Dairy Effluent Management Plan

Borst Holdings Ltd -Alderstone
Supply number: 117

RM21.180.01 To store effluent in and effluent storage tank
RM21.180.02 to discharge effluent to land

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Discharge area

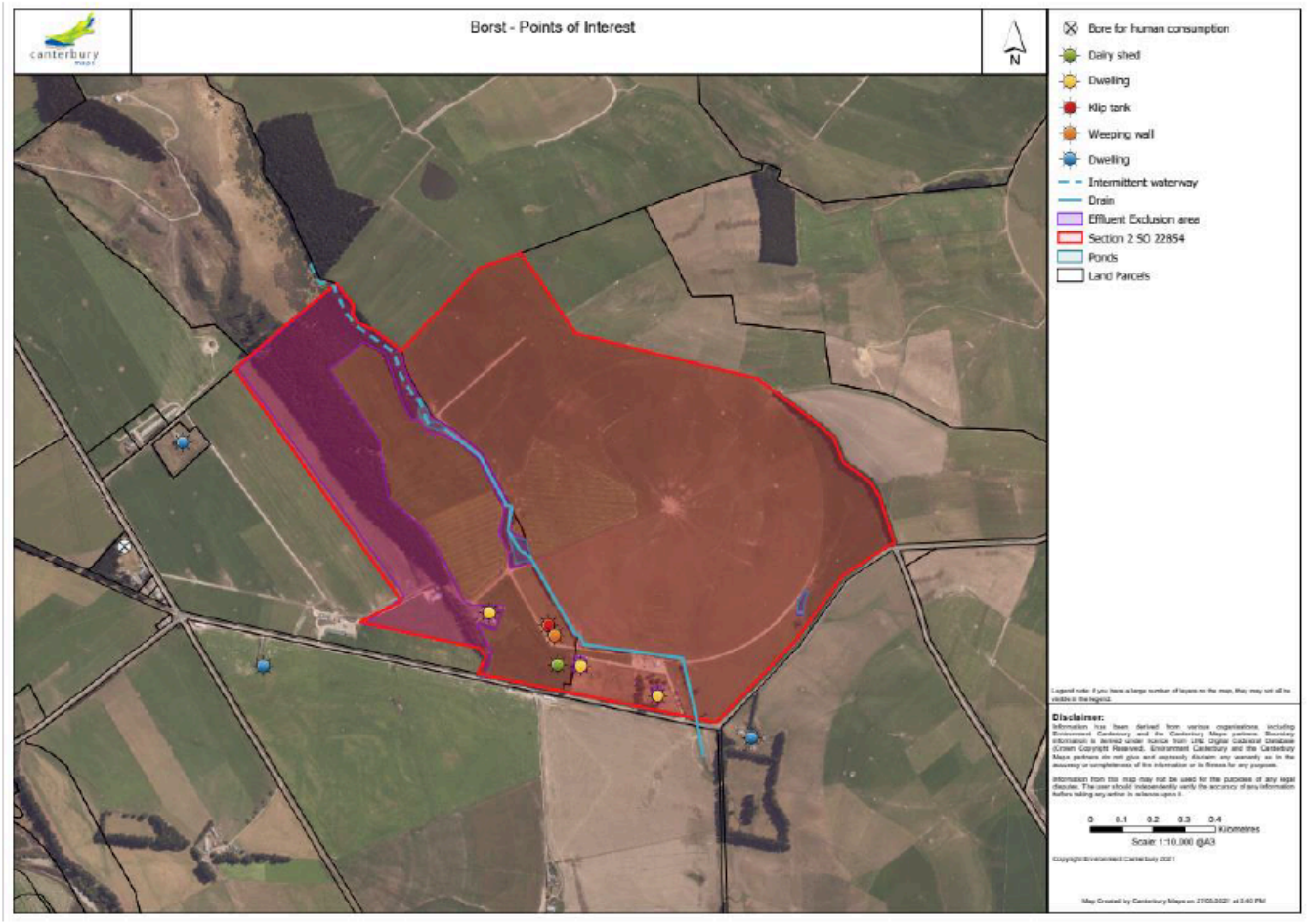


Figure one: Map outlining the key features of the discharge area and animal waste system.

Emergency Contacts

General Issues	Sharemilker – Alex Rintoul	
	Farm Owner -Rob Borst	
Pump and motor:	22 KW Goulds pump – 100x65x200	
Irrigation Servicing	Water Force Oamaru	
Septic Tank cleaner	Laser Plumbing	
Blocked Drains	Laser Plumbing	

Purpose

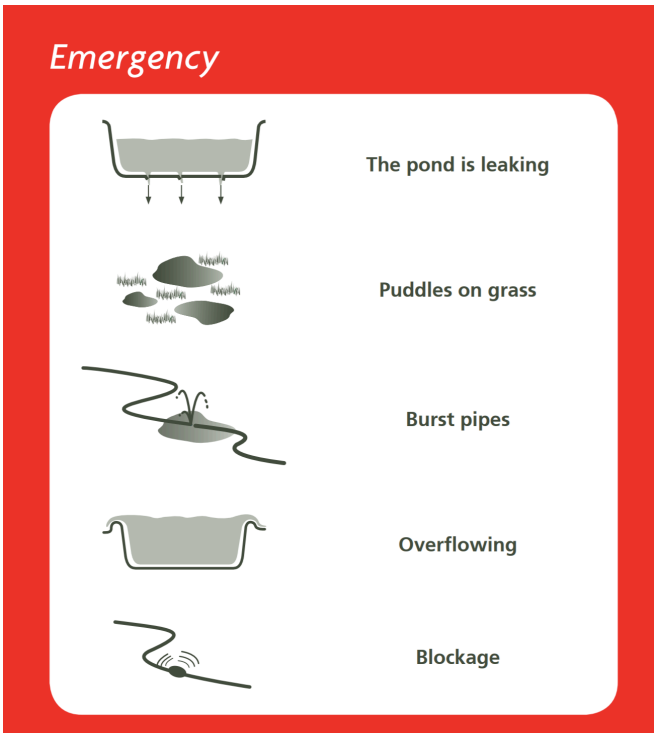
The effluent management plan will provide a practical reference that staff can easily understand for the management of effluent including reference to the specific consent conditions.

Good Practice Policies

POLICY	REASON
Only workers who have been fully trained and are competent in operating the effluent system will be given the responsibility for management of the system	Staff training in the use and operation of the system reduces the risk of management errors. And trained staff will have a full understanding of the effluent management plan and consent conditions.
The effluent system will be inspected and maintained weekly, 6 monthly and annually	Poor Maintenance increases the risk of failures especially at inopportune times. Ensures the system is working efficiently.
Effluent will be applied at every opportunity when soil conditions are suitable	Storage provides flexibility and the opportunity to defer irrigation when soil conditions are not suitable. If the pond is not emptied when conditions are suitable, the ponds capacity to cover wet periods is reduced.
High risk effluent areas are avoided	to ensure the environment is protected

When and where do we apply effluent to land

- ✔ **Application rate:** (wait until consent confirmed)
- ✔ **No discharge shall occur within:**
  - 50m of any surface watercourse
  - 100m of any surface water abstraction point
  - 200m of any place of assembly or dwelling not on the subject property
  - 20m from any property boundary
- ✔ Discharge shall only occur on the area within the map
- ✔ During and after heavy rain periods (where surface water is noted) stop effluent application and put effluent into storage pond until weather and soil conditions permit application.
- ✔ Record location of effluent discharge daily in record book at shed.
- ✔ Discharge will be managed to ensure aerosols, spray drift and odour do not travel past the property boundary.



If any of the issues in the Emergency picture occur – contact Share Milker/Rob Borst immediately

Consent Conditions

The following is a summary of the relevant consent conditions to ensure that surface water and ground water are protected from potential adverse effects from the effluent storage and discharge

RM21.180.01 – To store effluent

	CONSENT CONDITION	ACHIEVED BY:
6. (a)	A management plan for effluent is required to be provided to ORC within 6 months of the first exercise of this consent	This document will satisfy this condition
6.(b)	The Management plan must be reviewed at least once every milking season	Review management plan by March each year and provide outcome of the review to ORC within a month of the review.
7.	By the 30th August each year in 2022,2025.2028,2031 and 2034 the consent holder must: Obtain written confirmation from a suitable qualified person that the structure has no visible cracks, holes or defects that would allow effluent to leak from the structure	Klip Tank to visit on site in the specific years. This written confirmation needs to also provide photos that are date and time stamped, and must be supplied to ORC within one month of visit – 30th September at the latest
8.	(a)At least once each milking season, the consent holder must: Inspect the tank to check for holes, defects and Take photographs of the tank which show all aspects of the structure and (b)Maintain a record of inspections and photographs to be provided to ORC on request	By 1 December each year the Sharemilker is responsible for taking photos of all aspects of the tanks and providing these to the owners. Further information is required if there are structural issues – see consent documents
12.	There must be no discharge or leakage of contaminants to water, or onto or into land in circumstances where they may enter water, both during construction of the tanks and once the tank is completed	If there are any issues observed – contact Rob immediately

RM.180.02 To discharge effluent

	CONSENT CONDITION	ACHIEVED BY:
1.	600 cows may be milked twice a day	Ensure a maximum of 600 cows is milked
	The discharge of animal waste or water containing animal waste to an area of 183.4 hectares as per the plan above	Ensure all buffers from waterways are observed
4.	The depth if application cannot exceed XXXXXXX 10mm/day	Effluent is discharge through the centre pivot and klines (with timer) at present. Ensure application rate does not exceed the consented limit
5.	No discharge must occur within: ▪ 50m of any surface watercourse ▪ 100m of any surface water abstraction point ▪ 200m of any place of assembly or dwelling not on the subject property ▪ 20m from any property boundary	Ensuring that discharge is only through the pivot and klines and buffers are maintained
6.	The discharge will not occur when the soil is at or near field capacity	Ensure soil moisture readings indicate there is suitable capacity within the soil for the effluent application
10.	A consent holder must maintain a record of any odour, effluent discharge or water contaminant complaints. The register must include but is not limited to: (a) The date, time, location, and nature of the complaint (b) The name, phone number and address of the complainant – unless the complainant elects not to supply, this information (c)Action taken by the consent holder to remedy the situation and any policies or methods put in place to avoid or mitigate the problem occurring again. A record of any complaints must be provided to the ORC by August of each year and made available for inspection at other times upon request	All effluent applications are recorded, including where and when the effluent is being discharged. A note of the general weather conditions should be included. A complaint form has been developed and should be filled out and sent to the Farm owner
12.	The stored or discharged animal waste or water containing animal waste must not enter surface water course in any way, including: directly, indirectly, by overland flow, via entrainment by stormwater or runoff; or via a pipe	Effluent is discharge at a low rate to land, well away from waterways
13.	The stored or discharged effluent animal waste or water containing animal waste must not: Form ponds or flow on the land surface or cause contamination of water	Effluent is discharge at a low rate to land, well away from waterways. Visual checks are undertaken of the discharge to ensure ponding is not occurring
14.	The stored or discharged animal waste or water containing animal waste must not cause any odour beyond the boundary of the site	The storage tank is stirred regularly ensuring that odour build-up is not an issue. The effluent is generally applied with irrigation water at a very low rate.
15.	Spray drift beyond the boundary of the site must not occur	The irrigators are checked in windy conditions to ensure there is no spray drift beyond the farm boundary. This is generally only an issue in a NW wind Not applied in windy conditions
18.	Where the agricultural effluent reticulation system is installed in such a way that effluent can be siphoned when pumping ceases,	The effluent pond is at the lowest point of the dairy milking at effluent system. The

	the consent holder must install and maintain an anti-siphon device in the agricultural effluent pipeline	system is installed to ensure that effluent cannot be siphoned once pumping ceases.

Farm Systems

Alderstone

Effluent is collected in a weeping wall and pumped/gravity into an above ground tank. The tank is stirred XXXXXX. Effluent is spread through centre pivot or kline, with a timer installed on the kline so that effluent is only applied for two hours at a time. Explain in detail the effluent system here

Minimising Farm Dairy Effluent

The more effluent your farm produces, the bigger the application problems. Reducing the amount of effluent and yard wash water can save you money and improve the efficiency of your effluent system.
To reduce the total effluent volume:

- Do not run hoses unnecessarily.
- Repair leaks.
- Pre-wet the yard before milking to speed up hosing down afterwards.
- Use a high flow (3.5 – 4.5 L/s), low pressure (100 – 150 kPa) wash-down system as the most water efficient water method. Hose diameter should be at least 40mm with a nozzle of 20 – 25mm.
- Store cooling water to re-use in wash-down.

General

- Storage pond is prohibited from overflowing. A 300mm freeboard must be maintained at all times on the storage tank.
- Discharge application depth (irrigation and effluent) should never exceed 10 mm/day,
- Spread effluent as evenly as possible across entire discharge area.
- No application to high risk areas
- No ponding is to occur. If ponding is noted within the discharge area, contact the manager to organise an application alternative.
- After a heavy rainfall event do not apply effluent in high risk areas – see High risk map
- Discharge will be managed in such a way that spray drift, odour and pathogens do not travel beyond the property boundary.
- In winds greater than 40km/hour effluent is not to be discharged via centre pivot.
- After a power cut or power surge check pumps are operational and have not been burned out. Replace immediately if necessary.

Environment Risk

- Effluent is applied at a low rate, with set backs from all surface watercourses of a minimum of 50m.
- There is no sub surface drainage e.g. tile drains located within the effluent area.
- A high risk effluent map has been developed to show the areas where effluent must not be spread.

Maintenance

Effluent delivery system, (pipes, drains, pumps, pivot) are monitored for their efficient operation.

Effluent pump, motor and controls

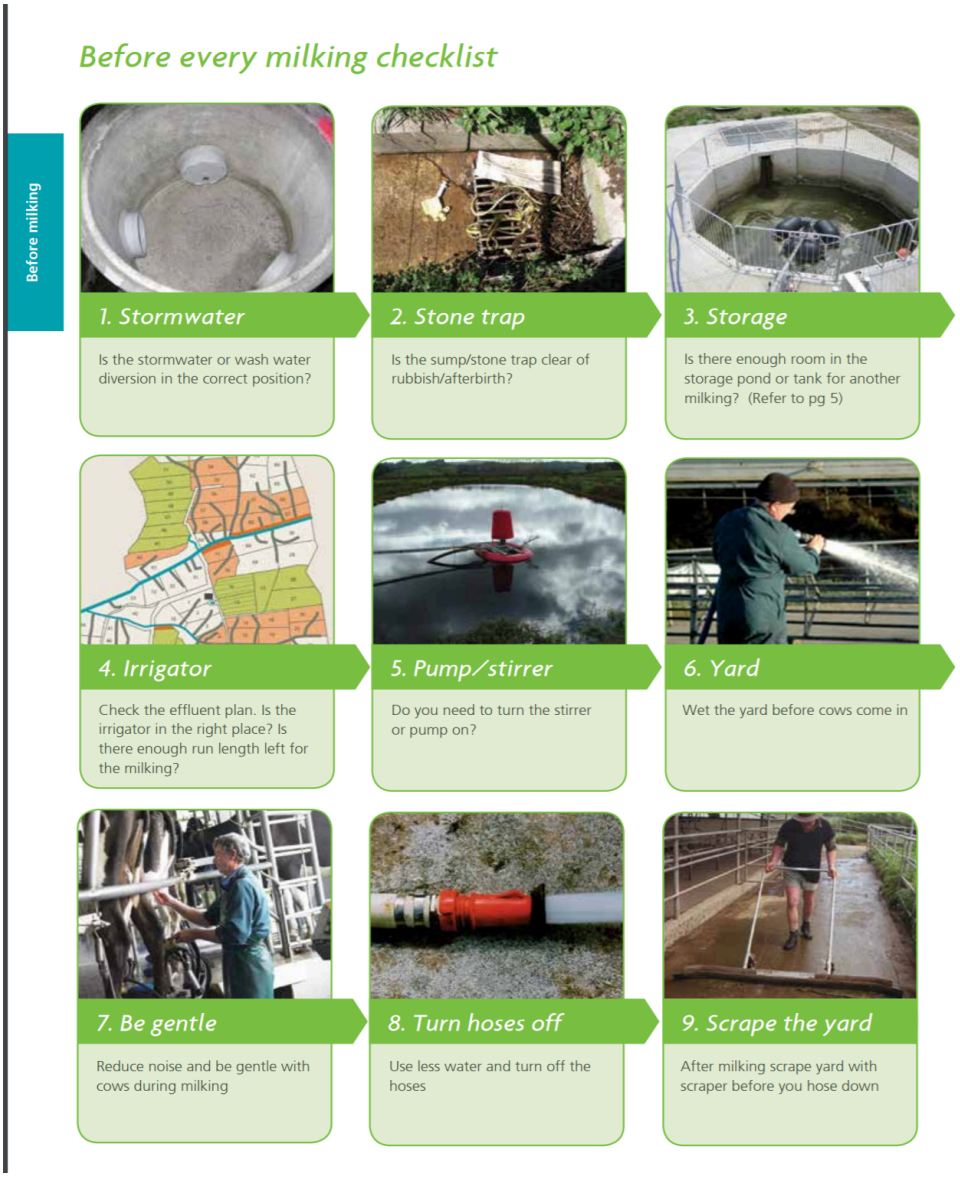
- Grease pump and motor, as required, according to the farm manager/manufacturer's instructions
- Check mechanical switchgear is operating efficiently
- Note any unusual noises when the pump is operating

Pipelines

- Check for leaks and blockages in pipes and joiners

Any alarming issues need to be reported to the farm owner immediately and be fixed and documented.

Daily before every milking:



Weekly Checks:

- Check inlet and outlets are clear of blockages.
- Clean grates in dairy shed and yard if necessary.

Effluent pump, motor, and control gear:

- Check float switches are operating in accordance with design.
- Check warning light switches operate properly, and bulbs are not blown.
- Check pump inlets are clear of any material.
- Note any unusual noises within the system and have them checked by a suitably qualified person if you are unable to solve the problem yourself.

Pipelines:

- Check for leaks and blockages - especially around locations in paddocks that are not normally wet but seems to be now wet.
- Check for kinks and cracks in drag hoses and camlock hydrants and repair or replace before rupture occurs.

Kline:

- Check nozzles for blockages or wear and replace if necessary.
- Check for signs of hose and join wear or breaks and repair if necessary

Centre Pivot:

- Visual check for any blocked nozzles and clean nozzle and regulator if necessary.
- Check injector manifold for cracks, faults or leaks and repair.

6 Monthly Check

Maintenance – 6 monthly

At the shed



1. Pump

Strip pump, oil and clean and check the pump seals/impeller



2. Pressure

Check the pressure at the pump, compare against ideal



3. Flush

Flush clean water through delivery line to clean out pipes and irrigator

At the irrigator



1. Wheel bearings

Check the wheel bearings



2. Pressure

Check pressure in the paddock, and compare against ideal



3. Rate & depth

Measure application rate and depth (see page 23)

Pipes, hoses and nozzles



1. Hydrants

Check the condition of the hydrants



2. Couplings

Check the condition of the couplings



3. Replace nozzles

Replace the nozzles once a year

Annual maintenance

- Check for cracks in walls and floors of storage facilities – as per consent conditions. Take photos
- Lift pump and motor and have them serviced by qualified technician
- Assess condition of pipeline, repair and replace parts as necessary
- Service the irrigator

Breakdowns:

In the event of a power failure, pump or motor breakdown:

- Contact electrician if problem is electrical or pump serviceman/irrigation company if problem is pump related.
- Minimise water use in the shed and do not wash yard.
- If discharge pump breaks down, store effluent in storage pond until replacement is sought from irrigation supplier listed below or repaired.
- If necessary, arrange a suction tanker to remove effluent and spread to land in the discharge area.

In the event of a pipe blockage:

For mainline pipes:

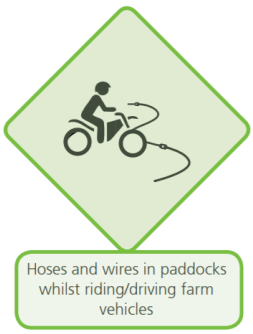
- If you cannot clear yourself, contact the drain cleaner listed in the contacts below and dis-continue pumping to applicator.

- Do not purge line with compressed air under any circumstances.

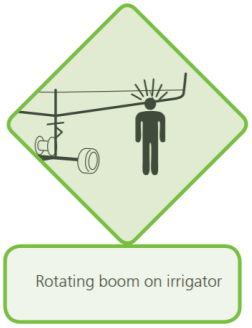
For surface pipes:

- Disconnect camlock joiners in drag hoses and clear blockages, if this is not possible, remove the blocked section of pipe.

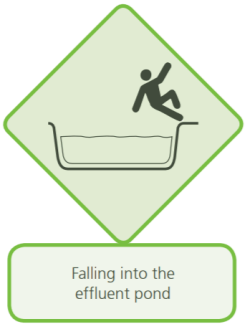
Potential hazards of effluent irrigation



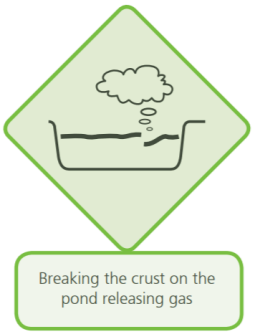
Hoses and wires in paddocks whilst riding/driving farm vehicles



Rotating boom on irrigator



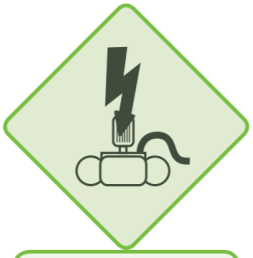
Falling into the effluent pond



Breaking the crust on the pond releasing gas



Crush warning



Electricity at the pump



No heavy lifting



Unstable pontoons

High Risk Effluent Map – Purple areas are CSA and are to be avoided, or buffer distance maintained

