

Application for Resource Consent (PART A)



This application is made under Section 88 of the Resource Management Act 1991

The purpose of this Part A form and the relevant Part B form(s) is to provide applications with guidance on information that is required under the Resource Management Act 1991. Please note that these forms are to act as a guide only, and Environment Southland reserves the right to request additional information.

To: Environment Southland
Private Bag 90116
Invercargill 9840

Full name, address and contact details of applicant (in whose name consent is to be issued)

Name: Woldwide One Limited and Woldwide Two Limited
 Address: C/- A & J.J. de Wolde
104 Shaws Trees Road, RD3 Winton 9783
 Email: abe@woldwide.nz
 Phone: 027 227 2537 Preferred Additional Fax: _____

Date(s) of birth: _____

Consultant contact details (if different from above)

Contact name/agent: NESSA LEGG
 Address: Dairy Green Ltd, 10 Kinloch St, PO Box 5003
Waitiwi, Invercargill 9843
 Email: Nessa.dgl@xtra.co.nz
 Phone: 021-1165106 Preferred Additional Fax: _____

Please tick the box for the consent(s) you are applying for and complete the relevant Part B form(s) where available:

Land Use	Discharge	Coastal
<input type="checkbox"/> Bore/well	<input type="checkbox"/> To air	<input type="checkbox"/> Whitebait stand
<input type="checkbox"/> New or expanded dairy farming	<input type="checkbox"/> To water	<input type="checkbox"/> Structures/occupation of space
<input checked="" type="checkbox"/> Effluent storage	<input type="checkbox"/> To land	<input type="checkbox"/> Removal of natural materials
<input type="checkbox"/> Cultivation	Water	<input type="checkbox"/> Disturb foreshore/seabed
<input type="checkbox"/> Tree planting	<input type="checkbox"/> Take and use surface water	<input type="checkbox"/> Discharge/deposit substances
<input type="checkbox"/> Gravel extraction	<input type="checkbox"/> Take and use groundwater	<input type="checkbox"/> Commercial surface water activity
<input type="checkbox"/> Feed-pad, wintering pad, calving pad or silage pad	<input type="checkbox"/> Dam water	<input type="checkbox"/> Reclaim/drain foreshore/seabed
<input type="checkbox"/> Riverbed activity	<input type="checkbox"/> Divert water	<input type="checkbox"/> Marine farming
<input type="checkbox"/> Bridges and culverts		<input type="checkbox"/> Other coastal activities

1 Are there any **current** or **expired** consents relating to this proposal?

Yes No

If yes, please provide consent number(s) and description:

Auth - 20171278-01

2 Are any other consents required from Environment Southland or **other authorities**?

Yes No

If yes, please state the relevant authority and the type of consent(s) required:

3 For what **purpose** is this consent(s) required: (e.g. discharge of effluent, gravel extraction etc.)

Land use consent for an existing effluent storage pond.

4 **Location** of proposed activity

Address:

As per application

Legal Description:

Map Reference (NZTM 2000):

_____ E _____ N

5 The name and address of the **owner /occupier**: (if other than the applicant)

Name:

_____ Phone: _____

Address:

6 Please attach a map or a coloured aerial photograph, showing at a minimum, the location of the proposed activities.

7 Assessment of effects on the environment (AEE)

Please complete the applicable Part B form(s) for the proposed activities. For those activities where no Part B form is available, please attach a written statement that assesses the effects that your activities may have on the environment. An assessment of effects **must** include the following information:

- (a) *if it likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity;*
- (b) *an assessment of the actual or potential effect on the environment of the activity;*
- (c) *if the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment that are likely to arise from such use;*
- (d) *if the activity includes the discharge of any contaminant, a description of—*
 - (i) *the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*
 - (ii) *any possible alternative methods of discharge, including discharge into any other receiving environment;*
- (e) *a description of the mitigation measures (safeguards and contingency plans where relevant) to be undertaken to help or prevent or reduce the actual or potential effect;*
- (f) *identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any persons consulted;*
- (g) *if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved;*
- (h) *if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).*

You should also include:

- (a) *an assessment of the activity against any relevant provisions of any relevant objectives, policies, or rules;*
- (b) *any information specified to be included in the application in accordance with the relevant regional plan;*
- (c) *for an application to replace an existing consent, an assessment of the value of the investment of the existing consent holder;*

An assessment of effects **must** address the following matters:

- (a) *any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects;*
- (b) *any physical effect on the locality, including any landscape and visual effects;*
- (c) *any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity;*
- (d) *any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations;*
- (e) *any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants;*
- (f) *any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations.*

8 Affected Parties

Please attach written approval from parties who may be affected by your activity. *Written Approval of an Affected Party* forms are available on the Environment Southland website. During the processing of your application, Council may determine that additional approvals are required.

9 Correspondence from Council when using a consultant

It is standard practice that both you and your consultant are copied into all correspondence relating to the consent process. This is so that you know what is going on with your application. Please let us know below if you would like us to only contact your consultant. This means you will only hear from us when your application is/is not accepted, when a decision is made or if we feel that you need to be contacted.

I want all correspondence about my application to go to my consultant only Yes No

10 Site visit from the Consents Team

Consents staff are able to meet with you, visit your site and see what you are proposing to do. We find that this is beneficial to everyone involved. The cost of the visit will be included in the total cost of processing your consent. However, we find that applications that have an on-site visit are processed with less congestion and at a similar or lesser overall cost. Please let us know below if you would like us to come and see your site.

I would like a member of the Consents Team to visit my site Yes No

11 How much will it cost to process my application?

The cost of a consent depends on the complexity of the activities. Staff time is charged out at a rate of \$145/hr and vehicle use for site visits is charged at \$0.73/km (inclusive of GST).

The fees shown below under section two are **deposits to be paid at the time of application**. Due to the complexity of these activities, this deposit will not usually cover the full cost of processing the application. **Further costs may be incurred** relating to staff time, disbursements, legal charges, consultation fees, and hearing commissioner fees. Environment Southland's User Charges and Fees document is available at:

www.es.govt.nz/fees-and-charges

When the consent has been processed you will receive an invoice for an additional fee, or for a refund.

The Council's user charges are fixed under Section 36 of the Resource Management Act 1991. Our fee schedule is:

1. Fixed fee:	
Bores and wells	\$290
Whitebait stand	\$220
2. Deposit:	
All other non-notified applications including: <ul style="list-style-type: none"> • Certificates of compliance • Changes to consent conditions (variations) • Change of lapse date 	\$1,500
Applications that require notification or limited notification	\$2,000

How to pay

Environment Southland accepts payment in the forms of cash, Eftpos, cheque, or electronic transfer. All electronic transfers must include the applicant's name and "consent application" as a reference. Please make electronic payments to: Environment Southland, 01-0961-0018998-00.

User Charges

Please note that additional Annual User Charges will apply to all consents. These are payable in advance on the first day of July each year. Tables 4, 5 and 6 of the Environment Southland User Charges and Fees Schedule outlines the fees associated with Annual Administration Charges and Annual Consent Monitoring and Inspection Charges. Table 7: Annual Research and Monitoring Charges applies only to surface and groundwater takes and comprises the following:

- **Surface water takes (per consent, for volumes up to 50,000 m³/day):**
 - A charge of **\$1.89** per year per cubic metre authorised as a maximum daily take.
 - Minimum of **\$138**, maximum of **\$7,585**.
- **Surface water takes (per consent, for volumes over 50,000 m³/day):**
 - **\$0.0031** per cubic metre authorised as a maximum daily take.
- **Groundwater takes (per consent):**
 - A charge of **\$0.89** per year per cubic metre.
 - Minimum of **\$162**, maximum of **\$1,782**.

Municipal and stock water discount (of 50%) no longer applies.

12 Checklist: Have you included the following?

- Payment of the required deposit (*see fee schedule*)
- Written approval from all potentially affected parties (*forms available from the Environment Southland website*)
- Site plan/location map/sketch of the proposed activity
- A copy of the Certificate of Incorporation (*where applicant is a company*)
- Part B form(s) specific to your activity and/or a separate assessment of environmental effects (AEE)

Note:

(a) *If your application does not contain the necessary information and the appropriate fee, Environment Southland must return the application.*

Signature of applicant

I hereby certify that to the best of my knowledge and belief, the information given in this application is true and correct.

I undertake to pay all actual and reasonable application processing costs incurred by Environment Southland.

Name (block capitals) Nessa Legg

Signed Nessa Legg Date 18/6/19

(Signature of applicant or person authorised to sign on behalf of applicant)

Dairy Green Ltd

Practical Engineering Solutions

Consents, Effluent, Stock water, Irrigation

Design through to Installation

Woldwide One Limited and Woldwide Two Limited

c/- A & JJ de Wolde

104 Shaws Trees Road

RD3 Winton 9783

Application under pSWLP (2018) Rule 32D (b):

Land Use Consent – for the maintenance and use of an existing pond for the storage of agricultural effluent and any incidental discharge of agricultural effluent

Application prepared on behalf of applicant by Dairy Green Ltd

Submitted to Environment Southland on **18/6/19**

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1. Background

Woldwide One Limited and Woldwide Two Limited (WW1&2) operate two adjoining dairy units under the same ownership structure at Heddon Bush, with two dairy sheds, two wintering barns and two effluent storage ponds.

Woldwide Two Limited (WW2) currently operates under a land use consent for dairy farming (AUTH-20171278-03), effluent discharge permit (AUTH-20171278-01) and water permit (AUTH-20171278-02). All were granted a ten-year term and expire in 2027.

In March 2019, an application for resource consent (APP-20191052) was submitted to Environment Southland by WW1&2 under Rule 20 of the pSWLP to allow for an increase in cow numbers. The application proposes to replace WW2's land use consent for dairy farming with a single land use consent covering both WW1 and WW2 dairy units. An application to replace existing discharge and water permits was also submitted. WW1&2's application for resource consent was publicly notified in accordance with S95 with a hearing date set for the week of 19 August 2019 .

An existing effluent pond stores agricultural effluent from WW2's dairy shed, wintering barn and silage pad. The material stored in the pond is slurry effluent due to the high solid content of wintering barn effluent. The pond has a clay lining and was lawfully constructed without a consent in 2005. It has been certified by a Suitably Qualified Person in accordance with Appendix P within the last three years as having no visible cracks, holes or defects that would allow effluent to leak. The visual inspection report is appended to this application.

WW2's pond was drop tested in 2017 when it had a leakage rate of less than 2 millimetres per 24 hours. A chartered professional engineer (CPEng) review of the drop test considered the leakage rate to be within the permitted limit of Appendix P, the drop test to be valid and concluded that the pond is compliant. Both the drop test and CPEng reports are appended to this application. Further, in 2017 Council consents division directed that a drop test be carried out on the pond knowing that the pond would have crust at the surface and would therefore not meet all Appendix P criteria. Nevertheless, the drop test report was accepted by Council at the time.

Despite the leakage rate being within the permitted limit of Appendix P and the pond being compliant in the view of both a SQP (Mr. J. Scandrett, Dairy Green Ltd) and a CPEng (Mr. H. Stocker, Geosolve), the pond may not have met all *"the relevant drop test criteria in Appendix P"* during the drop test. All criteria of Appendix P were met except for the requirement that *"there shall be no sludge or crust on the pond surface during the test."* Due to the nature of the material stored in the pond, the presence of sludge or crust at the pond surface is unavoidable. By not meeting all the relevant drop test criteria, at face value the pond does not meet Rule 32D (a) part (ii) (2) (b), which states that the existing facility is *"certified by a Suitably Qualified Person in accordance with Appendix P within the last three years as..... meeting the relevant pond drop test criteria in Appendix P."*

Rule 32D (b) directs that:

- The use of land for the maintenance and use of the pond, and

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-
- Any incidental discharge onto or into land from the pond which is within the normal operating parameters of the pond drop test criteria set out in Appendix P,
 - That does not meet one or more conditions of Rule 32D (a) is a **discretionary activity**.

This application seeks resource consent under Rule 32D (b) in accordance with the Fourth Schedule of the RMA for the maintenance and use of an existing effluent storage facility (WW2 effluent pond) at WW1&2 and any incidental discharge onto or into land from the pond.

2. Consent required

The decisions version of the pSWLP was notified on 4 April 2018. In accordance with Section 86B(1)(a) and (3) of the RMA, all provisions of the Proposed Plan have had legal effect since this date. Although the Southland Regional Water Plan (2010) and Regional Effluent Land Application Plan are still operative, they do not manage the use of land for the maintenance and use of existing effluent storage facilities and any incidental discharge onto or into land from the storage facility through specific rules.

pSWLP - Rule 32D

The background to the subject effluent pond at WW2 is explained in section 1.

Where part (a) of the rule is met, the use of land for maintenance and use of the existing effluent pond and any incidental discharge onto or into land from the pond is a permitted activity. Part (b) directs that where one or more conditions of part (a) are not met, the use of land for the maintenance and use of the existing effluent pond and any incidental discharge onto or into land from the pond that is within the normal operating parameters of Appendix P drop test criteria is a discretionary activity.

In this instance, whether the pond requires resource consent or not hinges on whether part (a) of the rule is fully met. Despite the pond having a leakage rate within the permitted limit of Appendix P and a report by a CPEng stating the drop test is valid and the pond is compliant, one part of Appendix P was unavoidably not met during the drop test. Despite the CPEng report stating that this did not affect the validity of the test, at face value it could be concluded that the pond may not meet part (a) (ii) (2) (b), which states that the existing facility is "*certified by a Suitably Qualified Person in accordance with Appendix P within the last three years as..... meeting the relevant pond drop test criteria in Appendix P.*" Therefore, part (b) directs that the activity is a discretionary activity requiring resource consent.

3. Statutory considerations

Statutory considerations

Environment Southland must consider the following matters when they consider an application. The application is consistent with all of these relevant plans and policies because effects on water quality and the soil resource should be less than minor.

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Resource Management Act 1991

- The provisions of section 104;
- Part 2;
- The applicant's assessment of effects on the environment;
- The provisions of Sections 104B, 104C, 105 and 107.

Part 2 of the RMA

The activity is considered to represent an efficient use of natural resources that give rise to significant positive benefits in terms of providing for the social and economic wellbeing of the applicants and the wider regional economy. There is, however, the potential for adverse effects on the environment to arise, including on water quality. However, it is considered that the effects of the activity have been adequately identified and assessed in the Assessment of Environmental Effects in Section 7 below and that such effects will be no more than minor.

It is considered that for the use of land and for maintenance and use of the existing effluent pond and any incidental discharge onto or into land from the pond will not impact directly on the coastal environment, wetlands, and lakes and rivers and their margins, although there is potential for adverse effects on the wider receiving environment which is inclusive of some of these features. However, as is discussed in Section 7 below, the actual and potential adverse effects of the activities are considered to be no more than minor.

Section 7 of the Act lists other matters that a Consent Authority must have particular regard to when considering applications for resource consent. For the reasons discussed in Section 7 of this report below, the activity is considered consistent with relevant provisions of Section 7 of the RMA.

Section 8 sets out a Consent Authority's responsibilities in relation to the Treaty of Waitangi. The proposal is considered consistent with the provisions of all regional planning documents, including Te Tangi oTauria, and Sections 6(c) and 7(a) of the Act. Therefore, the activity can also be considered consistent with Section 8 of the Act.

To avoid repetition, the following documents have been grouped together under common headings in the sections that follow.

Ngai Tahu Values

Table 1

Regulatory Document	Relevant Sections
National Policy Statement for Freshwater Management 2014	<ul style="list-style-type: none"> • Objectives C1, D1 • Policies C1, D1
Southland Regional Policy Statement 2017	<ul style="list-style-type: none"> • Objectives TW.2, TW.3, TW.4 and TW.5 • Policies TW.3, TW.4 and TW.5

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Regional Water Plan 2010	<ul style="list-style-type: none"> Objective 9C Policy 1A
Regional Effluent Land Application Plan 1998	<ul style="list-style-type: none"> Objectives 4.1.4, 4.1.5 Policies 4.2.4, 4.2.7, 4.2.8, 4.2.9
Proposed Southland Water and Land Plan 2018	<ul style="list-style-type: none"> Objectives 3, 4, 5, 15 Policies 1, 2, 3
Te Tangi a Taurira	<ul style="list-style-type: none"> Whole Document

Tangata Whenua values have been considered when preparing this application including reference to Te Tangi a Taurira (Iwi Management Plan). The principles of protection of the mauri of the water and mana of the land while minimising adverse effects on mahinga kai will continue to be recognised and have regard to in the exercise of the consent. There are no known wahi tapu, ancestral sites, heritage sites or other taonga associated with the property.

Water quality

Table 2

Regulatory Document	Relevant Sections
National Policy Statement for Freshwater Management 2014	<ul style="list-style-type: none"> Objectives A1, A2, B1, B2, B3, B4, Policies A3, A4, B5, B6, B7
Regional Policy Statement for Southland 2017	<ul style="list-style-type: none"> Objectives WQUAL.1 and WQUAL.2 Policies WQUAL.1, WQUAL.2, WQUAL.3, WQUAL.7, WQUAL.8, WQUAL.12
Regional Effluent Land Application Plan 1998	<ul style="list-style-type: none"> Objectives 4.1.2 Policies 4.2.3, Rule 5.4.5
Regional Water Plan 2010	<ul style="list-style-type: none"> Objectives 3,4,8 Policies 1, 4, 6, 7, 13
Proposed Southland Water and Land Plan 2018	<ul style="list-style-type: none"> Objectives 1, 2, 6, 7, 8, 9, 13, 18

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	<ul style="list-style-type: none"> • Policies 5, 10, 13, 14, 15, 16, 17, 39, 39A, 40 • Rule 32D
Te Tangi a Tauria	<ul style="list-style-type: none"> • Policies 1, 4, 5, 6, 11, 16, 17, 18

WW2's effluent storage pond was constructed according to best industry practice standards and Council rules and policies at the time. It was sited and constructed to avoid the risk of stormwater flow or overland flow into or from the structure. Through the design, construction, maintenance and use of the pond, there will be no loss of effluent to receiving surfacewaters and groundwater.

Soil Health and Effluent Management

Table 3

Regulatory Document	Relevant Sections
Regional Policy Statement for Southland 2017	<ul style="list-style-type: none"> • Objectives WQUAL.1 and WQUAL.2 • Policies WQUAL.1, WQUAL.2, WQUAL.3, WQUAL.7, WQUAL.8, WQUAL.12
Regional Effluent Land Application Plan 1998	<ul style="list-style-type: none"> • Objectives 4.1.1 • Policies 4.2.1, 4.2.2
Regional Water Plan 2010	<ul style="list-style-type: none"> • Policy 41 • Rule 49
Proposed Southland Water and Land Plan 2018	<ul style="list-style-type: none"> • Objectives 13, 13A, 14, 15, 18 • Policies 5, 10, 17, 33 • Rule 32B, 35, 35A, 41
Te Tangi a Tauria	<ul style="list-style-type: none"> • Policies 4, 7, 8, 9, 11, 13, 14, 15

The applicants seek to ensure the life supporting capacity of the soil is safeguarded, along with the sustainability of the soil ecosystem by using land for an existing effluent pond without significant adverse effects. Slurry is stored in the pond until it is applied to land according to best practice management and relevant Council rules and policies. These activities follow current good management practice described in the Farm Environmental Management Plan. These include practices of a general nature and those specific to the key contaminant transport pathways for the physiographic zones (Central Plains, Oxidising).

Policy 17 - pSWLP

Policy 17 provides direction on the management of agricultural effluent. As set out in part (1), in maintaining and using land for the pond significant adverse effects on water quality are avoided. Other potential adverse effects, such as excessive leakage of effluent from the pond are avoided, remedied

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or mitigated. The leakage rate is within the permitted limit, which indicates that effects are less than minor and mitigating the risk of adverse effects.

Part (2) of policy 17 manages agricultural effluent systems and discharges from them. In line with part (2) (a), the pond was designed, constructed and sited in accordance with best management practice at the time of construction (2005), noting that this was prior to the availability of IPENZ PN21. The pond has performed well throughout its lifetime as is supported by the 2017 drop test report. In line with part (2) (b), the pond is maintained and operated in accordance with best management practice, as is supported by its certification by a SQP visual inspection report and the 2017 drop test report.

In addition to the matters in Section 104 of the Act, when considering an application for a land use consent for the use of land for an existing effluent pond a Consent Authority must also have regard to Section 105. As is discussed in the assessment under Section 7, it is considered that provided the activity is undertaken in accordance with the conditions of the consent and the best practice management techniques, the adverse effects of the activity should remain minor.

There are not considered to be any matters under Section 107 of the Act that would require the Consent Authority to decline the application for an existing effluent storage facility (WW2 pond).

4. Notification

Section 95A of the Act requires that the Consent Authority must publicly notify an application if it decides under Section 95D of the Act that the activity will have or is likely to have adverse effects on the environment that are more than minor. The only exception to this is when a rule or NES precludes public notification of the application and that there are no special circumstances in relation to the application that would warrant such a rule or NES to be dispensed with. However, in this instance there is no rule or NES that precludes public notification of the application and therefore the 'more than minor effect on the environment' test provided by Section 95D of the Act applies. As is explained in Section 7/AEE, the use of land for the existing effluent pond will have effects on the environment that are no more than minor. As such public notification is not required, noting that this application is connected to another application for resource consent that has been publicly notified (APP-20191052).

5. Receiving Environment

WW2's effluent pond is found in the Waimatuku surfacewater management zone. Table 4 summarises the receiving environment (i.e. soils, surfacewater and groundwater resources) in the vicinity of the effluent pond. *For a detailed description of the receiving environment, please see Section 5 of the main consent application for WW1&2.*

Table 4. Soils, surfacewater and groundwater resources in the vicinity of the effluent pond.

Soils	Soil Type	Vulnerability Factors		
		Structural Compaction	Nutrient Leaching	Waterlogging
	Braxton	Moderate	Slight	Severe
	Drummond	Minimal	Moderate	Slight
	Glenelg	Slight	Very severe	Nil
FDE Land Classification	A – artificial drainage or coarse soil structure E – other well drained but very stony flat land Likely to be D – well drained flat land.			
Characteristics of FDE Classification	A - high risk to surface water, low risk to groundwater D, E – low risk to groundwater using low depth application, low risk to surfacewater			
Topography	Flat			
Surfacewater management zone	Waimatuku, Oreti (WW1&2)			
Groundwater Zone	Waimatuku, Central Plains			
Groundwater Nitrate Levels	0.1 – > 11.3 mg/L A series of nitrate concentration bands are mapped with the lowest groundwater nitrate levels at the west side (0.1 – 0.4 mg/L) and the highest to the south east (modelled >11.3 mg/L). Most groundwater			

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	underlying WW1&2 has nitrate levels of 3.5 – 8.5 mg/L, indicative of moderate to high land use impacts.	
FMU	Oreti	
Nearest downstream registered drinking water supply	Heddon Bush School 2.3 km to the south	
Downstream Regionally Significant Wetland/Sensitive Waterbody	Drummond Peat Swamp (>10 km to south east) Bayswater Bog (>10 km to south west)	
Physiographic Zones	Zone	Contaminant pathways for Physiographic Zone
	Central Plains	When wet soils are prone to waterlogging, resulting in the installation of extensive artificial drainage networks. When dry these soils are prone to shrinking and cracking, allowing drainage to bypass the soil to the underlying aquifer. Aquifers and streams in this zone are prone to contaminant build-up as they do not experience dilution by a major river.
	Oxidising	Soil water and groundwater are well aerated, which allows nitrogen to accumulate. Oxidised soils are good at absorbing and storing water and any nitrogen it contains. During drier months, nitrogen accumulates in soil to high levels. During winter when soils are wet, any nitrogen not used by plants leaches down into the underlying aquifer (deep drainage). Artificial drainage is used where soils have low subsoil permeability to help to reduce waterlogging. Contaminant loss through artificial drains to nearby streams can be high during wetter months.

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6. Proposal - Existing Effluent Pond – WW2 unit

Location of the pond

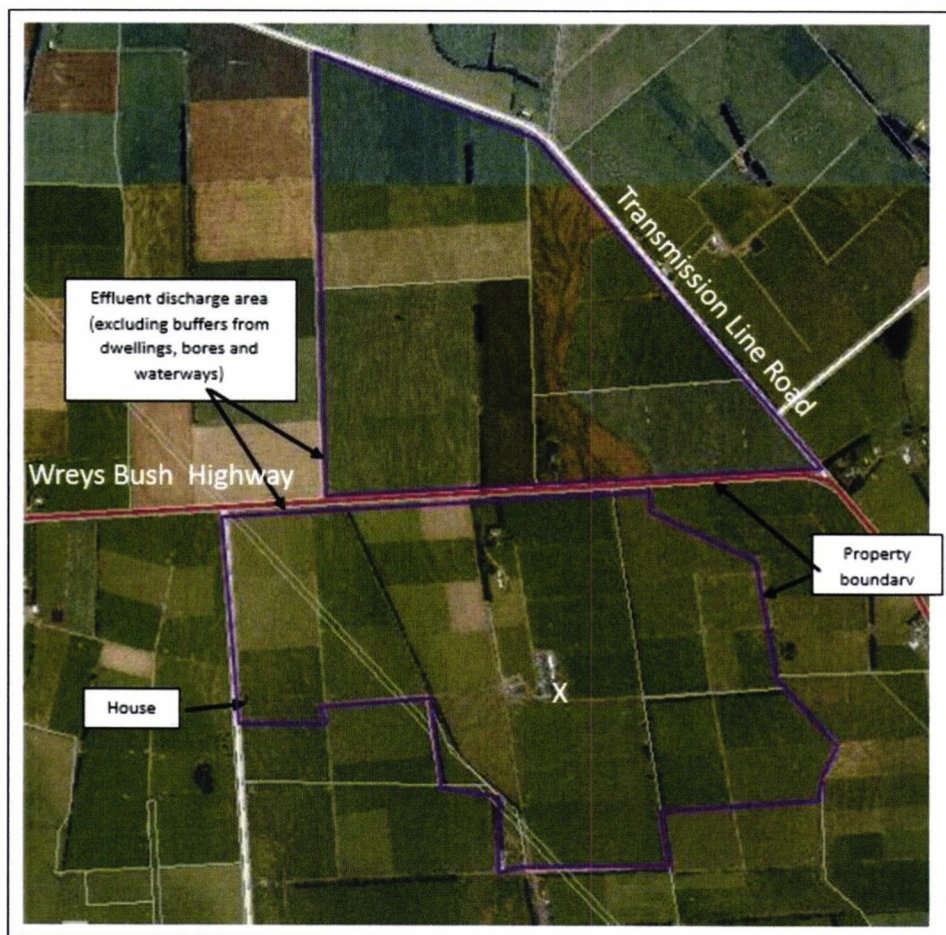


Figure 1. WW2 dairy unit with pond location marked with X.

Table 5

Site locality	State Highway 99, Winton
Legal description of land at the site	Part Lot 2 DP 4092

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Table 6. NZTM (2000) coordinates of pond and other features

	NZTM (2000) Easting	NZTM (2000) Northing
Pond NW corner	1225188	4889704
Pond SW corner	1225197	4889668
Pond NE corner	1225155	4889698
Pond SE corner	1225160	4889662
WW2 dairy shed	1225041	4889687
WW2 wintering barn	1225131	4889710
Bore (E45/0083)	1225017	4889695
Nearest waterway	1225002	4889654

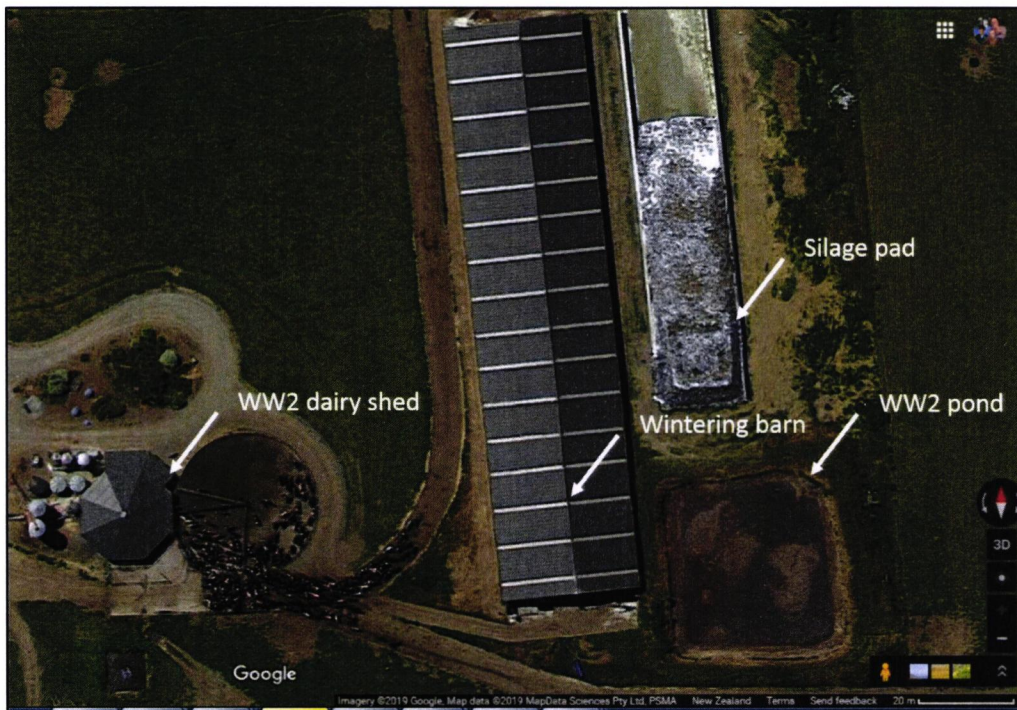


Figure 2. Aerial photo showing key features.

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Phone Inv 03 215 4381,

Email: scandrettrural@xtra.co.nz

Pond construction

- The clay-lined pond was lawfully constructed in 2005 without a resource consent.
- Subsoil from the local area was harvested to line the internal batters.
- Internal batters were constructed on a 2H:1V gradient.
- External batters were constructed on a 1:1 gradient and are covered in grass.
- Bank crests are generally 3.6 m wide.
- The pond is mostly constructed above ground level with constructed banks.

Proximity to other features

Table 7. Distances to other features.

	Distance (m)
Surface water course	150
Underground drain	340
Property boundary	575
Neighbouring dwelling	1,030
Coastal water	c.35,000
Groundwater abstraction point	140

Pond Dimensions

Capacity

The pond has a capacity of 3,715 m³ + 0.5 m freeboard.

Pond Dimensions

Table 8. Pond dimensions.

Details	
Length (m)	40.1
Width (m)	37.9
Fluid depth (m)	2.7
Freeboard (m)	0.5
Total depth (m)	3.2

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Inside batter slope	2H:1V
Total Cut – includes cutoff trench (m ³)	n/a
Total Fill – includes cutoff trench (m ³)	n/a
Net surplus (deficit) (m ³)	n/a

Sources of Effluent

Effluent from up to 800 cows milked twice daily at the WW2 dairy shed, 625 cows housed in the WW2 wintering barn and silage pad leachate along with rainfall collected from concrete areas, e.g. yard.

Site Investigation and Soil Testing

As the pond is a pre-existing structure, soil testing for bank construction purposes is not required.



Figure 3. Photo of WW2's effluent storage pond.

Water Table and Drainage

Outfall is available to the south east or south west of the pond if intercept drainage is required due to water movement.

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Other

A stirrer is used prior to suctioning of slurry from the pond.

A slurry tanker and umbilical system suction slurry from the pond when soil moisture conditions are suitable for irrigation.

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7. Assessment of Environmental Effects

An AEE is provided here in accordance with the Fourth Schedule of the RMA.

Adverse environmental effects from the use of land for the maintenance and use of the existing pond could occur where the pond has been poorly designed, constructed or sited, or where the pond is poorly maintained or operated. Poor design, construction or siting could result in the catastrophic failure of the pond causing loss of effluent to ground and surface waters. It could also result in an excessive leakage rate through the clay liner, above the permitted limit deemed to have less than minor effects. Poor maintenance and operation of the pond could result in damage to the clay liner, internal batters and floor, external batters or overflowing with effluent causing loss of effluent to ground and surface waters.

The risk of effluent loss to receiving groundwater and surfacewater via the above-mentioned mechanisms is avoided and/or mitigated since the pond was well designed and constructed and has been sited in an appropriate place. Noting that the pond was constructed in 2005 prior to IPENZ Practice Note 21, the earthworks were carried out by experienced firms and trade's people under contract. The risk of flooding and overland flow were key considerations in choosing a suitable site for the pond, as were distances to waterways, subsurface drainage, bores and critical source areas. The pond is maintained to protect its structure when using the stirrer and when suctioning effluent out using the slurry tanker or umbilical system. The effluent height is monitored to ensure that the pond is not overfilled. Key support for the conclusion that the pond is performing well due to its design, construction, siting, maintenance and operation is found in the 2017 drop test report and 2018 SQP visual inspection certification report.

As described in the drop test report the pond's leakage rate was less than 2 mm per 24 hours during the 2017 test. This is within the permitted limit for incidental leakage according to Appendix P and indicates that the effects of incidental leakage from the pond are less than minor. As has already been explained, unavoidably the pond had "sludge or crust on the pond surface" during the test due to the nature of slurry effluent stored in the pond. Both the SQP (who carried out the drop test) and a CPEng independently reviewed the data from the drop test and concluded that the results are valid in terms of the conclusion that the leakage rate was within the permitted limit. In other words, they are confident that the leakage rate was less than 2.0 mm per 24 hours despite the pond having a crust on the surface during the test. In recognition of their technical expertise, the conclusion made by both the SQP and CPEng can reasonably be accepted; that is, the leakage rate is within the permitted limit as per Appendix P. Consequently, effects from incidental leakage are less than minor. The SQP visual inspection certification report further supports the conclusion that the pond is performing well, with less than minor effects on the receiving environment. Please refer to respective reports for further details.

Key measures that avoid, remedy mitigate potential or actual adverse effects are:

- Appropriate design, construction and siting of the pond;
- Appropriate maintenance and operation of the pond;

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- Adherence to consent conditions relating to the maintenance and use of the pond, and any incidental leakage onto or into land from the pond.

Given that the pond has been shown to be performing well, it is very unlikely that its maintenance and use etc. will result in any significant effects on the environment. Accordingly, it is deemed unnecessary to construct an alternative pond at the same or a new location.

Table 9. Effects due to the use of land for the maintenance and use of the existing pond etc.

Effects	Assessment
Effects on those in the neighbourhood and the wider community, including any social, economic, or cultural effects	No social, economic or cultural effects are expected.
Physical effect on the locality, including any landscape and visual effects	None. The flat landscape at the locality is dominated by agriculture. The pond is a low-lying feature and is adjacent to dairy infrastructure (sheds, silage pad) so has little or not effect on the landscape or other visual effects.
Effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in its vicinity	None. The pond has been in place since 2005 and has formed part of the local environment since that time. Any physical disturbance during construction of the pond has long since dissipated.
Effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations	None.
Any discharge of contaminants into the environment	The pond drop test carried out within the last three years demonstrated that the leakage rate from the pond is within the permitted level. This indicates that there is less than minor effect on the receiving environment from the activity (incidental leakage).
Risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations	None. The pond has been in place for 14 years during which time it has performed well.

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Certificate of Incorporation

WORLDWIDE ONE LIMITED

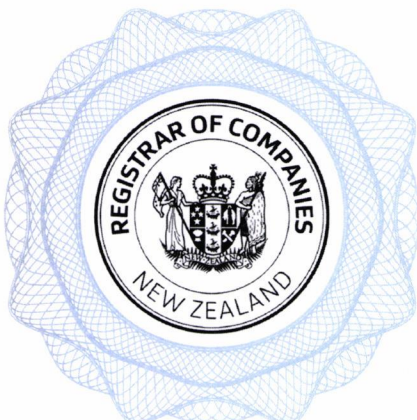
2158688

NZBN: 9429032629682

This is to certify that HILBRE INVESTMENTS NO 19 LIMITED was incorporated under the Companies Act 1993 on the 11th day of August 2008 and changed its name to WORLDWIDE ONE LIMITED on the 4th day of May 2009.



Registrar of Companies
18th day of June 2019



Certificate of Incorporation

WORLDWIDE TWO LIMITED

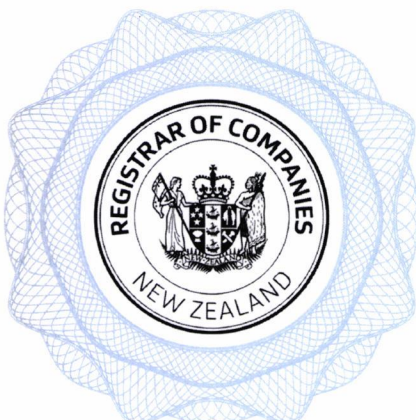
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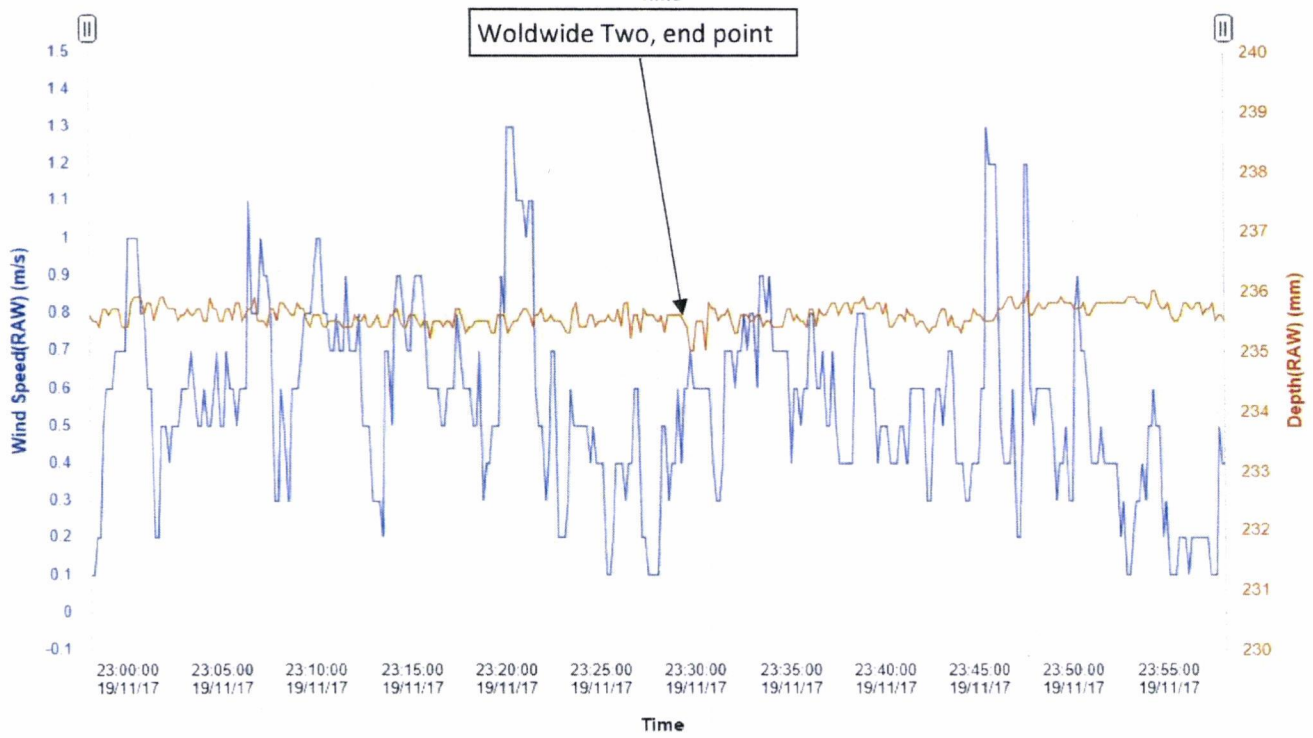
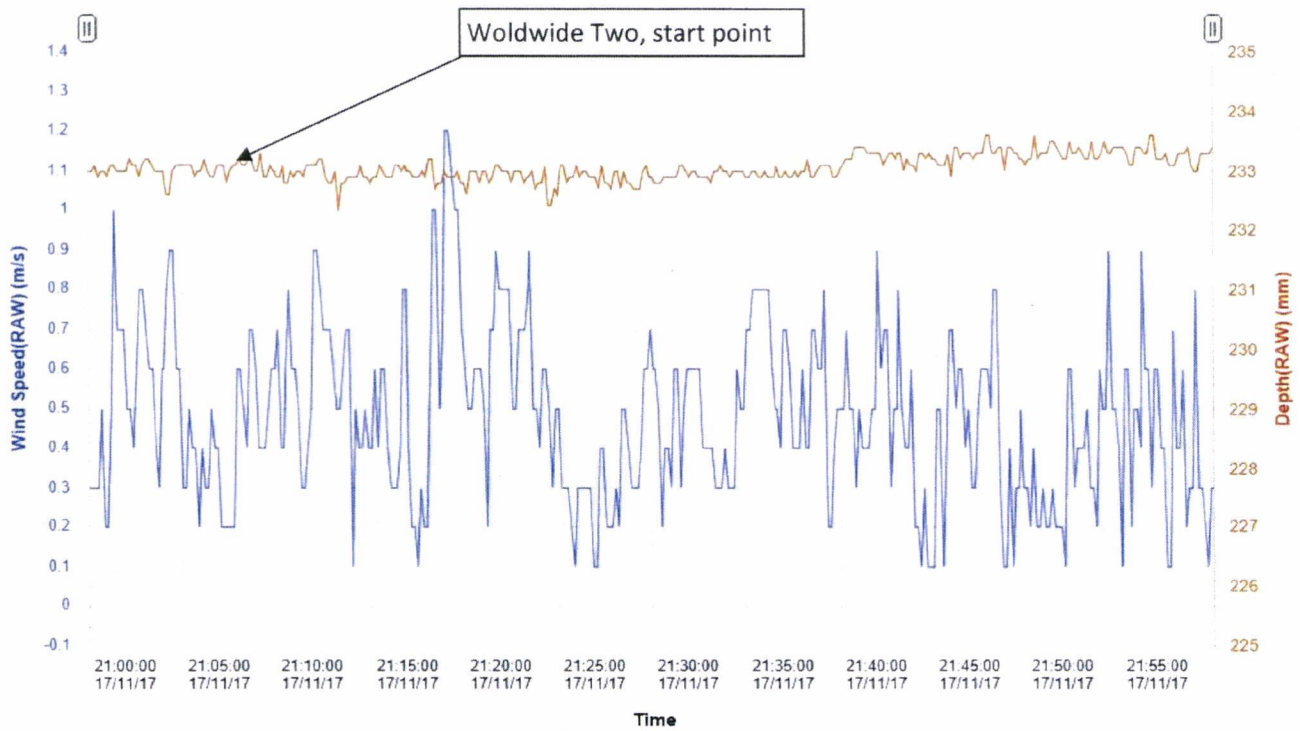
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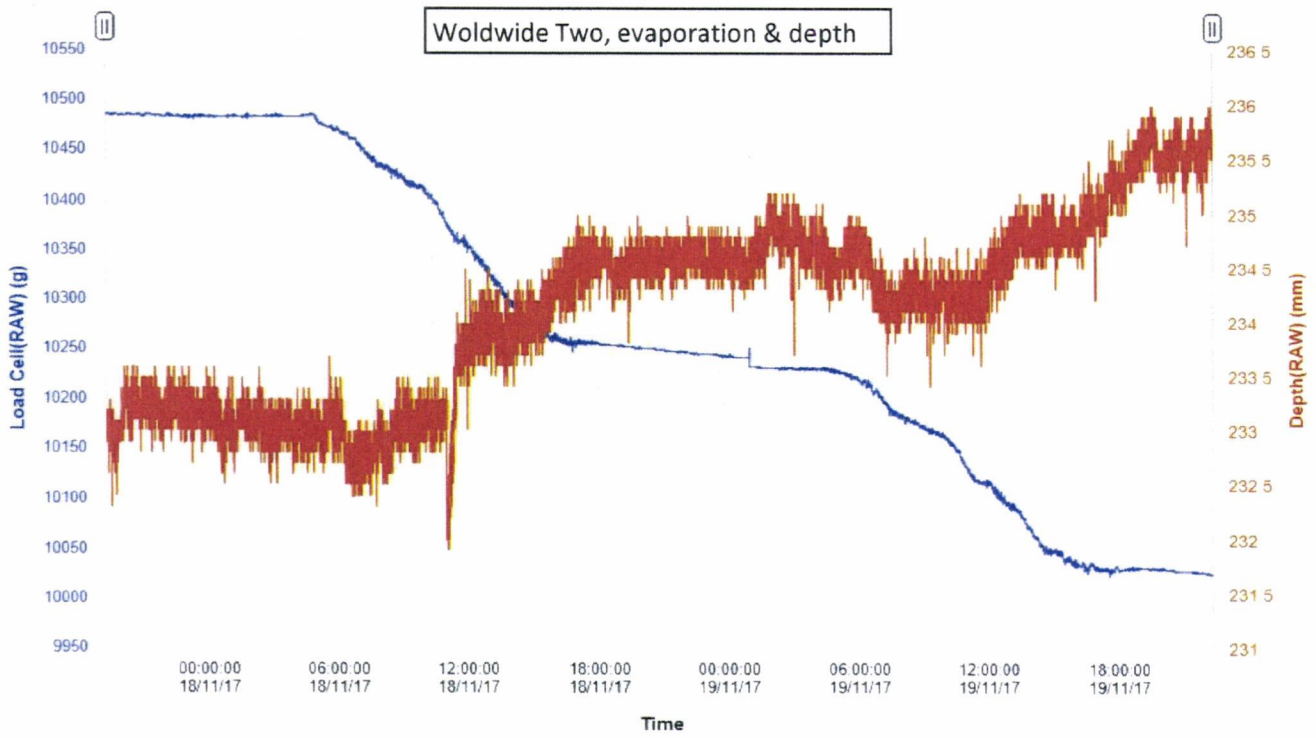
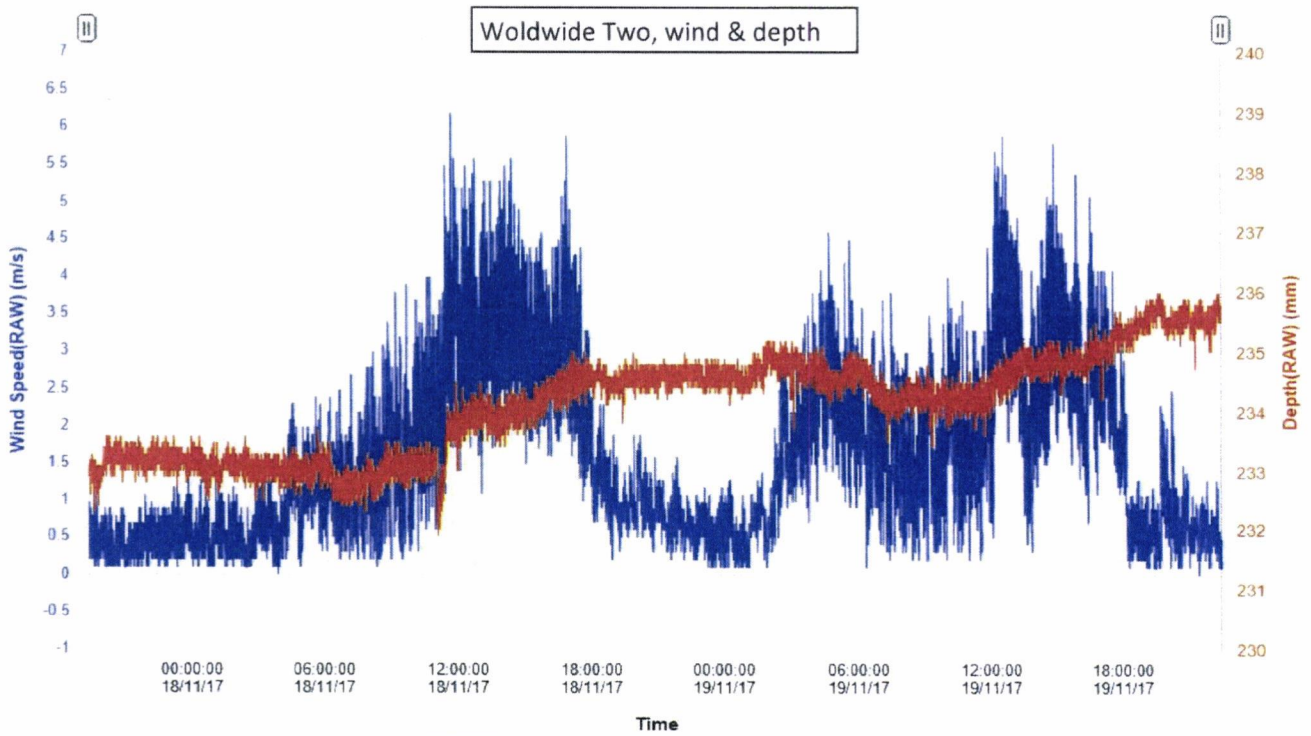
This is to certify that HILBRE INVESTMENTS NO 23 LIMITED was incorporated under the Companies Act 1993 on the 26th day of January 2009 and changed its name to WORLDWIDE TWO LIMITED on the 4th day of May 2009.



Registrar of Companies
18th day of June 2019







5 February 2018

John Scandrett
Dairy Green Ltd.
10 Kinloch Street
PO Box 5003
Waikiwi
INVERCARGILL

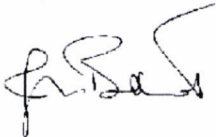
RE: Woldwide 2 Drop Test, November 2017

Dear John

At your request, we have reviewed the data collected for the above test. From this we confirm that:

1. The raw data collected via our Neon data collection system is as you have stated.
2. The only significant complicating factor during this period was the surface crust. Your conclusion that this would significantly reduce the rate of evaporation, compared with a crust-free pond surface, seems reasonable in lieu of a crust-free retest.
3. Your conclusion that leakage from the pond complies with the Council's effluent discharge rule appears to be correct.

Yours faithfully



Jeremy Bulleid
NIWA Instrument Systems



GeoSolve Ref: 170417Wolde
13 February 2018

Consents Section
Environment Southland
Private Bag 90116
Invercargill 9840

**Effluent Pond Drop Test – A De Wolde
Woldwide Two, 1915 Winton-Wreys Bush Hwy**

GeoSolve Ltd have been engaged by Dairy Green Ltd to review a drop test undertaken on 17 - 19 November 2017 at the above effluent pond.

I have reviewed the background information, test procedure, and results as reported by Dairy Green Ltd, together with the data audit provided by NIWA as a party independent from the equipment installer.

A significant crust was present at the time of testing, and therefore this test does not satisfy Appendix P of the Proposed Southland Land and Water Plan in respect of the requirement that "*... there shall be no sludge or crust on the pond surface during the test*". The crust has reduced the pond surface evaporation compared to the bankside measurement, and the pond has therefore fallen by less than predicted. There was no rain and no possibility of other inflows into the pond, and no suggestion of any leakage which would have tended to increase the drop in pond level. Therefore I do not consider that a significant unaccounted factor is present in the analysis, and I consider the results to be valid in terms of the conclusion that leakage rate is within the permitted limit.

In all other respects the test was compliant with relevant requirements of Appendix P.

I consider that the pond has a leakage rate of less than 2.0 mm per 24 hours and is therefore compliant with Rule 35 (b)(iii)(2) of the Proposed Southland Land and Water Plan for a pond of this depth.

This report has been prepared for the benefit of Dairy Green Ltd with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Yours faithfully,



Hank Stocker
Senior Engineer – Water
CPEng 85136

Dairy Green Ltd

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19th December 2017

Abe De Wolde
Woldwide Two
104 Shaws Trees Road
RD 3
Winton 9783

Dear Abe

Drop Test Results: Effluent Pond, 17 – 19 November 2017

1. Background

The current discharge consent for the property is 20171278-01

As required by Environment Southland, to confirm your effluent pond is not leaking, a drop down test was carried out between the 17 & 19 November 2017.

Site and Set Up

The farm is located at 1915 Winton-Wreys Bush Hwy

Effluent flows by gravity from the dairy shed to a sand trap sump. Whole effluent is then pumped to a clay lined storage pond if it is not pumped to the irrigator. The pond also services a wintering barn. Therefore, it stores thick slurry and a crust on the pond is inevitable, as can be seen by the photo below. The pond has been emptied in the last 12 months. The surface was not frozen during testing.

The pond was isolated by not allowing any inflow and by not pumping out during the test period.

The dimensions of the storage pond at the water level during the test period were:

North 36.0m
East 40.1m
South 37.0m
West 36.0m

The dimensions of the storage pond at the top bank level during the test period were:

North 38.0m
East 42.0m
South 37.6m
West 38.2m

The total pond catchment area was 9% greater than the wetted area during the test.

The maximum depth for the pond is 3.2m, this includes 0.5m of freeboard. At the time of the test the liquid level was 1.0m below design height, i.e.81% full.

Below is an aerial photo that shows the pond and dairy shed. The laser drop test unit was installed at the west side of the pond, as marked.



3. Test Methodology

You were notified when the test was to be run and confirmation was received that there would be no liquid inflow or outflow during the test period.

The monitoring equipment was set up at the pond by Evan Sanderson, as described below. The NIWA Neon website was checked to confirm that data was being recorded and sent to the website.

3.1. Water Level Monitoring Unit

A laser distance measuring unit was set up vertically over the pond surface. A reflective disc was placed on the pond surface to ensure constant, repeatable readings.

The laser was set up within a PVC pipe which acts as a stilling well.

Distance readings to the pond surface were taken at 10 second time intervals and sent to NIWA's Neon logging system.

3.2. Meteorological Station

A Vaisala weather station orientated to the North was also set up and the data it collected sent to NIWA's Neon system at 10 second intervals. It measured:

- Air Temperature
- Wind speed
- Wind direction
- Rainfall

3.3 Evaporation Loss Monitoring

A 10 litre bucket (evaporation pan) with a diameter of 250mm was installed on the pond bank to measure evaporation. The bucket was rinsed and then accurately filled with 9 litres of effluent and the volume monitored to determine evaporation.

To record evaporation in real time a second bucket was installed suspended from a strain gauge with 9.0L of effluent in it, on the pond bank.

4. Results Recording

Recording of results was carried out to comply with the Appendix P of the Environment Southland Land and Water Plan, recording details are summarised below:

- The minimum test period has to be 48 hours.
- Readings are to be taken every 10 seconds.
- For maximum accuracy the wind velocity has to be less than 1.0m/sec. This limit has been set because wind at the test site has been observed to have two affects, the first being to cause waves and the second to push water to one side of the pond from the other, (a seiche effect). The accuracy of the laser distance recorder is such it will detect changes as small as 0.2mm. To accurately determine the true pond level requires calm conditions at the start and end of the test period.

- Rainfall and the evaporation bucket liquid volume was measured at the start and end of the test period, the measurement cylinder was rinsed prior to the volume being measured.
- When a period of 48 hours or more has elapsed the information is down loaded and the results interpreted.
- The GPS location of the pond and equipment setup is recorded. For this test the equipment was located at E1225159, N4889662, at the west side of the pond.

Laser at the west side of the pond.



5. Results Summary

The results for the test are summarised in Table 1 and discussed below.

The plot of wind speed and pond height shows that at times wind caused waves on the pond surface, particularly during the day time of the 18th and again during the day time of 19th November.

However a period was identified at the start and end of the test period when the pond surface was stable and accurate height readings were established.

The start time was assumed to be at 21:07:50 hours on the 17 November 2017.

The distance from the laser to the reflective disc on the pond surface was 233.1mm and the wind speed 0.6m/sec.

The finish time was assumed to be at 23:31:20 hours on the 19 November 2017.

The distance reading was 235.5mm and the wind speed 0.6m/sec.

The total time elapsed was 50 hours and 23 minutes, 30 seconds.

The laser measured a change in distance to the pond surface of a 2.4mm increase. Therefore the pond surface fell 2.4mm over the test period.

There was no rainfall during the test. The evaporation bucket was calculated to lose 9.3mm depth during the test period.

Theoretically the pond should have mimicked the evaporation bucket result, except evaporation from the pond will be much reduced because of the surface crust. It can be concluded the pond should have potentially fallen 9.3mm due to evaporation. The change in pond height was a fall of 2.4mm. This is not surprising and does not reflect a problem with the pond. The pond banks are constructed above ground level and the liquid level during the test was above the surrounding ground level. Groundwater could not have entered the pond during the test period. Rather it is a case of reduced evaporation resulting in the difference between the evaporation bucket and the pond level change.

TABLE 1 : DROP TEST RESULTS SUMMARY, Woldwide Two

Start Time	17 November, 21:07:50
Finish Time	19 November, 23:31:20
Total Time	50hrs, 23 minutes, 30 seconds
Start Depth (mm)	233.1
Finish depth (mm)	235.5
Change in depth (mm)	-2.4
Rainfall (mm)	0
Evaporation (mm)	-9.3
Net Change in Depth After	
Rain and Evaporation (mm)	+6.9
Net Change per 24 Hours (mm)	+3.3
Pond Level, % of Design Depth	81%
Net Change if Pond at 75% of	
Design Height. (mm/24hrs)	

6. Conclusion

The pond complies with the requirement of the Environment Southland Land and Water Regional Plan for effluent discharge (Rule 35 b. iii.), with a leakage rate of less than 2mm/day. The pond is suitable for storing effluent as the infiltration rate from the pond is less than 2mm per 24 hours.

Yours faithfully

JOHN SCANDRETT

Agricultural & Engineering Consultant

Appended

Depth and wind speed graph for the test period.

Depth and evaporation graph for the test period.

Depth and wind speed for the start of the test period.

Depth and wind speed for the end of the test period.

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WORLDWIDE ONE & TWO

EFFLUENT STORAGE AND TREATMENT STRUCTURES VISUAL INSPECTION

October 2018

**J SCANDRETT
DAIRY GREEN LTD**

Visual Pond and Treatment System Inspection

Introduction

This report is in reply to question 4 of a request for information dated 4 October 2018 requiring evidence to show the various structures associated with the effluent systems meet the permitted activity status under rule 32 D in Environment Southland's decision version of the Water and Land Plan. This requires existing agricultural effluent storage facilities to be "certified by a Suitably Qualified Person in accordance with Appendix P within the last three years as: (a), having no visible cracks, holes or defects that would allow effluent to leak from the effluent storage facility".

Methodology

The methodology used for ponds, as follows, will be adapted as appropriate when looking at associated infrastructure. The methodology used is aimed at detecting obvious physical defects that are causing or could cause leakage.

It involves a physical inspection of the lining material above the liquid height, the crest and external batters, if any. It also considers the likely failure mode for the type of containment structure being inspected. If there is a drop test report available, it will be assumed that this report confirms the performance of the pond batters and floor surfaces below liquid level since these surfaces cannot be observed unless the pond is empty.

For clay lined ponds the internal batters will be checked for cracking, erosion and to determine the material that has been used with a view to determine its likely physical properties. The condition of the crest and external batter will be recorded along with any maintenance requirements.

For concrete or concrete block structures checks are made for settlement and cracking and corrosion of the concrete.

A visual inspection cannot record faults that are not observable which could include unsatisfactory material below the liquid level or underneath a synthetic liner or in the core of a pond bank. It does not include an assessment of bank performance in an earthquake scenario or any calculated internal and external batter performance factors of safety under the normal range of operating conditions that a pond may have to perform under, such as rapid drawdown.

Woldwide One

Dairy Shed

Sand Trap

Effluent is collected in the dairy yard and shed and flows to a concrete block sand trap 0.9 m wide and 6 m long. It is 1.2 m deep with an outlet approximately 0.3 m above floor height.

There was no sign of settlement or differential settlement or cracking. Grouted joints that could be observed appeared to be sound although there was one join in the top

course of blocks that had lost some material. This was above the maximum operating height, the surrounding ground would be flooded for this join to be flooded.

The sand trap appeared to meet the criteria of not causing defects that would allow leakage.

Below are photos showing the sand trap lengthwise and looking at the internal concrete block wall.



Pump Sump

The pump sump at the end of the sand trap is formed from a precast 22.5m³ concrete tank. It has an inlet from the sand trap and one from a pipe crossing a race at a higher level. There were no obvious cracks in the concrete. A small area of concrete had been removed to facilitate the placement of the discharge pipe in a conduit under the race.

The sump appeared to meet the criteria of not causing defects that would allow leakage. It is pictured below with the end of the stone trap in the background.



Wintering Barn

The wintering barn has a collection sump at the north end where scraped effluent is deposited prior to being pumped into the storage pond. The sump is 1.9m wide and 26m long. It appeared to be in sound order with no obvious corrosion of concrete.



Conclusion

In accordance with Rule 32D of the pSWLP, the ancillary effluent structures at Woldwide One have been assessed by a SQP and are certified as having no visible cracks, holes or defects that would allow effluent to leak.

WW1 POND

The pond was built last autumn and signed off by a CPEng from Geosolve Ltd.

In accordance with PN21 it has a leak detection drain installed around the perimeter of the floor as per CPEng instruction.

From PN21, section 5.10.1. Drainage Control and Leak Detection Systems. "For smaller ponds a ring drain placed at the foot of the batter slope should suffice".

On the 18 October 2018 the water level in the leak detection drain piezo was 1.1m deep. The pond level was into the freeboard space, i.e. full. The piezo pipe is 4.6m long. The water was clear in appearance and would be expected to be groundwater considering the recent rainfall. There was no obvious sign of effluent in the water in the piezo.

Woldwide Two

Dairy Shed

Sand Trap

Effluent from the dairy shed and yard flows to a conventional sand trap on the south side of the dairy shed. It is emptied by front end loader. The structure didn't show any visible signs of settling or cracking. There was no cracking of the concrete where tractor tyres enter the trap or along the back wall where the front end loader bucket may contact the wall.

The sand trap appeared to meet the criteria of not causing defects that would allow leakage.

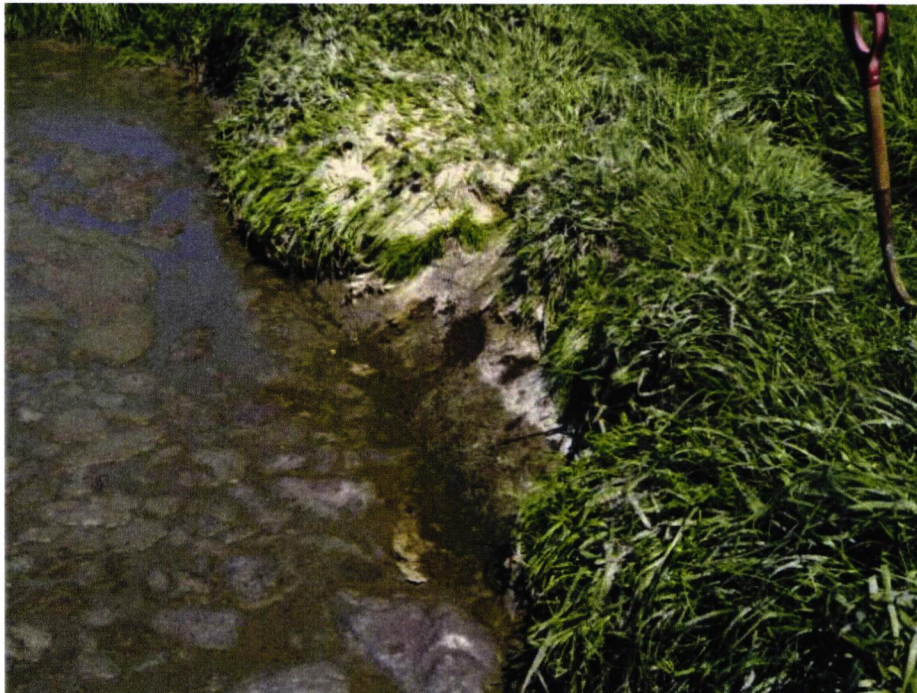
Below is a photograph of the sand trap.



Pump Sump

The pump sump adjacent to the sand trap is formed from a shotcrete concrete tank in the order of 9.2 m x 9.2 m. It has an inlet from the sand trap. There were no obvious cracks in the concrete for the area of concrete that was visible.

The pump sump appeared to meet the criteria of not having defects that would allow leakage. It is pictured below with a section of the freeboard batter slope exposed in the background and then close up.



Wintering Barn

The wintering barn has a collection sump at the south end where scraped effluent is deposited prior to being pumped into the storage pond. The sump is 1.9 m wide and 30 m long. It had been poured in situ. It appeared to be in sound order with no obvious corrosion of concrete.



Conclusion

In accordance with Rule 32D of the pSWLP, the ancillary effluent structures at Woldwide Two have been assessed by a SQP and are certified as having no visible cracks, holes or defects that would allow effluent to leak.

WW2 POND

The pond is close to square with approximate dimensions of 40 m x 38 m at top bank level.

It was tested by a drop test in November 2017 and found to have a leakage rate of less than 2 mm per day. Based on the drop test result of less than 12 months ago it is assumed the pond liner is still performing satisfactorily.

On the 18 October 2018 the pond was found to be full, with the effluent level into the freeboard space.

Soils

Subsoil from the local area was harvested to line the internal batters. This soil isn't dispersive. The banks are largely made of gravel and silt in varying proportions.

Banks

The bank crests were covered in long grass and appeared quite stable. The bank crests are generally 3.6m wide.

Batters

The internal batters were constructed on a 2H:1V gradient. There was no indication of internal batter slumping at crest level. The external batters are on a 1:1 gradient. They are covered in grass and appeared to be stable.

Photos of each bank crest appear below.

South Bank.



The East Bank



North Bank



West Bank



Conclusion

In accordance with Rule 32D of the pSWLP, the effluent storage pond at Woldwide Two has been assessed by a SQP and is certified as having no visible cracks, holes or defects that would allow effluent to leak from the effluent storage facility.

J S Scandrett
Agricultural & Engineering Consultant
Dairy Green Ltd

18 October 2018