Annual Environmental Report 2009.

Introduction

Licence Register No. PO 406-02

Licensee: Bailieboro Foods Limited and
Bailie Foods Ireland Limited.

Location of Activity: Lear, Bailieborough, Co. Cavan

Contents

4.0 Licence Specific Reports

4.1 Boiler combustion efficiency testing
4.2 Tank and Pipeline testing.
4.3 Reports on list 1 and 2 substance reduction.
4.4 Complaints summary
4.5 Resource consumption summary
4.6 Groundwater monitoring
4.7 Reported incidence summary
4.8 Noise reduction proposal.
4.9 ELRA Proposal

Description of site:

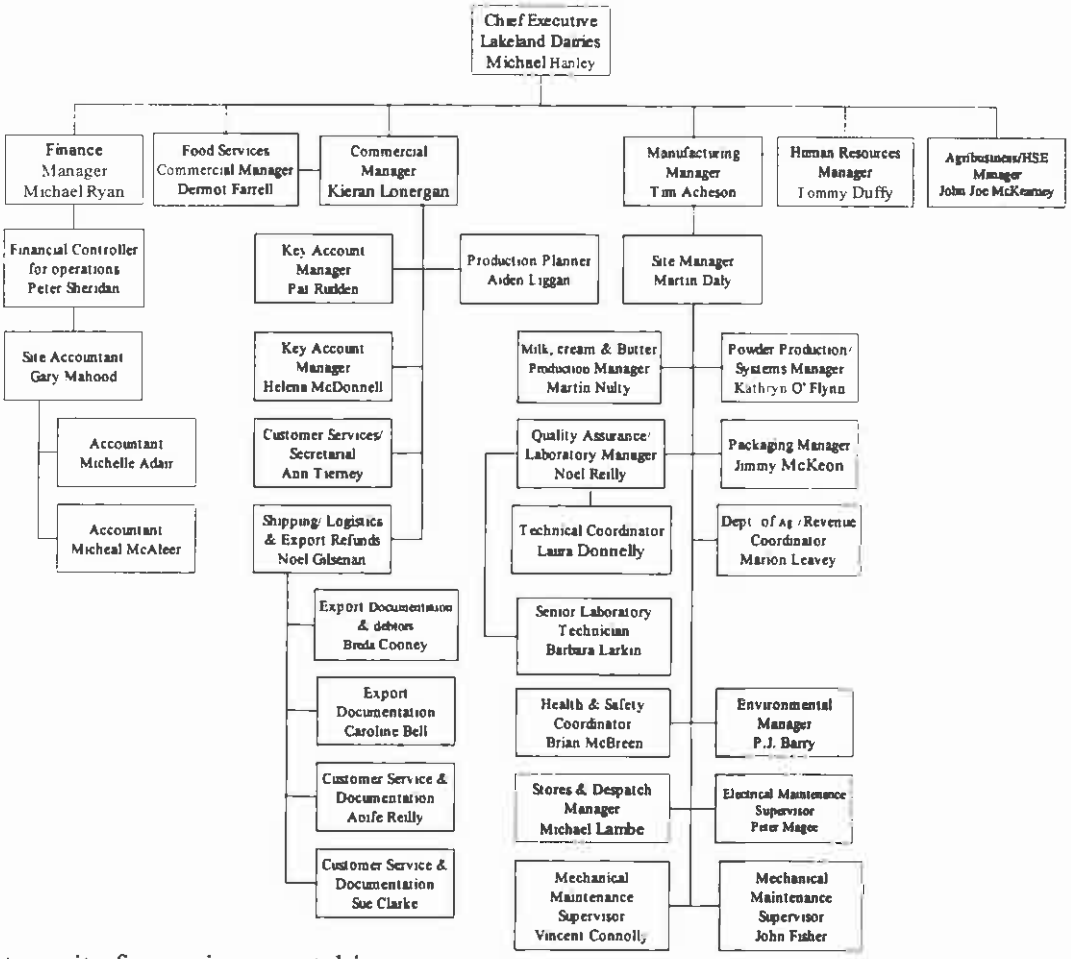
Bailieboro Foods and Bailie Foods are situated approximately 1km North East of Bailieborough town. The site was granted an IPPC Licence in July 2006. The IPPC Licence was granted under section 90(2) of the Environmental Protection Agency Act, 1992 and 2003 where the treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)

Processing on the site involves the production of 30000 tonnes of butter and 30000 tonnes of milk powder approximately per year. The vast majority of the production is for export mainly to Europe, Africa and the Far East.

Company Environmental Policy:

Copy attached.

Organisational chart for Environmental Management:



Contact on site for environmental issues:

1. P.J.Barry	042-9694200	Mobile 087-8124370
2. Martin Daly	042-9694200	Mobile 087-2592310
3. Kathryn O'Flynn	042-9694200	Mobile 087-2441371
4. Martin Nulty	042-9694200	Mobile 087-8174221

LAKELAND DAIRIES

Lakeland Dairies Bailieborough Environment Policy Statement

Lakeland Dairies Bailieborough is committed to supplying products that meet or exceed the expectations of its customers and to conducting its activities in an environmentally friendly and responsible manner. This will be achieved through:

- Commitment to continual improvement and prevention of pollution in all aspects of the business.
- Adapting appropriate measures to comply with environmental legislation and regulations and with other requirements to which the organisation subscribes
- Setting and reviewing specific environmental objectives and targets based on this policy including targets relating to the conservation of energy and material resources, emissions to air, land, water and risk management
- Managing the impact of the environment in a pro-active way through waste prevention and minimisation, re-use, recycling, and ultimately safe disposal.
- Conserving energy and natural resources in the site's operations as an integral part of this environmental policy
- Taking account of the environment at all stages, including product development, raw material procurement, manufacturing and distribution operations
- Putting in place necessary structures and resources, including training and awareness programmes, to underpin this policy

Martin Daly
Site Manager

8th February 2007

Lakeland Dairies Bailieborough Co Cavan
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Lakeland Dairies Co Operative Society Limited
Registered in Ireland Reg No 4622R

Emissions to Water:

Emission point reference no. W1 (emissions of cooling/condensate water)

Name of receiving water: River Lear

Parameter	Mass emissions (average) 1st Jan-31st December 09	Licenced Mass emissions (kg)
Ortho-phosphate	0.04	317
Ammonia (as No)	0.5	741
BOD	2	2647.5
Suspended Solids	2	5295
Volume m3	226477m3	529250 m3
Temperature	20°C*	27°C max.

*average

Emission point reference no. W3 (emissions of trade waste water)

Name of receiving water: River Lear

Parameter	Mass emissions (kg) 1st Jan-31st December 09	Licenced Mass emissions (kg)
Volume m3	210629	237250
BOD	842	2108
Suspended Solids	1053	3002
Total Ammonia	21.06	827.87
Orthophosphate	8.4	89.9

Surface Water Discharge Monitoring:

Emission point reference no. W2b (surface water discharge)

No Emissions at this point

Emission point reference no. W2e (surface water discharge)

Name of receiving water: River Lear

Parameter	Mass emissions (average) 1st Jan-31st December 09
Visual Inspection	Ok
Ph	7.1
BOD	2
Conductivity	366

Monitoring of River Lear:

Monitoring point reference no. W3.1 (River Lear upstream)

Parameter	Monitoring Results (average) 1st Jan-31st December 09
Ph	7.1
BOD	3
Suspended Solids	3
Nitrates	3
Total Ammonia	0.05
Orthophosphate	0.04

Monitoring point reference no. W3.2 (River Lear downstream)

Parameter	Mass emissions (average) 1st Jan-31st December 09
Ph	7.1
BOD	3
Suspended Solids	3
Nitrates	3
Total Ammonia	0.04
Orthophosphate	0.05

Monitoring point reference no. W3.3 (River Lear after cooling discharge)

Parameter	Mass emissions (average) 1st Jan-31st December 09
Ph	7.2
BOD	3
Suspended Solids	3
Nitrates	3
Total Ammonia	0.05
Orthophosphate	0.03

Emissions to Water:

Summary of non –compliance

No non-compliance's

Emissions to Atmosphere

Boiler Stack Emissions

Date: April 2009

Boiler no.1, Emission point No. A1, Natural Gas

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	3.1	10.0	0	55	0
Medium	4.1	9.4	0	56	0
Low	6.2	8.3	0	54	0

Boiler no.2, Emission point A2, Natural Gas (Stand By)

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	3.3	9.9	0	50	0
Medium	3.0	9.6	0	54	0
Low	6.6	8.8	0	43	0

Boiler no.3, emission point A5 Natural Gas

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	2.9	10.0	0	76	0
Medium	3.9	9.6	0	67	0
Low	6.5	8.1	0	54	0

Boiler no.4, Emission point A6 (Natural Gas)

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	2.6	10.3	0	75	0
Medium	3.9	9.6	0	61	0
Low	6.3	8.2	0	51	0

Particulate emissions to Atmosphere:

Emission point	Parameter	Mass emissions (kg) 2009	Licenced mass emissions (kg)
A3	Total Particulates	0.671	11651

Waste Management

EWC Code	Haz. y/n	Description of waste	Quantity per year/tonnes	Method of rec/disp	Location of rec/disp	Name of rec/disp contractor
200304	Y	Septic tank sludge	5.0	D8	Monaghan Waste Treatment works,	PC Drain Cleaning, Crossdowney, Co.Cavan 087-2830141
020502	N	Sludge from Effluent treatment plant	2000	D2	See NMP attached	Lexie Bell 042-9665425
200301	N	General Waste	174.37	D1	Corranure Landfill, Cavan 049-4361799	Cavan Waste Disposal 049-4362912
150101	N	Cardboard / shredded paper	59.12	R3	V&W Recycling 047-80834 042-9329200	Derek Cox, Cootehill, Co Cavan

Sludge Spreading 2009 ** No landspreading carried out between 1st November and 28th February.

Farmer	Plot No.	Quantity Applied/gls
Sean Gilsenan	1	20000
Sean Gilsenan	2	20000
Sean Gilsenan	3	18000
Sean Gilsenan	8	6000
Sean Gilsenan	9	6000
Sean Gilsenan	10	4000
Sean Gilsenan	11	6000
Sean Gilsenan	13	12000
Sean Gilsenan	14	8000
Sean Gilsenan	15	6000
C. Gibney	5	10000
C. Gibney	6	8000
C. Gibney	7	4000
C. Gibney	8	12000
C. Gibney	9	26000
C. Gibney	10	4000
Mel Kilrane	1	22000
Mel Kilrane	2	16000
Mel Kilrane	3	16000
Mel Kilrane	4	10000
Mel Kilrane	5	12000
Mel Kilrane	6	10000
Mel Kilrane	7	16000
Mel Kilrane	8	6000
Mel Kilrane	14	18000
Mel Kilrane	15	6000
Mel Kilrane	16	8000
T.Lynch	1	16000
T.Lynch	2	26000
T.Lynch	7	14000
P.O'Reilly	2	2000
P.O'Reilly	3	12000
P.O'Reilly	8	6000
P.O'Reilly	11	8000
P.O'Reilly	12	6000
P.O'Reilly	14	4000
P.O'Reilly	15A	12000
P.O'Reilly	17	2000
P.O'Reilly	18	2000
Erick Davison	2	12000
Erick Davison	3	2000
Erick Davison	4	18000
Erick Davison	5	8000

Total Sludge Applied 458000 Gls

Total Capacity Available 604428 Gls

Energy Consumption 2009

Natural Gas KWH units	93124619
Electricity KW units	12080956

Water Consumption 2009

Lake water (treated)	508024 m3
Well water	365m3 approx

Boiler Chemical Usage

IS3000E: 4500kgs
OPTISPERSE: 500kgs

Cooling Condensate Chemical Usage

Spectrus 1164: 150 lit.
Spectrus 1422: 170 lit.
Inhibitor op8450: 700 lit.

Agency monitoring and enforcement

Monitoring of emissions, all results were in compliance

Incident report

No Incidents in 2009.

Complaints

No complaints in 2009.

3.0 Management of the activity

3.1 Environmental management programme
3.2 Environmental management programme report
3.3 Schedule of environmental objectives and targets
3.4 Pollution emission register.

Environmental Management Programme (EMP)

- Upgrade Cooling Water / Reduction of water Consumption.
- Drier Emissions.
- Reduction of Effluent & Final Effluent upgrade
- Noise Reduction.
- Sludge Management
- Waste Reduction & Control
- Improve Energy Consumption and Efficiencies

REVISE SLUDGE SPREADING PLAN

TITLE OF OBJECTIVE:	Sludge Management
REASON FOR OBJECTIVE:	To insure that adequate and suitable land is available for land spreading and secure facilities for winter storage.
DESCRIPTION / DETAIL:	The sludge is characterised as organic fertiliser, which is of measurable value to farmer clients.
RESPONSIBILITY:	Environmental manager

OBJECTIVES	**TARGETS**	**METHOD**	**REVIEW DATE**
Ensure good practice for land spreading	Comply with legislation	Comply with Code of good practice for land spreading and European Communities (Good agricultural practice for protection of waters) Regulations 2006 (S.I. No. 378 of 2006)	July '10
Have adequate land for spreading.	Agreements and NMP for all farms.	NMP for 10 to be submitted to EPA by Feb 10	July '10
Up Date the Nutrient Management Plan	Compliance with IPPC Licence	Continue programme as agreed with EPA	July '10

REVISE SLUDGE SPREADING PLAN

Ensure adequate winter storage.	Storage for 50% of sludge produced	Continue to use storage tanks, which have been submitted to EPA	July '10

NOISE REDUCTION

TITLE OF OBJECTIVE:	Noise Reduction
REASON FOR OBJECTIVE:	Minimise Site Noise
DESCRIPTION / DETAIL:	Comply with IPPC license requirements. Implement the changes/precautions needed to comply with noise at work regulations
RESPONSIBILITY:	Site Manager Creamery production manager. Powder production manager. Environmental manager

TARGETS	**METHOD**	**REVIEW DATE**
Comply with IPPC license requirements. Daytime: 55dB(A) Night-time: 45dB(A)	• Annual noise survey. • Noise reduction measures where required.	Jan '11
European Communities (Protection of Workers) (Exposure to Noise) Regulations 1990 (S.I. No. 157 of 1990).	Comply with regulations	Jan '11

REDUCE EFFLUENT LOADS & FINAL EFFLUENT UPGRADE

TITLE OF OBJECTIVE:	Reduce effluent loads & final effluent upgrade
REASON FOR OBJECTIVE:	• Reduce The Impact On The Environment By Minimisation At Source. • To continually improve (i.e. decrease) our effluent load. • Operate and monitor the plant in accordance with our IPPC licence.
DESCRIPTION / DETAIL:	Effluent loads result from milk losses to wash water at all stages of the process. The plant is operated and monitored according to the procedures set out in the Effluent Manual, these set out the quality standards to be achieved in order to comply with the discharge conditions set out by the IPPC licence and monitored by the EPA.
RESPONSIBILITY:	Environmental Manager Bailie Foods Production Manager Bailieboro Foods Production Manager Site Manager.

OBJECTIVES	**TARGETS**	**METHOD**	**REVIEW DATE**

REDUCE EFFLUENT LOADS & FINAL EFFLUENT UPGRADE

OBJECTIVES	TARGETS	METHOD	REVIEW DATE
Reduction in milk losses in Bailie Foods	10% reduction over 2009 (Target <0.20% gls/ day of milk processed) CA issued at >0.60% gls / day of milk processed (monthly average)	• Operator awareness • Tighter control on wash cycles etc	July '10
Reduction Water usage in Bailie Foods	10 % reduction over 2009 <165 m3/ day CA issued at 255 m3 / day (monthly average)	• Operator awareness • Look at reuse, recycle possibilities	

REDUCE EFFLUENT LOADS & FINAL EFFLUENT UPGRADE

OBJECTIVES	TARGETS	METHOD	REVIEW DATE
Reduction in milk losses in Bailieboro Foods	10% reduction over 2009 (Target <0.48% gls/ day of milk processed) CA issued at >0.75% gls / day of milk processed (monthly average)	• All washes to be closely monitored • Tighter control on tanker discharge • Operator awareness	July '10
Reduction Water usage in Bailieboro Foods	10 % reduction over 2009 <370 m3/ day CA issued at 475m3 / day (monthly average)	• Operator awareness • Look at reuse, recycle possibilities. • Computerise water usage meters from intake, separator, evaporator, dairy etc	
Final Effluent - Comply with IPPC licence.	Ensure that all final effluent emissions adhere to the IPPC licence conditions. Volume to be emitted <650 m3 per day.	• Continue to comply with IPPC licence	July '10

CONTROL AND REDUCTION OF DRYER EMISSIONS

TITLE OF OBJECTIVE:	Control and Reduction Of Dryer Emissions
REASON FOR OBJECTIVE:	Reduce the impact on the environment. Reduce product losses.
DESCRIPTION / DETAIL:	Air Emissions From Dryer
RESPONSIBILITY:	Production manager Bailie Foods Environmental manager

OBJECTIVES	**TARGETS**	**METHOD**	**REVIEW DATE**
Reduce Stack Losses.	Losses<10mg/m^3. Current IPPC licence requirement <20mg/m3	Bag Filter system is BAT, continue to maintain emission level below licence limit	Jan '11

Environmental Management Programme (EMP) Report

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	Waste Reduction
REVIEW DATE:	Jan 10
PERSONS REVIEWING:	PJ Barry.

TARGETS	DETAIL	DATE
Reduce Waste to Landfill	Waste to Landfill for 2008 161.22 tonnes, 2009 174.37 up by 7%	January '10
Continue and maintain the recycling of all material where possible	Continue policy of recycling plastic, cardboard, IBC's, waste oil, scrap metal, shredded paper, bales of paper, cardboard cones and pallets. Details can be found in the waste and recycling file. Paper / Cardboard 2008 30.38 tonnes, 2009 59.12 tonnes up 80%	January '10

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	Water
REVIEW DATE:	Jan '10
PERSONS REVIEWING:	PJ BARRY

TARGETS	DETAIL	DATE
Comply with IPPC Licence	All emissions in compliance	Jan '10
Reduce / Control water usage	Targets set for individual areas Intake <70m3 / day Separators <70m3 / day Dairy <80m3 / day Evaporator <400m3 / day ***These targets will be revised as part of the overall water reduction programme being carried out as part of the new development on site	Jan '10
Reduce / Control water usage	Tighter controls to be implemented to reduce volumes to effluent plant. Creamery target <410m3 / day, Average Daily Loss 412m3, Down 8% on 2008 Bailie Foods target <185m3 / day, Average Daily Loss 182m3, down 14% on 2008 ***These targets will be revised as part of the overall water reduction programme being carried out as part of the new development on site	Jan '10

Cooling / Condensate usage, water reduction, reuse	Monitoring programme updated to ensure compliance with L8 directive (control of legionella bacteria in water systems) Survey started to identify areas where usage can be reduced and to reuse water where possible. This area is part of risk assessment	Jan '10

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	Noise
REVIEW DATE:	Jan '10
PERSONS REVIEWING:	PJ BARRY

TARGETS	DETAIL	DATE
Comply with IPPC Licence	Noise audit carried out in April 09 by RME Environmental. Noise levels within Licence limits	Jan '10
Comply with EU Regulations	Noise compliance audit carried out in accordance with noise at work regulations act 1990 (S.I. 157)	Jan '10

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	SLUDGE MANAGEMENT
REVIEW DATE:	January 10
PERSONS REVIEWING:	PJ BARRY

TARGETS	DETAIL	DATE
Adequate facilities for winter storage.	Three tanks belonging to John Garry, Tom Lynch and Michael Lambe being used for storage purposes. This gives 950m3 of storage, which is 45% (6 mths) of the total required 2073m3.	January 10
Ensure adequate land for spreading	Volume of sludge produced 2073 m3, spread land capacity available 2767m3. Land available for spreading is 130% of requirement.	January 10
Control of sludge spreading.	All Spreading carried out in compliance with IPPC Licence / NMP requirements.	January 10

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	REDUCE EFFLUENT LOADS & FINAL EFFLUENT UPGRADE
REVIEW DATE:	Jan '10
PERSONS REVIEWING:	PJ Barry.

TARGETS	DETAIL	DATE
Reduction in milk losses in Bailie Foods. 10% over 2009 (<0.60% /day of milk processed) Target for 2010 <0.20% day of milk processed	Milk losses averaging 0.25% gls/day of milk processed in 2009	Jan '10
Reduction Volume Bailie Foods. 10% over 2009 (<165 m3/day) Target for 2009 <165m3 / day reduction 10% reduction	Volume down 14% in 2009 Volume losses averaging 182m3/day compared to 211 m3/day 2008	
Reduction in milk losses in Creamery. 10% over 2009 (<0.75% /day of milk processed) Target for 2010 <0.48% day of milk processed reduction 10%	Milk losses averaging 0.71% gls/day of milk processed in 2009	Jan '10

Reduction Volume Creamery . 10% over 2008 (<410 m3/day) Target for 2009 <370m3 / day reduction 10% reduction	Volume down 8% in 2008 Volume losses averaging 412 m3/day compared to 448m3/day 2008	
Continue compliance with IPPC licence.	All emissions in compliance with IPPC Licence.	Jan '10

REVIEW OF OBJECTIVES

TITLE OF OBJECTIVE:	Drier Emissions
REVIEW DATE:	Jan '10
PERSONS REVIEWING:	PJ BARRY

TARGETS	DETAIL	DATE
Comply with IPPC Licence	All Emissions within IPPC License requirements. All emissions <20mg/m3 Total emissions from 2009, 0.257 tonnes at 2 mg / m3 average.	Jan '10

***Next Review January '11

4.0 Licence Specific Reports

4.1 Boiler Combustion Efficiency Tests
4.2 Tank and Pipeline Testing
4.3 Report on List 1 and 2 Substances
4.4 Complaints Summary
4.5 Resource Consumption Summary
4.6 Reported Incidents Summary
4.7 Noise Reduction Proposal.
4.8 Energy Audit
4.9 Environmental Liabilities Risk Assessment (ELRA)
4.10 Residual Management / Closure Plan

Boiler Combustion Efficiency Tests.

Emissions to Atmosphere

Boiler Stack Emissions

Date: April 2009

Boiler no.1, Emission point No. A1, Natural Gas

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	3.1	10.0	0	55	0
Medium	4.1	9.4	0	56	0
Low	6.2	8.3	0	54	0

Boiler no.2, Emission point A2, Natural Gas (Stand By)

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	3.3	9.9	0	50	0
Medium	3.0	9.6	0	54	0
Low	6.6	8.8	0	43	0

Boiler no.3, emission point A5 Natural Gas

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	2.9	10.0	0	76	0
Medium	3.9	9.6	0	67	0
Low	6.5	8.1	0	54	0

Boiler no.4, Emission point A6 (Natural Gas)

Firing rate	Oxygen %	Carbon Dioxide %	Carbon monoxide (ppm)	Nitrogen Oxide(ppm)	Sulphur Dioxide (ppm)
High	2.6	10.3	0	75	0
Medium	3.9	9.6	0	61	0
Low	6.3	8.2	0	51	0

Bund, Tank and Pipeline Testing.

Bailieboro Foods / Bailie Foods bunds review report 2006

Summary

There are a number of bund stations on the Bailieboro Foods / Bailie Foods site used to protect tanks containing caustics, acids and fuel oils. They have been part of the system of assessment and review since 1996 in accordance with the environmental management programme on site.

All the bunds are listed at the start of this report. Even though some of the stations are no more than spill trays every point is included in the list. The body of this report contains the results of the full assessment and the most-recent reviews on each bund. It refers to previous tests where relevant. The procedure is described at the end of the report.

Report completion:

Nicholas Comey, Project Partners & Consultants

List of bunds

ID	Location	Function
1	Creamery compound	Diesel tanks; Waste oil tank
2	Evaporator building	Nitric Acid tank,
3	Creamery CIP Centre	Caustic tank
4	Creamery workshop	Water treatment chemical
5	Garage compound	Fleetclean IBC,
6	Creamery IBC compound	IBC storage compound
7	Creamery evaporator	Caustic detergent IBC
8	Intake CIP centre	Caustic or acid detergent IBC,
9	Laboratory and office block	Gas oil tanks
10	Butter Room	Lactol IBC
11	Butter Room	Butomat IBC
12	Effluent treatment plant	Ferric and acid tanks,
13	Effluent treatment plant	Gas oil tank
14	Boiler house	Gas oil tank
15	Boiler house	Waste oil tank
16	Beside Dryer building	Caustic storage tank
17a	Dairy CIP centre	#2 Nitric acid 4500 litre tanks, #4 CIP 4500-litre tanks
17b	Dryer CIP centre	2 off 4500 litre tanks and product recovery tank.
18 a,b,c,d	Boiler house and Air compressor room	3 Water treatment drum bunds, 1 bund for chloros tank in air compressor room
19	Boiler house	Gas oil tank,
20a / b	Creamery packaging Store	Lactic acid drums spill bund
21	Butter room	Lock and Pop drum bund
22	Water treatment plant	Liquid alum tank and IBC bund
23	Effluent Plant	Poly compound
24	SWS laboratory	Chemical drum spill tray
25	Milk Intake	KOH IBC stainless bund

Bund No: 1	Location: **Creamery compound**
Function: **Diesel tanks; Two with total volume 29378 litres** **Waste oil tank (2000 litres) in same location** **Kerosene tank (1500 l) in same location**	
Construction: Reinforced concrete bund with coating; capacity 33184 litres. The bund has a sump for pumping. The fill point and oil filters are located inside the bund.	
Test start: 25/1/06, 10am	Test finished: 26/1/06, 10am
Previous assessment: EGPettit report November 1998; ID no 7; PP&C August 2000, ID no 1.	
Limitations and conditions: Waste oil tank lifted to prevent flotation, Conditions cold and dry	
Results: Bund filled to top and confirmed intact, no loss of water and no cracks evident. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 2	Location: **Creamery beside evaporator building**
Function: **Nitric Acid tank, capacity 23000 litres**	
Construction: Reinforced concrete bund with SS liner; capacity 31700 litres. The acid tank itself is fitted with level indication and high level alarm. The acid pump is located inside the bund.	
Test start: 10/2/06, 11am	Test finished: 11/2/06, 11am
Previous assessment: EGPettit report November 1998, ID no 4; PP&C, 28/5 2001, ID no 2.	
Limitations and conditions: Nitric tank level must be higher than bund ; Conditions cold and dry	
Results: Bund filled to top and confirmed intact, no loss of water and no cracks evident. Test procedure: PP&C Bund Test	
Follow up action: none	

Bund No: 3	Location: **Creamery CIP Centre**
Function: **Caustic tank capacity of caustic tank 44.8m^3 and IBCs containing solutions of caustic soda typically 24%;**	
Construction: The main stainless steel tank has an outer stainless steel shell, capacity 62.6 m^3 with a weather proof flashing on top and located within the CIP centre. The bund has a lockable outlet valve. The inner tank has a level display and high level alarm and the bund also has a level display and level alarm. The CIP centre itself is surrounded by a high kerb and bollards and remotely bunded to the effluent treatment system. The pumping equipment is located within the CIP centre.	
Test start: 16/2/06, 2pm	Test finished: 17/2/06, 2pm
Previous assessment: PP&C Oct 2003, ID No 3.	

Limitations and conditions: The level in the outer shell must not exceed the inner level to reduce the risk of damage. Conditions cold and dry. The bund level was measured in mm using a pressure transmitter throughout the test.
Results: Stainless steel bund filled to 80% (slightly below the level in the inner tank) and the variations in the level readings were with in the repeatability of the level transmitter. There were no leaks from the tank. Test procedure: PP&C Bund Test
Follow up action: n/a

Bund No: 4	Location: **Creamery workshop**
Function: **Water treatment chemical dosing tanks, capacity 300, 25, 50 litres respectively**	
Construction: Plastic bund tanks capacity 550, 122, 122 litres respectively, located indoors in pump room.	
Test start: 27/1/06, 10am	Test finished: 28/1/06,10am
Previous assessment: EGPettit report November 1998; ID No 10 PP&C August 2000, ID No4	
Limitations and conditions: The level in the outer tank must not exceed the inner level to prevent flotation. Conditions cold and dry	
Results: Bunds filled to top and confirmed intact, no loss of water and no cracks evident. Test procedure: PP&C Bund Test	
Follow up action: n/a	

Bund No: 5	Location: **Creamery garage compound**
Function: **Fleetclean IBC,**	
Construction: Allibert branded plastic IBC bund, capacity 1050 litres. It is located in a protected area behind the lorry washer.	
Test start: 25/1/06 5pm	Test finished: 26/1/06 5pm
Previous assessment: EGPettit report November 1998, ID no 5 PP&C 25/8/00 ID No 5.	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top and confirmed intact Test procedure: PP&C Bund Test	
Follow up action:	

Compound No: 6	Location: **Creamery IBC compound**
Function: **IBC storage compound and remote bund**	
Construction: Reinforced concrete compound connected to effluent tank; 3 IBC bays plus waste storage bay	
Inspected: 25/1/06	

Previous assessment: EGPettit report November 1998; ID No 8 PP&C August 2000, ID No 6 PP&C October 2003, ID No 6
Limitations: Visual inspection
Results: No visible flaws Test procedure:
Follow up action:

Bund No: 7	Location: **Creamery evaporator**
Function: **Caustic detergent IBC, 1000 litres**	
Construction: Alibert branded plastic tank bund; capacity 1050 litres	
Test start: 25/1/06, 4pm	Test finished: 26/1/06, 4pm
Previous assessment: EGPettit report November 1998; ID no 9 PP&C August 2000, ID No 7.	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top and confirmed intact, no loss of water and no cracks evident. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: **8**	Location: **Creamery Intake CIP centre**
Function: **Caustic or acid detergent IBC, 1000 litres**	
Construction: Stainless steel bund tank, capacity 1080 litres, fitted with outlet valve. The bund is located within the Intake CIP centre which is a kerbed compound remotely bunded by the effluent collection tank.	
Test start: 25/1/06, 4pm	Test finished: 26/1/06,4pm
Previous assessment: EGPettit report November 1998; ID no 6 PP&C August 2000, ID No 8	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top and confirmed intact, no loss of water and no cracks evident. Test procedure: PP&C Bund Test	
Follow up action: Outlet valve to be replaced with lockable type, and plugged	

Bund No: **9a & 9b**	Location: **Laboratory and office block**
Function: **2 gas oil tanks, 4623 l each**	
Construction: Concrete bund plastered and coated; capacity 9550 litres	
Test start: 29/5/01 10 am	Test finished: 30/5/01 10 am
Previous assessment: EGPettit report November 1998; ID No 11, PP&C 30/5/01 ID No 9	

Limitations and conditions: No limitations, Conditions cold and dry
Results: OK, Inspected Oct '03, no change in set up or condition Test procedure: PP&C Bund Test
Follow up action: The 3 steel tanks are being phased out and replaced with up to 2 Titan integrally bunded plastic 5000 l oil tanks. Work has commenced on the new plinth in the same location. The first tank has already been decommissioned and removed to make room for the 1st Titan tank.

Bund No: 10	Location: **Creamery, beside Butter Room**
Function: **Lactol IBC containing caustic based detergent**	
Construction: Branded Enpak plastic IBC tank bund, capacity 1550 litres, located under roof in loading bay.	
Test start: 25/1/06, 9am	Test finished: 26/1/06, 9am
Previous assessment: EGPettit report November 1998; ID No 1 PP&C August 2000, ID No 10.	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top, no water loss, no cracks evident in body of bund and confirmed intact, Plastic buffer strip (not part of the bund capacity) around the top is worn and damaged. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 11	Location: **Creamery, beside Butter Room**
Function: **Butomat IBC containing caustic based detergent (or similar products including liquid ST6C and Z liquid)**	
Construction: Branded Enpak plastic IBC tank bund, capacity 1550 litres, located under roof in loading bay.	
Test start: 25/1/06, 9am	Test finished: 26/1/06, 9am
Previous assessment: EGPettit report November 1998; ID No 1 PP&C August 2000, ID No 10.	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top, no water loss, no cracks evident in body of bund and confirmed intact, Plastic buffer strip (not part of the bund capacity) around the top is worn and damaged. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 12	Location: **Effluent treatment plant**
Function: **Ferric and acid tanks, 15911 litres each**	

Construction: Reinforced concrete bund with coating, capacity 36870 litres. Outlet fitted with valve with locking device.	
Test start: 24/1/06, 4pm	Test finished: 25/1/06,4pm
Previous assessment: EGPettit report November 1998 ID No 13 PP&C 25/8/00, PP&C 31/5/01, ID No12	
Limitations and conditions: The level in the bund must not exceed the tank levels to reduce the risk of damage., Conditions cold and dry	
Results: Bund filled to top, no water loss, and no cracks evident in body of bund and confirmed intact. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 13	Location: **Effluent treatment plant**
Function: **Gas oil tank, capacity 1150 litres**	
Construction: Plastic outer bund tank, similar to Titan envirosafe tank. The tank is located in a secure location behind the control room	
Test start: 24/1/06 3pm	Test finished: 24/1/06 3pm.
Previous assessment: EGPettit report November 1998; ID no 12 PP&C 28/8/00, ID No 13.	
Limitations and conditions: The level in the outer shell must not exceed the inner level to reduce the risk of damage., Conditions cold and dry	
Results: Bund filled to top, no water loss, and no cracks evident and confirmed intact. Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 14	Location: Boiler house
Function: **Gas oil tank, capacity 5000 litres**	
Construction: Plastic outer bund tank with hood, similar to Titan envirosafe tank. Tank located in a secure location behind the boiler house. The supply pump to the generator is connected to the tank outlet. A dispensing hose with a lock is connected to the tank.	
Test start: 13/2/06 3pm	Test finished: 13/2/06 3pm
Previous assessment: EGPettit report November 1998; ID No 16 PP&C 28/8/00, ID No 14.	
Limitations and conditions: The level in the outer shell must not exceed the inner level to reduce the risk of flotation., Conditions cold and dry	
Results: Bund filled to top, no leaks and no defects Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: 15	Location: **Boiler house**

Function: **Waste oil tank , capacity aprox 1200 litres**	
Construction: Plastic outer bund tank with hood, similar to Titan Envirosafe tank. Tank located inside a shed.	
Test start: 14/2/06 2pm	Test finished: 14/2/06 1pm
Previous assessment: PP&C 30/8/00, ID No 15.	
Limitations and conditions: The level in the outer shell must not exceed the inner level to reduce the risk of damage. Conditions cold and dry	
Results: Bund filled to top and confirmed intact Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: **16**	Location: **Beside Dryer building**
Function: **Caustic storage tank 25000 litres**	
Construction: Stainless steel outer bund tank, double contained. Bund fitted with lockable valve. The tank is located in a kerbed compound with drain connected to the effluent tank.	
Test start: 26/1/06, 5pm	Test finished: 26/1/06, 5pm
Previous assessment: PP&C 29/5/01, ID No 16	
Limitations: Level in outer shell must not exceed inner tank to reduce risk of damage. Conditions cold and dry.	
Results: Bund filled to 1 m from top (inner level in caustic tank after previous fill) no water loss, no leaks evident and confirmed intact. Test procedure: PP&C Bund Test	
Follow up action: Coating on floor of compound needs to be repaired in warm weather.	

Compound No: **17a**	Location: **Dairy CIP centre**
Function: **#2 off 4500-litre tanks for Nitric Acid acid tank;** **#4 off 4500-litre CIP tanks;**	
Construction: Reinforced concrete compound lined with stainless steel connected to effluent tank, capacity behind kerb 4800 litres. Pumping equipment located in the stainless steel compound. The nitric tank is fitted with a level sensor and local indicator	
Inspection: 26/1/06	Test finished:
Previous inspection: November 1998, 29/8/00, 20/10/03	
Limitations and conditions:	
Results: The test consisted of visual inspections of the compound, the results indicated good maintenance and no holes or cracks.	
Follow up action:	

Compound No: **17b**	Location: **Dryer CIP centre**
Function: **# 2 off 4500 CIP litre tanks and product recovery tank**	

Construction: Reinforced concrete compounds connected to effluent tank lined with stainless steel, capacity behind kerb 4500 litres.	
Inspected: 26/1/06	
Previous assessment: PP&C 20/10/03	
Limitations:	
Results: The test consisted of visual inspections of the compound, the results indicated good maintenance and no holes or cracks	
Follow up action:	

Bund No: **18 a,b,c,d**	Location: **Boiler house and Air compressor room**
Function: **3 Betz Water treatment drum bunds in Boiler room, 1 bund for chloros tank in air compressor room**	
Construction: Plastic outer bund tank	
Test start: 26/1/06, 4pm	Test finished: 27/1/06, 4 pm
Previous assessment: PP&C, 30/8/00, ID No 18	
Limitations and conditions: The level in the outer tanks must not exceed the inner levels to reduce the risk of flotation. Conditions indoors and warm with a few mm of evaporation likely	
Results: Bunds filled to top and confirmed intact Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: **19**	Location: **Boiler house**
Function: **Tallow tank capacity 500,060 litres (former Gas oil tank and previously heavy fuel oil tank)**	
Construction: The tank is a steel tank, insulated and clad and fitted with tank heaters. There is a cat & mouse level indication. The bund is a reinforced concrete bund, floor coated and coved with capacity of 564,000 litres. There is a full staircase with handrail leading in and out of the bund. The pumping equipment is located inside the bund.	
Test start: 28/10/03	Test finished: 29/10/03
Previous assessment: PP&C 6/8/02, ID No 19; Also November 1998	
Limitations: Not Tested beyond 1500mm because of the danger of floatation since tank was only partially filled (energy policy to maintain only a slight reserve of fuel). Limitations and conditions: Conditions cold and dry	
Results: The test of the lower part of the bund gave results within limits Test procedure: PP&C Bund Test	
Follow up action:	

Bund No: **20 a**	Location: **Creamery packaging Store**
Function: **Lactic acid drums spill bund a**	

Construction: Stainless steel bund tank/ spill tray; capacity 400 litres, fitted with a valve closed and sealed with a screwed bung.	
Test start: 15/2/06 10am	Test finished: 16/2/06 11am
Previous assessment: PP&C 28/5/01 ID No 20.	
Limitations and conditions: Normally indoors, but brought outside for testing, Weather damp and cold.	
Results: Bund filled to top and confirmed intact	
Test procedure: PP&C Bund Test	
Action: Old valve inclined to drip. Valve was replaced and sealed with a plug	

Bund No: **21**	Location: **Creamery butter packing room**
Function: **Lock and Pop or Palletfix drum bund**	
Construction: Plastic spill bund; capacity 75 US gallons	
Test start: 11/2/06 11am	Test finished: 12/2/06 11am
Previous assessment: PP&C 28/5/01 ID No 20	
Limitations and conditions: No limitations, Conditions indoors and cool	
Results: Bund filled to top and confirmed intact	
Test procedure: PP&C Bund Test	
Follow up action: n/a	

Bund No: **22**	Location: **Water treatment plant**
Function: **Liquid alum tank, capacity 14, 770 litres** **And up to 6 Chloros IBCs**	
Construction: Reinforced concrete bund; capacity 8560 litres with drain valve with locking device.	
Test start: 24/1/06, 11 am	Test finished: 25/1/06, 11am
Previous assessment: PP&C 22/10/03, ID No 22	
Limitations and conditions: No limitations, Conditions cold and dry	
Results: Bund filled to top, no water loss, and confirmed intact. However there is a slight crack that is not leaking and easily sealed	
Test procedure: PP&C Bund Test	
Follow up action: Crack to be sealed with resin ; this procedure requires warm weather	

Bund No: **23**	Location: **Effluent treatment plant**
Function: **Poly IBC 1000 l, qty 2**	
Construction: Concrete slab, sloping towards gulley drained back to the effluent plant via pump sump	
Inspected: 24/1/06	

Previous assessment:
Limitations and conditions: No limitations, Conditions cold and dry
Results: Sump Pump runs smoothly on level control
Follow up action:

Bund No: **24**	Location: SWS laboratory
Function: **Chemical drum bund for waste lab chemicals**	
Construction: Drum spill bund, located in covered compound with concrete floor.	
Test start: 16/2/06 5pm	Test finish: 17/2/06 5pm
Previous assessment: new	
Limitations and conditions: No limitations, Conditions cold and damp	
Results: Bund filled to top, no leaks and confirmed intact	
Follow up action:	

Bund No: **25**	Location: **Milk Intake**
Function: **Bund for 1 or 2 IBCs of KOH**	
Construction: Stainless steel IBC bund, capacity 2.7m3 secured in position and located behind a set of bollards.	
Test start: 16/2/06 4pm	Test finish: 17/2/06 4pm
Previous assessment: New	
Limitations and conditions: No limitations, Conditions cold and a couple of light showers	
Results: Bund filled to top, no leaks and confirmed intact	
Follow up action: n/a	

PP&C BUND TEST:- PROCEDURE FOR BUND INTEGRITY TESTING.

1.0 **OBJECTIVE:** To determine by testing the integrity of bunds.

2.0 **Scope:** Bunds for acid and caustic based detergents and fuel oils.

3.0 **Procedure for a full test for a concrete structure:**

3.1 Verify the validity of the existing data for the chemicals stored in the bund and the volume and construction of the bund.
3.2 Follow the relevant procedure for entry into confined spaces.
3.3 Inspect the bund visually for defects in the structure and linings and signs of leaks. Access to all internal /external walls is required.
3.4 At the time of testing determine whether a full test can be carried out.
- The level in the storage tank should be at the level of the test level on the bund to prevent flotation of the tank and to avoid the further risk to the environment during the test.
- No electrical or mechanical equipment likely to be damaged by water or cause risks to people or property should be located in the bund.
- Since submergence in water damages insulation systems, it will be necessary to strip down and re-insulate tanks and pipelines in such instances.

3.5 For a test of liquid retention, the structure should be cleaned and initially filled to the normal maximum level with the specified liquid (usually water) at a uniform rate of not greater than 2 m in 24 h.
When first filled, the liquid level should be maintained by the addition of further liquid for a stabilising period while absorption and autogenous healing take place. If there is initial evidence of leakage, repairs should be carried out and the test rescheduled.
3.6 When the liquid level has stabilised, monitor the level for 24 hours. During this period, monitor the liquid level and the bund itself for evidence of leaks. The total permissible drop in level after allowing for evaporation and rainfall should not exceed the equivalent of 1/500 of the average water depth of the full bund, 10mm or another specified amount.
3.7 If the bund is free from significant defects or deterioration in either the structure or liner and the drop in liquid level complies with 3.6 above, the bund is considered to have complied with this procedure. A report should be produced on each bund including the results of the test and reference to the test procedure.

4.0 **Procedure for a full test for a steel or plastic bund:**

4.1 Verify the validity of the existing data for the chemicals stored in the bund and the volume and construction of the bund.
4.2 Follow the relevant procedure for entry into confined spaces.
4.3 Inspect the bund visually for defects in the structure and linings and signs of leaks. Access to all internal /external walls is required.
4.4 At the time of testing determine whether a full test can be carried out.
- The level in the storage tank should be at the level of the test level on the bund to prevent flotation of the tank and to avoid the further risk to the environment during the test.
- No electrical or mechanical equipment likely to be damaged by water or cause risks to people or property should be located in the bund.
- Since submergence in water damages insulation systems, it will be necessary to strip down and re-insulate tanks and pipelines in such instances.

4.5 For a test of liquid retention, the structure should be cleaned and initially filled slowly to the normal maximum level with the specified liquid (usually water) and monitored closely during the filling operation.

4.6 If there is initial evidence of leakage, repairs should be carried out and the test rescheduled.

4.7 When the liquid level has stabilised, monitor the level for 12 to 24 hours. During this period, monitor the liquid level and the bund itself for evidence of leaks. The total permissible drop in level after allowing for evaporation and rainfall should not exceed the equivalent of 1/500 of the average water depth of the full bund, 10mm or another specified amount.

4.8 If the bund is free from significant defects or deterioration in either the structure or liner and the drop in liquid level complies with 4.7 above, the bund is considered to have complied with this procedure. A report should be produced on each bund including the results of the test and reference

5.0 Procedure for a partial test.

5.1 If it has been determined that a full test cannot be carried out at the proposed time of testing, a test may be carried out to a lower level within the bund. The partial test does not satisfy the requirement for a full test.

5.2 The bund test report must state clearly any limitations to the test and the reasons why the bund could not be filled to the top.

6.0 References:

BS 8007: 1987 Section 9. Inspection and testing of the structure (liquid retaining). The 7 day test period in this standard is not practicable and the allowance for seepage is not appropriate in the context of fluids likely to harm the environment.

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Septic Tank & Bio Cycle Systems Emptied & Sludge Disposal for Domestic and Industrial Use
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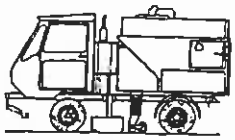

CCTV Report for Lakeland Dairies, Bailieborough Co Cavan

Underground survey carried out on all Effluent Lines, Surface Water Lines and Sewerage Lines on Bailie Foods, Head office and Creamery.

Survey was carried out to determine condition of all lines and seek out damaged or broken lines - blockages.

Creamery: - Effluent Lines

Inspection of the Effluent Lines in Creamery showed - effluent line 306 to 307 is damaged (3.5metres from 306 -307) as shown on page 1 of diagrams. Not damaged enough to stop effluent line working but should be repaired.

Effluent line from Cip Centre goes a different direction as shown on page 2 of diagrams. All other Effluent Lines in Creamery are in good condition.

Creamery: - Surface Water Lines

All Surface Water Lines were in poor condition - full of silt and stones (all lines had to be jetted. Lines were only working to 50%capacity. Lines now flowing at 100% but need to be cleaned more frequently due to the high volume of water passing through, shown on page 3 of diagrams. Area of note: road gulley is tarmaced over as shown on page 4. Pages 5,6 and 7 are manholes numbered as they were not numbered previously.

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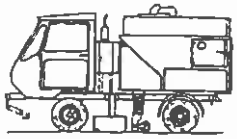

Creamery - Sewage Lines.

Sewer line is damaged 2.3metres from manhole 27 towards manhole 907 as shown on page 8 of diagrams. All other sewer lines are in perfect working order.

Bailie Foods - Effluent Lines

Manhole 22 to Effluent tank could not be surveyed due to line in use and at full capacity as shown on page 11. All other lines are in good working order.

Bailie Foods - Surface Water Lines.

The surface water line at entrance to Bailie Foods ie manhole G1 to the river is collapsed as shown on page 9 is in need of repair. Manhole G17 to manhole19 is damaged as shown on page 10. All other surface water lines are in good working order.

Bailie Foods - Sewer Lines

Sewer line 6-5-4 holds a certain amount of sewage due to poor fall in this area - not blocked.

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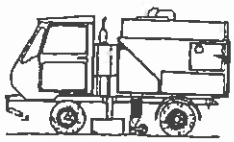

Head Office - Surface Lines

Line between 707 and 707a is damaged (as seen on page12) manholes are all numbered as illustrated. Manhole no 6 is cause for concern as described on page 13 of diagrams.

Head Office - Sewage Lines

All sewage lines in perfect working order.

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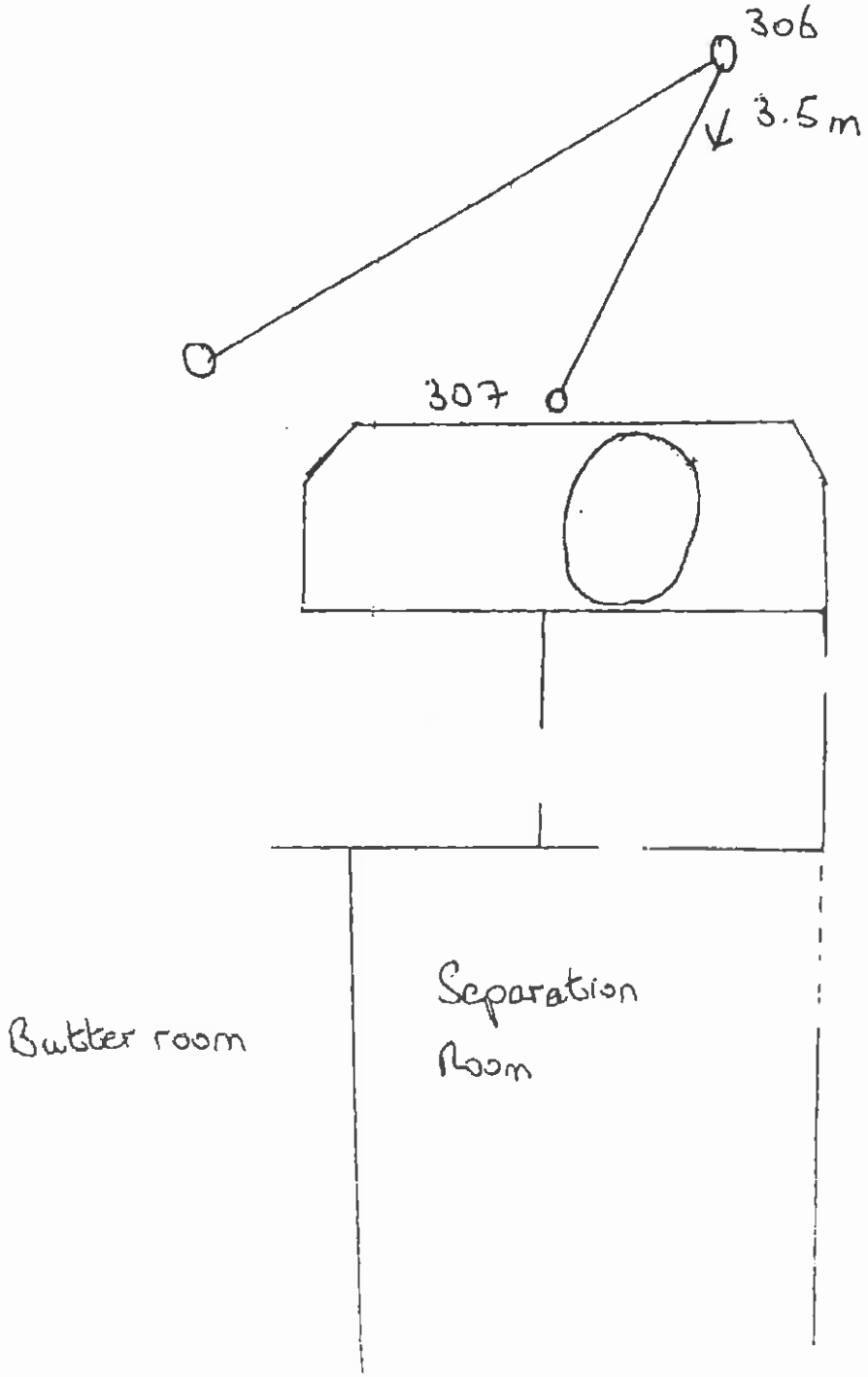
Creamery Effluent line

Effluent line is Damaged

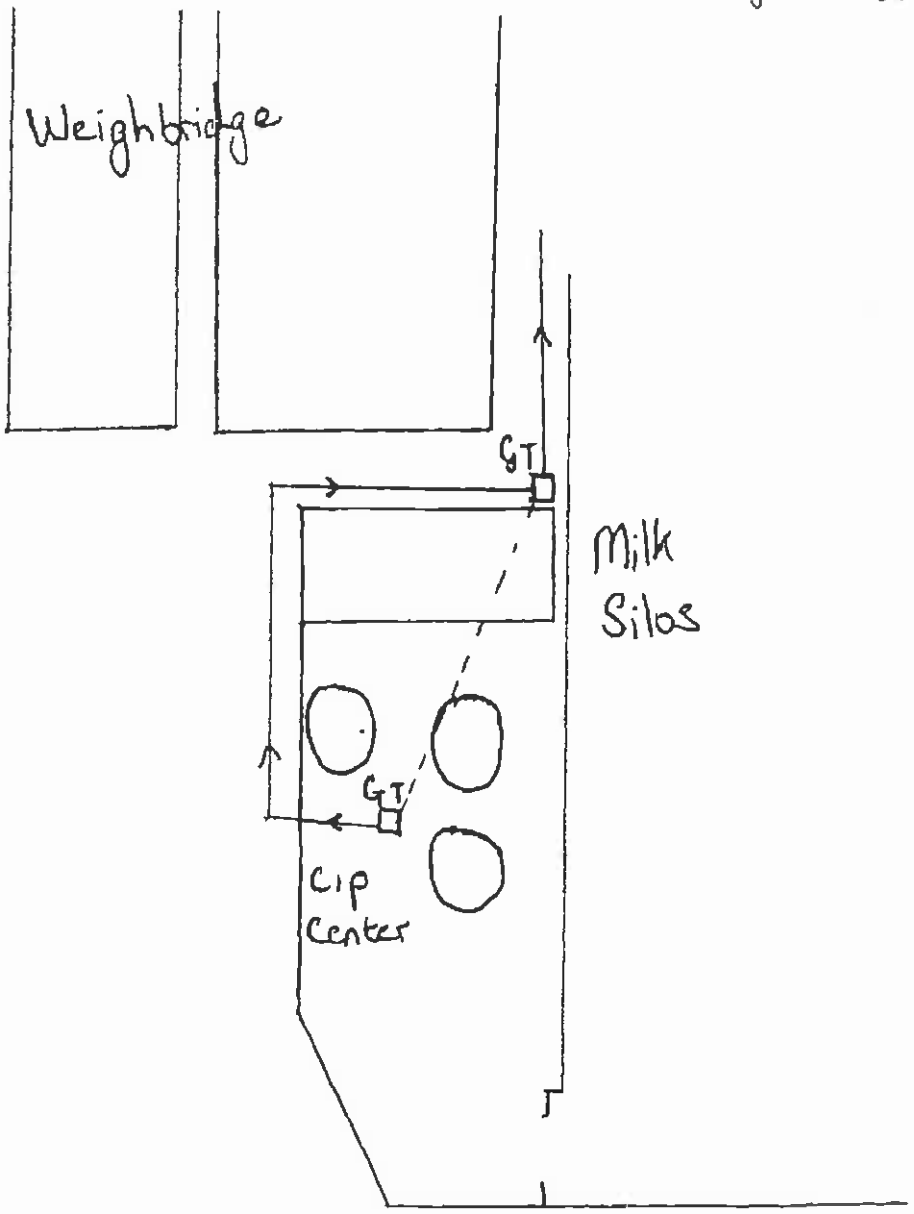
Damage Starts 3.5 meters From Manhole 306 Towards 307

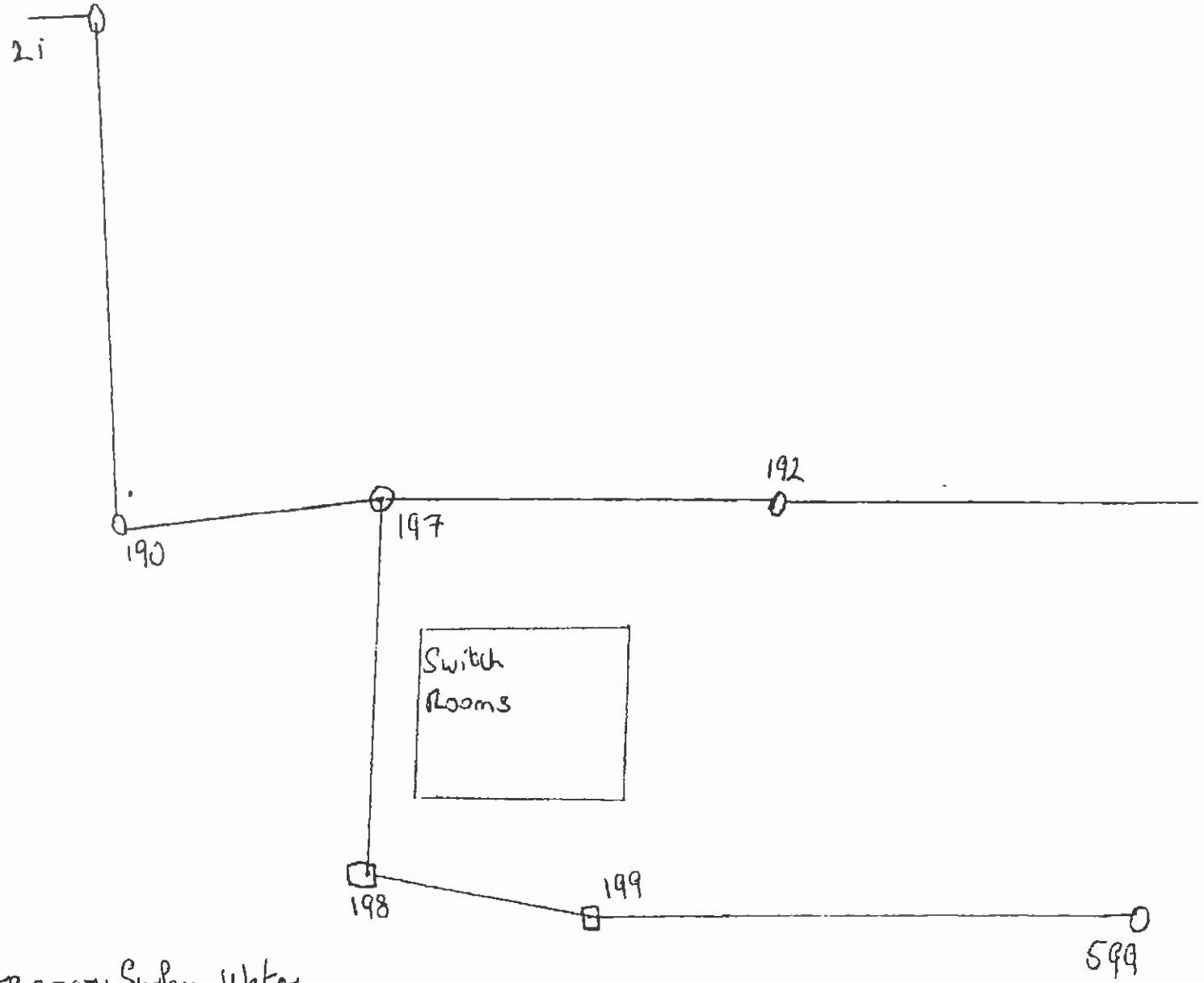


Creamery Effluent line

This Shows the Direction of the Effluents line From Cip Center. GT - GT

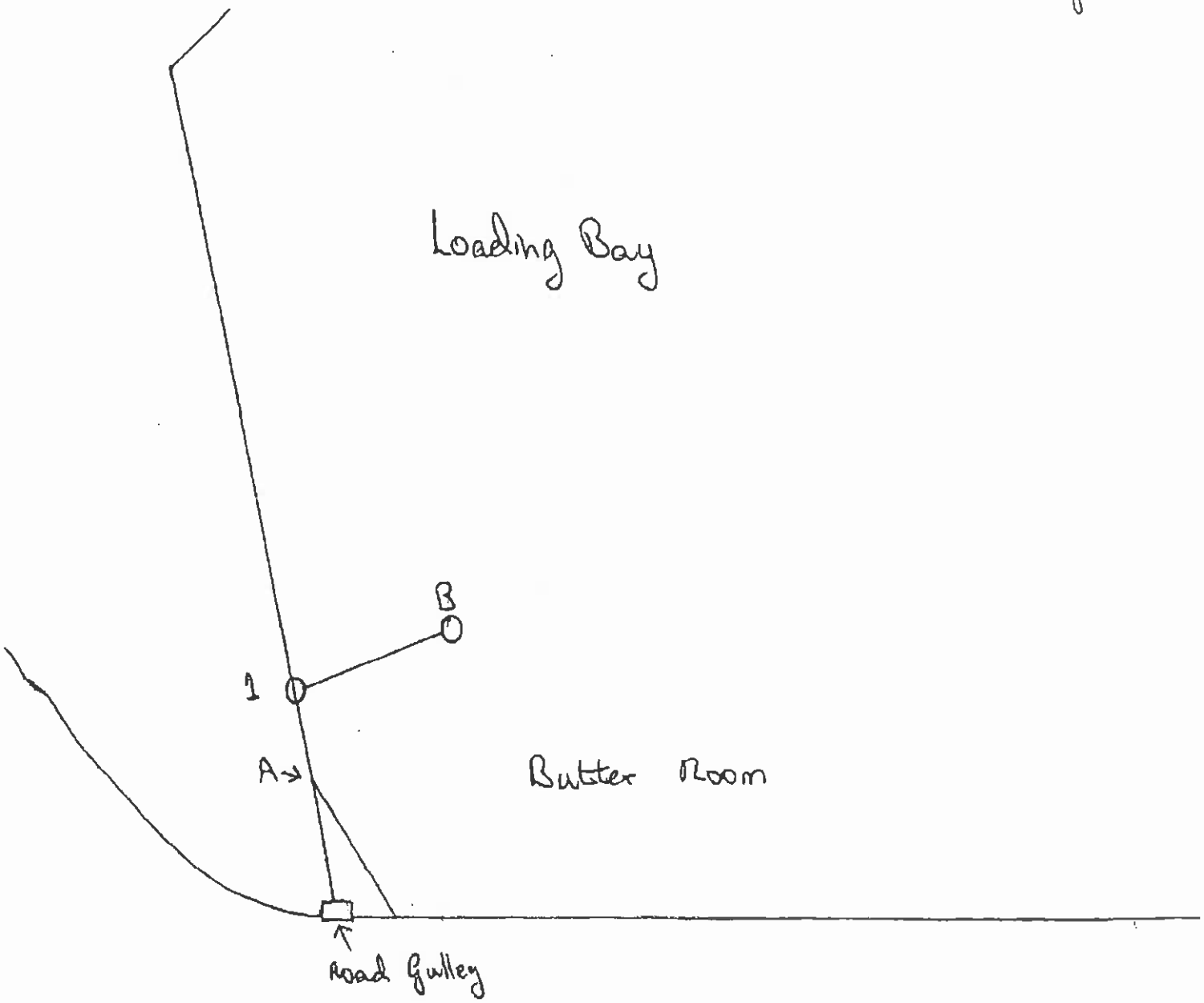
- - - - - This line doesn't Exist





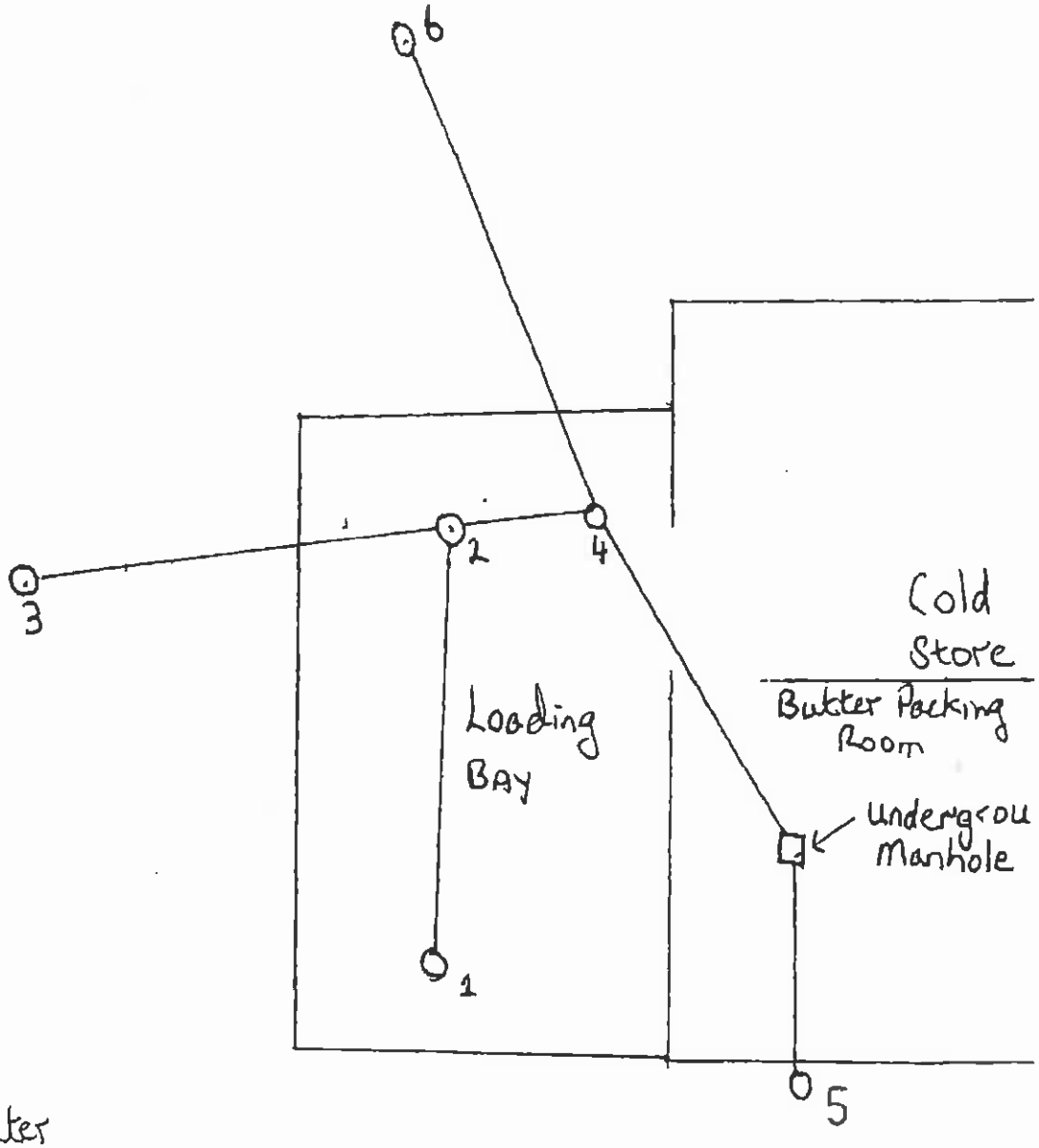
Creamery Surface Water

This Surface Water line was Full of Stones and grit
It appears it had Not been Cleaned For years.
This is a very important line because it carries all
of Surface water from Creamery yard
This line Should be Cleaned At least Every 2 Years



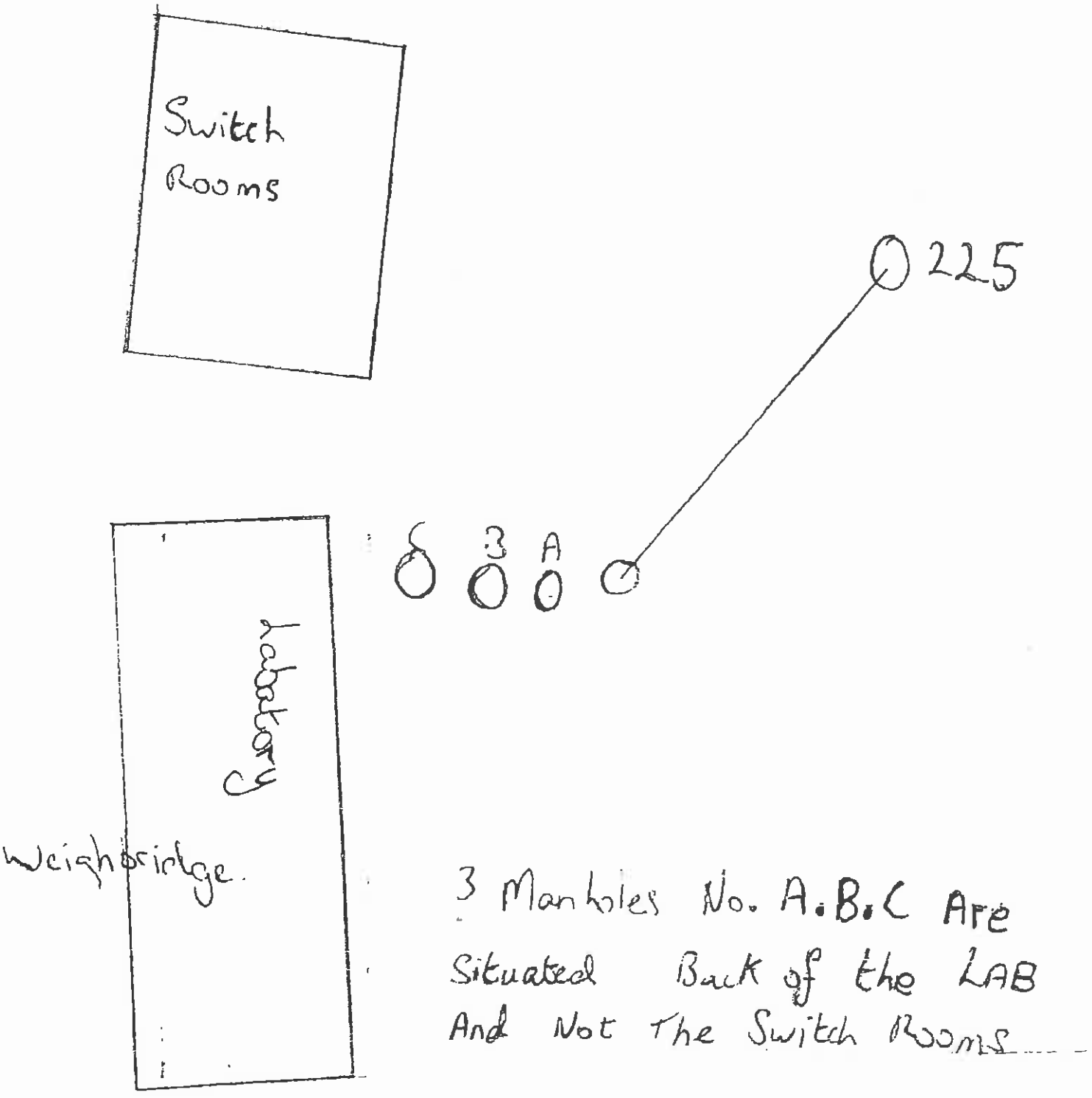
Creamery Surface water

Road Guller is Tared over

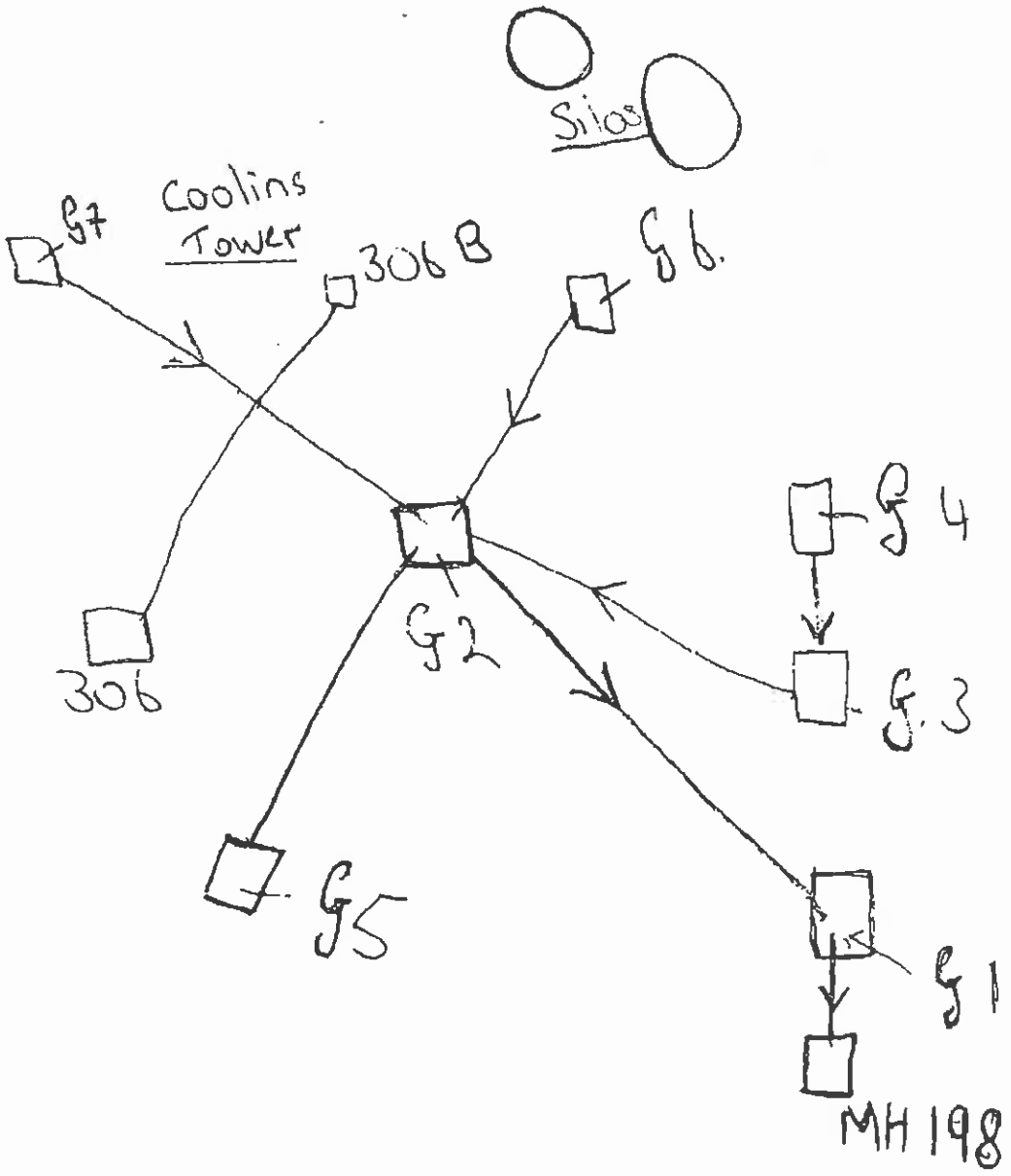


Creamery Surface water

Surface WATER Manholes we put Numbers To. Also show Manhole Underground In Butter Packing Room



3 Manholes No. A.B.C Are Situated Back of the LAB And Not The Switch Rooms

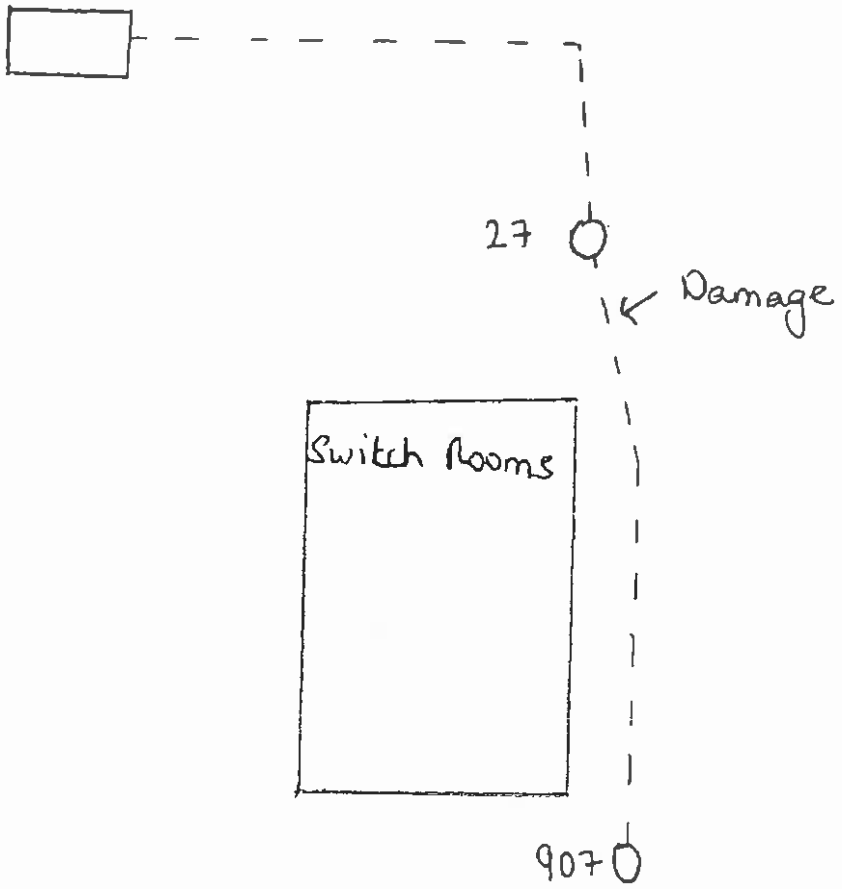


Switch Rooms

Lines Previously Un-Marked on Map - Creamery.
G3 - G4 - G5 - G6 - G7 - Surface Water.
306 B - Effluent

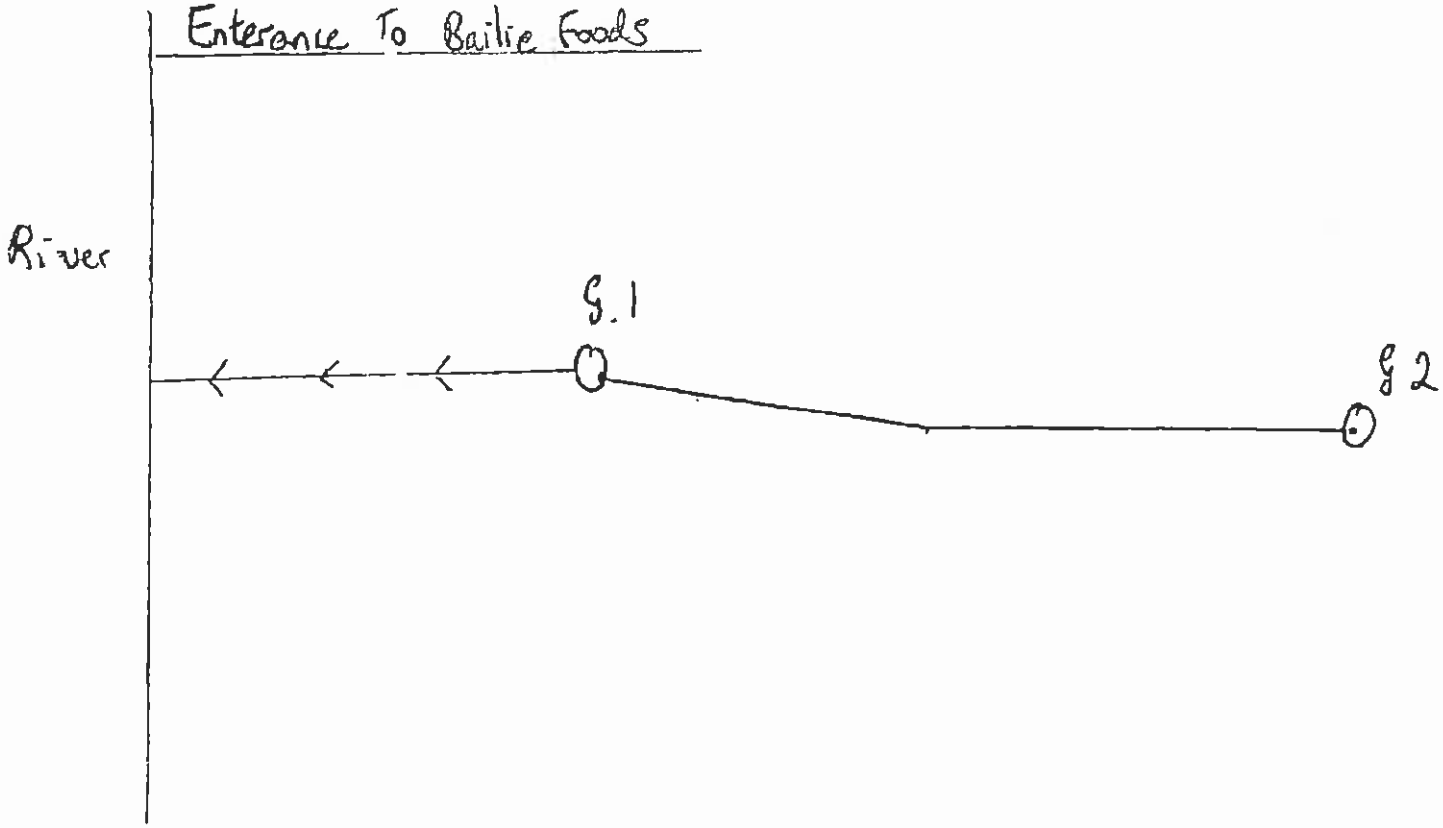
Creamery - Sewers.

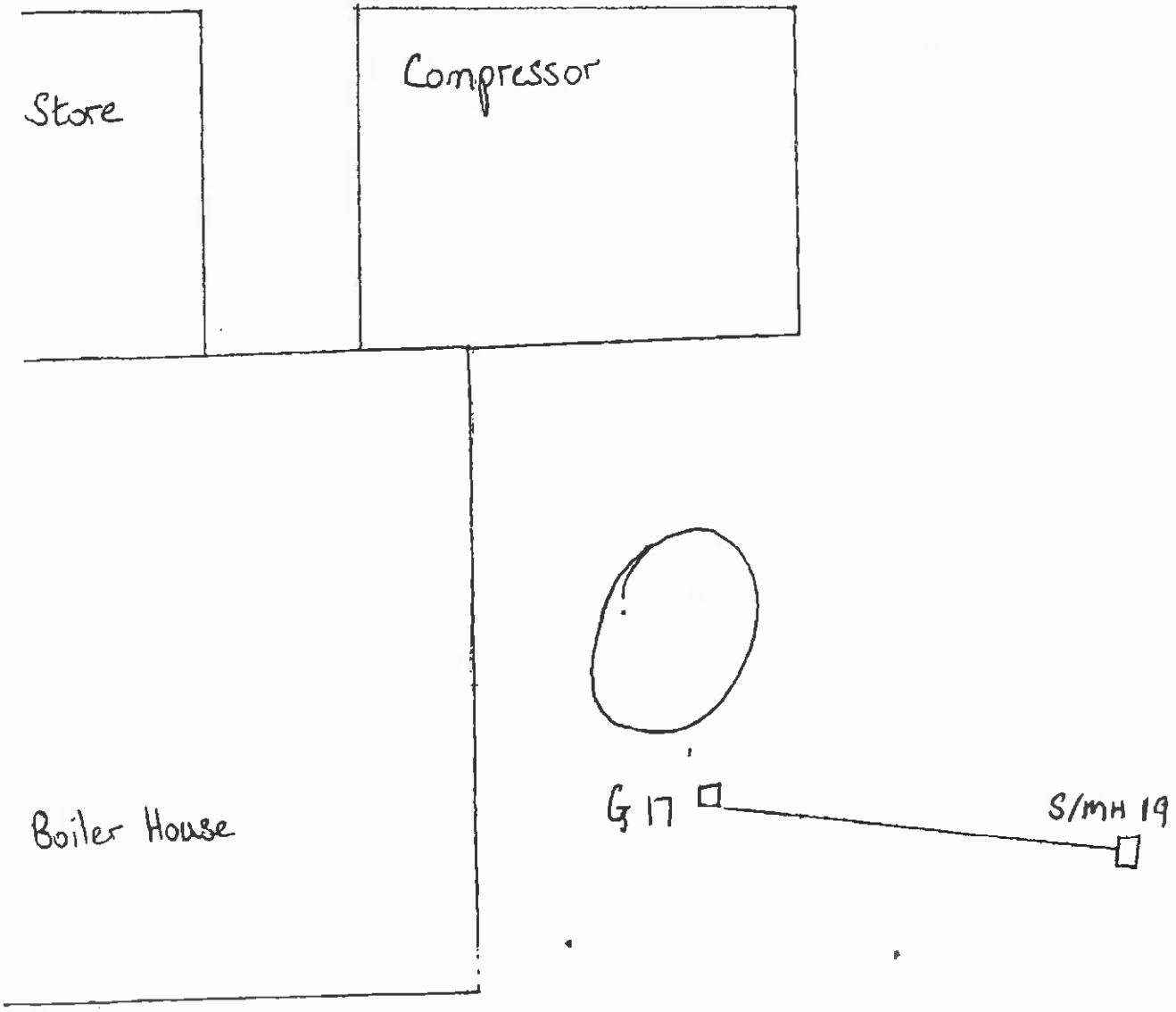
Sewer line is Damaged 2.3 meters From Manhole 27 - Towards Manhole 907



Bailie Foods

Ground Water - G1 to River is Collapsed And Only lets Water through Very Slowly This line Should be Re-piped to Avoid Yard Flooding.





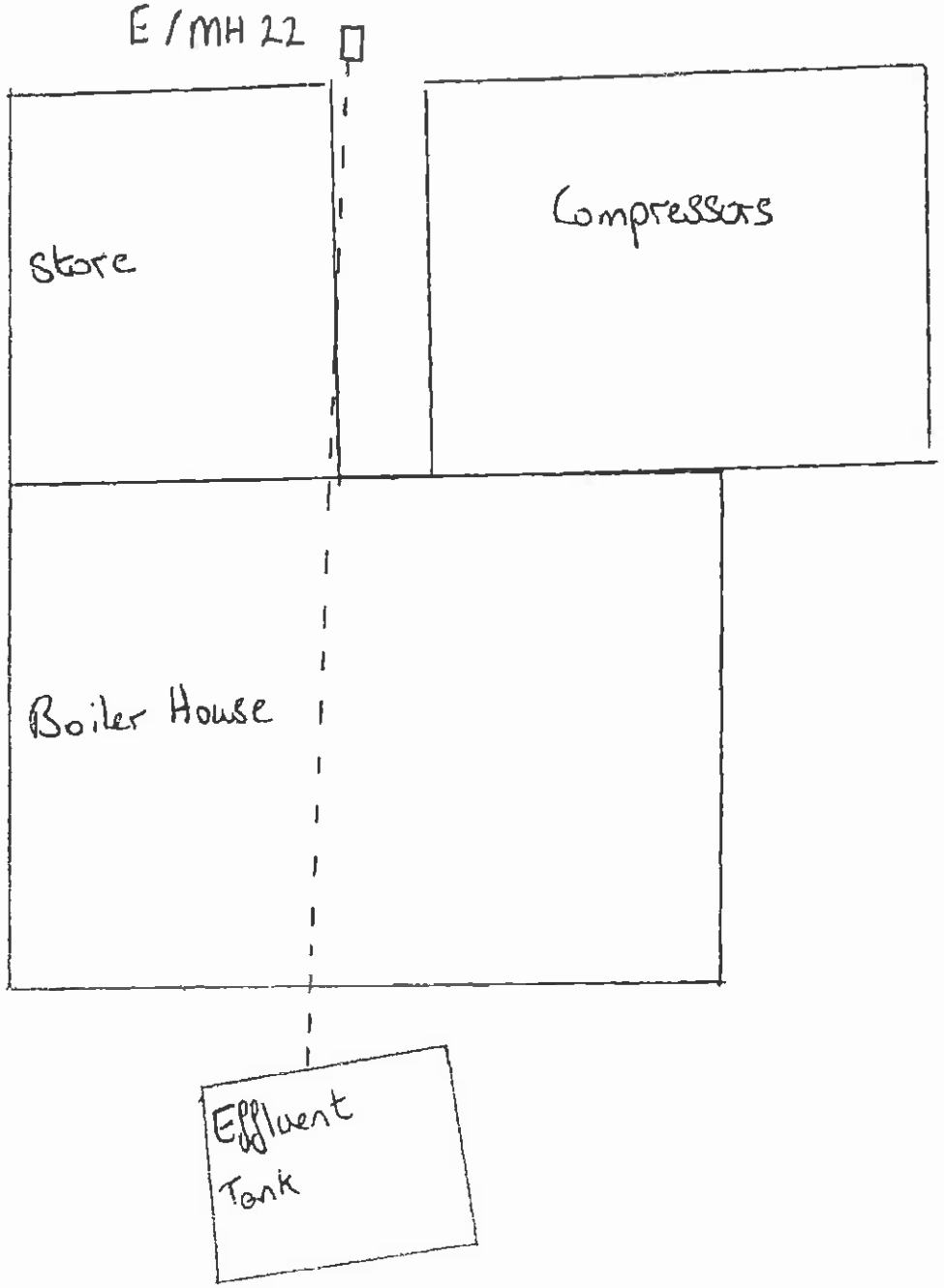
Bailie Foods

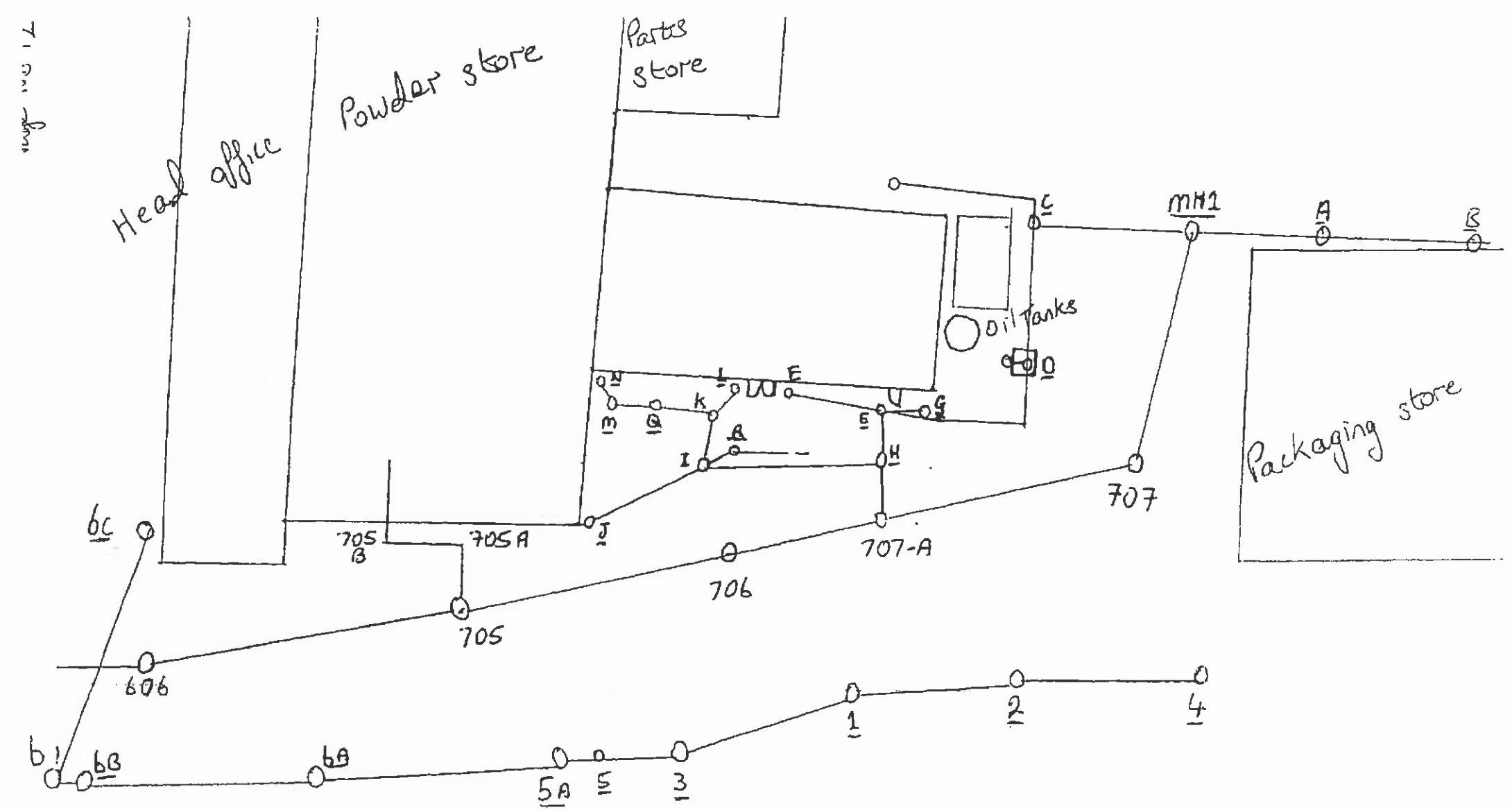
G17 to 19 Is Badly Damaged

But is still Carrying flow of Water.

Bailie Foods

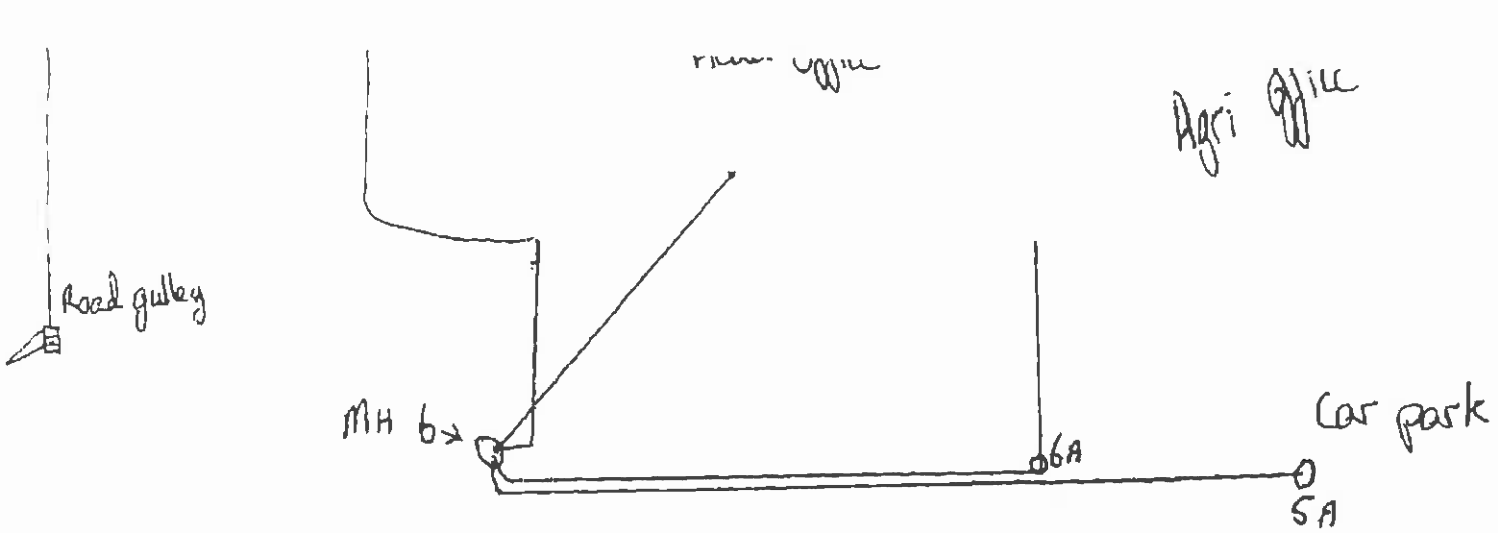
Effluent line from Manhole 22 → Effluent Tank Could Not be Surveyed Because of Constant Flow of Effluent





We Have Numbered Manholes Not Previously Numbered - Storm MH 1 - A - B - C - D - E - F - G - H - I - J - K - L - N - M - O - Q - R

Also Along lawn - MH 1 - 2 - 3 - 4 - 5 - 5A - 6 - 6A - 6B - 6C. - Sewer line 705 - 705 A - 705 B - 706 - 706 A



OFFICE

Surface water From Car Park and
c Buildings Flows to MH 6 At Enterance
Manhole Regularly Floods Because The
outlets pipe From MH 6 is collapsed
The road gulley is covered with Tar-mark
we could Get into the Road Gulley we
l See How bad the Damage is.

Report on List 1 and 2 Substance Reduction.

Not applicable

Complaints Summary.

No complaints in 2009.

Resource Consumption Summary.

Natural Gas 93124619 KWH

Electricity 12080956 KW units

Water lake(treated) 508024 m3

Well 365 m3 approx

Chemicals	Liquid Caustic	315000 lit
	Caustic Pearl	6000 kgs
	Nitric 55%	50000 lit

Any other cleaning agents etc.

Lactol	75 lit
Multiclean VK7	4500 lit
Ultrasol	25 lit
Butomat L	10 lit
Kick Start K16500	75 lit

Cleaner Lorry Active XL 2750 lit

Tego 2540	60 lit
Super Dilac	25 lit
Acid Foam T2	250 lit

Reported Incidences Summary.

No Incidences

Noise Reduction Proposal.

Noise survey by RME Environmental Services

2.1 Instrumentation Used

The following instrumentation was used in the survey:

- 1 No. Larson Davis 820 Precision Integrating Sound Level Analyser/Data logger
- 1 No. Larson Davis 812 Precision Integrating Sound Level Analyser/Data logger

Calibration Type: Larson Davis Precision Acoustic Calibrator Model CA250. (Serial No 1087).

All acoustic instrumentation was calibrated before and after the survey period and no drift of calibration was observed (calibration level 114dB at 250HZ).

2.2 Noise survey locations[1]

Location N1 at the western site boundary proximal to the nearest noise sensitive location

Location N2 directly south of the noise sensitive location at the boundary

Location N3 at the truck park at the back of the drying plant & stores.

Location N4 at the north east corner of the filling plant.

Location N5 at the effluent treatment plant at the northwestern boundary of the site.

3.0 Noise Survey Results

The recorded daytime values of L_{Aeq} are shown in Table1.0, while the night-time values are shown in Table 2.0

Table 1.0 Day-time noise levels[2]

Location I.D	L_{Aeq} (30 min) dB(A)
N1	50.7
N2	47.2
N3	51.2
N4	60
N5	48.0

NB Limit of Leq 15 minute, 55 dB(A) for daytime activity at site boundary

[1] Noise monitoring locations indicated on location plans; Appendix i
[2] Mean of measurements undertaken. Full set of data available in appendix ii

Table 2.0 Night-time noise levels[2]

Location I.D	L_{Aeq} (30 min) dB(A)
N1	46.2
N2	39.8
N3	47.3
N4	55.3
N5	46.9

NB Limit of Leq 15 minute, 45 dB(A) for daytime activity at site boundary

4.0 Criterion used in assessment

Condition 8.1 of the IPPC licence states the activities on-site shall not give rise to noise levels off-site, at noise sensitive locations, which exceed the sound pressure limits (Leq,15 minutes) subject to Condition 3 of this licence.

Condition 3 states that Noise from the activity shall not give rise to sound pressure levels (Leq,15 minute) measured at the specified noise sensitive locations which exceed the limit value(s) by more than 2 dB(A).

Noise emission limit values are as follows

Daytime dB(A) Laeq (15 minutes)	55
Night-time dB(A) LAeq(15 minutes)	45

Also there shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location

5.0 Assessment / Conclusion

It is important to note that the nearest noise sensitive location (NSL) is a residential dwelling located west of the site. Noise measurements were recorded at point N1 the nearest monitoring station to the residence.

It was decided to carry out continuous monitoring over a prolonged period during the daytime and nighttime period of the survey at this location due to the nature of the site and the specific reference to the noise sensitive location in the licence.

The daytime emission limit of value of 55 dB(A) is exceeded at one location, N4, beside the delivery/filling plant. The noise levels are associated with road traffic. At the other four monitoring stations the emissions are within the specified limit.

Noise levels at the nearest NSL are well within licence limits.

The night-time limit of 45 dB(A) is actually exceeded at four of the five locations, N1, N3, N4 and N5; location N2 being the exception.

The important thing to note however is that the noise emissions from the facility measured at the NSL is within the specific licence of 45 dB(A) +2 (note IPPC L Condition 3: Interpretation).

The mean noise level measured at N1 was 46.2 dB(A).

There were no tonal or impulsive noise emissions from the works audible at this location.

Energy Audit (currently being completed)

Environmental Liabilities Risk Assessment (ELRA)

Environmental Liabilities Risk Assessment (ELRA)

RPS

Bailieboro Foods.

Environmental Liabilities Risk Assessment Report

DOCUMENT CONTROL SHEET

Client	Bailieboro Foods Limited					
Project Title	Bailieboro Foods Environmental Liabilities Risk Assessment (ELRA)					
Document Title	Environmental Liabilities Risk Assessment Report					
Document No.	MDE0635Rp0002					
This Document Comprises	DCS	TOC	Text	List of Tables	List of Figures	No. of Appendices
	1	1	16	1	-	1

Rev.	Status	Author(s)	Revlewed By	Approved By	Office of Orlgln	Issue Date
D01	Draft	M. Doherty	P. Chadwick	S. Herlihy	West Pier	13/06/07
F01	Final	M. Doherty			West Pier	3/08/07

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1 INTRODUCTION

1.1 BACKGROUND

Bailieboro Foods and Bailie Foods Limited are located 1 km northeast of Bailieborough in Co. Cavan. The site is licensed by the Environmental Protection Agency (EPA) to carry out the following activities:

"*The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis).*"

The facility produces 30,000 tonnes of butter and 30,000 tonnes of milk powder per year.

In July 2006, Bailieboro Foods were issued their updated Integrated Pollution Prevention and Control Licence (IPPC Licence, Register Number: **P0406-02**) by the Environmental Protection Agency (EPA)..

A major part of the licensing upgrade focuses on the requirement of companies to assess their risks to the environment and set aside adequate financial provisions to account for all environmental liabilities.

Condition 12.2 of licence specifically makes reference to these requirements. These specific conditions are quoted below:

> *12.2.2 "Environmental Liabilities" The licensee shall arrange for the completion, by an independent and appropriately qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA), which addresses the liabilities from past and present activities. ....."*
>
> *12.2.3 "As part of the measures identified in Condition 12.2.1 he licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities identified in Condition 12.2.2."*

1.2 BRIEF FOR CONSULTANCY

In order to meet the requirements of condition 12 of the site's IPPC licence outlined above, RPS Group was contracted by Bailieboro Foods to carry out an Environmental Liabilities Risk Assessment (ELRA) of the facility.

The objectives of the study were to:

- Identify operational environmental risks at the Bailieboro Foods site including environmental risks arising from unexpected events and specify risk mitigation measures where risk levels are unacceptable.
- Identify environmental liabilities at the site to allow for the making of a financial provision.
- To prepare a report on these risks and liabilities for submission to the EPA to comply with condition 12.2 of the facility's IPPC Licence

2 ASSESSMENT OF RISKS

2.1 METHODOLOGY

The EPA guidance document entitled '*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provisions*' 2006 (hereafter referred to as EPA 2006) has been used as the basis for the methodology in preparing this report.

Step 1 consisted of the Initial Screening and Operational Risk Assessment of the facility.

Step 2 consisted of the preparation of a Closure Plan for the facility.

Step 1 and 2 have been completed for the Bailieboro Foods facility and are presented in the RPS report MDE0635RP0001.

The outcome from Step 1, the initial screening process, was that the Bailieboro Foods facility is classed as a Category 2 facility.

EPA 2006 states that for a Category 2 facility, there is no need for a site-specific ELRA. However, Bailieboro Foods takes a proactive approach to environmental management and for this reason requested that the site specific ELRA be carried out. To this end, a site walkover and Risk Management Workshop took place at the Bailieboro Foods facility.

Under the site-specific methodology, facility specific risks were assessed against the risk classification tables (RCT) in **Tables 2.1** and **2.2**. The risk classification tables were designed to reflect the levels of risk appropriate to the Bailieboro Foods facility.

Ratings, taken from a risk classification table, were applied to the severity and likelihood of occurrence of each risk. A risk score was calculated for each risk using the ratings. The risks were then ranked and compared based on the risk scores.

The risks were placed in a risk matrix to illustrate the ranking of each risk, and allow the risks to be visually prioritised. The risk matrix is a particularly useful tool for tracking changes in risk levels over time.

Risk management measures were identified for selected risks during the workshop and included in the included worksheets. These measures are presented in Section 5.

2.2 RISK CLASSIFICATION TABLE

The Risk Classification Tables (RCT's) have been designed to reflect the critical levels of risk appropriate to the Bailieboro Foods site. The RCT provides probability and severity for the ranking of risks. The occurrence probability bands are presented in **Table 2.1** below:

Table 2.1: Risk Classification Table (Occurrence)

Occurrence			
Rating	Category	Probability (%)	Description
1	Very Low	0 – 5	Very low chance (0-5%) of hazard occurring in 30 yr period
2	Low	5 – 10	Low chance (5-10%) of hazard occurring in 30 yr period
3	Medium	10 – 20	Medium chance (10-20%) chance of hazard occurring in 30 yr period
4	High	20 – 50	High chance (20-50%) chance of hazard occurring in 30 yr period
5	Very High	> 50	Very high chance (>50%) chance of hazard occurring in 30 yr period

The costs identified are those, which are considered by Bailieboro Foods management to represent likely costs of environmental remediation. These cost bands are presented in **Table 2.2.**

Table 2.2: Risk Classification Table (Severity)

Severity			
Rating	Category	Cost of Remediation	Description
1	Very Low	€0-5,000	No damage or negligible change to the environment
2	Low	€5,000- 10,000	Minor/localised impact or nuisance
3	Medium	€10,000 - €100,000	Moderate damage to the environment
4	High	€100,000 - €500,000	Severe damage to the environment
5	Very High	€500,000 – 1m	Massive damage to a large area, irreversible in the medium term

The risks are identified in **Table 2.3** and a description of each heading of the table is given below:

- Risk ID – Provides a unique identifier for each risk.
- Process – Lists the site's process area which gives rise to the potential risk.
- Potential Hazards – Identifies the potential failure mode that could result in the risk occurring.
- Occurrence Rating – Rates the likelihood of the potential hazard occurring given the current controls. The occurrence rating is ranked against the Risk Classification Table (RCT) as provided in **Table 2.1.**
- Basis for occurrence rating – Identifies the basis for the selected occurrence rating.

- Severity Rating– Rates the environmental impact and potential costs due to the hazard event occurring given the current controls. The cost reflects the expense that may be incurred in managing and rectifying the risk event. This may include costs in managing or controlling risk incidents (e.g. fires, spillages etc.). The severity is ranked against the Risk Classification Table (RCT) as provided in **Table 2.2.**

- Basis for severity rating – Identifies the basis for the selected severity rating.

- Risk score – Provides a risk score to allow the ranking of each risk. The risk score is based on the product of the severity rating and the occurrence rating.

Table 2.3: Risk Assessment Form Register – As identified during ELRA workshop.

Risk ID	Process	Potential Hazards	Occurrence Rating	Basis of Occurrence	Severity Rating	Basis of Severity	Risk Score
1	Creamery Unloading Area	Tanker spillage in unloading area	2	Drainage system contained. Has never occurred under current management.	2	Maximum of 5,000 gallons milk could be spilled. Would be caught in system and treated in WWTP.	4
2	Effluent Drainage System	Leak from underground system	2	CCTV survey carried out every 3 years indicates no leaks	2	Mainly water with trace milk. No significant contaminants.	4
3	IBC Handling and Storage	Spillage or rupture of IBC	2	Has never occurred. One IBC used every 10 days.	1	Any spillage will go WWTP.	1
4	Diesel Tank Storage	Rupture of diesel tank and bund adjacent to River Lear	1	Has never occurred. Tank to be decommissioned in 2007	4	10,000-gallon drum adjacent to River Lear.	4
5	Diesel Tanker Unloading	Overflow of Tank and Bund	1	Has never occurred. Procedure is always attended by tanker driver	3	As above. Drains run to sump and WWTP.	3
6	Effluent Sump	Overflow of Sump or leak underground	2	Has never occurred. Duty and Standby Pumps in operation. Tank is completely emptied as part of routine maintenance. Structure inspected.	2	Small leak to soil may occur	4
7	Milk Silos	Collapse and Rupture of Milk Silos	1	Has never occurred. Double skinned and remotely bunded silos.	5	In event of complete collapse, potential for 20,000 gallons of milk to flow to water and ground	5
8	Nitric Acid Tank	Rupture of Tank	1	Has never occurred. Remote bunded and drains in area go to WWTP	2	Any spill will be drained to effluent	2
9	Caustic Tank	Rupture of Tank	1	No major spill has ever occurred.	2	Any spills will be drained to effluent	2

Risk ID	Process	Potential Hazards	Occurrence Rating	Basis of Occurrence	Severity Rating	Basis of Severity	Risk Score
10	Clean in Process (CIP) area	Nitric, caustic tank spills from rupture or loading.	1	Has never occurred. All area bunded and located over contained drains.	1	Any spills will be drained to effluent	1
11	Creamery Plant	Fire in building. Firewater Run Off	1	Minor fire on one occasion. No firewater generated. Controlled with powder.	1	All caught in effluent system, which has excess capacity.	1
12	Powder Factory	Rupture of Milk Silos	1	Has never occurred	3	Located in fully contained area. Would need several tanks to breach. Some strain may be placed on WWTP.	3
13	Powder Factory	Rupture of Nitric/Caustic Tank	1	Has never occurred. Remote bunded and drains in area go to WWTP	2	Spills drained to effluent	2
14	Gas Oil/Tallow Storage tank	Rupture of Tank	1	Breach has never occurred. Tank is rarely at full capacity	3	Tallow is very viscous. In event of tank and bund rupture, tallow unlikely to flow to surface water.	3
15	Dryer Exhaust	Breach of Emissions	1	100% Compliance with IPPC licence limit values	1	Particulate matter mostly consists of dried milk. No additional chemicals present. Emissions dilute and disperse	1
16	Fire in Powder Factory	Fire Water Run Off	1	New gas system in place to detect any potential fire. Automatically shuts dryer down in event of fire. No water used in procedure, no runoff.	3	Contained in system. Some clean up costs. Replacement of Garviner system.	3
17	Raw Water Treatment	Chemical Spills Aluminium Chloride and Sodium Hypochlorite)	1	No spills to date. All IBC on bunds. No significant handling.	1	Fully contained system. May be Changing to Chlorine Dioxide. Aluminium Chloride storage only temporary.	1
18	Effluent Treatment Plant	Spillage from Terra tanker unloading at WWTP	1	No spills to date. Area is drained to WWTP	1	Fully contained system. No potential environmental nuisance.	1

Risk ID	Process	Potential Hazards	Occurrence Rating	Basis of Occurrence	Severity Rating	Basis of Severity	Risk Score
19	Sludge Tank	Overflow or spill from tank	1	No spills to date from visual detection.	1	Fully contained system that will feed spills back to source.	1
20	Wetland Discharge	Emissions outside Emission Limit Value	1	Virtually no discharge to river. Water from wetland used for raw water intake. Full compliance with ELV.	1	No environmental significance. Circular water treatment system.	1
21	Sludge Land spreading	Over application of sludge	1	Spread on designated land in strict accordance with nutrient management plan.	3	Potential for runoff to surface water or groundwater.	3

According to EPA 2006, Minor risks (risk score ≤2) may be excluded at this stage. The updated Risk Classification Table is presented as Table 2.4

Table 2.4: Risk Assessment Form Register – Listed in order of Risk Score (minor risked excluded)

Risk ID	Process	Potential Hazards	Occurrence Rating	Basis of Occurrence	Severity Rating	Basis of Severity	Risk Score
7	Milk Silos	Collapse and Rupture of Milk Silos	1	Has never occurred. Double skinned and remotely bunded silos.	5	In event of complete collapse, potential for 20,000 gallons of milk to flow to water and ground	5
1	Creamery Unloading Area	Tanker spillage in unloading area	2	Drainage system contained. Has never occurred under current management.	2	Maximum of 5,000 gallons milk could be spilled. Would be caught in system and treated in WWTP.	4
2	Effluent Drainage System	Leak from underground system	2	CCTV survey carried out every 3 years indicates no leaks	2	Mainly water with trace milk. No significant contaminants.	4
4	Diesel Tank Storage	Rupture of diesel tank and bund adjacent to River Lear	1	Has never occurred. Tank to be decommissioned	4	10,000-gallon drum adjacent to River Lear.	4
6	Effluent Sump	Overflow of Sump or leak underground	2	Has never occurred. Duty and Standby Pumps in operation. Tank is completely emptied as part of routine maintenance. Structure inspected.	2	Small leak to soil may occur	4
5	Diesel Tanker Unloading	Overflow of Tank and Bund	1	Has never occurred. Procedure is always attended by tanker driver	3	As above. Drains run to sump and WWTP.	3
12	Powder Factory	Rupture of Milk Silos	1	Has never occurred	3	Located in fully contained area. Would need several tanks to breach. Some strain may be placed on WWTP.	3
14	Gas Oil Storage Stank	Rupture of Tank	1	Breach has never occurred. Tank is rarely at full capacity	3	Tallow is very viscous. In event of tank and bund rupture, tallow unlikely to flow to surface water.	3
16	Fire in Powder Factory	Fire Water Run Off	1	New gas system in place to detect any potential fire. Automatically shuts dryer down in event of fire. No water used in procedure, no runoff.	3	Contained in system. Some clean up costs. Replacement of Garviner system.	3

2.3 RISK MATRIX

The Risk Matrix has been developed to allow the risks to be easily displayed and prioritised. The severity and occurrence ratings are used in the matrix, with the level of severity forming the x-axis and the likelihood of occurrence forming the y-axis. This matrix provides a visual tool for regular risk reviews and the success of mitigation can be easily identified. The risk matrix is displayed in **Table 2.4**. The risks have been colour coded in the matrix to provide a broad indication of the critical nature of each risk. The colour code is as follows:

- Red – These are considered to be high-level risks requiring priority attention. These risks have the potential to be catastrophic and as such should be addressed as a priority.
- Amber / Yellow – These are medium to high-level risks requiring action, but are not as critical as a red coded risk.
- Green (light and dark green) – These are lowest-level risks and indicate a need for continuing awareness and monitoring on a regular basis. Whilst they are currently low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly monitored. If cost effective mitigation can be carried out to reduce/mitigate the risk even further this should be pursued.

Table 2.4: Risk Matrix – Current Risk Status

Occurrence							
	V. High	5					
	High	4					
	Medium	3					
	Low	2		1,2,6			
	V. Low	1			5,12,14,16	4	7
			V. Low	Low	Medium	High	V. High
			1	2	3	4	5
			Severity				

The risk matrix indicates that there are no risks in the red zone requiring priority attention. In addition, there are no risks in the yellow zone requiring mitigation or management action. All identified risks are located in the green zones indicating a need for continuing awareness and monitoring on a regular basis.

2.4 DISCUSSION OF RISK LEVELS

Overall the Bailieboro Foods facility is well managed in terms of environmental controls thus resulting in no risks with high occurrence and only one risk with high severity (Risk 7). The likelihood of a complete rupture and collapse of a silo is small and maintenance and checking processes are in place to ensure the integrity of tanks and bunds.

Risk levels require ongoing management and current risk levels are subject to change, should procedures and operations on site alter significantly. Continued risk management is required in order to maintain the risk at the identified level and to ensure that any site operations do not pose a significant risk to the environment.

3 IDENTIFICATION AND ASSESSMENT OF MITIGATION ACTIONS

3.1 IDENTIFICATION OF MITIGATION ACTIONS

The risk assessment and categorisation phase identified that all risks lie in the light green zone (see **Table 2.4**). Current mitigation measures are adequate for the identified risks.

For Risk ID 4, it is planned that the diesel tank will be decommissioned and removed this year, which will remove this risk completely. For the remaining risks, the current mitigation measures will be monitored and updated by management as required.

4 RISK MANAGEMENT PROGRAM

4.1 GENERAL

All identified risks were considered to have satisfactory controls in place and no additional mitigation measures were identified. In this instance personnel involved in the management of identified risks are required to ensure that the current levels of controls are maintained and that the level of risk does not increase.

4.2 RISK MANAGEMENT REVIEW

Risk management at Bailieboro Foods is a dynamic process. This assessment and report provides a baseline assessment of the main potential unknown risks on the site for 2007. Although the operation of the facility is unlikely to see any major changes in operation and controls, there is potential however for processes and conditions to change. This assessment should therefore be considered to be a live document and be reviewed at least annually to ensure that all risks are identified and managed.

It is recommended that the management, environmental and safety operators review risk management at the facility on a regular basis and update the risk register and risk management programme as appropriate.

5 ENVIRONMENTAL LIABILITIES

5.1 TYPES OF ENVIRONMENTAL LIABILITIES

The purpose of this report is to assess the unknown liabilities (unexpected events) and to quantify them by ELRA assessment. Overall the EPA requires potential environmental liabilities to be broken down into two separate sections, the "known" environmental liabilities and "unknown" environmental liabilities.

The assessment of "known" environmental liabilities associated with the closure of the facility and decommissioning are dealt with in the CRAMP report (MDE0635Rp0001). Both known and unknown environmental liabilities are required to be quantified/costed by Bailieboro Foods as per condition 12.2.2 of this IPPC licence. Section 5.2 costs the unknown liabilities by a financial model. The known liabilities costs are contained in the CRAMP report.

5.2 QUANTIFICATION OF 'UNKNOWN' LIABILITIES

The 'unknown' environmental liabilities at Bailieboro Foods are associated with the environmental risks at the facility, which may or may not occur. The best-case scenario is that none of the environmental risks occur and hence at the end of the assessment period, Bailieboro Foods will incur no additional costs, due to the environmental risks being zero. Alternatively, should a significant number of the risks materialise, significant costs will be incurred.

In order to identify the costs associated with the environmental risks for the purposes of Condition 12.2.2 of the IPPC Licence, a cost model has been used to generate the expected cost of the risks. The modelling has been undertaken using risk management and decision making software utilising the Monte Carlo Simulation method to estimate the probability distribution for the costs.

Table 5.1 summarises the highest cost scenario, the most likely (50th percentile cost scenario), and the most likely scenario with contingency (90th percentile) for each of the risks identified.

The figures represent indicative costs of liabilities due to unknown environmental risks based on the estimated cost and probability ranges for each risk. The method cannot give an accurate prediction of the final cost due to the subjective and uncertain nature of the risk data. However, it should be accurate enough to assist making judgements on the appropriate level of financial provision required for unknown environmental liabilities.

Table 5.1: Summary of Potential "Unknown" Environmental Liabilities

Risk ID	Occurrence	Severity	Most Likely Scenario – 50th Percentile (€)	Most Likely Scenario with Contingency – 90th Percentile (€)	Highest Cost Scenario (€)
1	2	2	547	786	965
2	2	2	540	781	991
3	2	1	177	339	481
4	1	4	6,130	15,670	24,570
5	1	3	1,186	3,010	4,903
6	2	2	533	781	985
7	1	5	18,412	35,673	48,849
8	1	2	180	346	488
9	1	2	181	360	482
10	1	1	48	147	230
11	1	1	50	150	227
12	1	3	1,052	2,889	4,856
13	1	2	179	352	486
14	1	3	1,108	3,126	4,860
15	1	1	49	149	238
16	1	3	1,055	2,915	4,846
17	1	1	45	143	249
18	1	1	47	139	239
19	1	1	46	146	246
20	1	1	47	146	244
21	1	1	49	154	237

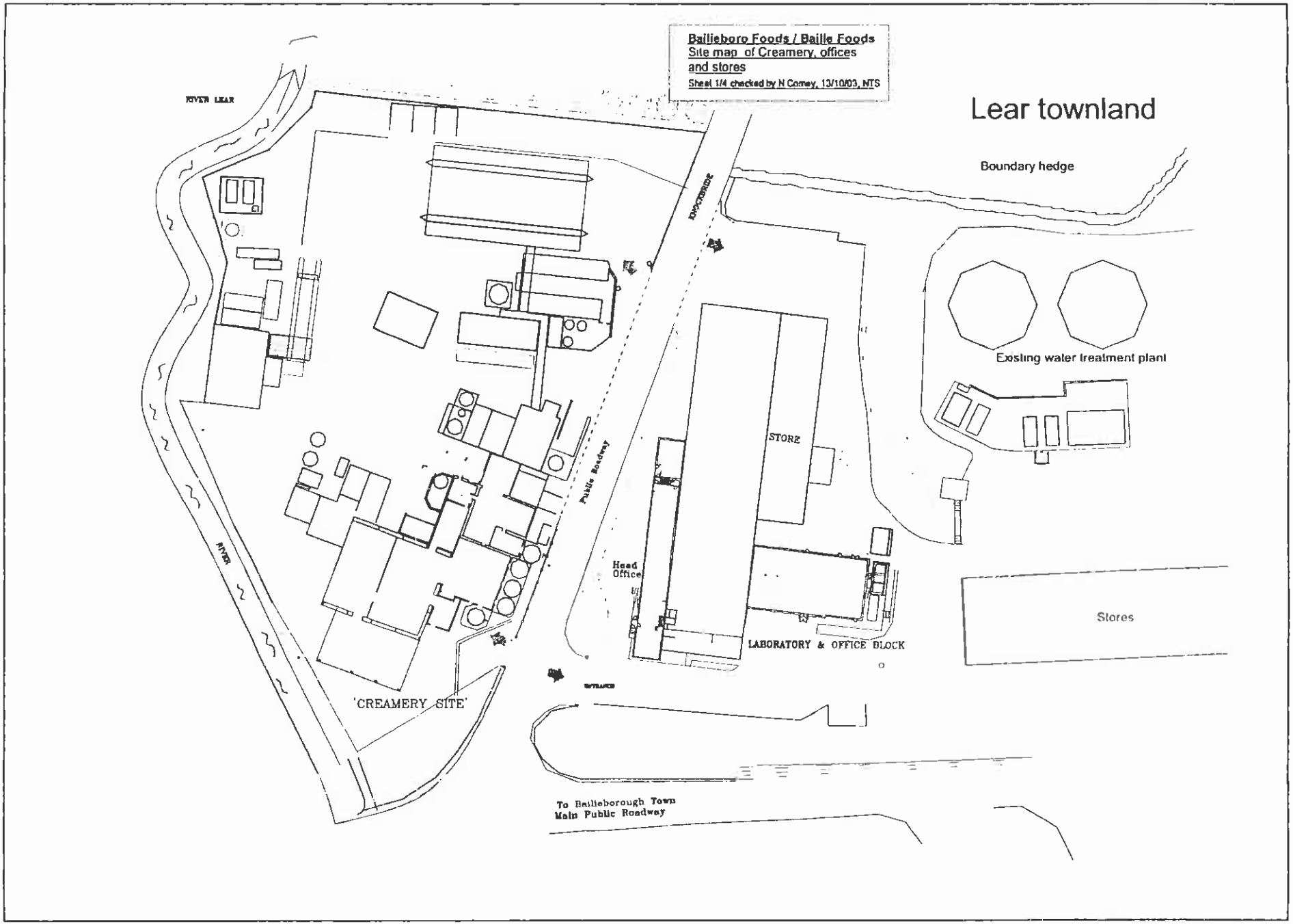
Table 5.1 presents the calculated costs of environmental liabilities of each identified risk. The risks with highest costs associated with them relate to the diesel tank and silo failure. Bailieboro Foods plan to decommission the diesel tank in 2007 and any issues relating to this tank will be identified and mitigated on decommissioning.

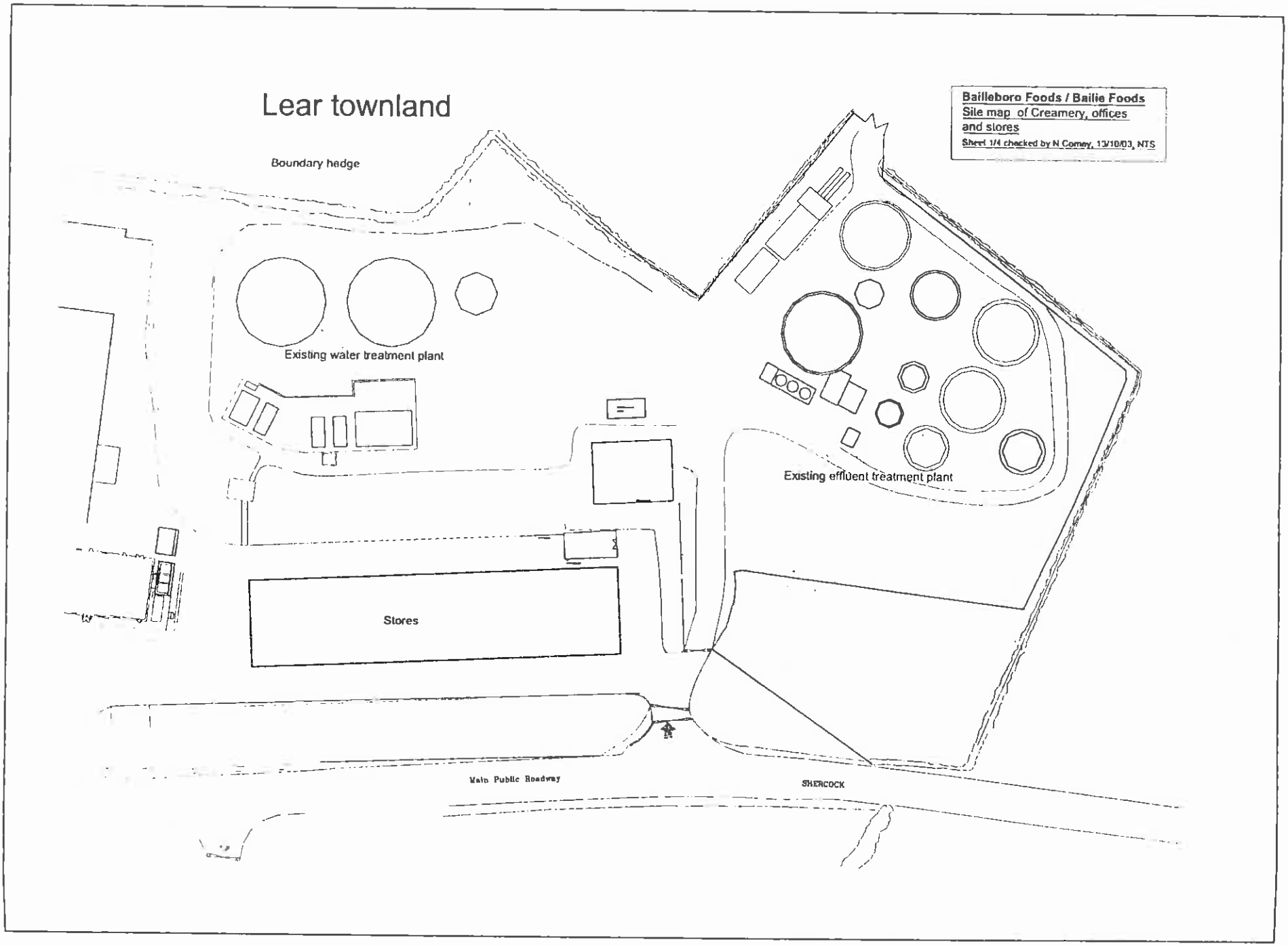
6 CONCLUSION

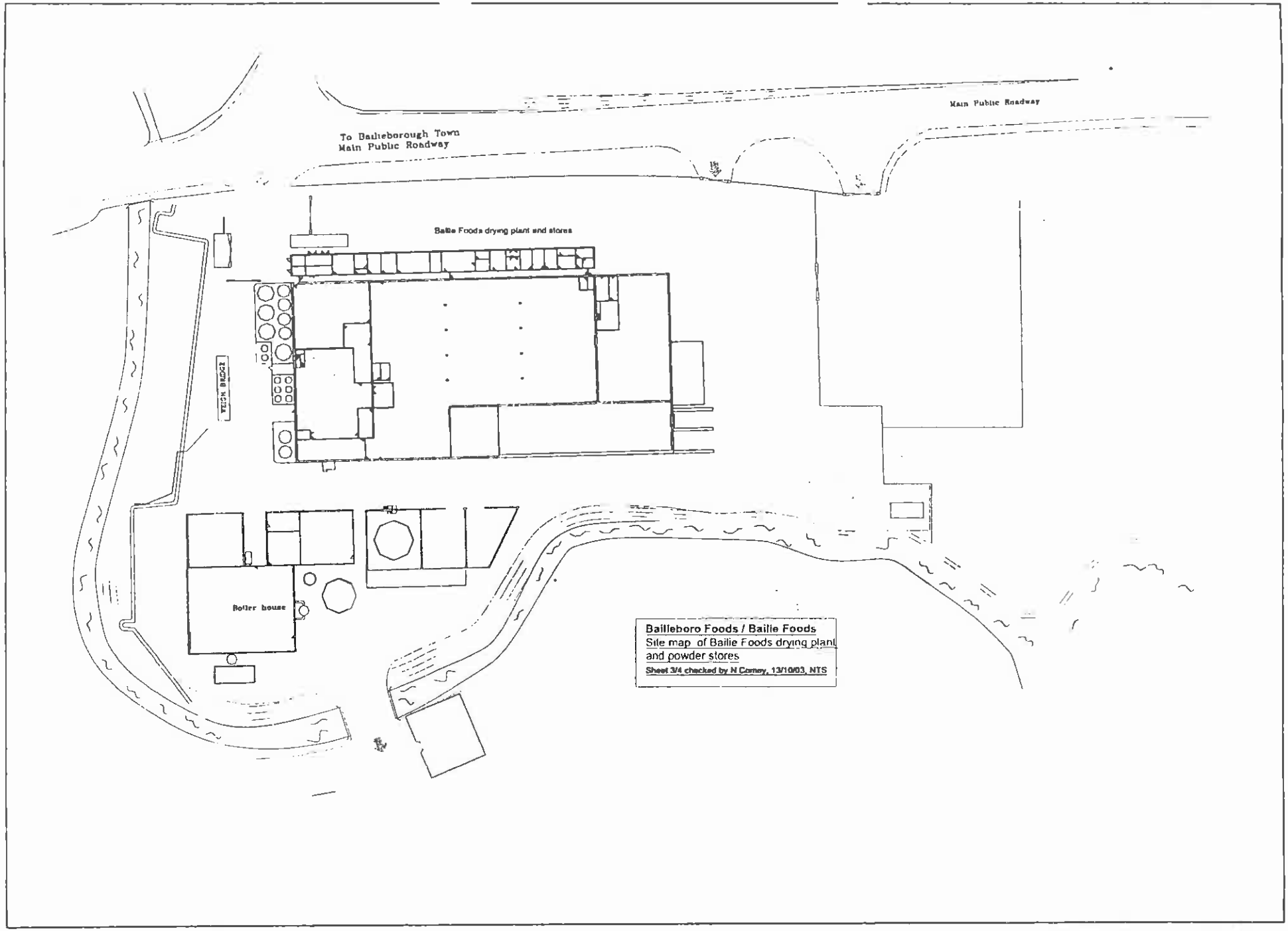
This ELRA report has identified the operational environmental risks from unplanned and unexpected events, and has calculated the scale of financial provisions, which should be put in place to cover these liabilities. All of the risks identified fall into the least severe risk status in the risk matrix. This indicates that existing mitigation measures adequately mitigate the risk. The risks will, however, require dynamic management by Bailieboro Foods and will be reviewed on an annual basis in accordance with the IPPC licence conditions.

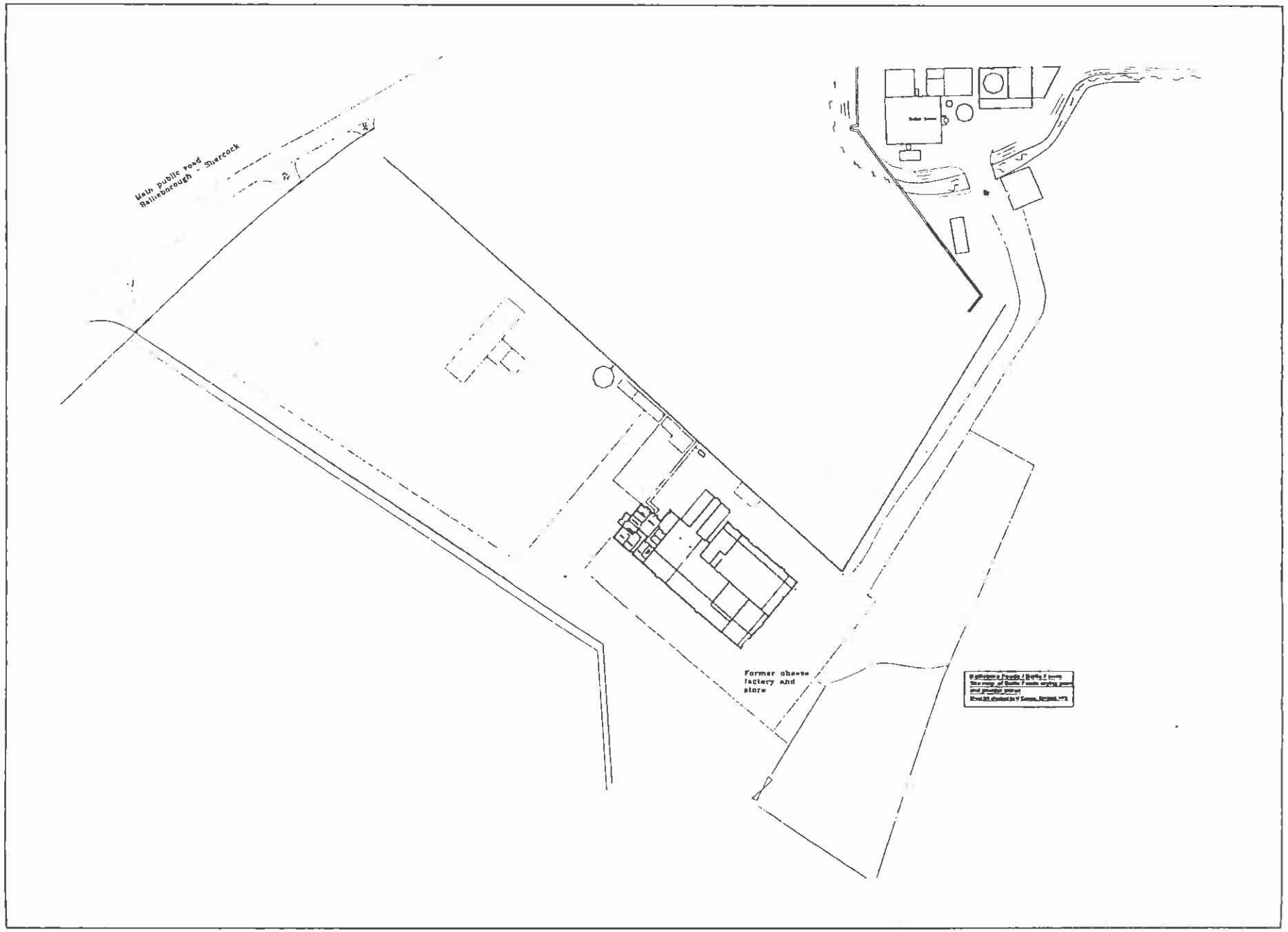
APPENDIX A

BAILEBORO FOODS SITE PLAN


Ballieboro Foods / Baille Foods
Site map of Creamery, offices and stores
Sheet 1/4 checked by N Comey, 13/10/03, NTS
Lear townland
Boundary hedge
Existing water treatment plant
STORE
Head Office
LABORATORY & OFFICE BLOCK
Stores
'CREAMERY SITE'
To Ballieborough Town Main Public Roadway
RIVER LEAR
RIVER
Public Roadway


Lear townland
Bailleboro Foods / Bailie Foods
Site map of Creamery, offices and stores
Sheet 1/4 checked by N Comey, 13/10/03, NTS
Boundary hedge
Existing water treatment plant
Existing effluent treatment plant
Stores
Main Public Roadway
SHERCOCK


To Bailieborough Town
Main Public Roadway
Main Public Roadway
Bailie Foods drying plant and stores
WEIGH BRIDGE
Roller house
Bailleboro Foods / Bailie Foods
Site map of Bailie Foods drying plant and powder stores
Sheet 3/4 checked by N Comey, 13/10/03, NTS


Main Public road
Ballincarough - Shercock
Former abattoir factory and store

Residual Management Closure Plan

RPS

Bailieboro Foods Ltd

Residuals Management Plan / Closure Plan

DOCUMENT CONTROL SHEET

Client	Bailieboro Foods Ltd.					
Project Title	Bailieboro Foods Residuals Management Plan / Closure Plan					
Document Title	Residuals Management Plan / Closure Plan					
Document No.	MDE0635Rp0001					
This Document Comprises	DCS	TOC	Text	List of Tables	List of Figures	No. of Appendices
	1	1	21	1	1	-

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F01	Final	M. Doherty			West Pier	3/08/07

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

1.1 FACILITY AND LICENCE DETAILS

Bailieboro Foods and Bailie Foods Limited are located 1 km northeast of Bailieborough in Co. Cavan. The site is licensed by the Environmental Protection Agency (EPA) to carry out the following activities:

"The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)."

The facility produces 30,000 tonnes of butter and 30,000 tonnes of milk powder per year.

In July 2006, Bailieboro Foods were issued their updated Integrated Pollution Prevention and Control Licence (IPPC Licence, Register Number: **P0406-02**) by the Environmental Protection Agency (EPA).

A major part of the upgraded licence focuses on the requirement of licensees to assess facility risks to the environment and to submit plans to decommission and render safe the facility on cessation of activities. Adequate financial provisions must also be identified to undertake such decommissioning and cover the known environmental liabilities.

Condition 10 of the Bailieboro IPPC licence makes reference to these requirements. These specific conditions are quoted below:

Condition 10 Decommissioning, Residuals Management

10.1 'Following termination, or planned cessation for a period greater than six months, of use or involvement of all or part of the site in the licensed activity, the licensee shall to the satisfaction of the Agency, decommission, render safe or remove for disposal/recovery, any soil, subsoils, buildings, plant or equipment, or any waste, materials, materials or substances or other matter contained therein or thereon, that may result in environmental pollution.

10.2 Residuals Management Plan

10.2.1 The licensee shall prepare, to the satisfaction of the Agency, a fully detailed and costed plan for the decommissioning or closure of the site or part thereof. This plan shall be submitted to the Agency for agreement within six months of the date of grant of this licence.

10.2.2 The plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without agreement of the Agency

1.2 SITE HISTORY

A brief site history for the Bailieboro Foods facility is outlined below.

- The Bailieboro Co-operative was formed and located at the current site in 1902.
- 1965: the evaporator and associated plant was built by the operators (Mac Cormac's)
- 1979: the water treatment and effluent plant were built
- 1986: the new milk intake facility and WWTP were built
- 1988: Food Industries purchased entire facility, closing the cheese plant and engineering works
- 1990: Golden Vale plc acquired the facility
- 1992: Boilers converted to natural gas
- 2001: Bag filter system installed resulting in reduction in particulate emissions to below 10mg/m^3
- 2001: Kerry Foods bought Golden Vale and took over Bailieboro plant
- 2002: Lakeland Dairies purchased facility from Kerry Foods
- 2006: Integrated Constructed Wetland installed and commissioned.

2 METHODOLOGY AND SCOPING

The EPA guidance document entitled '*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provisions*' 2006 (hereafter referred to as EPA 2006), has been used as the basis for the methodology in preparing this report.

Section 3.1 of EPA 2006 makes reference to the IPPC Directive which states that '*the necessary measures are taken upon definitive cessation of activities to avoid pollution risk and return the site of the operation to a satisfactory state*'. As part of the implementation of the IPPC Directive the terminology of Residuals Management Plan is to be replaced with Closure, Restoration and Aftercare Management Plan (**CRAMP**).

This report will focus on the *Known Liabilities* of the site i.e. the planned and or anticipated liabilities associated with facility closure and the required financial provisions required for this.

An initial screening and operational risk assessment was performed in order to identify which risk category (1,2 or 3) is most relevant to the facility.

EPA 2006 sets out the methodology for assessing the CRAMP requirement for a wide range of IPPC facilities under these three risk categories.

3 INITIAL SCREENING AND OPERATIONAL RISK ASSESSMENT

The risk assessment decision matrix is used to classify the site into a Risk Category (1, 2 or 3). The risk category is then used to select the specific CRAMP, ELRA and FP requirements for the facility. The aspects examined at this stage include:

- Activity Complexity
- Environmental Sensitivity
- Licence Compliance Record.

Each aspect score is calculated using procedures outlined in EPA 2006 and then multiplied to obtain a Total Score, which places the facility in the relevant risk category (1,2 or 3).

3.1 COMPLEXITY

The Bailieboro Foods facility is licensed under IPPC class number 7.2.1 for the *"The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)."*

Using the complexity scoring methodology specified in EPA 2006, the facility is designated as a 'G3' complexity band. Facilities with a G3 complexity band must consider and evaluate their score by assessing the Environmental Sensitivity and Compliance Record of their facility.

3.2 ENVIRONMENTAL SENSITIVITY

The environmental attribute score is calculated using the environmental sensitivity sub-matrix (table 3.1). The total environmental attribute score obtained from the sub-matrix is used to look up the environmental sensitivity classification (table 3.2).

Table 3.1 Environmental Attributes Score

Environmental Attribute	Environmental Attribute Score
Human Occupation 50m-200m	3
Groundwater Protection Poor Aquifer Vulnerability Rating- Moderate	0 1
Sensitivity of Receiving Waters Class B	2
Air Quality and Topography Simple Terrain	0
Protected Ecological Sites and Species <1km from protected site	1
Sensitive Agricultural Receptors Dairy farming 50m-150m from the activity footprint	1
Environmental Attribute Total	8

Table 3.2 Environmental Sensitivity Classification

Total Environmental Attribute Score	Environmental Sensitivity Classification
Low < 7	1
Moderate 7-12	2
High > 12	3

3.3 COMPLIANCE RECORD

The facility compliance record was examined using information contained in the Annual Environmental Report (AER), 2005. The compliance record was examined in relation to the following parameters.

Surface Water

Ballieboro Foods operate an enclosed wastewater treatment plant (WWTP) that is used to treat effluent water prior to discharge through the Integrated Constructed Wetland (ICW) to the River Lear. All process effluent and raw water treatment plant backwash is treated in the WWTP prior to discharge to the ICW.

Monitoring results for the discharge to the Lear from the Treatment Plant are in compliance in 2005.

Groundwater

As part of the site's IPPC licence, emissions to groundwater are monitored on an annual basis at one groundwater monitoring wells (GW-1) located in vicinity of Water Treatment Plant.

Monitoring parameters are as per Schedule C.6.1 of the licence. There has been 100% compliance with these limits in 2005

Air Quality

Emissions from the boilers are monitored annually for nitrogen oxides. Total particulates from the spray dryer are monitored continuously. There is 100% compliance from emissions to air.

The overall compliance record for the Ballieboro facility is good, with no non-compliances in 2005. The EPA 2006 Guidance states that a compliant facility has a score of 1.

The overall Operational Risk Assessment for the Bailieboro facility is described in Table 3.3

Table 3.3 Operational Risk Assessment Score

		Score
Complexity	G3	3
Environmental Sensitivity		2
Compliance Record		1
Overall Risk Score (Complexity x Environmental Sensitivity x Compliance Record	3x2x1	6
RISK CATEGORY		**Category 2**

The Risk Category is defined using the following table.

Table 3.4 Risk Categories

Risk Category		TOTAL Score
Category 1		<5
Category 2		5-23
Category 3		>23

The Risk Category of the Bailieboro facility is Category 2. The EPA guidance recommends that if there is no long-term contamination or environmental issues at the facility a clean closure can be achieved. The only CRAMP requirement is therefore the Closure Plan.

4 CLOSURE PLAN

4.1 IDENTIFICATION OF PROCESSES

The processes undertaken at the Bailieboro facility were identified during the course of the walkover and workshop in order to gain an overview of the flow of materials, processes on site and the relationship between each working area. Figure 4.1 and 4.2 summarise the various flows of raw materials to finished product.

The flow diagrams contain the main process. Other ancillary processes such as lab analysis are not included in these diagrams.

Figure 4.1 Creamery Process Flow

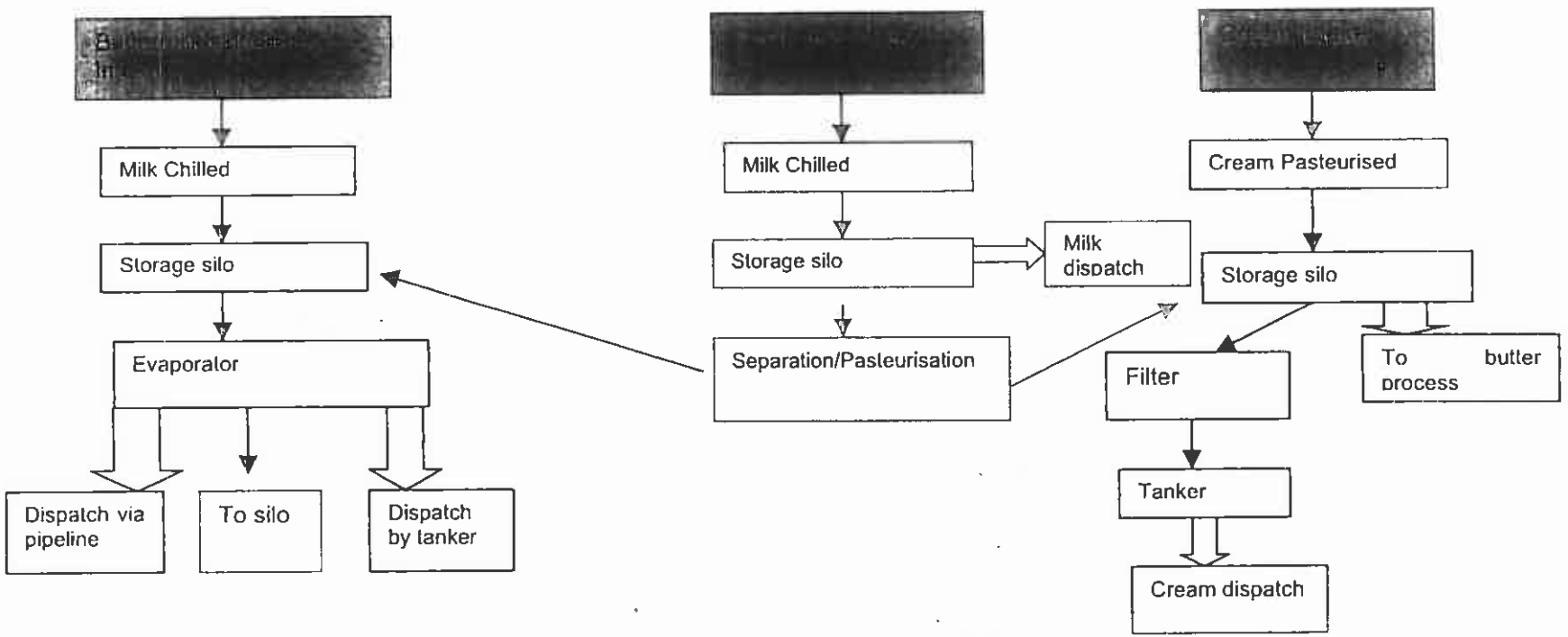
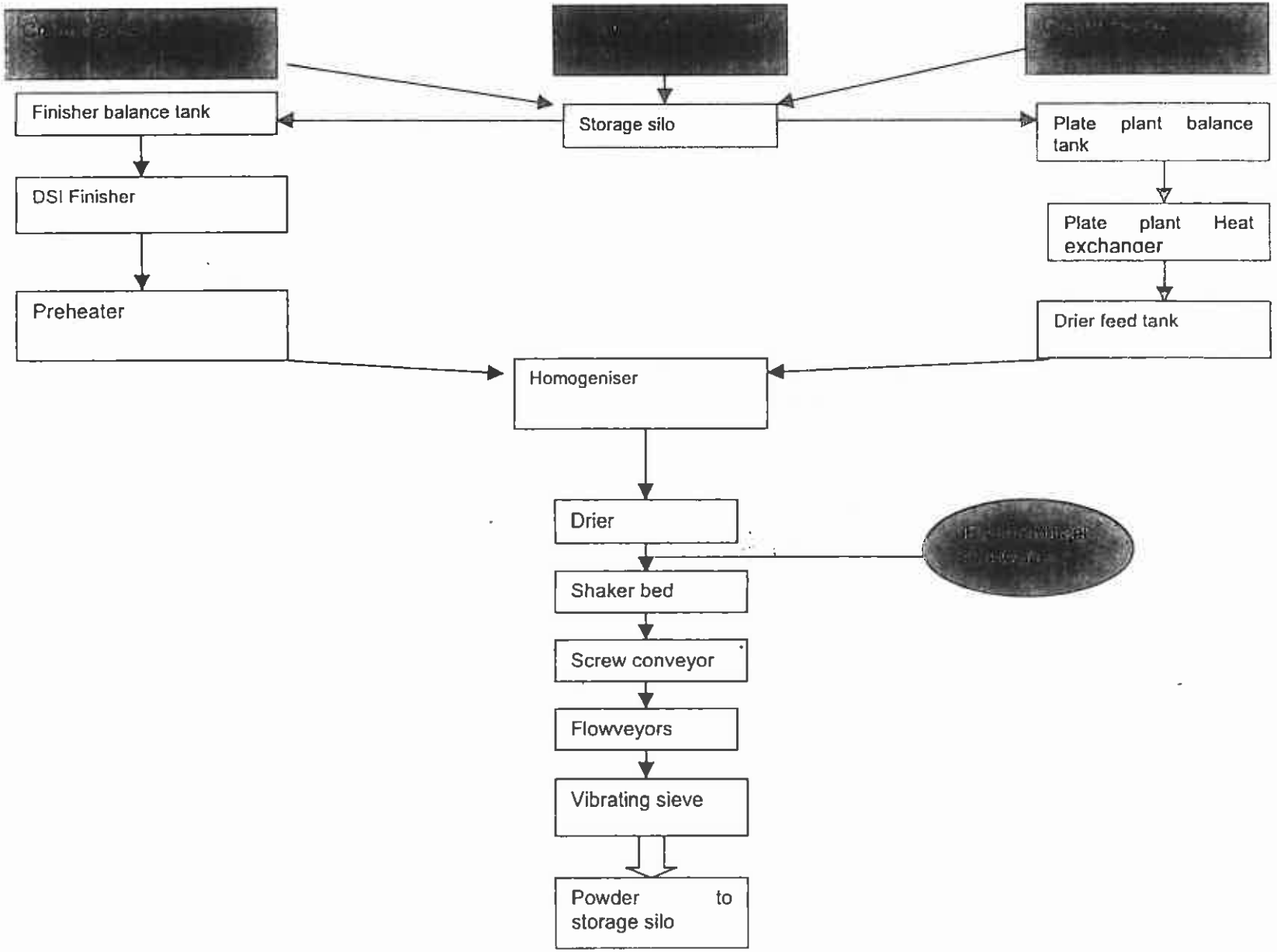


Figure 4.2 Drying Process Flow



4.2 CLOSURE CONSIDERATIONS

In order to develop a fully costed Closure Plan for the Bailieboro Foods facility, a number of assumptions have been made:

- The shut down date will be known in advance and adequate resources and time will be allocated to the closure process. Any closure will therefore be a well-planned event and production schedules and materials purchasing and storage will be planned to reflect this.
- The entire facility including all above ground and below ground structures will be fully decontaminated and decommissioned and the site, with buildings and pipe work can be sold for future industrial use.
- The costs for dismantling of buildings and pipe work are not considered under this plan, as it is scenario assessed is closure followed by reuse for industrial purposes.
- This Closure Plan will be subject to annual reviews, particularly focusing on the cost and suitable financial provisions and take into account any changes in the activities carried out at the facility.

4.3 SCOPE OF CLOSURE PLAN

The Closure Plan considered most suited to the Bailieboro Foods facility is a 'Clean Closure'.

The Closure Plan will need to include the decommissioning and decontamination of all above and belowground structures and the management and safe removal of any residuals arising as a result of decommissioning.

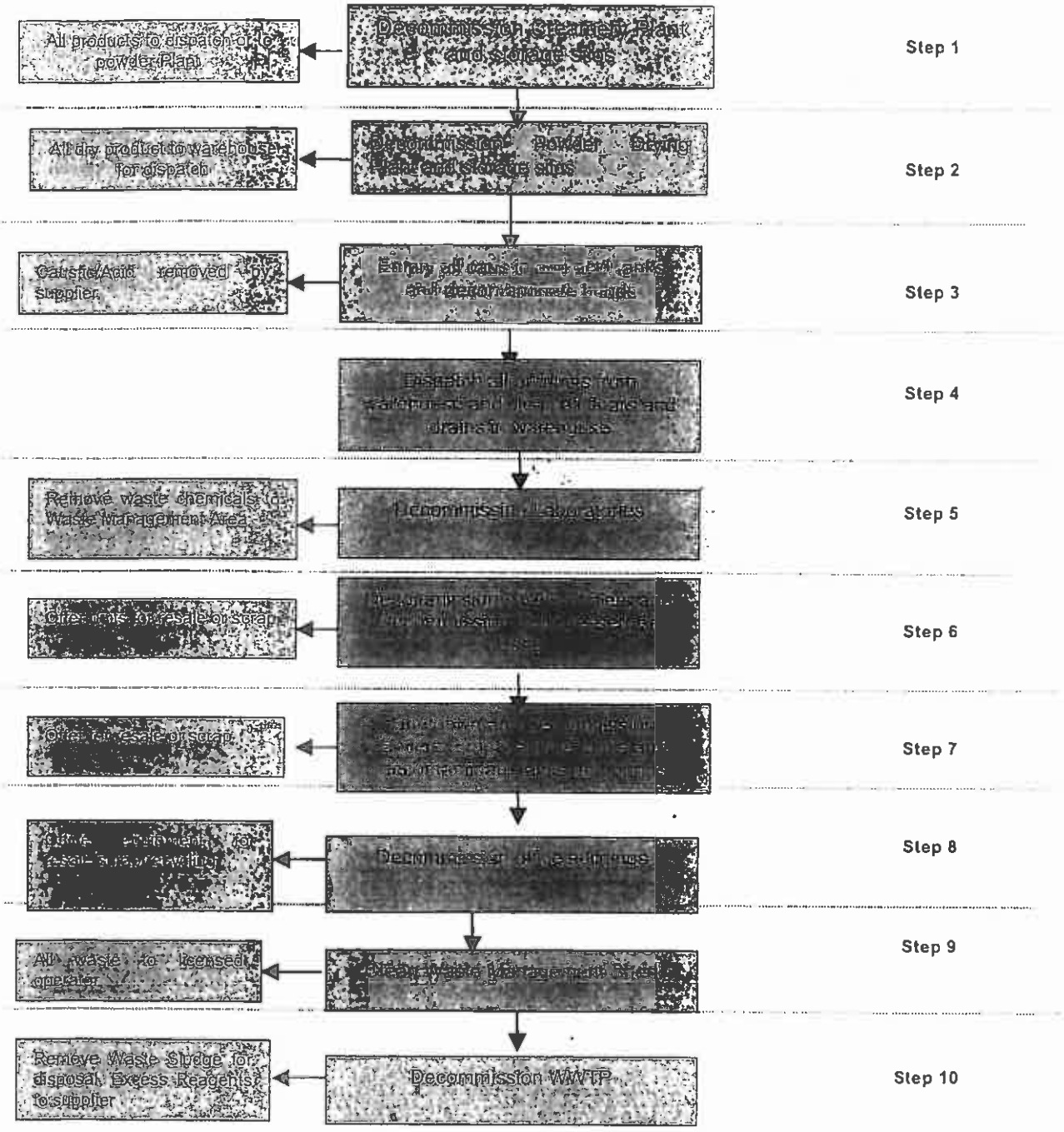
4.4 PROGRAMME TO ACHIEVE CLOSURE

The production processes at Bailieboro Foods are carried out under well-defined and strict controls. These controls include Standard Operating Procedures (SOPs) and legislative and regulatory controls.

In the event that the entire facility is closed, all areas of the facility shall be decommissioned and decontaminated.

Figure 4.3 summarises the likely methodology employed in full decommissioning and decontamination of the entire facility. It is assumed that Closure is an anticipated event and that minimal stores of raw materials, products and reagents will be present on site.

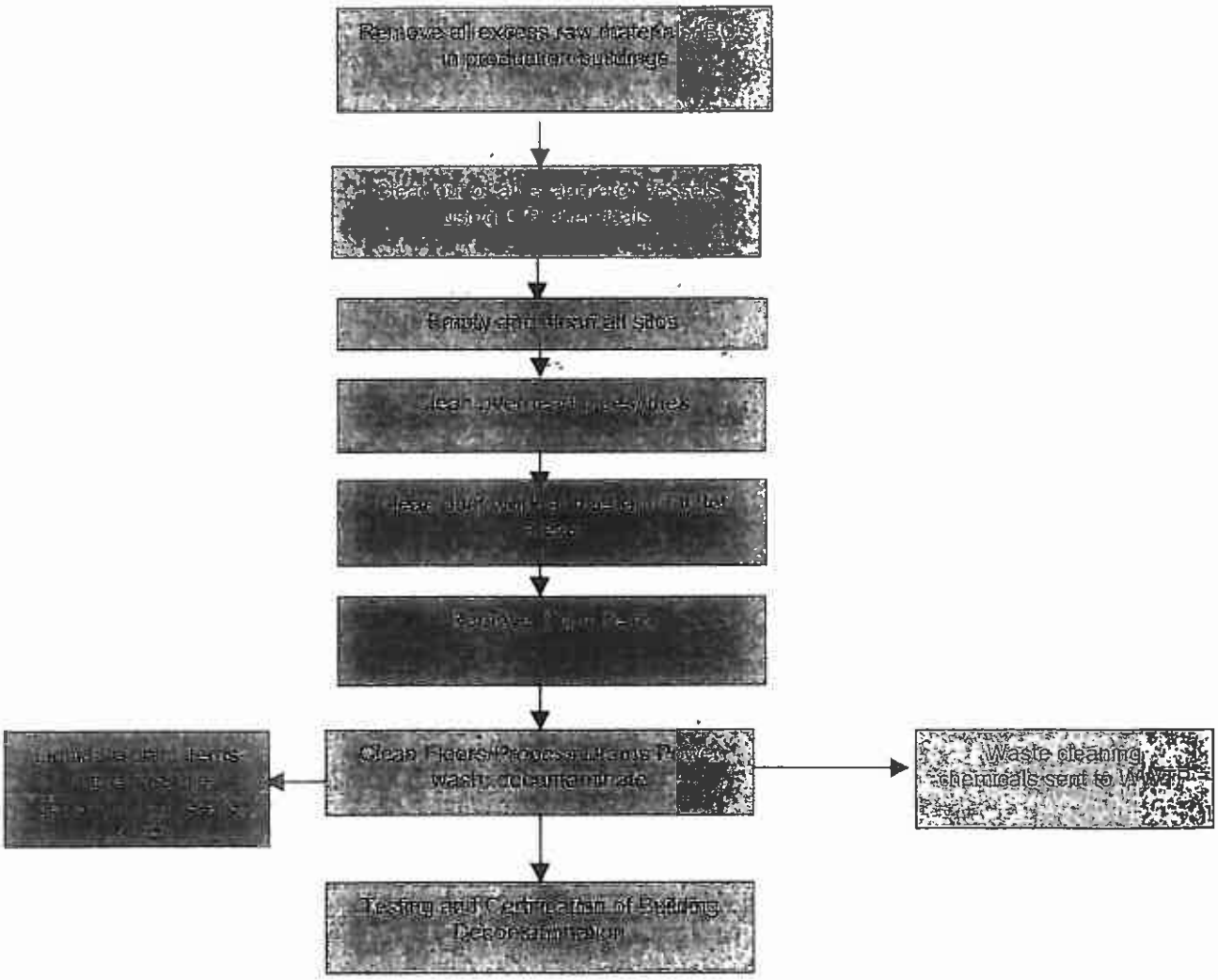
Figure 4.3 Flow Diagram of Likely Order of Full Site Closure



Step 1 and 2: Decommissioning and Decontamination of Production Buildings

Decommissioning and decontamination of the creamery and powder production buildings will be undertaken at this stage. A likely flow chart of the production decommissioning process is presented as Figure 4.4 below.

Figure 4.4 Flow Diagram of Likely Order of Decommissioning of Production Buildings



During the decontamination process, all waste cleaning liquids will flow to the WWTP. Any solid wastes resulting from decontamination will be stored and disposed of through licensed contractor.

The storage silos will be cleaned using standard procedures. The decontaminated silos will be offered for resale. The current market price of stainless steel is approximately €1000 per tonne. This positive resale value will offset the closure costs.

The majority of the costs associated with decommissioning and decontamination of the production building will be assigned to normal running costs, as the shutdown will be planned. Some additional costs for plant hire and contract cleaners will be incurred.

Step 3 Emptying and decontamination of all caustic and acid tanks and bunds

It is assumed that the facility shut down is a well-planned event ensuring that there is not an excess of these materials stored in the tanks in the creamery plant or powder plant.

Any excess material not used in the cleaning process will be returned to supplier. All washing used in the decontamination process will be sent to facility WWTP for treatment. The bunds around the tanks will be inspected and washed.

The decontaminated caustic and acid tanks will be offered for resale. The proceeds from this resale will offset any decommissioning/cleaning costs associated with the tanks

Step 4: Dispatch all products and decontaminate warehouse

All products will be dispatched to customers. The warehouse floor will be swept and washed and all drains washed through.

Step 5: Decommission laboratories

When all product and raw materials have been dispatched, the laboratories can be decommissioned. All equipment will be decontaminated and unused reagents/chemicals will be returned to supplier.

Certain laboratory equipment may have a resale value. Licensed contractor will dispose of any equipment, which does not have resale value.

Step 6: Decommission of Chiller Units and Compressed air units

Refrigerant gases associated with the air-handling system will be collected for reprocessing by licensed contractor. Any residual value associated with the chiller units may be used to assist with the cost of decommissioning.

The supplier will decommission the compressed air units. Again, residual value will be associated with these units and will be used to offset cost of decommissioning.

Step 7: Shutdown and Decommission of Boilers. Empty and decontaminate fuel tanks and clean bunds

This step will involve the decommission of the boilers and associated system, return of boiler treatment chemicals to supplier and collection of lubricating oils by contractor.

Any residual value associated with the boilers may be used to assist with the cost of decommissioning.

The fuel tanks on site will be decommissioned and any excess fuel will be returned to supplier. All bunds around fuel tanks will be cleaned and inspected and any contaminated washing will be collected for disposal.

Step 8: Decommission of office buildings

All office buildings will be cleared and office equipment offered for resale. Licensed contractor will dispose of any waste office equipment. Any hazardous office waste such as fluorescent bulbs and ink cartridges will be disposed of by licensed hazardous waste contractor.

Any residual value associated with the office equipment and furniture will be used to assist with the cost of decommissioning

Step 9: Decommission of Waste Management Shed

All recyclable waste stored in the shed will be collected by contractor. All floors will be swept and washed. The drains will be visually inspected for contamination.

Step 10: Decommission of Water Treatment and Waste Water Treatment Plant

The water treatment plant and WWTP will operate throughout the decommissioning and decontamination. The WWTP capacity can be reduced to allow for partial shut down and cleaning of tanks in the system. The effluent sump in the creamery yard will be fully decontaminated and the system washed through to ensure pipe work is clean. Any solid waste in the effluent sump will be removed by tanker.

Once all wash-downs and cleaning operations are complete, the water treatment unit can be decommissioned. Any treatment chemicals not used will be returned to supplier.

The WWTP will be the last area to be decommissioned. All sludge will be removed for land spreading and all tanks inspected and sealed. The water tanks may be offered for resale but this will depend on intended use of the site post-closure.

Estimated cost to decommission of Water Treatment Plant and WWTP is €5000

Waste generated during closure will be removed from site during each step. It is not expected that a large quantity of waste will be generated as much of the plant can be resold or recycled. For the purposes of cost estimation it is assumed that the equivalent of 3 months of hazardous and non-hazardous waste will be generated during closure. Disposal of unforeseen hazardous waste may also be necessary so a contingency of 10% is included. The cost estimate is based on a cost of €1000 per tonne of hazardous waste and €160 per tonne non-hazardous waste.

All wastes disposed of off-site in 2004 are listed below.

Table 4.1 2004 Off-site Waste Disposal Quantities

Type	Quantity (tonnes)
Non-hazardous	2,134
Hazardous	7

Table 4.2 Off-site Waste Estimated Disposal Costs at Closure

Type	Quantity (tonnes)	Cost Estimate (€)
Non-hazardous	533.5	85,360
Hazardous	1.75	1750
Sub Total		87,110
Contingency (10%)		8,711
Total		**95,821**

4.5 VERIFICATION

Throughout the various stages associated with the shutdown, decommissioning and decontamination of each area of the Bailieboro facility, test certificates and approved documentation will be generated in order to sign off the closure of each phase.

An independent verification audit will be undertaken to assess all relevant paper work and to ensure all clearance certificates, disposal/removal certificates etc are in place prior to a final verification report being issued.

4.6 SUMMARY OF COSTS FOR CLOSURE

Through liquidation of plant and equipment at each stage of closure, there will be revenue generated which will assist with financing the cost of Closure. In some cases these residual values may be significant. These costs are not included here but at time of closure these costs can be used to offset some of the closure costs identified here.

Table 4.3 summarises the estimated closure costs associated with Clean Closure at the Bailieboro facility.

Table 4.3 Closure Costs Summary

Stage	Estimated cost (€)
Production building and warehouse decommissioning and decontamination, including contract cleaner hire and additional plant rental	10,000
Tanks, silos and bund decommissioning and decontamination	20,000
Utilities decommissioning (compressors, chillers, boilers)	10,000
Decommissioning WWTP	5,000
Contingency of 30%	12,000
Waste Disposal	95,821
Total	**152,821**

5 CLOSURE PLAN UPDATE AND REVIEW

In accordance with the IPPC licence *'the plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER'*. It is proposed therefore that this report is subject to review as required by the licence and will reflect any process changes on the site.

6 CLOSURE PLAN IMPLEMENTATION

As part of the closure plan implementation, a series of requirements must be met;

Notification to EPA

Bailieboro Foods management will notify the EPA of all plans to cease operations with either partial or full closure of the facility for a period greater than 6 months. An agreed time frame and methodology will be submitted to the agency for agreement prior to any cessation.

Other Statutory Notifications:

Other statutory bodies including the local authority will be notified of plans to cease operation and proposed closure time frame.

Test programme

A test programme will be implemented on sequential planned order of closure in order of:

1. Decontamination verification
2. Final investigation/integrity test of any underground structures

7 CLOSURE PLAN VALIDATION

Upon completion of implementation of the Closure Plan, Bailieboro Foods will conduct a validation audit to demonstrate to the EPA that the closure plan has been implemented. The quantification and experience of the auditor will be provided and agreed with the Agency prior to the validation commencing, and a validation report will be submitted to the agency upon completion.