE POSITION HAS BEEN FIXED BY SURVEY.
0 50 100 150 200 250 300m
SCALE
Babbage
Babbage Consultants Limited
Level 4, 68 Beach Road, Auckland 1010
PO Box 2027, Shortland Street
Auckland 1140, New Zealand
T 09 379 8860 F 09 377 1170
E admin@babbage.co.nz www.babbage.co.nz
DRAWING REVISIONS
REV DATE DESCRIPTION
B 28.05.2010 NEW RAILWAY SIDINGS AND EMERGENCY ROAD AMENDED AND BUNDS ADDED
C 20.06.2010 RAILWAY AND BUNDS AMENDED AND SUBSTATION ADDED
D 30.06.2010 SUBSTATION REMOVED
DATE INITIAL
DESIGNED 17.05.2010 GW
DRAWN 17.05.2010 MJD
DESIGN CHECK 17.05.2010 GW
DRAWING CHECK 17.05.2010 GW
APPROVED 17.05.2010 GW
COPYRIGHT BABBAGE CONSULTANTS LIMITED
UNAUTHORISED COPYING PROHIBITED
DO NOT SCALE THIS DRAWING
PLEASE REFER ALL QUERIES TO BABBAGE CONSULTANTS LIMITED
CLIENT / PROJECT
FONTERRA DARFIELD DRIER 1 PROJECT FOR
Fonterra
DRAWING TITLE
SITE LAYOUT STAGE ONE
SCALE
1:2500 @ A1
1:5000 @ A3
JOB NO. DRAWING NO. REVISION
SL1
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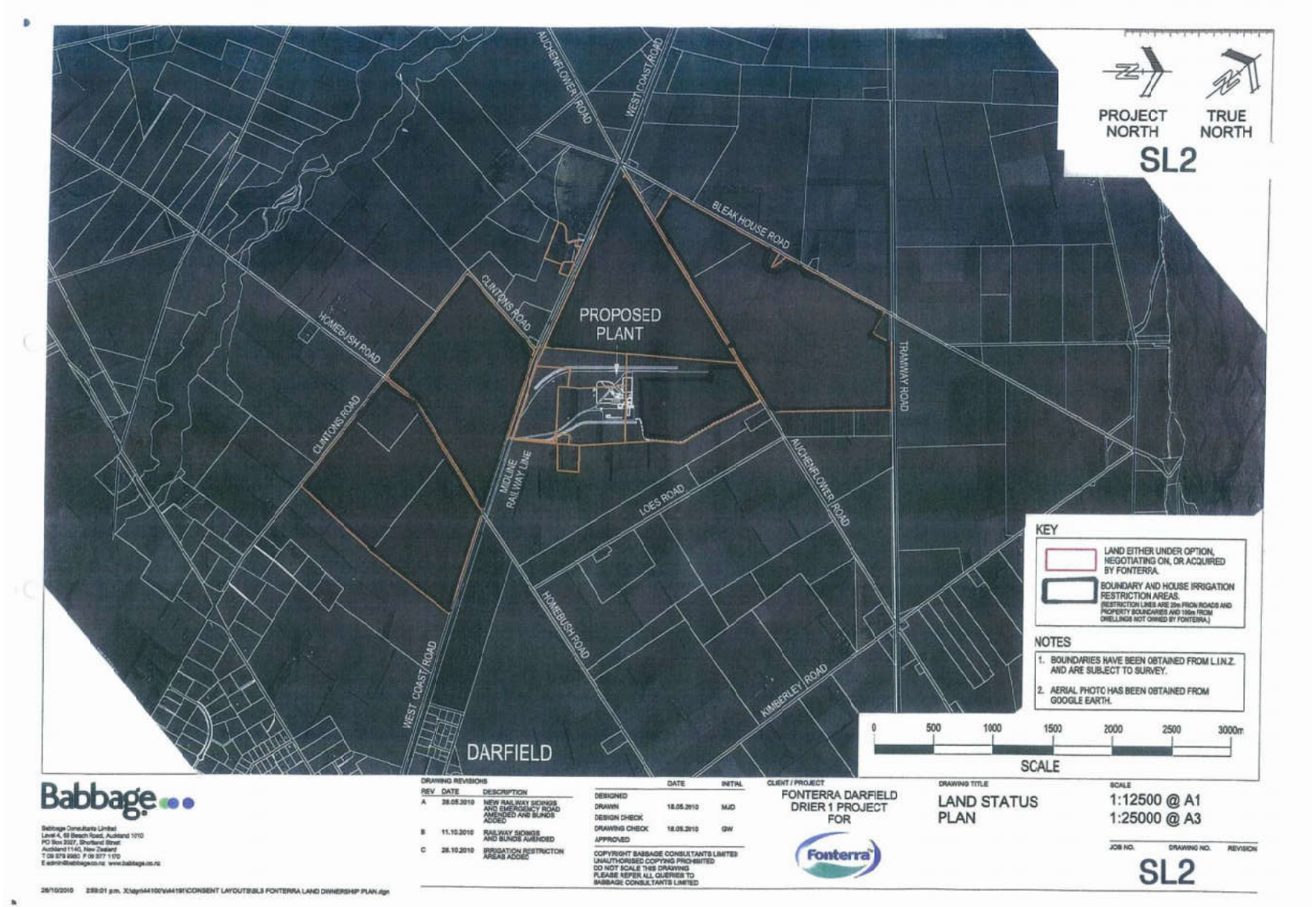
PROJECT NORTH
TRUE NORTH
SL2
AUCHENFLOWER ROAD
WEST COAST ROAD
BLEAK HOUSE ROAD
PROPOSED PLANT
CLINTONS ROAD
HOMEBUSH ROAD
TRAMWAY ROAD
MIDLINE RAILWAY LINE
LOES ROAD
KIMBERLEY ROAD
DARFIELD
KEY
LAND EITHER UNDER OPTION, NEGOTIATING ON, OR ACQUIRED BY FONTERRA.
BOUNDARY AND HOUSE IRRIGATION RESTRICTION AREAS.
(RESTRICTION LINES ARE 20m FROM ROADS AND PROPERTY BOUNDARIES AND 100m FROM DWELLINGS NOT OWNED BY FONTERRA.)
NOTES
1. BOUNDARIES HAVE BEEN OBTAINED FROM L.I.N.Z. AND ARE SUBJECT TO SURVEY.
2. AERIAL PHOTO HAS BEEN OBTAINED FROM GOOGLE EARTH.
0 500 1000 1500 2000 2500 3000m
SCALE
Babbage
DRAWING REVISIONS
REV DATE DESCRIPTION
A 28.05.2010 NEW RAILWAY SIDINGS AND EMERGENCY ROAD AMENDED AND BUNDS ADDED
B 11.10.2010 RAILWAY SIDINGS AND BUNDS AMENDED
C 28.10.2010 IRRIGATION RESTRICTION AREAS ADDED
DESIGNED DATE INITIAL
DRAWN 18.05.2010 MJD
DESIGN CHECK
DRAWING CHECK 18.05.2010 GW
APPROVED
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CLIENT / PROJECT
FONTERRA DARFIELD DRIER 1 PROJECT FOR
Fonterra
DRAWING TITLE
LAND STATUS PLAN
SCALE
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1:25000 @ A3
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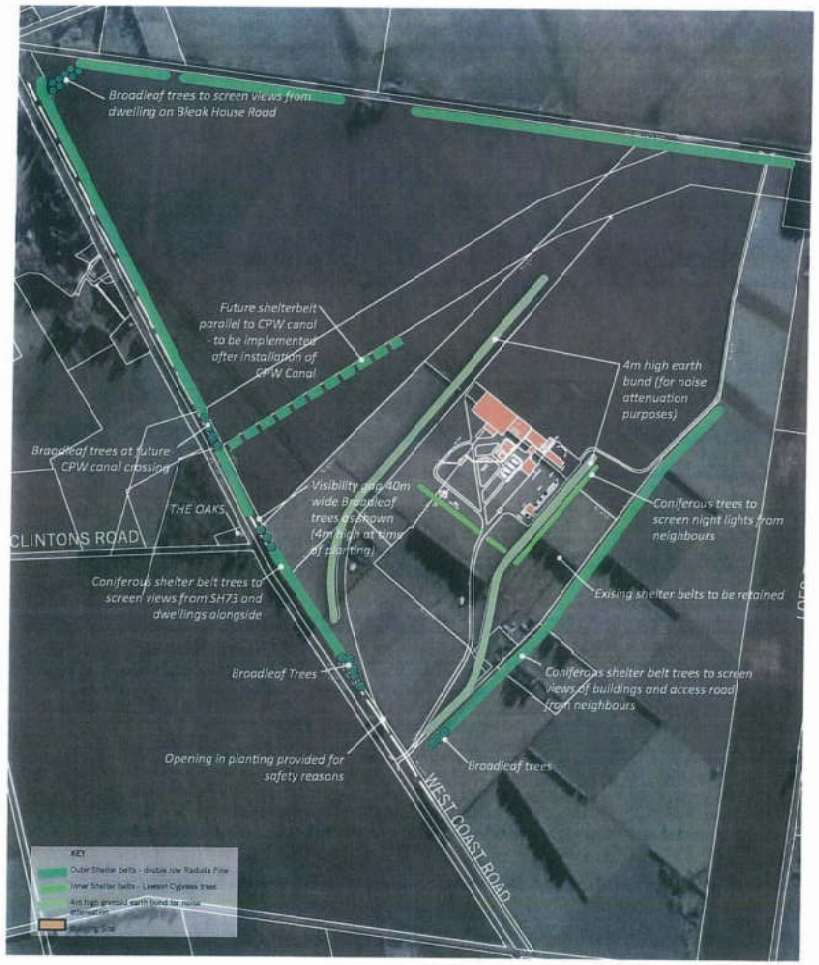


L1

SHELTER BELT/SCREEN PLANTING PLAN

NOTE: Landscape Plan 1 shows only the planting required for landscape mitigation purposes.

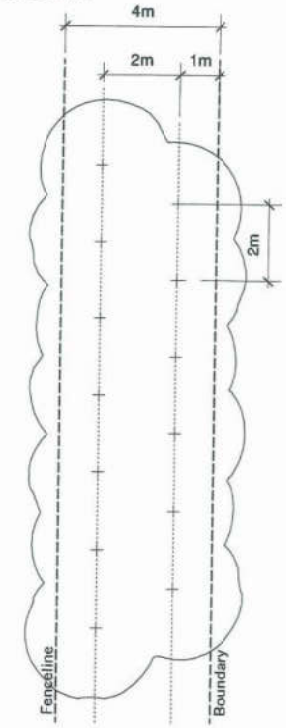
Recommended Tree Species:

- Outer shelter belts - Radiata Pine (Pinus radiata)
- Inner shelter belt around plant - Lawson Cypress (Chamaecyparis lawsoniana)
- Broadleaf Trees - Oak (Quercus spp.), Plane (Platanus spp.), Lime (Tilia spp.), Ash (Fraxinus spp.)

SPECIFICATIONS

1. **Ground Preparation**
   a. Spray planting area with "Gardaprin" herbicide mixed with "Galant."
   b. Rip Ground to 200mm depth.
2. **Planting**
   a. Trees to be 750mm at time of planting.
   b. Trees to be located and spaced as shown on planting plan - Typical layout to right.
   c. For exotic broadleafs only mulch with 100mm depth coarse bark.
3. **Post Planting Management**
   a. Spray for weed control as and when necessary 1m diameter each tree.
   b. Irrigate fortnightly between the months of 1st October to end of March for first two growing seasons.
   c. Replace any diseased or dead trees within the first growing season.
   d. All shelter belt planting is to be maintained at a maximum 6m height adjacent State Highway 73.

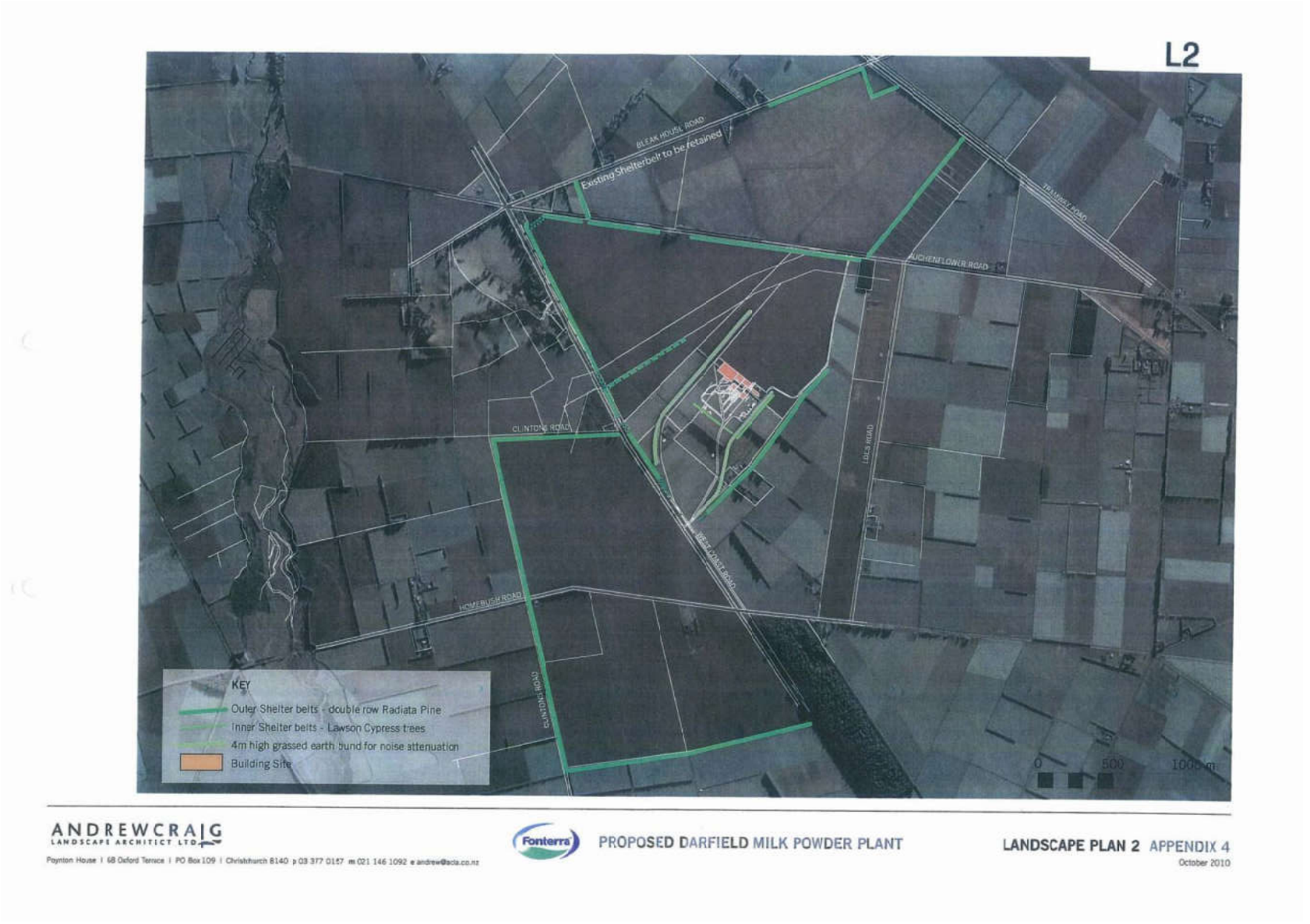
TYPICAL LAYOUT SHOWING PLANT LOCATION AND SPACING



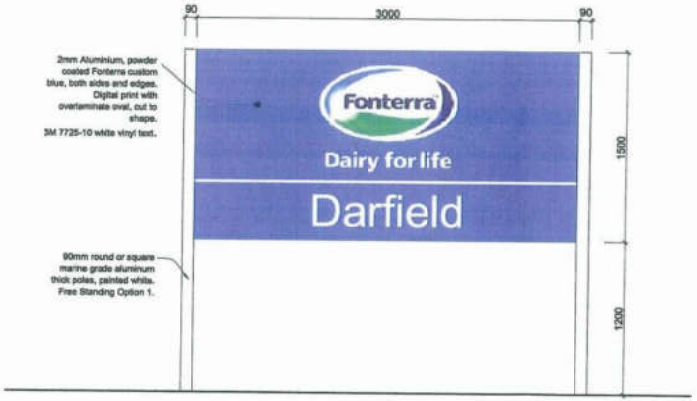
ANDREWCRAIG
LANDSCAPE ARCHITECT LTD
Poynton House | 68 Oxford Terrace | PO Box 109 | Christchurch 8140 p 03 377 0157 m 021 146 1092 e andrew@acla.co.nz

PROPOSED DARFIELD MILK POWDER PLANT

LANDSCAPE PLAN 1 APPENDIX 4
October 2010


L2
BLEAK HOUSE ROAD
Existing Shelterbelt to be retained
TRAMWAY ROAD
AUCHENFLOWER ROAD
CLINTONS ROAD
LOCK ROAD
WEST LONG ROAD
HOMEBUSH ROAD
CLINTONS ROAD
KEY
Outer Shelter belts - double row Radiata Pine
Inner Shelter belts - Lawson Cypress trees
4m high grassed earth bund for noise attenuation
Building Site
0
500
1000 m
ANDREWCRAIG
LANDSCAPE ARCHITECT LTD
Poynton House I 68 Oxford Terrace I PO Box 109 I Christchurch 8140 p 03 377 0157 m 021 146 1092 e andrew@acla.co.nz
Fonterra
PROPOSED DARFIELD MILK POWDER PLANT
LANDSCAPE PLAN 2 APPENDIX 4
October 2010

SE1



1 Main Site Identifier Sign - ID 30/15
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REV	DATE	DETAILS
0	24.06.10	Sketch Plan

Client: Fonterra

Project: Fonterra Canterbury Development

Drawing Title: Main Site Identifier Sign Concepts

CAD File:

Scale:	Date:	Drawn:
1:30 @ A3	24.06.10	JHS
	Designed:	Checked:
Job No.: F533	Drawing No.:	Revision No.: 0

DLA ARCHITECTS www.dla.co.nz
Level 2, 12 Kilggies Ave, Wellington.
Ph. (04) 381 3365 Fax. (04) 381 3084
DICKSON IOHEROAN LIMITED

CRC103450 To discharge contaminants to air

General

(1) Discharges of contaminants into the air shall only be from the construction and operation of a Milk Processing Plant including a solid fuel-fired boiler and milk powder dryer, irrigation of wastewater and ancillary activities such as cooling towers and evaporative coolers located on State Highway 73, Racecourse Hill, Darfield.

(2) There shall be no odour, particulate, or water droplet emissions from the operation of the solid fuel-fired boiler, milk powder dryer and waste water irrigation or any other associated activity which is objectionable or offensive beyond the boundary of any property owned by the consent holder.

(3) The processes resulting in discharges into the air shall be operated and maintained using emission control mechanisms to achieve the emission standards stated in the conditions of this consent

Fuel and ash storage

(4) Fuel for the solid fuel-fired boiler shall be stored in covered underground bunkers (except for day bins attached to the boiler).

(5) All unloading of solid fuel on the site shall be completed within a solid roofed area.

(6) Ash from the solid fuel-fired boiler shall be contained and managed as much as is practicable so as to prevent the emission of fugitive dust and particulate matter.

Solid Fuel Fired Boiler

(7) (a) The solid fuel-fired boiler shall have a nett maximum useful energy output of no greater than 30 megawatts.

(b) The boiler shall be fuelled by either coal or woody biomass material. The woody material shall not be treated with preservatives, impregnated with chemicals, or contain glues, paints, stains or added oils.

(8)

(a) Combustion gases from the boiler shall be discharged to air via a bag filter capable of achieving the particulate emission concentration limit specified in Condition 12 and the particulate mass emission limit specified in Condition 13, and from a stack terminating not less than 60 metres above the local ground level; and

(b) the discharge from the stack shall be directed vertically into the air and shall not be 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.

(9) The stack efflux velocity at the maximum continuous rating of the boiler shall not be less than 15 metres per second.

(10) The opacity of emissions from the stack shall not be darker than Ringelmann Shade 1 as described in New Zealand Standard 5101:1973 except when the bag filter is bypassed in accordance with condition 11.

(11) By-passing of the solid fuel-fired boiler bag filter 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 the boiler, following repairs to boiler refractory, and during subsequent re-bricking, and only up to two days after commencing dry out at minimum output not exceeding 10 percent of boiler capacity;

(c) during commissioning of the boiler for up to two days if it is essential to bypass the bag filter at minimum output not exceeding 10 percent of boiler capacity;

(d) in the event of bag filter malfunction, providing the bypass shall not occur for more than two hours at any time; and

(e) during start-up of the boiler until the flue gas temperature exceeds 140^{o}C but only at minimum output not exceeding 10 percent of boiler capacity .

(12) The concentration of total suspended particulate in the solid fuel-fired boiler stack shall not exceed 50 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 11.

(13) The discharge of total suspended particulate from the solid fuel-fired boiler shall not exceed 3.7 kilograms per hour.

(14) The discharge of sulphur dioxide from the solid fuel-fired boiler shall not exceed 112.7 kilograms per hour when operating at maximum continuous rating or pro-rata at a lesser operating condition. The sulphur dioxide discharge rate shall be calculated from the burning rate of the coal blend and the sulphur content of that coal blend.

(15)

(a) The outlet of the bag filter shall be fitted with a broken bag detector alarmed to the boiler control room; and

(b) The broken bag detector shall be set to ensure, as far as practicable, that any damage or deterioration to filter bags or other problems that could cause an exceedence of the 50 milligrams per cubic metre total particulate emission standard is detected.

(16) The stack shall be fitted with a particulate measurement device that gives a continuous display and record of the particulate concentration of the discharge.

(17) During periods when the bag filter is bypassed:

(a) the dates and times the bag filter is bypassed and the reasons for bypassing 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 37.

(18) 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

These records shall be summarised in the Annual Environmental Report required in accordance with condition 37. The recorded data shall be retained and shall be made available to the Canterbury Regional Council on request.

(19)

(a) The consent holder shall, within six months of the date of commencement of operations, provide data on the content by weight of the following trace elements in the coal to be burned in the solid fuel-fired boiler: arsenic, beryllium, cadmium, chromium (total), lead, nickel, mercury, and thallium;

(b) within 30 days of a change in the source of coal or coal blend, equivalent data for the new coal or coal blend shall be provided to the Canterbury Regional Council prior to its use; and

(c) changes to fuel shall be reported as part of the Annual Environmental Report required in accordance with condition 37.

Milk Powder Dryer

(20) Discharges to air from the milk powder dryer shall be via a bag filter capable of achieving the particulate emission concentration limit specified in Condition 22 and particulate mass emission limit specified in Condition 23, and from two vertical stacks at a height of not less than 45 metres above the local ground level and not less than 7 metres above the roof of the milk powder dryer building.

(21) The minimum efflux velocity of exhaust air from the dryer stack shall be 13.9 metres per second at the maximum continuous rating of the dryer.

(22) The concentration of total suspended particulate in the dryer stack exhaust air shall not exceed 20 milligrams per cubic metre corrected to zero degrees Celsius and 101.3 kilopascals on a dry gas basis.

(23) The combined discharge rate of suspended particulate matter from both stacks on the milk powder dryer shall not exceed 4.6 kilograms per hour.

(24)

(a) The outlet(s) of the dryer bag filter shall (each) be fitted with a broken bag detector and alarmed to the Milk Powder Plant control room;

(b) the broken bag detector shall be set to ensure, as far as practicable, that any damage or deterioration that could cause exceedence of the 20 mg/m^3 total particulate emission standard is detected; and

(c) the operators are advised immediately if any such exceedence is detected.

Monitoring Requirements

(25) The consent holder shall install sampling ports in the boiler stack and in the dryer bag filter stacks in accordance with Australian Standard AS4323.1-1995, or equivalent method, for provision and location of sampling ports, services, platforms, and access as well as provision of single phase electrical supply.

(26)

(a) The concentration of total suspended particulate matter, and the concentration of sulphur dioxide, in combustion gas in the boiler stack or in the duct into the boiler stack shall be measured within four months of completing commissioning of the boiler and bag filter

and thereafter at least every 12 months to determine compliance with conditions 12, 13 and 14;

(b) measurement of the discharge from the boiler shall occur when the boiler is operating at a rate of at least 75 percent of its maximum continuous rating; and

(c) any testing and analysis of samples shall be carried out by an organisation and laboratory accredited by International Accreditation New Zealand (IANZ) for the tests and analyses involved.

(27)

(a) The concentration of total suspended particulate matter in exhaust gas from the milk powder dryer shall be measured within four months after completing commissioning of the milk powder dryer and bag filter and thereafter at least once every 12 months; and

(b) testing and analysis of samples as appropriate shall be carried out by an organisation and laboratory accredited by International Accreditation New Zealand (IANZ) for the tests and analyses involved

(28)

(a) The method of sampling and analysis for total particulate matter shall comply with 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;

(b) the testing time for each particulate sample shall be two hours continuous and at least three samples shall be collected; and

(c) results shall be adjusted to zero degrees Celsius, 101.3 kilopascals and 12 percent carbon dioxide or 8 percent oxygen by volume on a dry gas basis and as a mass emission expressed as kilograms per hour.

(29)

(a) The method of sampling and analysis for sulphur dioxide shall be USEPA Method 6, 6A, or 6C, or an equivalent method provided that such a method shall be provided to the Canterbury Regional Council on request;

(b) the testing time for each sulphur dioxide sample shall be one hour continuous and at least three samples shall be collected; and

(c) results shall be adjusted to zero degrees Celsius, 101.3 kilopascals and 12 percent carbon dioxide or 8 percent oxygen by volume on a dry gas basis and as a mass emission expressed as kilograms per hour.

(30)

(a) Volumetric flow of combustion gas and gas temperature during each particulate and sulphur dioxide emission test shall be determined and recorded; and

(b) results shall be presented as part of the particulate emission test report.

(31)

(a) The oxygen (or carbon dioxide) concentrations in combustion gases shall be continuously monitored and recorded during each particulate and sulphur dioxide emissions test; and

(b) results shall be presented as part of the particulate emission test report.

(32)

(a) The results of the emissions tests and a description of the testing methods shall be provided to the Canterbury Regional Council within 40 working days of the testing being completed.

(b) A summary of the results shall also be included in the Annual Environmental Report.

Servicing

(33)

(a) The solid fuel-fired boiler shall be serviced at least once every year by a person competent in the servicing of such appliances. 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 calibration; and

(iii) adjustment of boiler monitoring equipment consistent with the intent of this consent.

(b) Servicing reports shall be prepared and copies 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.

(34) All bag filters shall be serviced at least once every year or in accordance with the manufacturer's recommendations. Servicing shall include but not be limited to:

(i) inspection of all bags for general condition; and

(ii) replacement or repair of any defective bags.

Best practicable measures to avoid dust effects

(35) Best practicable measures shall be taken 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 by water tanker and/or sprinkler systems during dry windy conditions;

b) Restricting vehicle speeds on unsealed surfaces;

c) Restricting dust generating operations during strong wind conditions; and

d) Rapid establishment of grass by 'hydroseeding' or similar methods on soil bunds and other unsealed areas.

Reporting

(36) A record of all complaints made to the consent holder relating to this consent shall be maintained and shall include:

(a) the date, time, location and nature of the complaint;

(b) the name, phone number and address of the complainant, unless the complainant refuses to supply these details;

(c) details of the complaint;

(d) a description of the wind speed and direction and rainfall (if any) at the time of the incident that gave rise to the complaint;

(e) the most likely cause of the complaint; and

(f) any remedial action taken by the consent holder.

The record of complaints shall be provided to the Canterbury Regional Council upon request and as part of the Annual Environmental Report required in accordance with conditions 37.

Annual Environmental Report

(37) The consent holder shall, not later than 30 September of each year after the plant is commissioned, provide an Annual Environmental Report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, setting out a summary of results (with analyses) and comments on all requirements, including emission tests undertaken in relation to this consent over the previous processing season (from 1 August to 31 July, inclusive).

Air Discharge Management Plan

(38) At least 10 working days prior to the exercise of this consent, the consent holder shall prepare and submit to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, an Air Discharge Management Plan (*ADMP*), which details methods and procedures to be used to control discharges to air from the site. The ADMP shall include, but not be limited, to:

(a) a description of the site and its operation with a focus on the site components that are of direct relevance to the discharges to air from the site;

(b) management and operational procedures including cleaning, replacement procedures, regular maintenance and monitoring requirements, which are specific to the site's emission control systems;

(c) management and operational procedures, including shutdown systems, relating to the site's system failure mechanisms;

(d) management and operational procedures specific to the site's activities that have the potential to generate odour;

(e) management and operational procedures that specifically relate to cooling towers or evaporative coolers if used;

(f) management and operational procedures for ensuring boiler optimisation and burner efficiency;

(g) inspection and maintenance procedures for the site's plant needed to ensure that all aspects of the site's operation associated with discharges to air are maintained in good operating condition;

(h) monitoring and reporting procedures;

(i) emergency response and contingency plans for events;

(j) procedures for responding to complaints and/or community liaison including contact telephone numbers for staff of the consent holder who are responsible for responding to complaints; and

(k) procedures for reviewing and/or improving the ADMP.

(39) The consent holder shall review the ADMP at least once every two years and shall ensure that a copy of any updated ADMP is forwarded to the Canterbury Regional Council.

Administration

(40) 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; and/or

(b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; and/or

(c) requiring monitoring in addition to, or instead of, that required by the consent; and/or

(d) requiring ambient monitoring of sulphur dioxide for a period of at least one year in the event that there is a change made 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 solid fuel burner is routinely fired on coal; and/or

(e) requiring measures to reduce sulphur dioxide emissions from the solid fuel fired boiler when fired with coal to a level that complies with the standard or air quality guideline described in condition 40(d).

(41) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Duration

(42) This consent shall expire 35 years after the date of commencement of this consent.

CRC103589 To discharge stormwater onto and into land

Definitions

(1) For the purposes of this resource consent:

(a) **Qualified Person** means a person who holds a relevant tertiary qualification that required the equivalent of at least three years full-time study, and who has expertise in environmental investigation and environmental sampling, or a person who has such extensive 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.

(b) **HSNO** means the Hazardous Substances and New Organisms Act 1996 and associated regulations.

(c) **Hazardous substances** means a substance that is subject to HSNO.

Hazardous Substances

(2) The consent holder shall ensure that:

(a) all practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles, storage vessels and machinery; and

(b) storage of hazardous substances or refuelling of vehicles and machinery shall not occur within 50 metres of any ephemeral or flowing surface water body.

(3) 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 in a clearly visible location that are to be undertaken to contain, remove and dispose of any spilled hazardous substance.

(4) Copies of HSNO Test Certificates for each storage system where required shall be retained on site at all times and made available for inspections by officers or agents of the Consent Authority.

(5) 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 Consent Authority on request.

(6) 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.

(7) 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, Attention: RMA Compliance and Enforcement Manager, and to the Selwyn District Council, Attention: Environmental Policy and Approvals Manager, 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.

(8) Any contaminated material, resulting from a spill as specified in condition (7), removed from the site shall be disposed of at a facility authorised to receive such material and the consent holder shall provide the Canterbury Regional Council and the Selwyn District Council with written confirmation of such disposal within 10 working days of the disposal.

Limits

(9) The discharge shall be only stormwater generated from:

(a) roofs, including the dryer roof;

(b) impermeable sealed surfaces, including roads and other hardstand areas; and

(c) refuelling areas;

associated with the proposed Milk Powder Plant located on State Highway 73, Racecourse Hill, Darfield, shown on attached Stormwater Plans **SW1** and **SW2** which form part of this consent.

(10) Stormwater shall be generated from no more than 25,000 square metres of roof and no more than 67,000 square metres of hardstand and roading.

(11) The discharge of roof stormwater shall not arise from galvanised sheet building materials.

(12) There shall be no discharge from coal and milk loading and unloading areas, from truck wash areas or hardstand areas around the silos and balance tanks into the stormwater system.

(13)

(a) any on-site hazardous substance storage areas shall be bunded to prevent the release of the hazardous substance from the bunded area;

(b) each bund shall be sized to contain at least 110% of the largest single container within the bund;

(c) each bund shall be constructed of robust material and made effectively impermeable to leakage through the bund material; and

(d) material collected in bunds shall be removed off-site for disposal at a facility authorised for the disposal of such material.

Stormwater System Performance

(14)

(a) Except for storm events that occur less frequently than 10% annual exceedence probability storm events, all stormwater from roofs, except that from the dryer roof, shall be discharged into land via a sealed system that excludes all other stormwater.

(b) Stormwater from the dryer roof shall be discharged to road and parking areas for collection and treatment in the infiltration basins.

(c) Stormwater from impermeable sealed surfaces shall be discharged into land:

(i) via collection sumps, pipes and swales to the vegetated infiltration basins; or

(ii) by overland sheet flow to vegetated infiltration basins or to treatment swales.

(d) Stormwater from the refuelling area shall be discharged via an oil/water separator prior to discharge to an infiltration basin.

(15) When the capacity of the infiltration basins or swales is exceeded, stormwater shall;

(a) be directed to soakage trenches; or

(b) flow overland to landscaped or grassed areas.

Stormwater System Design

(16) All sumps shall be fitted with submerged or trapped outlets as per the Christchurch City Council standard sump details labelled **SSD1 SSD2 SSD3** and **SSD4**, which are attached to and which form part of this consent.

(17)

(a) the stormwater system shall be designed and constructed to collect, treat and dispose of stormwater up to and including all 10% annual exceedence probability storm events; and

(b) National Institute of Water and Atmospheric Research High Intensity Rainfall Design System (HIRDs) V3 rainfall data or Selwyn District Council 2010 data, plus an increase of 15% rainfall depth to take into account climate change, shall be used in the design of the stormwater system. If Selwyn District Council 2010 data is used a certificate signed by a Chartered Professional Engineer (CPEng) with stormwater treatment system construction experience, shall be submitted one month prior to the construction of the stormwater system to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, to certify that that data has been reviewed and is considered to be more appropriate to use than the HIRDs V3 rainfall data. The reasons for that judgement shall also be provided.

(18) The stormwater swales shall:

(a) be at least 70 metres in length;

(b) have a maximum base width of 1.5 metres;

(c) have side batters that do not exceed one vertical to four horizontal; and

(d) be uniformly vegetated with grass.

(19) The three stormwater infiltration basins shall:

(a) be designed to treat and dispose of first 25 millimetres of any rainfall event generated from each specific catchment area ;

(b) be lined with a layer of topsoil at least 150 millimetres thick; and

(c) be uniformly vegetated with grass.

(20) Stormwater shall not cause ponding in the infiltration basins for longer than 72 hours after cessation of any storm event.

(21) Bypass systems shall be installed to divert all stormwater generated in excess of the first 25 millimetres of any storm event from the infiltration basins into soakage trenches or to overland flow

(22) The soakage trenches shall be constructed:

(a) in accordance with a design consistent with the New Zealand Building Code (E1/VM1)(2004);

(b) to reach down to gravel allowing infiltration at a minimum rate of 600mm/hr; and

(c) with sufficient capacity to dispose of stormwater generated during rainfall events up to and including all 10% annual exceedence probability storm events.

(23) The oil/grit separator shall:

(a) have a minimum capacity of 1000 litres of hydrocarbons;

(b) have the capacity to treat stormwater flows of at least one litre per second; and

(c) be designed and constructed to capture oil globules greater than or equal to 150 micrometres in diameter.

(24) The infiltration basins shall have an infiltration rate:

(a) not exceeding 112 millimetres per hour and not less than 18 millimetres per hour as determined using a double ring infiltrometer test; or

(b) not exceeding 75 millimetres per hour and not less than 12 millimetres per hour as determined using a flooded basin test.

Design plans

(25) At least one month prior to the construction of the stormwater system, the consent holder shall submit to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager, design plans of the stormwater system, including the oil/grit separator design details, to be installed, that comply with conditions 9 to 24 of this consent.

(26) Within one month after the installation of the stormwater system, a certificate signed by a Chartered Professional Engineer (CPEng) with stormwater treatment system design/construction experience, shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, to certify that the stormwater system complies with conditions 9 to 24 of this consent. The CPEng shall also at the same

time provide a signed statement confirming that they are competent to certify the engineering work.

Inspections and Maintenance

(27) The entire treatment system shall be inspected at least once a year:

(a) any visible hydrocarbons and debris or litter shall be removed within five working days of inspection;

(b) any accumulated sediment in the infiltration basins and swales shall be removed within five working days of inspection;

(c) any accumulated sediment in the sumps shall be removed when the sediment occupies more than one quarter of the depth below the invert of the outlet pipe; and

(d) any erosion or scour shall be remediated within five working days of inspection to the extent that future rain events shall not cause erosion or scour.

(28) The infiltration basins shall be:

(a) maintained so that grass or vegetation is in a healthy and uniform state; and

(b) re-planted where erosion or die-off has resulted in bare or patchy soil cover.

(29) The swales shall be:

(a) maintained so that vegetation is in a healthy and uniform state;

(b) replanted where erosion or die-off has resulted in bare or patchy soil cover; and

(c) mowed regularly or maintained so that vegetation has a minimum length of 50 millimetres.

(30) The oil/water separator shall be maintained in accordance with the manufacturer's specifications/operating instructions. A copy of these specifications/operating instructions shall be made available to the Canterbury Regional Council on request.

Disposal of Material

(31) Any material removed in accordance with Condition 27 shall be disposed of at a facility authorised to receive such material.

Monitoring

(32) Representative soil samples shall be taken from each of the infiltration basins:

(a) at least once every ten years;

(b) from a depth of between zero and 50 millimetres below the ground surface at the point of lowest elevation;

(c) by a Qualified Person; and

(d) in general accordance with the Ministry for the Environment (2004) 'Contaminated Land Management Guidelines – Site Investigation and Analysis of Soils.'

(33) (a) Soil samples taken in accordance with condition 32 shall be analysed:

for the following contaminants:

- Copper;
- Lead;
- Zinc;
- Benzo(a)pyrene; and
- Total Petroleum Hydrocarbons:
  C_7 to C_9
  C_{10} to C_{14}
  C_{15} – C_{36}

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 IANZ for the appropriate methods, compared against the Leachate Trigger Concentrations as listed in Condition 34; and

(b) The analyses undertaken in accordance with this condition shall be carried out with detection limits of a maximum of 10 percent of the trigger concentrations set out in condition 34, with the exception of Total Petroleum Hydrocarbons detection limits which shall be as follows:

Method	***detection limit***
Total Petroleum Hydrocarbons	SPLP (mg/L)
C_7 – C_9	0.10
C_{10} – C_{14}	0.20
C_{15} - C_{36}	0.40

(34) The results of analyses undertaken in accordance with Condition 33 shall be compared against the following trigger concentrations:

(35)

Leachate (milligrams per litre)	*Trigger*	*Concentration*
• Copper		40
• Lead	0.2	
• Zinc	30	
• Benzo(a)pyrene		0.0141
• Total Petroleum Hydrocarbons:		
C_7 to C_9	360	
C_{10} to C_{14}	7	
C_{15} – C_{36}	14	

(36) If any of the trigger concentrations listed in Condition 34 are exceeded, the soils shall be considered to be contaminated and:

(a) Additional sampling and assessment to determine the lateral and vertical extent of the contamination, with respect only to the contaminant(s) that exceeded a trigger concentration, shall be carried out in accordance with conditions 32(b)-(d), 33 & 34;

(b) All contaminated soils identified in accordance with conditions 32-34 shall be removed; and

(c) The infiltration basin shall be reconstructed in accordance with Conditions 17 and 19 and 24.

(37) Any soils imported on site to backfill any excavation as a result of Condition 35 shall not be sourced from:

(a) a site where activities included in Schedule WQL3 of the Natural Resources Regional Plan or the Ministry for the Environment's Hazardous Industries and Activities list have been, or are being, undertaken; or

(b) any site on the Canterbury Regional Council's 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 residual use guideline values.

Recording and Reporting

(38) Records of the inspection and maintenance of the stormwater system shall be kept. The records shall include, but not be limited to, information that demonstrates compliance with conditions 27 to 30 of this consent. Copies of these records shall be provided to the Canterbury Regional Council on request.

(39) A report on soil monitoring undertaken in accordance with conditions 32 to 36 shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 30 working days of the taking of samples. This report shall include:

(a) All monitoring results required by the conditions of this consent;

(b) An analysis of all monitoring results against relevant guidelines and the determination of any trends in the results;

(c) Comments on any adverse effects from the discharge and the actions taken to remedy or mitigate these effects; and

(d) Recommended changes to the monitoring programme, if applicable.

Tanker parking area

(40) The tanker parking area shall have an isolation valve or sluice to fully isolate this area in the event of a spill.

Review

(41) 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 for 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 the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent;

(d) Complying with the requirements of the relevant rule in an operative regional plan; or

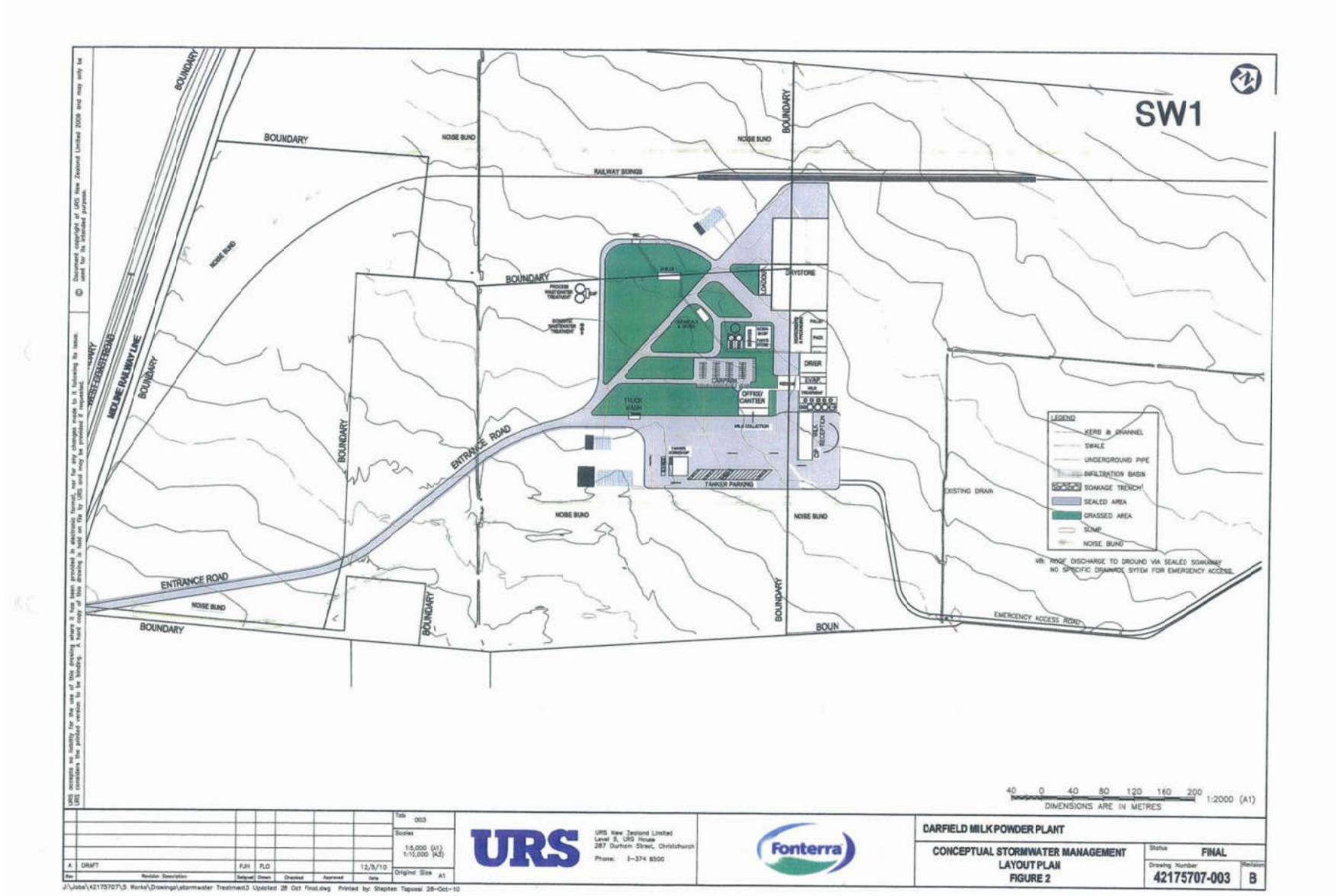
(e) Reviewing the trigger values specified in conditions of this consent.

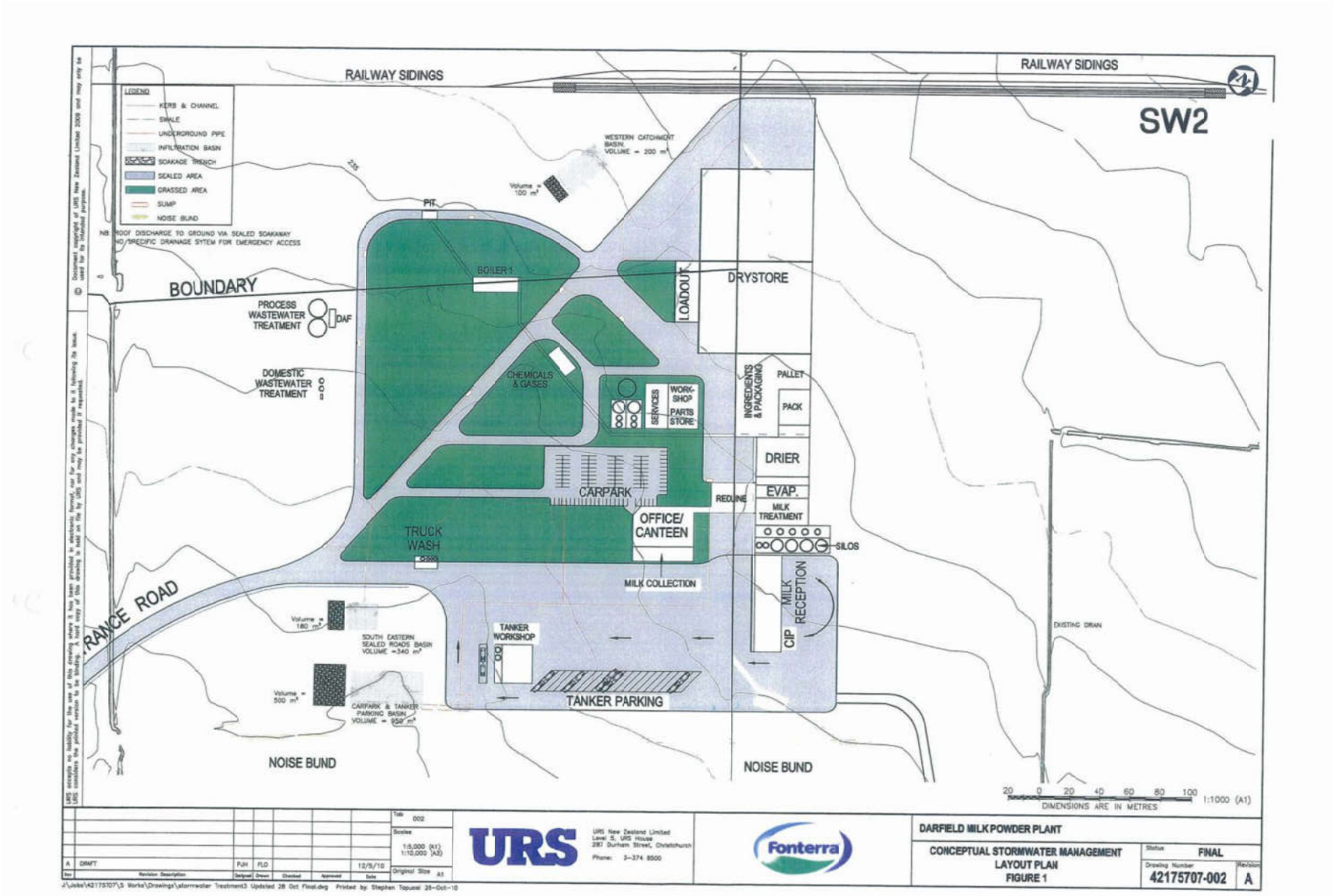
Lapsing

(42) This consent shall lapse ten years after the date of commencement, unless the consent is either given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Duration

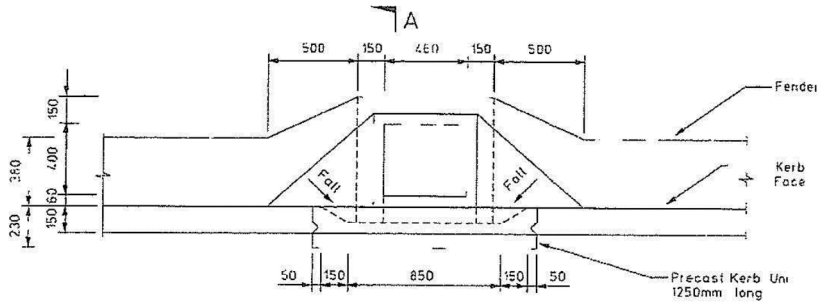
(43) This consent shall expire 35 years after the date of commencement of this consent.


SW1
BOUNDARY
NOISE BUND
RAILWAY SIDINGS
DRYSTORE
DRYER
OFFICE/ CANTEEN
TANKER PARKING
ENTRANCE ROAD
EXISTING DRAIN
EMERGENCY ACCESS ROAD
MOLESWORTH ROAD
MOLESWORTH RAILWAY LINE
LEGEND
KERB & CHANNEL
SWALE
UNDERGROUND PIPE
INFILTRATION BASIN
SOAKAGE TRENCH
SEALED AREA
GRASSED AREA
SUMP
NOISE BUND
NB: ROOF DISCHARGE TO GROUND VIA SEALED SOAKAWAY
NO SPECIFIC DRAINAGE SYTEM FOR EMERGENCY ACCESS.
40 0 40 80 120 160 200
DIMENSIONS ARE IN METRES
1:2000 (A1)
URS
URS New Zealand Limited
Level 5, URS House
287 Durham Street, Christchurch
Phone: 1-374 8500
Fonterra
DARFIELD MILK POWDER PLANT
CONCEPTUAL STORMWATER MANAGEMENT LAYOUT PLAN
FIGURE 2
Status FINAL
Drawing Number 42175707-003
Revision B
A DRAFT FJH FLO 12/8/10
Job 003
Scales 1:5,000 (A1) 1:10,000 (A3)
Original Size A1

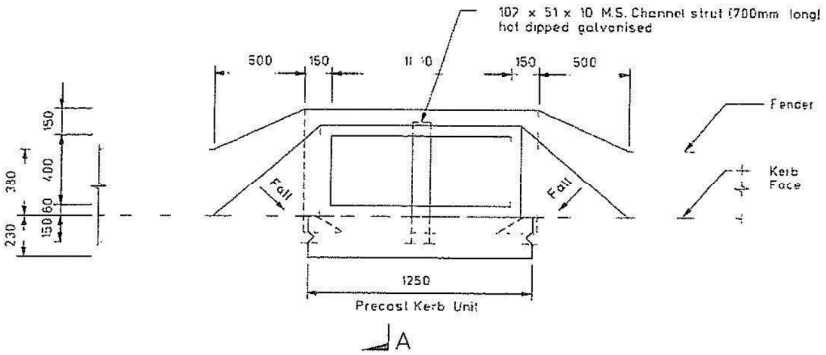

RAILWAY SIDINGS
RAILWAY SIDINGS
SW2
LEGEND
KERB & CHANNEL
SWALE
UNDERGROUND PIPE
INFILTRATION BASIN
SOAKAGE TRENCH
SEALED AREA
GRASSED AREA
SUMP
NOISE BUND
NB: ROOF DISCHARGE TO GROUND VIA SEALED SOAKAWAY
NO SPECIFIC DRAINAGE SYTEM FOR EMERGENCY ACCESS
WESTERN CATCHMENT BASIN VOLUME = 200 m³
Volume = 100 m³
PIT
BOUNDARY
BOILER 1
LOADOUT
DRYSTORE
PROCESS WASTEWATER TREATMENT
DAF
DOMESTIC WASTEWATER TREATMENT
CHEMICALS & GASES
SERVICES
WORK-SHOP
PARTS STORE
INGREDIENTS & PACKAGING
PALLET
PACK
DRIER
EVAP.
MILK TREATMENT
CARPARK
REDLINE
OFFICE/ CANTEEN
SILOS
TRUCK WASH
MILK COLLECTION
MILK RECEPTION
CIP
TANKER WORKSHOP
TANKER PARKING
Volume = 180 m³
SOUTH EASTERN SEALED ROADS BASIN VOLUME =340 m³
Volume = 500 m³
CARPARK & TANKER PARKING BASIN VOLUME = 650 m³
NOISE BUND
NOISE BUND
EXISTING DRAIN
RANCE ROAD
20 0 20 40 60 80 100
DIMENSIONS ARE IN METRES
1:1000 (A1)
URS
Fonterra
DARFIELD MILK POWDER PLANT
CONCEPTUAL STORMWATER MANAGEMENT LAYOUT PLAN
FIGURE 1
FINAL
42175707-002
A

SSD1

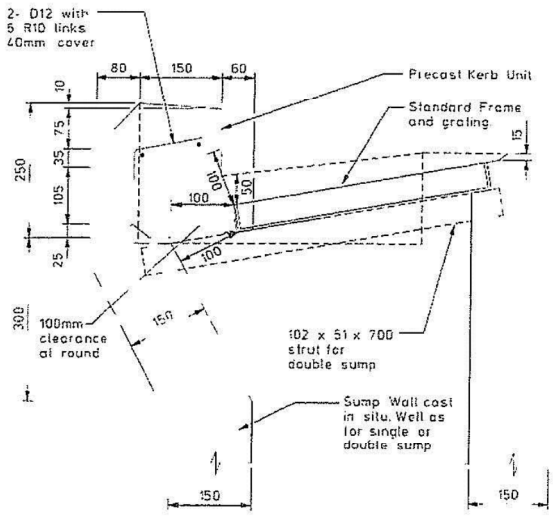
DS032101A



PLAN - SIDE ENTRY SINGLE SUMP



PLAN - SIDE ENTRY DOUBLE SUMP



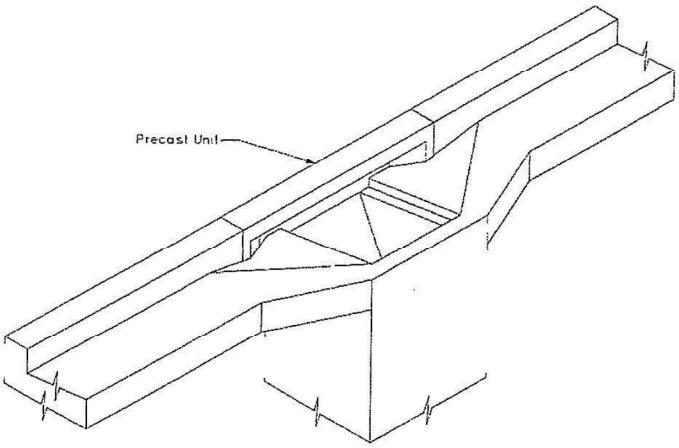
NOTES

1. Concrete work to comply with NZS 3109.
2. Precast concrete to be High Grade with 30 MPa compressive strength Insitu concrete to be special grade 25 MPa
3. Coat end faces of precast units with an approved epoxy precoat before jointing
4. Use 50 x 50 x 8 Angle 700mm long (hot dipped galvanised) to support end of frame at K & F.C./K & D.C. junction

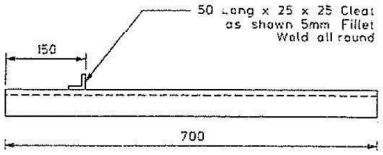
SECTION A-A

CHRISTCHURCH CITY COUNCIL · YOUR PEOPLE · YOUR CITY	SIDE ENTRY SUMPS PRECAST KERB UNIT	ISSUE DATE FEB 2002 SD321 SHEET 1 of 2

SSD2

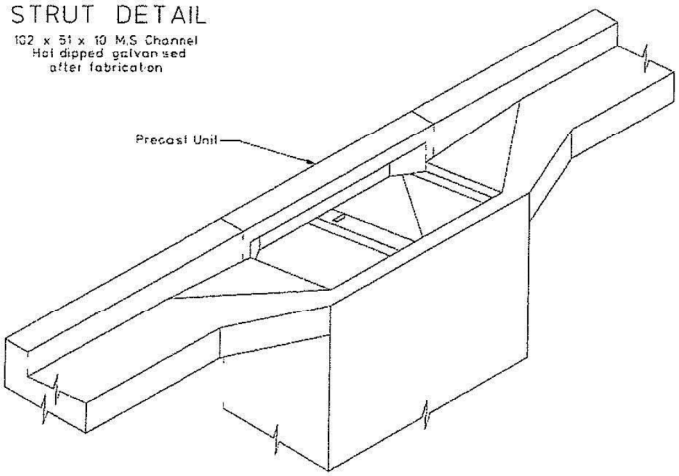


SINGLE SUMP



STRUT DETAIL

102 x 51 x 10 M.S. Channel
Hot dipped galvanised
after fabrication



DOUBLE SUMP

CHRISTCHURCH
CITY COUNCIL · YOUR PEOPLE · YOUR CITY

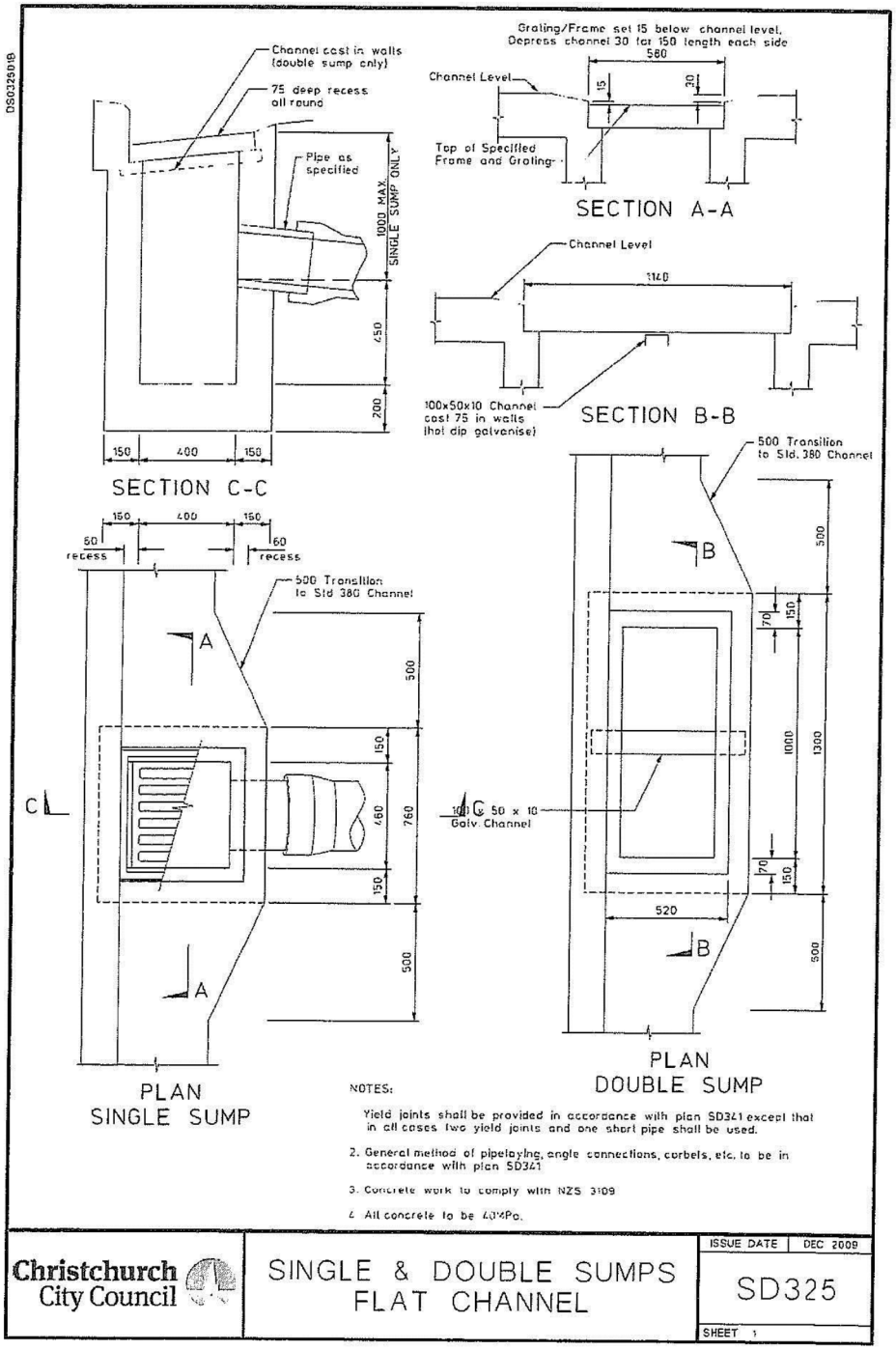
SIDE ENTRY SUMPS
PRECAST KERB UNIT

ISSUE DATE | FEB 2002

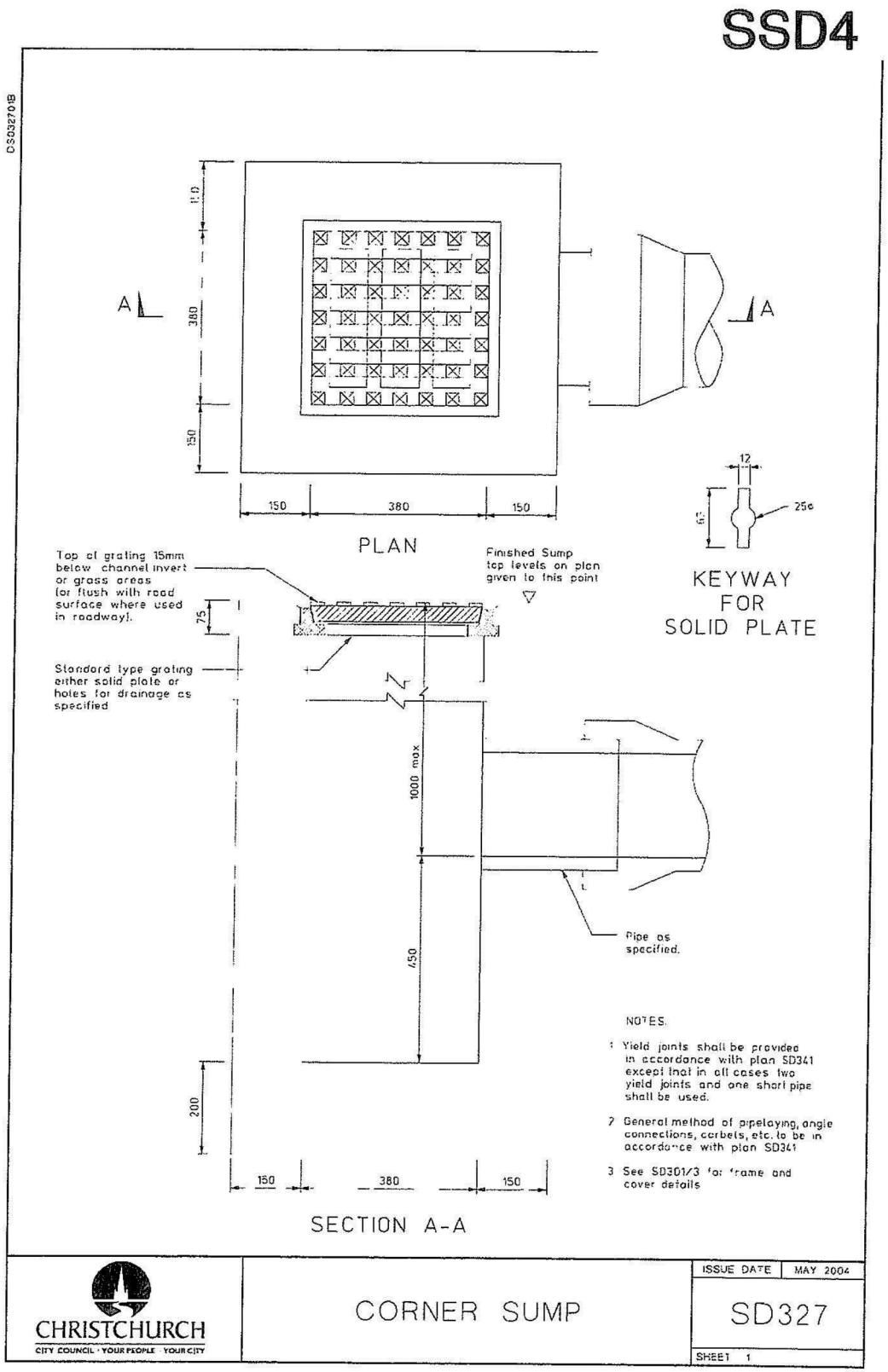
SD321

SHEET 2 of 2

SSD3


DS0325018
Channel cast in walls (double sump only)
75 deep recess all round
Pipe as specified
1000 MAX. SINGLE SUMP ONLY
450
200
150
400
150
SECTION C-C
Grating/Frame set 15 below channel level. Depress channel 30 for 150 length each side
560
Channel Level
15
20
Top of Specified Frame and Grating
SECTION A-A
Channel Level
1140
100x50x10 Channel cast 75 in walls (hot dip galvanised)
SECTION B-B
150
400
150
60 recess
60 recess
500 Transition to Std 380 Channel
A
500
150
460
760
150
500
CL
A
PLAN SINGLE SUMP
500 Transition to Std. 380 Channel
B
500
70
150
1000
1300
100 C 50 x 10 Galv. Channel
70
150
520
B
500
PLAN DOUBLE SUMP
NOTES:
1. Yield joints shall be provided in accordance with plan SD341 except that in all cases two yield joints and one short pipe shall be used.
2. General method of pipelaying, angle connections, corbels, etc. to be in accordance with plan SD341
3. Concrete work to comply with NZS 3109
4. All concrete to be 40MPa.
Christchurch City Council
SINGLE & DOUBLE SUMPS FLAT CHANNEL
ISSUE DATE DEC 2009
SD325
SHEET 1

SSD4


DS032701B
110
380
150
A
A
150
380
150
PLAN
12
25
63
KEYWAY
FOR
SOLID PLATE
Top of grating 15mm below channel invert or grass areas (or flush with road surface where used in roadway).
Finished Sump top levels on plan given to this point
75
Standard type grating either solid plate or holes for drainage as specified
1000 max
450
Pipe as specified.
200
150
380
150
SECTION A-A
NOTES.
1 Yield joints shall be provided in accordance with plan SD341 except that in all cases two yield joints and one short pipe shall be used.
2 General method of pipelaying, angle connections, corbels, etc. to be in accordance with plan SD341
3 See SD301/3 for frame and cover details
CHRISTCHURCH
CITY COUNCIL · YOUR PEOPLE · YOUR CITY
CORNER SUMP
ISSUE DATE
MAY 2004
SD327
SHEET 1

CRC103592 To discharge human and domestic wastewater into land

Definitions

(1) For the purposes of this consent:

(a) **Qualified Person** means a person who holds a relevant tertiary qualification that required the equivalent of at least three years full-time study, and who has expertise in environmental investigation and environmental sampling, or a person who has such extensive 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.

(b) **Wastewater** means only:

(i) wastewater from ablution blocks including toilets, showers and hand basins; and

(ii) wastewater from kitchen facilities.

(2)

(a) The volume of wastewater discharged shall not exceed 12 cubic metres per day averaged over any 30 consecutive days.

(b) For the purposes of demonstrating compliance with Condition 2(a) the volume of wastewater entering the land application system shall be continuously measured by a flow meter.

(c) The flow meter specified in condition 2(b) 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 ± 5%.

(3) The discharge shall be only into land as shown on the attached Domestic Wastewater Plan **DW1** which forms part of this consent.

(4)

(a) The wastewater shall be treated in a membrane bioreactor treatment system (MBR) or an alternative wastewater treatment system which provides the same or better quality of treatment.

(b) The wastewater treatment system shall be fitted with an alarm to alert the consent holder to power failure, membrane rupture or high water levels.

(5) After exiting the wastewater treatment system, the wastewater shall be discharged via a land application system as follows:

(a) The land application system shall include an area of at least 3000 square metres for sewage disposal through sub-surface drip irrigation.

(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 wastewater shall be evenly dosed in fixed quantities over the land application system.

(e) The wastewater shall be discharged at a loading rate not exceeding eight millimetres per day, with an average loading rate not exceeding four mm per day calculated as a monthly rolling average.

(f) The drip irrigation tubing shall be covered with between 100 and 200 millimetres of soil.

(g) The soil above the drip irrigation tubing shall be planted with grass. The grass shall be kept in a healthy state. Replanting shall occur when erosion or die-off has resulted in bare or patchy soil cover.

(6) A certificate shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within one month of completion of the wastewater treatment and land application system signed by a Chartered Professional Engineer (CPEng) who has experience of designing and installing wastewater treatment systems, certifying that the system has been designed and installed in accordance with Conditions 3, 4 and 5.

(7) The discharge shall not result in any wastewater being visible at the land surface.

(8) The land application system shall be fenced to exclude stock, unauthorised vehicles and unauthorised access.

(9) The discharge shall not result in odour that is offensive or objectionable beyond the boundary of the property the consent is exercised on.

(10)

(a) there shall be no discharge within 20 metres of any surface water body; and

(b) there shall be no discharge to a surface water body as a consequence of the exercise of this consent.

(11)

(a) The 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 person who is a currently Registered Drainlayer under the Plumbers, Gasfitters and Drainlayers Act 2006 or who holds an equivalent qualification or an accredited agent of the manufacturer (of the wastewater treatment system) for the service and operation of the relevant wastewater treatment system or land application system.

(b) The servicing shall include, but shall not be limited to:

(i) flushing the membrane and cleaning if necessary;

(ii) inspecting the filters and cleaning if necessary;

(iii) checking that the pump is working and replacing the pump as required;

(iv) checking the electrical equipment is working and replacing as necessary; and

(v) checking the alarm system is working and replacing as necessary.

(c) Grass from the site of the land application system shall be harvested regularly and removed from the site.

(d) Following every service a written report shall be prepared and kept by the consent holder. In addition, the consent holder shall also keep written records of all repairs made to any part of the wastewater treatment and land application system.

(e) The consent holder shall forward a copy of the written reports and records of repairs to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on request.

(12) Prior to installation of the wastewater treatment and land application systems, the consent holder shall prepare an Operation and Maintenance Manual. This Manual shall include, but not be limited to:

(a) Procedures to ensure the efficient operation of the treatment and land application system;

(b) Methods of pasture management, including the harvesting and removal of grass from the land application system;

(c) Contingency plans in the event of a breakdown or malfunction, or when discharge is not possible.

(d) A list of the records that will be kept and how they will be maintained.

(e) A list of the sampling required and how the records will be maintained.

(13)

(a) A copy of the Operation and Maintenance Manual shall be supplied to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager within five working days of its completion.

(b) Any subsequent changes to the Operations and Maintenance Manual shall be submitted to the Canterbury Regional Council Attention: RMA Compliance and Enforcement Manager within five working days of those changes being made.

(14)

(a) Daily records shall be kept of the following, and supplied to the Canterbury regional Council on request:

(i) The volume of wastewater applied to land.

(ii) The size of the land application system used to discharge wastewater.

(iii) The depth of rainfall.

(b) Records shall be kept of the following and supplied to the Canterbury regional Council Attention on request:

(i) The wastewater nitrogen loading rate expressed as kilograms per hectare per year.

(ii) The quantity of pasture (kilograms dry weight) removed from the site, recorded on a monthly basis.

(15)

(a) Representative samples of treated wastewater shall be taken from a point following exit from the sewage treatment system and before discharge into the land application system.

(b) The samples shall be taken by a qualified person at the following frequencies;

(i) At least once every 30 days for the first 12 months following commencement of the discharge authorised by this consent.

(ii) At least once every three months for the following 24 months.

(iii) At least once per year thereafter.

(iv) At least once every 30 days for the six months following any exceedence of the trigger values in Condition 17.

(16)

(a) All samples taken in accordance with Condition 15 shall be analysed for:

(i) BOD_5;

(ii) Faecal coliforms;

(iii) Total suspended solids; and

(iv) Total nitrogen.

(b) The samples shall 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

(c) The samples shall be analysed using the most appropriate scientifically recognised and current method by a laboratory that is certified for that method of analysis by an accreditation authority such as International Accreditation New Zealand (IANZ).

(17) The results of the analyses carried out in accordance with condition 16 shall be compared to the following trigger values;

(a) A median of 20mg/L BOD_5 in any 10 consecutive samples and a maximum of 35mg/L BOD_5 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 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.

(18)

(a) If any of the results of the sampling carried out in accordance with conditions 15 and 16 exceed the trigger values in condition 17 the consent holder shall, within three working days, take another sample of the treated wastewater in accordance with condition 16 and have it analysed in accordance with condition 17.

(b) If the results of the sampling and analysis carried out in accordance with condition 18(a) exceed the trigger values in condition 17, 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 17.

(c) A further sample shall be collected and analysed within seven days of receiving the results of the sample taken in accordance with condition 18(a).

(d) In the event that the results of analyses of the sample taken in accordance with condition 18(c) exceed the trigger values shown in condition 17, the consent holder shall immediately cease the discharge of wastewater from the treatment system to land.

(e) In the event of a cessation of discharge under condition 18(d), the discharge of wastewater from the treatment system to land shall not recommence until the results of analyses of a further sample do not exceed any of the trigger values specified in condition 17.

Note: If a discharge cessation is required, wastewater will need to be tankered off site until there is full compliance with the trigger values specified in condition 17.

(19)

(a) The consent holder shall provide an annual report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager by 30 September each year.

(b) The report shall include, but not be limited to:

(i) a summary and interpretation of the data collected under conditions 15, 16 and 18;

(ii) identification and discussion of any trends in the results;

(iii) a comparison of the results with results from previous years;

(iv) an explanation of any operational difficulties, changes or improvements made to the processes which could result in changes in the effects on water quality or the wastewater discharged; and

(v) if applicable, an outline of any measures undertaken to mitigate any adverse environmental effects and to prevent a reoccurrence and a comment on of the effectiveness of these measures.

Administration

(20) 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 the 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

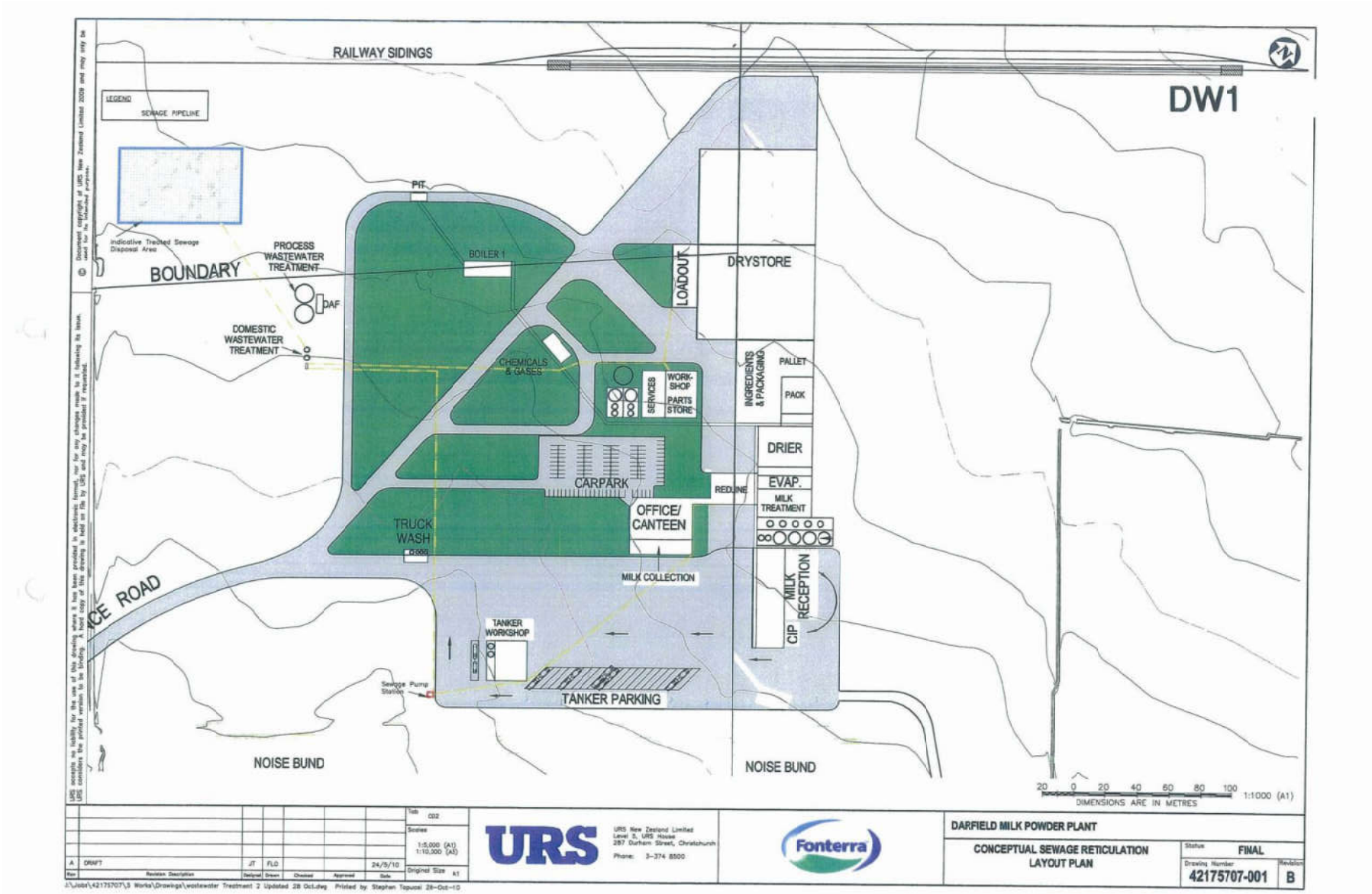
(c) requiring the consent holder to carry out monitoring and reporting instead of, or in addition to, that required by the consent; or

(d) requiring the consent holder to undertaken remediation action instead of, or in addition to, that required by the consent.

(21) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Duration

(22) This consent shall expire 35 years after the date of commencement of this consent.


RAILWAY SIDINGS
DW1
LEGEND
SEWAGE PIPELINE
Indicative Treated Sewage Disposal Area
BOUNDARY
PROCESS WASTEWATER TREATMENT
DAF
DOMESTIC WASTEWATER TREATMENT
PIT
BOILER 1
LOADOUT
DRYSTORE
CHEMICALS & GASES
SERVICES
WORK-SHOP
PARTS STORE
INGREDIENTS & PACKAGING
PALLET
PACK
DRIER
EVAP.
MILK TREATMENT
REDUNE
CARPARK
OFFICE/ CANTEEN
TRUCK WASH
MILK COLLECTION
MILK RECEPTION
CIP
TANKER WORKSHOP
Sewage Pump Station
TANKER PARKING
NOISE BUND
NOISE BUND
20 0 20 40 60 80 100 1:1000 (A1)
DIMENSIONS ARE IN METRES
URS
URS New Zealand Limited
Level 5, URS House
287 Durham Street, Christchurch
Phone: 3-374 8500
Fonterra
DARFIELD MILK POWDER PLANT
CONCEPTUAL SEWAGE RETICULATION LAYOUT PLAN
Status FINAL
Drawing Number 42175707-001
Revision B
A DRAFT JT FLO 24/5/10
Original Size A1
Scales 1:5,000 (A1) 1:10,000 (A3)

CRC103594 To discharge contaminants onto or into land and to air

Definitions

(1) For the purposes of this resource consent:

(a) **Clean process water** means condensate water (cow water), obtained by evaporating the water content out of milk and cooling water.

(b) **Frozen** means the temperature at five centimetres soil depth is less than zero degrees Celsius for a period of 12 hours or longer in the preceding 24 hours.

(c) **Overseer® Modeller** means a person holding an Advanced Sustainable Nutrient Management Certificate issued by Massey University or an equivalent qualification.

(d) **Qualified Person** means a person who holds a relevant tertiary qualification that required the equivalent of at least three years full-time study, and who has expertise in environmental investigation and environmental sampling, or a person who has such extensive 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.

(e) **Environmental Scientist** means a person who holds a post-graduate science qualification related to groundwater quality or a person who has such extensive experience and publications to be equivalent to that qualification. The consent holder shall provide evidence of the person's qualifications, experience and expertise on request from the Canterbury Regional Council.

(f) **Significant Ponding** means when wastewater remains on the ground surface of an area greater than 50 square metres 24 hours after irrigation ceases.

(g) **Wastewater** means treated factory wastewater from the washing down of trucks, equipment, tanks and pipes in process areas, consisting of water, milk, milk products, traces of nitric acid, caustic soda and dairy sanitisers, clean process water and stormwater runoff from coal and milk load in and out areas and from balance tank and silo areas.

Limits

(2) The discharge shall be only:

(a) wastewater;

(b) clean process water; and

(c) stormwater runoff from coal and milk load in and out areas and from balance tank and silo areas.

(3) The wastewater shall be discharged onto land at or about map reference NZMS 260: L35: 3600-4995 as shown on **SL2** attached to and forming part of this consent.

(4) The discharge to land shall occur on:

(a) at least 211 hectares of land when the Milk Powder Plant has one operational dryer; and

(b) at least 422 hectares of land when the Milk Powder Plant has two operational dryers.

(5) The total volume of wastewater discharged shall not exceed 8720 cubic metres per day for at least 95 percent of the time.

(6) The volume of wastewater discharged shall not exceed 2,360,000 cubic metres per year.

(7) (a) For the purposes of demonstrating compliance with conditions (5) and (6) the volume of wastewater discharged system shall be continuously measured by a flow meter.

(b) The flow meter specified in condition 7(a) shall be located at a point following exit from the treatment system and before discharge onto the land application system and calibrated annually to a margin of error of ± 5%.

Discharge

(8) Wastewater shall be discharged onto land by spray irrigation. The consent holder shall ensure that the discharge:

(a) shall be applied over the irrigation area in a uniform manner; and

(b) does not cause any Significant Ponding on the ground surface.

(9)

(a) Wastewater shall be irrigated to pasture at an application rate of not more than 25 millimetres per irrigation cycle with a minimum average return period of 16 days, with an average rate of no more than two millimetres per day over the return cycle.

(b) The soil moisture in the wastewater application area shall be monitored daily when wastewater is irrigated using a generally accepted method. The results of this monitoring shall be recorded and made available to the Canterbury Regional Council on request.

(c) When soil moisture in the wastewater application area exceeds 85 percent of field capacity the consent holder shall:

(i) Defer irrigation of clean process water in order to reduce the loading on the irrigation area; and

(ii) Reduce the application rate to 15 millimetres per irrigation cycle;

to avoid Significant Ponding.

(10) There shall be no discharge:

(a) over or within 20 metres of any surface water body, well or bore, impermeable surfaces, roads or property boundaries or in any other place or at such a rate that the discharge is likely to enter surface water or flow onto any neighbouring property;

(b) within 100 metres of any dwelling not owned by the consent holder.

(11) The annual nitrogen loading rates of the wastewater shall not exceed:

(a) an average of 250 kilograms per hectare per year over the area actually irrigated (during the period 1 August to 31 July); and

(b) a maximum of 300 kilograms per hectare per year on any area (during the period 1 August to 31 July).

(12) An appropriately accurate record shall be kept of the areas actually irrigated during the period 1 August to 31 July each year.

(13)

(a) The depth of snow shall be measured daily during times when snow is on the ground surface.

(b) If the depth of snow over 80 percent of the irrigation area exceeds 25 millimetres for a period of 12 hours or longer in the preceding 24 hours, the depth of wastewater irrigation shall not exceed 15 millimetres and irrigation of clean process water shall cease for 24 hours.

(c) There shall be no discharge onto land in circumstances where the land is frozen.

Odour and aerosols

(14) The discharge to air from wastewater discharge shall not result in odour, which is noxious, offensive or objectionable beyond the property boundary.

(15) The consent holder shall:

(a) take all practicable measures to prevent the drift of aerosols beyond the boundary of the property on which this consent is exercised;

(b) use wind direction control to automatically deactivate irrigation zones close to down-wind boundaries to minimise the risk of spray drift;

(c) clean all wastewater storage vessels monthly; and

(d) flush wastewater pipelines and centre pivots used for the irrigation of wastewater after every wastewater irrigation cycle.

Rainfall Monitoring

(16) The consent holder shall install a rain gauge at the site in order to measure the depth of rainfall. The depth of rainfall shall be measured and recorded daily.

Wastewater Monitoring

(17) The consent holder shall, at seven day intervals, take a representative 24 hour sample of the wastewater at the point it enters the irrigation system. The sample shall be analysed for:

(a) pH;

(b) Electrical conductivity [microSiemens per centimetre];

(c) Chemical oxygen demand [milligrams per litre];

(d) Total Kjeldahl nitrogen [milligrams per litre];

(e) Nitrate-nitrogen [milligrams per litre];

(f) Total phosphorus [milligrams per litre]; and

(g) Total suspended solids [milligrams per litre].

(18) The consent holder shall, at monthly intervals, take a representative 24 hour sample of the wastewater at the point it enters the irrigation system. The sample shall be analysed for and calculated (as indicated):

(a) Biological oxygen demand[milligrams per litre];

(b) Sodium [milligrams per litre];

(c) Potassium [milligrams per litre];

(d) Calcium [milligrams per litre];

(e) Magnesium [milligrams per litre]; and

(f) Sodium adsorption ratio (SAR)(calculated).

(19) The results of the analyses of the wastewater monitoring carried out in accordance with Conditions 17 and 18 shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on a monthly basis.

(20) The discharge shall have a sodium adsorption ratio of less than 15.

Groundwater monitoring

(21) Subject to conditions 22 and 23, and prior to the exercise of this consent, the consent holder shall install up to six monitoring bores at the locations and in the order set out in Monitoring Bore Plan **MBP1** attached to and forming part of this consent

(22) The objective of installing the monitoring bores installed in accordance with condition 21 shall be:

(a) for bores 5 and 6, to provide access to unconfined or semi-confined, shallow groundwater up-gradient from the wastewater irrigation area; and

(b) for bores 1, 2, 3 and 4, to provide access to unconfined or semi-confined, shallow groundwater down-gradient of the wastewater irrigation area and which is reasonably anticipated to intercept any contaminants that might be discharged to groundwater from the irrigation of the wastewater.

(23) To ensure compliance with the objective set out in condition 22:

(a) for the construction of each monitoring bore the consent holder shall, in consultation with a groundwater scientist nominated by the Canterbury Regional Council, and at the consent holder's cost, use existing hydrogeological information and the field information collected from the construction of any previous monitoring bore(s) along with technical advice from the nominated groundwater scientist to determine where and how best to install any subsequent monitoring bores (including, but not limited to specific location, screening depths, length of screens and water table fluctuations);

(b) notwithstanding condition 23(a), if the consent holder and the nominated groundwater scientist both determine that, for example, because of:

(i) the variability in water table depths;

(ii) the heterogeneous nature of the local geology;

(iii) the presence of confining layers;

(iv) expected wide seasonal fluctuations in water levels; or

(v) considerable technical issues associated with drilling and sampling groundwater

the construction of a monitoring bore would be unlikely to provide access to shallow groundwater as anticipated by condition 22, then the consent holder shall not be required to construct that monitoring bore.

(24)

(a) Groundwater samples shall be taken at three monthly intervals, starting within one month of installation, from all monitoring bores able to be used to access groundwater and analysed for the following determinands:

(i) Biochemical oxygen demand [milligrams per litre];

(ii) Nitrate-nitrogen [milligrams per litre];

(iii) Nitrite-nitrogen [milligrams per litre];

(iv) Ammonium-nitrogen [milligrams per litre];

(v) Dissolved reactive phosphorus [milligrams per litre];

(vi) Sodium [milligrams per litre];

(vii) Total dissolved solids [milligrams per litre]; and

(viii) E. coli [colony forming units per 100 millilitres]

(b) all bores able to be used to access groundwater shall be purged prior to sampling to remove standing water from the bore casing and ensure that the sample collected represents ambient groundwater outside the bore screen; and

(c) pH and electrical conductivity shall be analysed during bore purging to ensure these are stable prior to sampling.

(25)

(a) if the concentration of nitrate nitrogen in a groundwater sample from any down-gradient monitoring bore exceeds 8.5 g/m^3 NO_3-N, then the sampling frequency for that bore and the up-gradient monitoring bore(s) shall be increased to monthly; and

(b) the monitoring frequency shall only return to three monthly following a three month period where all nitrate nitrogen results from that down-gradient bore are less than 8.5 g/m^3 NO_3-N.

(26) The results of any analyses of the groundwater monitoring carried out in accordance with Condition 24 shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on a monthly basis.

Lysimeter monitoring

(27) The consent holder shall install 10 ceramic cup suction lysimeters within and across the areas irrigated with wastewater and these shall be sampled monthly and analysed for nitrate-nitrogen concentration.

(28) The location of the lysimeters installed in accordance with condition 27 shall ensure that a representative nitrate-nitrogen concentration can be assessed across the entire irrigation area.

(29) (a) The design and installation of the lysimeters shall be certified within one month of installation, by a person with a post-graduate qualification in soil science or similar discipline and with expertise in the design and installation of lysimeters, as being an appropriate design and installed appropriately.

(b) The certificate specified in condition 29(a) shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager within one month of installation.

Results of monitoring bore and lysimeter monitoring

(30) Subject to condition 31, if:

(a) the nitrate-nitrogen concentration in groundwater from any of the individual downstream monitoring bores increases by more than two milligrams per litre, averaged over any two consecutive samples, above the overall average concentration of nitrate nitrogen of groundwater from the two up-gradient monitoring bores (measured or estimated, if for some reason any data is missing) over the same time period; or

(b) the average mass load of nitrate-nitrogen as measured by the suction lysimeters installed in accordance with conditions 27 and 28 exceeds 18 kg N/ha/yr

then the consent holder shall within 20 working days report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, on how it will modify its farming or wastewater operation to ensure that:

(c) the nitrate-nitrogen concentration in groundwater from all down-gradient bores is not greater than 2 milligrams per litre above the average concentration in up-gradient monitoring bores; and

(d) the mass load of nitrate-nitrogen as measured in the suction Lysimeters installed in accordance with conditions 27 and 28 does not exceed an average of 18 kg N/ha/yr.

Advisory note: the mechanisms that the consent holder uses to modify its farming or wastewater operation to ensure conditions 30(c) and (d) are met may include, but are not limited to, destocking and increasing the rate of 'cut and carry'.

(31) If the nitrate-nitrogen concentration or mass load of nitrogen as set out in conditions 30(a) and (b)are exceeded, and if an Environmental Scientist engaged by the consent holder and an Environmental Scientist nominated by the Canterbury Regional Council both agree that the cause of the exceedence of nitrate-nitrogen concentration or the mass load of nitrogen was not as a result of the discharge activities of the consent holder, then the consent holder shall not be required to comply with condition 30.

(32) If the nitrate-nitrogen concentration or the mass load of nitrogen as set out in conditions 30(a) and (b) are exceeded, and condition 31 does not apply, then within 12 months of providing the report described in condition 30, the consent holder shall provide a further report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, that:

(a) Confirms that the response measures described and required under condition 30 have been implemented; and

(b) Provides a revised Overseer® model report undertaken by an Overseer® Modeller and an outline of any further steps required to achieve compliance with the nitrogen load threshold specified in condition 30(b).

(33) If subsequent to providing the further report as specified in condition 32, the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) has continuously been exceeded, and condition 31 does not apply, then notwithstanding condition (11), the annual nitrogen loading rates of the wastewater shall not exceed:

(a) an average of 225 kilograms per hectare per year over the area actually irrigated (during the period 1 August to 31 July); and

(b) a maximum of 270 kilograms per hectare per year on any area (during the period 1 August to 31 July).

These reduced nitrogen loads shall not apply if subsequent monitoring shows that the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) is not exceeded.

(34) If two years subsequent to a requirement to reduce the annual nitrogen loading rates as specified in condition (33), the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) has continuously been exceeded, and condition 31 does not apply, then notwithstanding condition (11), the annual nitrogen loading rates of the wastewater shall not exceed:

(a) an average of 200 kilograms per hectare per year over the area actually irrigated (during the period 1 August to 31 July); and
(b) a maximum of 240 kilograms per hectare per year on any area (during the period 1 August to 31 July).

These reduced nitrogen loads shall not apply if subsequent monitoring shows that the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) is not exceeded.

(35) If two years subsequent to a requirement to reduce the annual nitrogen loading rates as specified in condition (34), the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) has continuously been exceeded, and condition 31 does not apply, then notwithstanding condition (11), the annual nitrogen loading rates of the wastewater shall not exceed:

(a) an average of 175 kilograms per hectare per year over the area actually irrigated (during the period 1 August to 31 July); and
(b) a maximum of 210 kilograms per hectare per year on any area (during the period 1 August to 31 July).

These reduced nitrogen loads shall not apply if subsequent monitoring shows that the nitrate-nitrogen concentration of down-gradient groundwater as set out in conditions 30(a) is not exceeded.

Soil and pasture/crop sampling

(36)

(a) The consent holder shall, within six months of the commencement of this consent, start sampling the upper 200 millimetres of soil in the irrigation area to determine representative soil conditions. A qualified person shall prepare and document a sampling regime that shall ensure that sufficient samples are taken to provide information that is representative of soil conditions in the irrigation area. The sampling regime shall be provided to the Canterbury Regional Council on request.

(b) The samples shall be taken at least once annually by a qualified person.

(c) Each individual sample shall be identified as comprising each separate soil type, and shall be analysed as soon as possible, to ensure the integrity of the sample, for the following determinands:

(i) soil pH;

(ii) electrical conductivity [microSiemens per metre];

(iii) soil density [grams per cubic centimetre];

(iv) total phosphorus [milligrams per litre];

(v) Olsen phosphorus (available phosphorus) [milligrams per litre];

(vi) Total nitrogen [milligrams per litre];

(vii) Nitrate-nitrogen [milligrams per litre];

(viii) Anaerobically mineralisable nitrogen [milligrams per litre];

(ix) Exchangeable cations: calcium, magnesium, potassium and sodium exchangeable percentage (ESP);

(x) Base saturation; and

(xi) Sodium adsorption Ratio (SAR).

(d) The results of the analyses shall be recorded and shall include the following information:

(i) the date and time the samples were taken;

(ii) the location where the samples were taken;

(iii) the date the analyses were undertaken;

(iv) identification and contact details of the laboratory undertaking the analyses; and

(v) a summary of the methods used in the analyses.

(e) A Qualified Person shall undertake an interpretation of the results. The interpretative report shall include:

(i) the specific soil type;

(ii) the context of the conditions of the receiving environment at the time the sampling was undertaken;

(iii) spatial and temporal comparisons, including trends, of sample results, and where appropriate, explanations of inputs and formulae used, including explanations of the units used for each reported result.

(f) A copy of the results shall be retained and forwarded to the Canterbury Regional in accordance with condition 42 of this consent.

(g) Representative sampling of the total nitrogen concentration of any pasture or crop removed from the irrigation areas shall be undertaken.

(37) If the exchangeable sodium percentage reaches five percent, lime or gypsum shall be added to the soil to reduce the exchangeable sodium percentage to below five percent. Records of any action taken to reduce the exchangeable sodium percentage shall be maintained and provided to the Canterbury Regional Council on request.

(38)

(a) All sampling required in this consent shall be undertaken by a Qualified Person using the most appropriate scientifically recognised and current methods.

(b) All samples taken shall be analysed using the most appropriate scientifically recognised and current method by a laboratory that is accredited for that method of analysis by International Accreditation New Zealand (IANZ) or an equivalent accreditation organisation that has a Mutual Recognition Arrangement with IANZ.

Maintenance

(39) The consent holder shall maintain and operate all structures and relevant equipment associated with the sites' wastewater treatment and disposal system in accordance with the procedures and requirements of the Environment Management Plan prepared in accordance with condition 42 of this consent.

Records and Reporting

(40) The consent holder shall log any complaints received. The log will include the following:

(a) Date and time;

(b) Nature and location of the complaint;

(c) Complainant's details;

(d) Weather information;

(e) Details of the key operating parameters at the time of the complaint; and

(f) Remedial action taken to prevent further incidents, if appropriate.

Complaints shall be reported to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 24 hours and the log of complaints shall be made available to the Canterbury Regional Council on request.

(41) During the periods when the wastewater and clean process water irrigation system is operating the consent holder shall record the:

(a) instantaneous daily volume of any discharges into land by spray irrigation; and

(b) the areas on which irrigation has occurred.

(42) The consent holder shall supply to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, an annual report on the exercise of this consent over the prior dairy season. The report shall be provided by 30 September each year and shall include the following records:

(a) daily rates and volumes of discharge;

(b) location of wastewater application, rate and depth of application, and the nitrogen loading rate;

(c) analysis and interpretation of wastewater quality, lysimeter sampling, soil monitoring and groundwater monitoring;

(d) proposals for mitigating any adverse effects found to be occurring;

(e) a record of any complaints that were received relating to the irrigation of wastewater;

(f) the timing, rate and location of any fertiliser applications onto irrigated land;

(g) any pasture or crop harvest and removal from the irrigated land and the nitrogen content of that material;

(h) records of grazing including stock type and numbers; and

(i) a general comment on any farming activities that could impact on the nitrogen status of the soil such as cultivation, aeration, planting, applications of lime and of nitrogen inhibitors.

Environment Management Plan

(43) At least 10 working days prior to the first exercise of this consent, the consent holder shall prepare and forward to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, and Environment Management Plan for the operation of the wastewater treatment and disposal system. The Environment Management Plan shall include details of procedures to:

(a) manage and maintain the wastewater treatment and storage systems;

(b) manage and report on soil moisture and wastewater irrigation application rates;

(c) manage soil fertility on the wastewater irrigation area;

(d) manage soil structure;

(e) manage and report on a nutrient budget for the operation of the wastewater irrigation area;

(f) monitor wastewater, groundwater and soil and report on the results;

(g) manage the wastewater discharge when irrigation is not possible because of weather;

(h) manage stock grazing;

(i) minimise potential odour and spray drift from the system;

(j) respond to emergencies and provide contingency plans in the event of equipment failure or adverse weather;

(k) respond to complaints and/or carry out community liaison And

(l) procedures and processes for updating the plan.

The Environment Management Plan shall include an Overseer® analysis undertaken by an Overseer® Modeller to ensure nitrogen leaching rates are less than 18 kg N/ha/yr. The Overseer® analysis shall be prepared using the 'advanced monthly stock reconciliation method'.

(44) The Environment Management Plan shall be reviewed by the consent holder at least annually for the purpose of addressing any issues relating to compliance with the conditions of this consent. The current plan shall be forwarded to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, annually and prior to 30 September in any year.

Administration

(45) 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 the 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 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

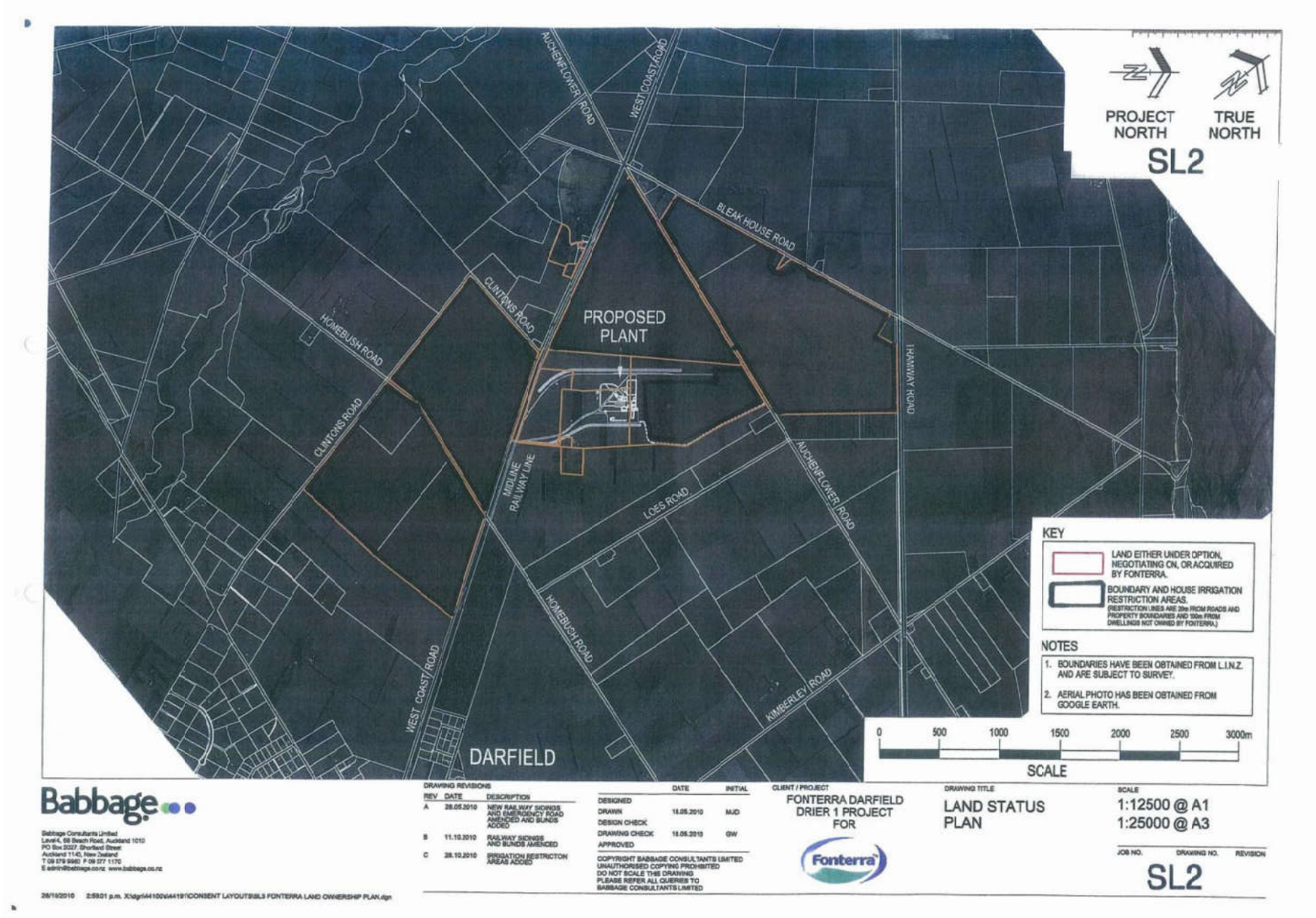
(c) requiring compliance with any relevant rule of an operative Regional Plan; or

(d) reviewing the frequency of monitoring and the determinands monitored.

(46) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Duration

(47) This consent shall expire 35 years after the date of commencement of this consent.


PROJECT NORTH
TRUE NORTH
SL2
AUCHENFLOWER ROAD
WEST COAST ROAD
BLEAK HOUSE ROAD
CLINTONS ROAD
HOMEBUSH ROAD
PROPOSED PLANT
TRAMWAY ROAD
MIDLINE RAILWAY LINE
LOES ROAD
AUCHENFLOWER ROAD
HOMEBUSH ROAD
KIMBERLEY ROAD
WEST COAST ROAD
DARFIELD
KEY
LAND EITHER UNDER OPTION, NEGOTIATING ON, OR ACQUIRED BY FONTERRA.
BOUNDARY AND HOUSE IRRIGATION RESTRICTION AREAS.
(RESTRICTION LINES ARE 20m FROM ROADS AND PROPERTY BOUNDARIES AND 150m FROM DWELLINGS NOT OWNED BY FONTERRA.)
NOTES
1. BOUNDARIES HAVE BEEN OBTAINED FROM L.I.N.Z. AND ARE SUBJECT TO SURVEY.
2. AERIAL PHOTO HAS BEEN OBTAINED FROM GOOGLE EARTH.
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SCALE
Babbage
Babbage Consultants Limited
Level 4, 58 Beach Road, Auckland 1010
PO Box 3027, Shortland Street
Auckland 1140, New Zealand
T 09 979 9980 F 09 377 1170
E admin@babbage.co.nz www.babbage.co.nz
28/10/2010 2:59:01 p.m. X:\dgn\44100\44191\CONSENT LAYOUTS\SL3 FONTERRA LAND OWNERSHIP PLAN.dgn
DRAWING REVISIONS
REV DATE DESCRIPTION
A 28.05.2010 NEW RAILWAY SIDINGS AND EMERGENCY ROAD AMENDED AND BUNDS ADDED
B 11.10.2010 RAILWAY SIDINGS AND BUNDS AMENDED
C 28.10.2010 IRRIGATION RESTRICTON AREAS ADDED
DATE INITIAL
DESIGNED
DRAWN 18.05.2010 MJD
DESIGN CHECK
DRAWING CHECK 18.05.2010 GW
APPROVED
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BABBAGE CONSULTANTS LIMITED
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Fonterra
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LAND STATUS PLAN
SCALE
1:12500 @ A1
1:25000 @ A3
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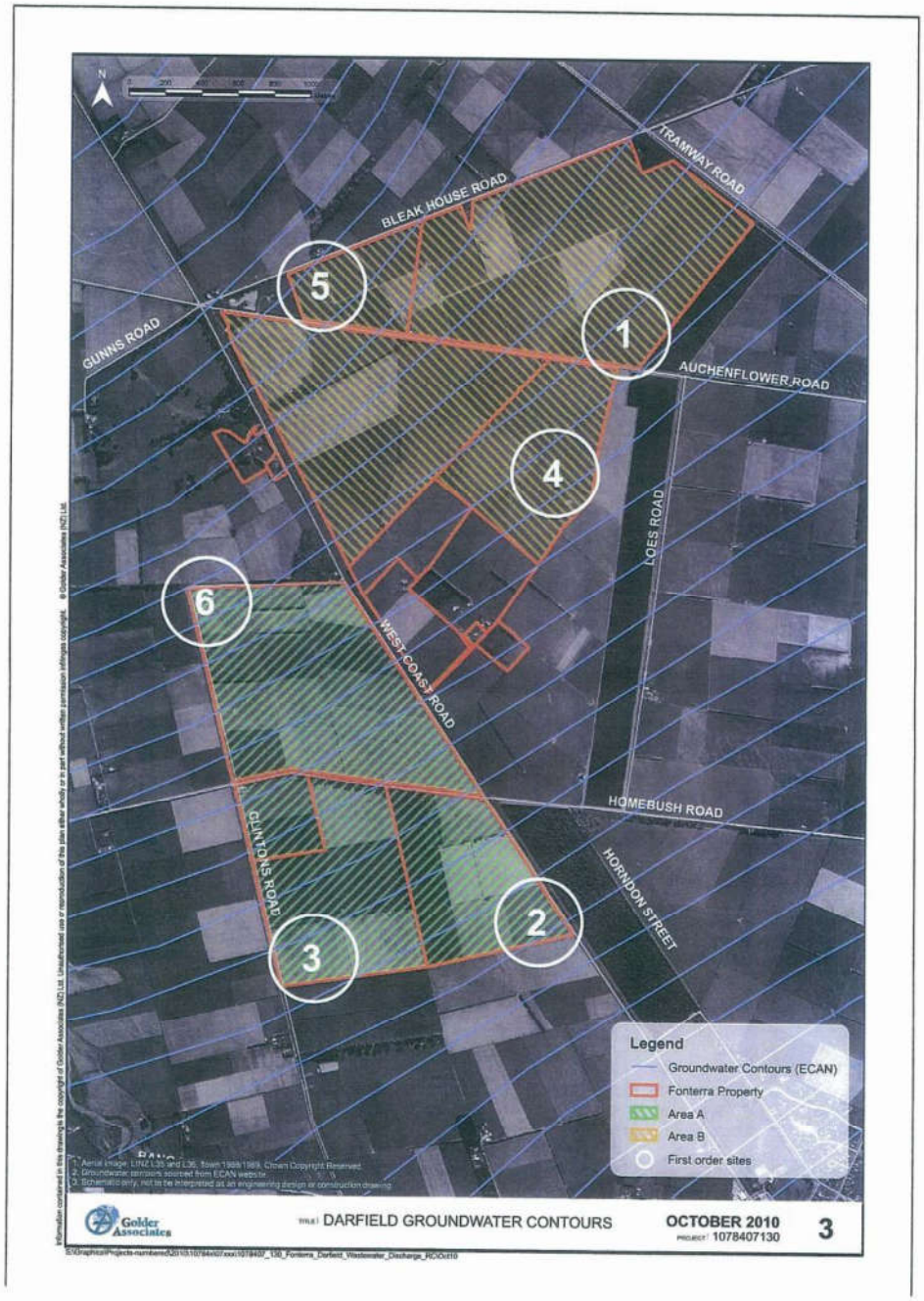
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BLEAK HOUSE ROAD
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AUCHENFLOWER ROAD
LOES ROAD
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HOMEBUSH ROAD
CLINTONS ROAD
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1
2
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5
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Legend
Groundwater Contours (ECAN)
Fonterra Property
Area A
Area B
First order sites
Golder Associates
DARFIELD GROUNDWATER CONTOURS
OCTOBER 2010
PROJECT 1078407130
3

MBP1

CRC103596 to use land to store contaminants

Definitions

(1) For the purposes of this resource consent:

(a) **Clean Process Water** means condensate water (cow water), obtained by evaporating the water content out of milk and cooling water.

(b) **Qualified Person** means a person holding a relevant tertiary engineering qualification that required the equivalent of at least three years full-time study and who has expertise in the construction and assessment of storage ponds. The consent holder shall provide evidence of that expertise on request from the Canterbury Regional Council.

(2) The contaminants stored shall be only Clean Process Water.

(3) Clean Process Water shall only be stored in the storage pond described in condition 4.

(4) The storage pond shall:

(a) have a minimum capacity of 50,000 cubic metres;

(b) be lined with a clay or synthetic liner to prevent direct infiltration to groundwater;

(c) be able to store at least 14 days of clean process water;

(d) have a seepage rate of no more than 10^{-8} metres per second; and

(e) be no less than 100 metres from any adjoining property boundary; and

(f) shall not be located within 20 metres of any bore, surface water body or artificial watercourse

(5) The storage of clean process water shall not result in odour, which is noxious, offensive or objectionable beyond the property boundary.

(6) Within 15 working days of the construction of the storage pond a certificate signed by a Qualified Person shall be submitted to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, to certify that the storage pond complies with condition 4 (a)-(f) of this consent. Evidence shall be provided with that certificate that demonstrates the basis for the certification for each of the matters specified in condition 4 (a)-(f).

Administration

(7) 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 the 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 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.

(8) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Advisory note: it is the consent holder's responsibility to determine whether any additional authorisation is required for the storage pond under the Building Act.

CRC103695 To use land for the storage of a hazardous substance

Definitions

(1) For the purposes of this consent:

(a) **HSNO** means the Hazardous Substances and New Organisms Act 1996 and associated regulations

Design

(2) The above ground container(s) containing diesel shall have a total capacity not exceeding 15,000 litres.

(3) The above ground container(s) shall be either:

(a) a double skinned tank; or

(b) a single skinned tank, bunded to contain a volume of not less than 16,500 litres

that is designed, installed and maintained to meet all relevant HSNO requirements.

(4) The holder of this consent shall:

(a) At least 20 working days prior to the installation of the diesel container, provide written confirmation and appropriate evidence to the Canterbury Regional Council (attention: RMA Compliance and Enforcement Manager) that the diesel container and associated pipe work and ancillaries have been designed in accordance with HSNO requirements for above ground storage of diesel fuel;

(b) within 20 working days of the completion of the installation of the diesel container and associated pipe work, provide written confirmation and appropriate evidence to the Canterbury Regional Council (attention: RMA Compliance and Enforcement Manager) that the installation is in accordance with the designed provided under condition 4(a).

(5) All outlets from the above ground container and associated ancillaries shall be padlocked or similarly secured to prevent unauthorised use.

(6) All pipe work associated with the above ground container that carries or contains diesel fuel oil shall be placed above ground.

(7) The diesel fuel dispensing equipment shall be located on a refuelling pad of sufficient size to fully accommodate the vehicle being refuelled.

(8) The bund referred to in condition 3(b) and refuelling pad shall discharge to the stormwater system only via an oil/water separator that is designed, installed and operated in general accordance with the *Ministry for the*

Environment Environmental guidelines for water discharges from petroleum industry sites in New Zealand, 1998.

(9) The refuelling pad shall be designed so that stormwater from other parts of the site can not pass through the oil/water separator.

(10) The diesel shall not be used or stored within 200 metres of a bore or a surface water body.

Container and Bund Management

(11) The following checks and inspections shall be carried out on the diesel container and bund not less than once every month:

(a) an inventory reconciliation;

(b) an inspection of the above ground container for leaks and general condition;

(c) an inspection of the bund for integrity and general condition;

(d) an inspection of the pipe work for leaks and general condition;

(e) maintenance in accordance with HSNO requirements; and

(f) records of these inspections shall be kept and supplied to the Canterbury Regional Council on request.

Administration

(12) The Canterbury Regional Council may, on the last working day of September each year, serve notice of its intention to review the conditions of this consent for the purposes of:

(a) dealing with any adverse effect on the environment which may arise from the exercise of the consent 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.

(13) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

CRC103696 To use land to excavate land and deposit fill

Limits

(1) The activity shall be only the excavation of land and deposition of fill for the purposes of constructing:

(a) a proposed Milk Powder Plant and associated roads, landscaping, bunds and ancillary plant and buildings; and

(b) a clean process water storage pond;

located on State Highway 73, Racecourse Hill, Darfield.

(2)

(a) The maximum volume of material to be excavated for the construction of the Milk Powder Plant shall be 60,000 cubic metres;

(b) The maximum volume of material to be excavated for the storage pond shall be 50,000 cubic metres; and

(c) The maximum depth of these excavations shall be 5 metres below natural ground level or 1 metre above the highest groundwater, whichever is the lesser.

(3) Excavation shall not occur within 100 metres of the road and property boundaries or a surface water body.

(4)

(a) Excavated material shall be retained on-site and used for fill or for construction of bunds;

(b) Any soils imported on to site and used as fill shall not be sourced from:

(i) a site where activities included in Schedule WQL3 of the Natural Resources Regional Plan or the Ministry for the Environment's Hazardous Industries and Activities list have been, or are being undertaken; or

(ii) any site on the Canterbury Regional Council Listed Land Use Register, unless the soil has been analysed for the appropriate contaminants and has been shown not to be contaminated, defined as at or below background concentrations and residential use guideline values.

(5)

(a) all practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery; and

(b) there shall be no storage of fuel or refuelling of vehicles within 20 metres of the excavated area.

Accidental Discovery - Archaeological and Cultural

(6) If at any time during the site excavation authorised by this consent historic artefacts, cultural remains, koiwi tangata (human bones) or taonga (treasured artefacts) are discovered then:

(a) All work in the immediate vicinity (20 metres) of the discovery shall stop.

(b) The consent holder shall as soon as possible inform the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, and if the discovery includes koiwi tangata (human bones) or taonga (treasured artefacts), the consent holder shall also inform the Taumutu Rūnanga (contact information can be obtained by contacting the Canterbury Regional Council (phone 0800 324 636)).

(c) The consent holder shall contract a suitably qualified and experienced archaeologist (i.e., a person with a post graduate degree in archaeology, and who is a member of the New Zealand Archaeological Association) to the site to assess the significance of the findings.

(d) If the discovery includes koiwi tangata (human bones) or taonga (treasured artefacts), further excavation work within the immediate vicinity of the discovery shall be suspended until either (i) a certificate signed by a representative of Taumutu Rūnanga stating that appropriate action has been undertaken in relation to the discovered culturally sensitive material, or (ii) after five working days after advising the Taumutu Rūnanga, a certificate signed by an archaeologist (i.e., a person with a post graduate degree in archaeology, and who is a member of the New Zealand Archaeological Association) is provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, that states that in the archaeologist's professional opinion appropriate action has been undertaken in relation to the discovered culturally sensitive material. That certificate shall detail the action that has been undertaken by the consent holder. A copy of the archaeologist's qualifications shall also be provided with any such certificate.

Note: This condition is in addition to any agreements that are in place between the consent holder and the Taumutu Rūnanga, (Cultural Site Accidental Discovery Protocol) or the New Zealand Historic Places Trust. This

condition does not replace other legal responsibilities, such as those under the Historic Places Act

Administration

(7) The Canterbury Regional Council may, once per year, on any of the last five working days of March or September, serve notice of its intention to review the conditions for 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.

Lapsing

(8) This consent shall lapse ten years after the date of commencement, unless the consent is given effect to before that lapsing date, under section 125 of the Resource Management Act 1991.

Appendix B

ACTIVITIES AND THE KEEPING OF ANIMALS

Permitted Activities — Activities and the Keeping of Animals

9.8.1

The keeping of animals shall be a permitted activity if all of the following conditions are met:

9.8.1.1 Any keeping of animals does not include:

(a) The boarding of animals, including catteries and kennels; and

(b) Intensive livestock production;

ACTIVITIES AND THE BOARDING OF ANIMALS

Restricted Discretionary Activities — Activities and the Boarding of Animals

9.9.1 Any activity which involves the boarding of animals shall be a restricted discretionary activity if all of the following standards and terms are met:

9.9.1.1 Any building or compound is setback a minimum distance of 50m from any property boundary;

9.9.1.2 Any building or compound is setback a minimum distance of 30m from any road boundary; and

9.9.1.3 Any building or compound used for the boarding of animals is set back a minimum distance of 200m from the nearest boundary of: any Living zone; or any Existing Development Area, as shown on the Planning Maps.

9.9.2 Under Rule 9.9.1, the Council shall restrict its discretion to consideration of:

9.9.2.1 Any potential nuisance effects from noise, traffic, odour or inadequate animal containment on surrounding properties;

9.9.2.2 The effectiveness of any proposed mitigation measures to reduce effects of noise, traffic, odour or inadequate animal containment on surrounding properties;

9.9.2.3 Any positive effects which may offset any adverse effects; and

9.9.2.4 Any monitoring or review conditions.

Discretionary Activities — Activities and the Boarding of Animals

9.9.3 Any activity which does not comply with Rule 9.9.1 shall be a discretionary activity.

9.10 Activities and Intensive Livestock Farming

Controlled Activities — Activities and Intensive Livestock Farming

Expansion of Existing Intensive Piggery Production Activity

9.10.1 The expansion of any existing intensive piggery production activity shall be a controlled activity if all of the following standards and terms are met:

9.10.1.1 That the applicant has obtained an air discharge consent or if no consent is required a Certificate of Compliance from the Canterbury Regional Council, covering the discharge of odour from the proposed expanded piggery.

9.10.1.2 The proposed expansion would result in a nil increase in overall odour emission rate from the site. The applicant shall provide an assessment from a suitably qualified expert which demonstrates the nil increase in overall odour emission rate from the site. The assessment shall consider relevant New Zealand and international odour emission rate information and research for the piggery industry. The Council may appoint its own suitably qualified expert (the expert is to be agreed to with the applicant) to peer review the assessment provided by the applicant to confirm compliance with this standard.

9.10.1.3 The increase in the number of stock pig units (SPUs) shall not exceed 50% of the existing SPUs, where SPU is to be calculated from existing stock numbers as per Table C9.1 below.

Table C9.1 - Standard SPU multipliers for different classes of pig

	Definition	**SPU Factor**
Gilt	24-30 weeks	1.8
Boar	100-300kg	1.6
Gestating sow	160-230kg	1.6
Lactating sow	160-230kg	2.5
Sucker	0-4 weeks	0.1
Weaner	4-10 weeks	0.5
Grower	10-16 weeks	1
Finisher	16-24 weeks	1.6
Heavy Finisher	Over 24 weeks	1.8

9.10.1.4 The applicant has prepared a management plan to deal with activities that have the potential to produce an offensive or objectionable odour. This management plan shall address the following:

(a) Management of shed
(b) Effluent collection and storage systems
(c) Manure application to land systems
(d) Carcass disposal system
(e) Landscaping and building design
(f) The keeping of monitoring and maintenance records
(g) Performance review process
(h) Any consultation with the local community and the operation of a complaints system.

9.10.2 In considering any application for a resource consent under Rule 9.10.1 the Council shall, in granting consent and in deciding whether to impose conditions, exercise its control over the following matters:

9.10.2.1 Any adverse effects from odour, dust, noise or traffic on surrounding properties;
9.10.2.2 The effectiveness of any proposed mitigation measures incorporated into the management plan to address potential adverse effects;
9.10.2.3 The location of buildings to avoid, remedy or mitigate potential adverse odour effect associated with any relocation of the odour emission source to another part of the site;
9.10.2.4 Any positive effects which may offset any adverse effects;
9.10.2.5 Any monitoring or review conditions.

Restricted Discretionary Activities — Activities and Intensive Livestock Farming

9.10.3 The establishment of any new site for intensive livestock production or the expansion of any existing intensive livestock production activity shall be a restricted discretionary activity, unless it is a controlled activity under Rule 9.10.1.

9.10.4 Under Rule 9.10.3 the Council shall restrict its discretion to consideration of:

9.10.4.1 Any adverse effects from odour, dust, noise or traffic on surrounding properties;
9.10.4.2 The effectiveness of any proposed mitigation measures to address potential adverse effects;
9.10.4.3 Any positive effects which may offset any adverse effects; and

9.10.4.4 Any monitoring or review conditions.

Appendix C

Relevant Objectives and Policies – Selwyn District Plan

Plan Section - B2 Physical Resources

Objective B2.1.1

An integrated approach to land use and transport planning to ensure the safe and efficient operation of the District's roads, pathways, railway lines and airfields is not compromised by adverse effects from activities on surrounding land or by residential growth.

Objective B2.1.2

An integrated approach to land use and transport planning to manage and minimise adverse effects of transport networks on adjoining land uses, and to avoid "reverse sensitivity" effects on the operation of transport networks.

Objective B2.1.4

Adverse effects of land transport networks on natural or physical resources or amenity values, are avoided, remedied or mitigated, including adverse effects on the environment from construction, operation and maintenance.

Policy B2.1.2

Manage effects of activities on the safe and efficient operation of the District's existing and planned road network, considering the classification and function of each road in the hierarchy.

Policy B2.1.3

Recognise and protect the primary function of roads classified as State Highways or Arterial Roads in Appendix 9, to ensure the safe and efficient flow of through traffic en route to its destination.

Policy B2.1.4(a)

Ensure all sites, allotments or properties have legal access to a legal road which is formed to the standard necessary to meet the needs of the activity considering:

- *the number and type of vehicle movements generated by the activity;*
- *the road classification and function; and*
- *any pedestrian, cycle, public transport or other access required by the activity.*

Policy B2.1.19

Encourage viable alternatives to road transport such as the movement of freight via rail.

B3 People's Health, Safety and Values

Quality of the Environment

Objective B3.4.1

The District's rural area is a pleasant place to live and work in.

Objective B3.4.2

A variety of activities are provided for in the rural area, while maintaining rural character and avoiding reverse sensitivity effects.

Rural Character

Policy B3.4.1

Recognise the Rural zone as an area where a variety of activities occur and maintain environmental standards that allows for primary production and other business activities to operate.

Policy B3.4.3

Avoid, remedy or mitigate significant adverse effects of activities on the amenity values of the rural area.

Policy B3.4.4

Ensure that any adverse effects arising from "rural based" industrial activities in the Rural (Inner Plains) Zone of a size and scale beyond what is permitted by the District Plan and "other" types of industrial activities in all Rural zones are avoided, remedied or mitigated to the extent that the adverse effects are no more than minor.

Policy B3.4.5

Enable the continued and enhanced operation, innovation and development of established dairy plant sites for the purposes of administration, processing, testing, storage, handling, packaging and distribution of milk and dairy products, related by-products and ancillary activities within specifically identified Dairy Processing Management Areas within the Rural (Outer Plains) Zone, whilst ensuring the integrated management of effects on the environment at the boundary of the Management Areas through ODPs. The establishment of non-dairy processing related industrial activities shall be avoided.

Policy B3.4.7

Avoid high rise buildings or highly reflective utility structures.

Policy B3.4.12

Reduce the potential nightglow from outdoor lighting in the area around the West Melton Observatory.

Policy B3.4.20

Ensure new or upgraded road infrastructure and new or expanding activities, which may have adverse effects on surrounding properties, are located and managed to mitigate these potential effects.

Policy B3.4.21

Protect existing lawfully established activities in the Rural zone from potential for reverse sensitivity effects with other activities which propose to establish in close proximity.

Township Volume - Quality of the Environment

Objective B3.4.1

The District's townships are pleasant places to live and work in.

Objective B3.4.3 "Reverse sensitivity" effects between activities are avoided.

Relevant Objectives and Policies Canterbury Regional Policy Statement

5.2.1 Location, design and function of development (Entire Region)

Development is located and designed so that it functions in a way that:

1. achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and

2. enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which:

(a) maintains, and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values;

(b) provides sufficient housing choice to meet the region's housing needs;

(c) encourages sustainable economic development by enabling business activities in appropriate locations;

(d) minimises energy use and/or improves energy efficiency;

(e) enables rural activities that support the rural environment including primary production;

(f) is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;

(g) avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impracticable, remedies or mitigates those effects on those resources and infrastructure;

(h) facilitates the establishment of papakāinga and marae; and

(i) avoids conflicts between incompatible activities.

5.3.2 Development conditions (Wider Region)

To enable development including regionally significant infrastructure which:

1. ensure that adverse effects are avoided, remedied or mitigated, including where these would compromise or foreclose :

(a) existing or consented regionally significant infrastructure;

(b) options for accommodating the consolidated growth and development of existing urban areas;

(c) the productivity of the region's soil resources, without regard to the need to make appropriate use of soil which is valued for existing or foreseeable future primary production, or through further fragmentation of rural land;

(d) the protection of sources of water for community supplies;

(e) significant natural and physical resources;

2. avoid or mitigate:

(a) natural and other hazards, or land uses that would likely result in increases in the frequency and/or severity of hazards;

(b) reverse sensitivity effects and conflicts between incompatible activities, including identified mineral extraction areas;

and

3. integrate with:

(a) the efficient and effective provision, maintenance or upgrade of infrastructure; and

(b) transport networks, connections and modes so as to provide for the sustainable and efficient movement of people, goods and services, and a logical, permeable and safe transport system.

5.3.3 Management of development (Wider Region)

To ensure that substantial developments are designed and built to be of a high-quality, and are robust and resilient:

1. through promoting, where appropriate, a diversity of residential, employment and recreational choices, for individuals and communities associated with the substantial development; and

2. where amenity values, the quality of the environment, and the character of an area are maintained, or appropriately enhanced.

14.2.2 Localised adverse effects of discharges on air quality

Enable the discharges of contaminants into air provided there are no significant localised adverse effects on social, cultural and amenity values, flora and fauna, and other natural and physical resources.

Proposed Canterbury Air Regional Plan

Objective 5.8

Discharges from existing activities are managed in response to evolving characteristics of the receiving environment.

Objective 5.9

Offensive and objectionable effects and noxious or dangerous effects on the environment are generally avoided.

Policy 6.1

Discharges of contaminants into air, either individually or in combination with other discharges, do not cause:

(a) adverse effects on human health and wellbeing; or

(b) adverse effects on the mauri and life supporting capacity of ecosystems, plants or animals.; or

(c) significantly diminished visibility; or

(d) significant soiling or corrosion of structures or property.

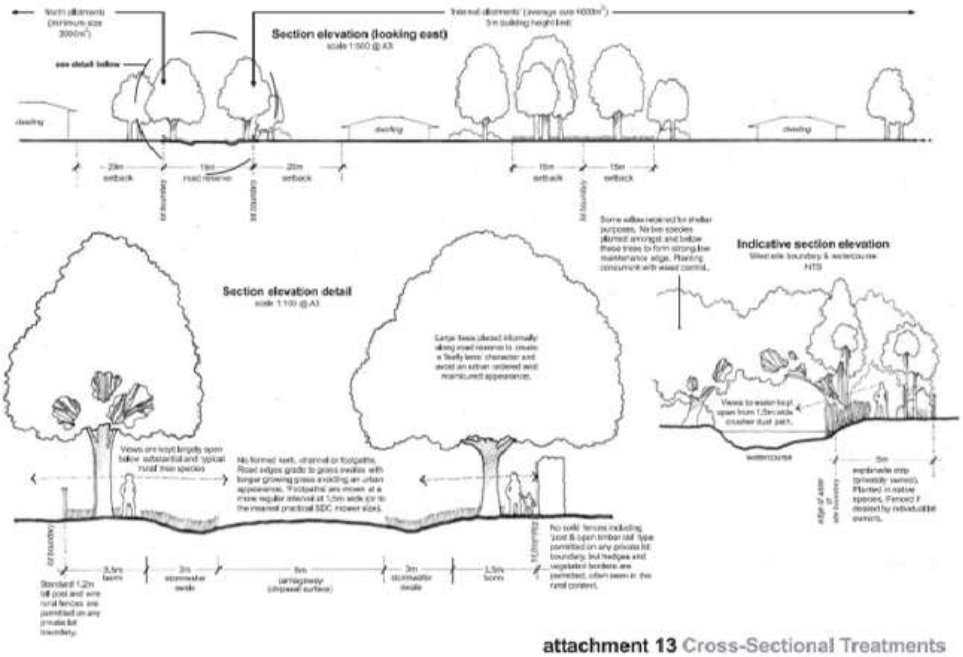
Policy 6.14

Where a discharge causes the effects that are unpredictable because of scientific uncertainty or an absence of information adopt a precautionary approach to assessing the effects if there is a risk of high probability or high potential impact.

Policy 6.20

Applications for resource consent for discharges of contaminants into air from large scale fuel burning devices, and industrial or trade activities87 shall identify the best practicable option to be adopted to minimise effects.

Appendix D – Plan Change 28 ODP



attachment 13 Cross-Sectional Treatments

Proposed Plan Change, Springs Road, Lincoln

June 26, 2012