

## 1. NON-TECHNICAL SUMMARY

- 1.1.1 This proposal to expand the existing unit to an 980 sow integrated pig production unit at Lissernane, Rathcabbinn, Roscrea, Co Tipperary is being put forward by Mr Michael Monagle who recently purchased this facility from Dairygold Farms . The unit will conform to the highest standards. The proposal is fully in line with government policy aimed at increasing the competitiveness of the Irish Pig Meat Industry.
- 1.2 The development will occupy a landscaped site of approximately 10.5 hectares, (26.68 acres) The proposed works involve including the forthcoming E.C. Regulations on Animal Welfare.
- 1.3. The buildings and their layout are state of the art for the industry. All clean water from the site, is collected via the stormwater collection system (See Site Layout Plan, in Appendix 3), and directed into the monitoring points identified as SWD1, SWD2, & SWD3 and marked on said drawing. All soiled water is diverted into the adjacent pig manure storage tanks.
- 1.4 Annual pig production is estimated at 25000 pigs (i.e. 480 pigs per week).
- 1.5 The pig unit will give direct employment to 6 staff members. It will also give rise indirectly to another 24 jobs in the pig meat processing, milling and service sectors.
- 1.6 Annual pig manure production is estimated at 20932 m<sup>3</sup> and the available storage capacity is 11966 m<sup>3</sup> after allowing for accumulation of gases in covered tanks, and rainfall allowance in open tanks. This is enough for 30 weeks storage.
- 1.7 The pig manure will be spread on 2940 hectares (7265 acres) after deductions of well drained Productive farmland, at an average rate of 15 m<sup>3</sup> per hectare, (1330 gallons per acre). An Individual fertiliser plan has been prepared by each customer farmer. The fertiliser plan has taken into account the phosphorus level in the soil, the phosphorus produced on the farm, the phosphorus in pig manure and the limit to the amount of nitrogen that can be spread from organic manure (i.e. 250 kgs per hectare; 170 Kgs per hectare for REPS farms). Spreading during the growing season only, will further protect against nitrate-nitrogen contamination of groundwater. Each customer farmer proposing to use pig manure as fertiliser on his lands will apply same in compliance with the "Code of good Practice for landspreading", and the required Buffer Zones, in accordance with the conditions of IPC Licence Reg No 437.
- 1.8 Steps have been taken in the selection of the customer farms whereupon it is proposed to use pig manure and in designing the management of its use to ensure that no contamination of surface and groundwater takes place.
- 1.9 Farmers in the area, with a total of 2940 hectares (7265 acres), are customers for pig manure as a fertiliser for their farming enterprises. These customer farms have been selected for inclusion in the current fertiliser plan, for this facility, and the remaining may be included in future years. These customer farms require 51020 kg of phosphorus after accounting for home produced cattle manure.
- The proposed development will generate 21560 kgs of phosphorus max, based on the Department of Agriculture and Food, (REPS) Recommendations 2000. This means that there is a Land reserve of 136% based on P requirement. Pig manure from this facility will be analysed annually as per requirement of IPC Licence 437, to monitor P concentration.
- 1.10 Geotechnical and Environmental Services Limited were requested by M.S. Farm Services on behalf of Dairygold (Previous owners of Sharragh Pig farm), to carry out an independent assessment of the customers lands whereupon it is proposed to use the pig manure generated at this site, on 3 separate occasions to date. The original report was prepared in September 1999, the second in July 2002, and the last in December 2003. The proposed customer farms are located within an eight mile radius of this facility.

These studies in general comprised the assessment of soil conditions, surface water and groundwater and their inter-relationship in these areas, with an assessment of the potential impact of spreading pig manure on the surface water and groundwater environment.

Areas deemed unsuitable as a result of the desk study were eliminated and the remaining areas were assessed in the field. This assessment involved a detailed walk over survey of each customer's farm, and Auger holes were tested to determine the nature and thickness of the subsoils.

Spreading restrictions including no spread areas and cordon sanitariums were imposed based on the available good practice guidelines and the hydrogeological, topographical and land use data. In general the retained areas are considered suitable for applying pig manure at the low proposed spread rates. Provided good farm practice is applied the overall risk to the environment is considered low.

- 1.11 An Environmental Impact Assessment was carried out in support of this application. This entailed a review of submissions already made to the Environmental Protection Agency in respect of land quality in relation to soil drainage status, soil chemical fertility and farm husbandry practices. Surveys of water for quality analyses, geohydrological surveys and mapping of customer's farmlands, whereupon pig manure will be used. Flora & Fauna, and archaeological monuments were also noted, along with monitoring of noise levels. The following statements may be made.
- (a) The customer's lands selected whereupon pig manure will be used, are well drained and are mostly deficient to low in phosphorus, one of the main plant nutrients supplied by pig manure. No contamination of surface waters with run-off waters containing high phosphorus content can be foreseen with the applied management. Neither will contamination of groundwater with nitrate-nitrogen take place. All plots with a soil P level in excess of 15mg/l have been excluded from pig manure spreading, at this time. These plots may be spread with pig manure in the future, if current P levels are reduced.
  - (b) The quality of the surface and groundwater leaving the area is good.
  - (c) The impacts from traffic, noise and odours at the pig unit are insignificant after all practical steps have been taken to mitigate them.
  - (c) Pig manure will be applied using tankers equipped with low trajectory splash plate or the band spreading method.
- 1.12 Proposals for monitoring surface and ground waters at the site and for monitoring soil fertility are set down in the Environmental Impact Statement, in accordance with current EPA requirements. A register of pig manure quantities, date of delivery and name and farm code of landowner will be maintained for inspection by North Tipperary County Council, and the EPA at all reasonable times.
- 1.13 The flora, fauna and habitats of the site and lands of customer farmers were studied. Flora and fauna should not be affected by the development or proposed use of pig manure. Sensitive areas will be avoided in these lands. Suitable margins along watercourses and hedgerows will remain as zones to receive no pig manure. There will be no loss of habitat.
- 1.14 There will be no damage to any site of archaeological or historic interest as a result of the development or pig manure spreading.
- 1.15 Disturbance of the landscape will be minimal during the construction period. The site is already suitably landscaped, with the planting of trees on all sides, in a manner sensitive to the environment.
- 1.16 There will be no negative effects on tourism in the area.

- 1.17 The development will have a positive impact on human beings from the increased employment it will create. The development is located in a remote agricultural area, the buildings are low and their colours will blend into the surrounding area. The screening of trees and shrubs currently in place will also screen the proposed development. Thus, there will be no nuisance or loss of amenity.

Effects of the development on air are insignificant outside the buildings and adjoining yards. The ventilation system will ensure that foul air is dispelled high into the atmosphere where it will mix with fresher air and thus minimise odour. Mitigation measures taken will minimise the effects of odour treated on the days of pig manure spreading. It is proposed to use low protein diets on site, which can achieve a reduction of 30-50% of emissions from the site. Inserting the slurry tankers armoured suction hose in a fixed pipe in the walls of the pig manure tanks will minimise the effects of odour as will the use of a low trajectory splashplate and/or bandspreader, and adhering to the Code of Good Practice for Spreading of Slurry.

Noise levels from the development are unlikely to be a nuisance. The main sources of noise on the development will be at feeding time (10-15 minutes) and from feed delivery vehicles. However, at a distance of 100 metres from the development noise levels are not greatly above background noise levels.

The development will have an insignificant effect on the climate of the area.

Thus the measures that have been put in place will ensure that impact/effects of the Development on human beings, noise, air, climate and the interaction of human beings, Fauna, soils, air, water, climate, landscape and material assets will be minimised.

## 2 INTRODUCTION

### 2.1 Relevant Regulations for Environmental Impact Statements (EIS)

This Environmental Impact Statement (EIS) is prepared in accordance with EC Council Directive 85/337/EEC, as effected in Ireland by the Europe Communities (Environmental Impact Assessment) Regulations 1989, S.I. No. 349 of 1989 and the Local Government (Planning and Development) regulations 1994 (S.I. No. 96 of 1994). Under these regulations it is required that an EIS be prepared for pig rearing installations where the capacity would exceed 3000 pig units on all soils other than gley soil. The proposed pig raising facility will carry 9800 pig units and accordingly requires the preparation of an EIS.

### 2.2. NATIONAL AND E.C. POLICY

The proposed development is in line with national policy, (i) as expressed by the Minister for Agriculture on 10/7/1987 in a development plan for the Irish Pig Industry (ii) as expressed in the Pig Production Group Report of 1988 and (iii) is in line with projected slaughtering of pigs at meat plants by the IDA, aimed at increasing the competitiveness of Irish pig meat in overseas markets. The Irish Government and the EC have updated Irish meat plants in accordance with national and E.C. policy, entailing the expenditure of large sums of money by the promoters and substantial capital grant-aid.

As recently as mid 1997 Teagasc launched a plan (Development of the National Pig Industry) to increase pig production in Ireland from 3.29 million pigs in 1996 to 4 million by the year 2000. Details of this plan are given in Appendix 4.

### 2.3. ORGANISATIONS AND BODIES CONSULTED

The scoping exercise of the EIS was carried out in line with previous submissions to North Tipperary County Council. Other organisations and bodies consulted include: -

Geological Survey of Ireland.

Met Eireann.  
Central Fisheries Board.  
Office of Public Works.  
Department of Agriculture.  
Department of the Environment.  
National Parks and Wildlife Service.  
Teagasc, Johnstown Castle.  
Environmental Protection Agency.

### **3. DESCRIPTION**

#### **3.1. Overall Description**

The proposal envisages the expansion of the existing unit to a 980 sow integrated pig unit comprising the facilities necessary for an 980 sow integrated unit, and associated meal and manure storage and distribution facilities. This proposal incorporates such features as the most modern house designs, with shallow pig manure storage tanks underneath, and modern ventilation systems, covered passageways, which when coupled with the use of low protein diets, from a feed mill on site, ensure the overall reduction of emissions, which is in accordance with BATNEEC. Drawings of the proposed new structures are presented in Appendix 3.

#### **3.2. SIZE AND SCALE OF THE PROPOSED DEVELOPMENT**

The size and scale of the proposed development have been chosen after consideration of such matters as the site, customer availability for pig manure, economic viability and labour efficiency. The sow numbers on site are being maintained at previous levels, but it is planned to finish all progeny on site, rather than selling some weaners off site as was previously the case. This will help ensure that a minimal disease status can be maintained on this facility.

In full production the pig population will comprise at any one time of the following; 788 dry sows, 192 suckling sows with bonhams, 4250 weaner pigs, 5760 fattening pigs, 120 maiden gilts and 20 boars. Pigs will be slaughtered at approximately 100-kg live weight.

#### **3.3. SITING, DESIGN, CONSTRUCTION AND STRUCTURAL DETAILS**

The proposed development is situated on the site of an existing pig unit facility. The site is centrally located but also remote from any "Built up/Populated area". The design is best available from an animal welfare and performance point of view. Development involves the construction of new buildings and items of plant to accommodate the additional animal numbers, and satisfy new welfare requirements on area per animal. The reduction of existing environmental impacts was a factor when planning the design and layout of this development. Details of siting and design are shown in Appendix 3.

##### **3.3.1. CONSTRUCTION DETAILS**

A site location map and planning notice and a site plan are provided as part of Appendix 3.

##### **3.3.2. DESIGN**

In arriving at an overall design to incorporate both new and existing buildings, consideration is given to colours of external facing materials to ensure maximum compatibility with the surrounding landscape. Also, features such as minimising ridge heights are an important element of the design process.

#### **3.4. CO PRODUCT & WASTE PRODUCTION**

The co-product produced is pig manure. The wastes produced are animal carcasses, foul water, odour emissions, veterinary waste, fluorescent tubes and general refuse. This development will also require the demolition of existing buildings. These buildings will firstly be thoroughly cleaned, and the materials recovered from the demolition will be recovered or disposed of thus;

+ 50mm concrete block – Stone - Plaster	EWC Code 17 01 00	Hardcore fill on site
- 50mm Stone – Plaster – Clay Fines	EWC Code 17 05 01	Hardcore Fill on Site
Asbestos Sheets	EWC Code 17 01 05	Sheets removed intact will be stored on site for repairs to other farm buildings. Handling sheets as per the <b>Recommended Code Of Practice For Handling And Disposal of Asbestos Waste</b> , produced by <b>Asbestos Research Council</b> . All damaged sheets will be removed off site by an approved contractor for disposal.
Ceramics Tiles etc	EWC Code 17 00 03	Hardcore fill on site
Ferrous Metals	EWC Code 17 04 05	Recovered to suitable recycling facility
Non Ferrous Metals	EWC Code 17 04 01	Recovered to suitable recycling facility
Non Treated Timber	EWC Code 17 02 01	Burned as firewood
Glass	EWC Code 17 02 02	Negligible quantities included in hardcore fill

### 3.4.1. TYPES AND QUANTITIES OF CO PRODUCT & WASTE

The major co product from the proposed facility is pig manure; the yearly production of which amounts to 20932 m<sup>3</sup> and 95% occupancy to 19885 m<sup>3</sup>.

**TABLE 1: Pig manure Production**

Animal Type	Number	Volume Litres/Week	Total Litres Pig Manure	Total M3 Pig Manure
Dry Sows	788	55	43340	43.340
Farrowing Sows	192	115	22080	22.080
Gilts	120	44	5280	5.280
Boars	20	53	1060	1.060
Weaners	4250	12	51000	51.000
Fatteners	5760	41	236160	236.160
Total Weekly Production Pig Manure			358920	358.92
Total Annual Production Pig Manure			18663840	18663.84

#### (a) Extraneous Water

In addition to this, there will be extraneous water for washing at a rate of 5% for fatteners, and 8% for all other stock, which will add a further 1125 m<sup>3</sup> to the annual figure.

#### (b) Rainwater collection allowance

The rainwater collection allowance for the four open pig manure storage tanks is 1143 M<sup>3</sup>.

**TABLE 2: Total Annual Pig Manure Production**

Total Neat Production Pig Manure	18663.84 M <sup>3</sup>
Extraneous Water	1125.00 M <sup>3</sup>

Rainwater Collection Allowance	1143.00 M3
TOTAL Pig Manure Production	20931.84 M3
TOTAL Pig Manure Storage Capacity	11965.603 *
Pig Manure Storage Capacity (weeks)	30 Weeks

\*For details see Appendix 18

### 3.4.2 ANIMAL CARCASSES

The anticipated number of animal carcasses for disposal due to mortalities on an annual basis is estimated as follows:-

Sows	@	4% =	39
Piglets	@	8% =	1910
Weaners	@	1.5% =	395
Fattening Pig	@	1% =	250

Carcasses will be temporarily stored in a covered sealed metal skip for transport and disposal to a licensed rendering plant at regular intervals. A signed agreement to this effect is given in Appendix 6.

### 3.4.3 AIR EMISSIONS

Odours and emissions are minimal from modern pig units and are hardly detectable 100 metres from the unit on the downwind side. A reduction of 30% of existing odour emissions can be achieved with the use of low protein diets, and further reductions are likely in the near future, based on current research. Removal of pig manure from storage tanks is by tanker armoured suction hose inserted into the tank with minimal odour release. Odours can arise during land spreading of the pig manure and measures to minimise these are dealt with under "Pig Manure Disposal Proposals" Section 3.6. and "Air Quality Art, 5.3.4."

Mr Michael Monagle is committed to improving the environmental performance of this facility, and as part of this proposes the following;

1. Strict hygiene will be observed at and around the facility at all times.
2. The carcass skip will be kept covered at all times, and contents removed regularly.
3. A Nutritionist has been engaged to continually assess dietary inputs on site.

### 3.6. PIG MANURE USE PROPOSALS

It is proposed to supply all the pig manure to farmers who own/manage 2940 hectares (7265 acres) of productive land, who are customers for pig manure, in accordance with crop requirements, P status, and Code of Good Practice for landspreading of pig manure. These customer farms have been assessed, and passed by the EPA as part of the IPC Licence application for this facility. A Nutrient Management plan must be submitted to the Agency for approval annually before 1<sup>st</sup> February. Odours can arise during landspreading, but a sensible approach to landspreading will minimise the impact of same.

Farmers in the area are customers for the pig manure, with a total of 2940 hectares (7265 acres) of land. Summary details of the locations, areas, and P requirements of these customers are listed in Table 3 below.

Table 3; Summary details of Customers for Pig Manure

NAME	TOWNLANDS	FARM CODE	P REQUIREMENT (Kgs)
W Delahunty	Coraduff, Kileen	6	437.4
P O Neill	Roden	8	644.2
K Brennan	Ballyspellane South; Ballycormack; Munlusk;	9	1317.5
J Brennan	Derrymacegan;	10	2075.82

	Carrigahorig; Lismacrory; Munlusk; Lisduff; Garrybaun		
E Smyth	Arbourhill	11	2608.4
T Smyth	Clonmano	12	215.3
J Donoghue	Ballymacegan; Lismacroy	15	1350.6
N Flannery	Kilregane	16	1475.6
J Buckley	Abbeyville; Kilgask; Lissagadda	18	356.1
P King	Castletown; Clonfree	22	1644.0
G Toohar	Annagh; Clongowna	32	796.3
G Clarke	Ballynahinch; Arraghmore; Gurteen	34	2507.4
B Haslam	Rockview	38	1363.6
P Brophy	Lisballyard	39	368.4
J O Meara	Ashpark	40	3620.5
M O Meara	Ross	41	1443.7
D O Meara	Corraduff; Skehanagh	43	1251.2
M Rushe	Ballymacegan	44	1271.1
M Cahalan	Rahinane	49	2297.6
A Jackson	Lacka	56	2618.3
F Mahon	Kilgask; Kilgarren; Dary; Rath	58	602.6
T Darcy	Abbeyville; Sharragh	59	1089.0
S Lambe	Redwood; Ballincor	60	1833
J Coonan	Ballymacegan	61	632.39
P Kennedy	Rockview; Lelagh; Graigue	65	2345.64
M Duffy	Graigue	66	36.9
T Duffy	Annagh	67	219.3
G Moylan	Cullagh	68	1456.4
S Mahon	Grange	72	154.0
J Sharlock	Corraduff	73	271.84
T Egan	Lackeen	74	294.7
P Grinan	Sharragh; Kilroadan; Abbeylands	75	907.7
L King	Bredagh; Grange; Ballymacegan; Redwood; Ballincor	78	583.8
F Grinan	Kylenacrusha; Redwood	79	581.59
P Grinan	Kylenacrusha; Redwood	80	261.25
B Gleeson	Coolagown; Newtown; Carrigeen; Lords Park	81	1333.09
A Corcoran	Annagh	84	177.02
A Kennedy	Lismacrory	85	221.21
Mrs T Ryan	Derrinlieragh; Drinagh	86	480.76
F Corcoran	Kylenacrusha; Ballymacegan	90	426.21
M Corcoran	Ballymacegan; Bredagh	91	640.62
H Slevin	Kylebeg; Feigh	92	1119.67
G Killeen	Lissernane	94	176.7
B Joyce	Garryclohy	95	904.3
T Morresy	Lisnagower; Knockshigowna; Ballynahinch	96	1996.19
Sharragh Farm	Lissernane	97	383.6
M O Meara	Lissernane; Rath	98	236.04
E Kennedy	Coolross	100	907.47
W Naylor	Walshpark	101	122.74

E Kenny	Kilgarren	102	917.73
M Hector	Sharragh	103	43.65
<b>Total P Requirement of customer farms</b>			<b>51020.43 Kgs</b>

### 3.6.1. EXISTING NUTRIENT LEVELS & CLAIMED LOADING CAPACITY OF SOILS

On the basis of recent soil sample analyses, and the Department of Agriculture and Food REPS Recommendations (Revised 1 January, 2000) the P requirement for each plot of land in each customers farm, was calculated. This information has been submitted to the Environmental Protection Agency on The Table 11B(ii) format provided in the IPC Licence application Form. A copy of this format is included in Appendix 5, along with the summary table 11B(I). No supplemental P is allocated to areas with P readings in excess of 10 mg/kg for grazing ground and in excess of 15 mg/kg for silage ground.

For the purpose of pig manure spreading a value of 1.03 kgP/m<sup>3</sup>, for pig manure was used. It is anticipated that this concentration will be reduced. To this end pig manure from this site will be analysed annually as per requirement of IPC Licence Reg No 437. The proposed volume of pig manure to be applied on each plot is outlined in the individual farm fertiliser plans, submitted to the Environmental Protection Agency on the Table 11B(ii) format. The average rates of pig manure to be spread over the lands are 15m<sup>3</sup>/ha. The names, townlands where customers lands are located, Farm Code Ref No, and P requirement of said farms are set out in Table 3 above.

In relation to heavy metal, i.e., copper zinc it is shown in section 3.11 that these metals do not give rise to cause for concern. No mitigation measures are required.

All pig manure will be applied by customers, using vacuum tankers equipped with low trajectory splash plates or by band spreaders. All customers will be advised to ensure, that pig manure will be applied strictly in accordance with, the Code of Good Practice for Land Spreading (Schedule 2(vi), of IPC Licence Reg No 437), the Buffer Zones required (Schedule 2(v), of IPC Licence Reg No 437), and the BATNEEC notes for the Pig Production Sector (EPA 1996) (see Appendix 2).

### 3.7. PIG MANURE TANKERS OWNED AND AVAILABLE

The developer will provide one vacuum tanker for the purpose of applying the pig manure. Local spreading contractors and customer farmers will transport the remainder.

### 3.8. AGREEMENTS TO USE PIG MANURE AS FERTILISER

Fifty one customers propose to use pig manure as a fertiliser on their lands. The relevant information in respect of these customers has been submitted to the Environmental Protection Agency (ie. Maps of customer farms, summary soil analyses sheets, and individual fertiliser plans). The location maps of these customer farms are included in Appendix 1, along with summary details of same. The soil P analyses are summarised in Appendix 6, and the individual fertiliser plans are included in Appendix 5.

The customer farms whereupon it is proposed to use pig manure, over-winter their cattle indoors. The cattle manure produced on a farm is applied to the conservation ground (Silage/Hay), and therefore the Fertiliser Plans are prepared on the basis that all grassland within the farms is treated as grazing ground. Table 3 shows the total crop P requirements for each customer.

### 3.9. DETAILS OF SERVICES REQUIRED

The estimated daily water requirement of the unit in full production is 48000 litres (48 M3). A bored well on the site provides water and this well has sufficient capacity for the new development. A second well provides the backup. The analyses of water samples taken from both wells are included in Appendix 11. These wells are identified as AGW1 And AGW2.

An 100 KVA transformer, adjacent to the site provides electricity supply. A generator on site provides the back up supply with a 150 KVA capacity.

### 3.10 DETAILS OF FEEDSTUFFS

About 96 tonnes per week of a balanced meal mixture will be consumed on the unit by all categories of pigs. This feed will be prepared in the proposed mill on site. Feeds are blended on a least cost basis using the following raw materials (barley, wheat, soyabean meal, sugar beet pulp, pollard, Soya oil, molasses, minerals and vitamins). It is proposed to prepare all feeds on a low protein basis, which is a process that must be introduced slowly, after proper assessment of current performance. This work will be supervised by a Nutritionist. All pigs will also have access to drip free nipple drinkers.

Copper is added to the meal mixture at the rate of approx. 0.5 kg of copper sulphate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) per tonne of meal for growing and finishing pigs. This gives rise to pig manure with a copper content of 30 mg/L. It is not proposed to supplement the meals with zinc.

### 3.11 MAXIMUM SOIL CONTAMINANT CONCENTRATION

The pig manure applied, will not add any contaminant to the lands whereupon it is used. The elements in the pig manure comprise chiefly carbon, oxygen, hydrogen and nitrogen with lesser amounts of phosphorus, sulphur and copper. At an application rate of 15 m<sup>3</sup>/hectares, the application rate of 0.45kg/hectare Cu is less than 3% of that permitted in EC Directive 86/278 on the application of sewage sludge to agricultural land.

## 4. DESCRIPTION OF ALTERNATIVES CONSIDERED

### 4.1. Alternative Sites Considered

As sizeable pig houses already exist at the proposed site, and the location of the facility in an isolated wholly agricultural area, no alternative site was considered.

### 4.2. Alternative Site Layout and Designs

Alternative site layouts and designs were considered. The optimum depth of tank was decided upon on the basis of air draughts, capacity, emission reduction and costs etc. Generally the most economical and efficient layout for pig production and pig movement was designed for, with a view to reducing environmental impacts, improving performance, and providing a safe and healthy environment for staff and livestock.

### 4.3. Alternative processes considered

There is no other satisfactory alternative process for pig production. Applying pig manure on land as a fertiliser provider is the one practical economic means of utilising the nutrients in pig manure and is in line with the current thinking on resource recovery. The method proposed (low trajectory splash-plate/band spreading) is very practicable and will minimise odours emitted from pig manure.

## 5. DESCRIPTION OF EXISTING ENVIRONMENT

### 5.1. Location of Structures

The site location map (Ordnance Survey map sheet No 5 North Tipperary) is included in Appendix 3, along with the drawings and site plans for this development. The proposed unit is located in the Townland of Lissernane, approx. 2.5km from the public roadway (R438), and at an elevation of 60m. The pig unit is about 5.5km from Rathcabbinn and is located in a wholly agricultural area.

### 5.2. Land whereupon it is proposed to use pig manure

### 5.2.1. Ordnance Survey Map

Ordnance Survey Maps (1/10,560), of the customers farms are included in Appendix 1.

#### 5.2.1.1. Spreading areas

Customers lands whereupon it is proposed to use pig manure are outlined in Red. The area of the customers land outlined on these maps, whereupon it is proposed to use pig manure is 2940 hectares.

#### 5.2.1.2. Watercourses

All relevant watercourses and wells are shown in Blue on the maps in Appendix 1.

#### 5.2.1.3. Dwelling Houses

All property (dwellings, factories etc.) in the vicinity of the unit and lands whereupon it is proposed to use pig manure are shown in Green (Appendix 1)

#### 5.2.1.4. Sites of archaeological and historic interest

Sites of archaeological and historical interest on or adjacent to the customer farms have all been identified on the Archaeological Sites & Monuments maps, included in Appendix 1.

#### 5.2.1.5. Unsuitable Land

All customers are provided with a copy of the Code of Good Practice (Appendix 8), and the Batneec Guidance Notes for the Pig Production Sector (Appendix 3), to ensure that the pig manure supplied to them is used properly.

### 5.3. ASSESSMENT OF LAND WHEREUPON IT IS PROPOSED TO USE PIG MANURE

#### 5.3.1. Introduction

Geotechnical and Environmental Services Limited were requested by MS Farm Services, on behalf of Dairygold Farms (the previous owners), to carry out an independent assessment of customers lands where it was proposed to use the pig manure generated from this pig farm. The proposed areas are generally located in the Rathcabin area within approx 15 miles of the unit. This assessment is submitted in full as Appendix 7.

The assessment was required as part of a submission to the Environmental Protection Agency to assess the customer farms, in accordance with the requirements of IPC Licence Reg 437.

The study comprises an assessment of the soil conditions, surface water and groundwater and their inter-relationship in the area in which it is proposed to use the pig manure, together with an assessment of the potential impacts of land application of pig manure.

The study was originally undertaken in September 1999, updated in June 2002, and further updated in December 2003, and comprised the following approach: -

- A desk study of the available information on the Geology, Hydrogeology and Subsoils (nature and thickness) for the region.
- Walkover survey to visually inspect and assess each proposed plot. This assessment was carried out by M.S. Farm Services, and involved walking approximately 35 km through the lands making observations on the topography, nature, geology, sub-soils and hydrogeology features of the area.
- Site investigations involving the excavation of auger holes.

- Elimination of unsuitable areas.
- Preparation of the report

The report provides information on the following items:-

#### **Description of Existing Environment Physical Features**

- Location of the proposed lands
- Natural and artificial surface water features.
- Existing land-use
- Topography, slopes and surface water run-off susceptibility.

#### **Geology and Hydrogeology**

- Geological description of solid bedrock and subsoils
- Permeability of subsoils
- Depth to bedrock
- Aquifer classification
- Groundwater vulnerability
- Local Hydrogeology
- Borehole location –
- Localised groundwater flow.

#### **Assessment of the likely impact of land-spreading**

The proposed customers farms are assessed independently, based on Risk Management Principles

Taking into account:-

The existing environment and the available guidelines on good farm practice.

Assessment guidelines for land-spreading areas.

Guidelines on aquifer vulnerability and protection.

#### **Sources of Information**

The sources of information used in this study are as follows: -

The 1-100,000 scale Geology map of Galway – Offaly (Sheet 15), (GSI and Chevron Mineral Corporation of Ireland, 1992).

Aquifer Classifications obtained from the Geological Survey of Ireland

The Agro-Climatic Atlas of Ireland (Collins & Cummins 1996)

Location maps supplied by M.S. Farm Services.

Information collected as part of this application on behalf of the client.

### **5.3.2. GENERALISED DESCRIPTION OF THE EXISTING ENVIRONMENT**

#### **5.3.2.1. Land Use and Cropping History**

The customer lands whereupon it is proposed to use pig manure, consist of grassland and arable crops, for grazing / silage production and cereal crop production. Farm management standards on all these farms are good.

### 5.3.2.2. Existing nutrients levels and chemical loading capacity of soils.

The soil type on all the farms are Grey Brown Podzolics (Soil association number 21). Grey Brown Podzolics Soils have a wide use range and are very suitable for grass and cereal production. Because of their sandy loam texture, free drainage and good structure, they are easy to cultivate and can produce a wide range of crops.

The nutrient status of the soil was determined by soil analysis. Soil samples were taken from lands representing 2940 Ha. An average P value for each farm proposing to use pig manure as a fertiliser is shown in Table 3. These soil samples analyses are summarised in Appendix 6.

Results of the chemical analyses (Morgan's P Test) carried out at Independent Accredited Laboratories, show that soil phosphorus (P) levels on these lands are generally below that required for optimum production and could benefit from the application of pig manure. Table 3 shows the crop P requirements of these lands.

High phosphorus areas have been excluded (where the P values were greater than 15mg/Kg), and these lands will be monitored in the future and when the P index has dropped, they will be included in the fertiliser plans and receive pig manure at the recommended rates.

Table 4 gives details of the nitrogen loading on these lands based on both cattle N production and pig manure application rate.

**TABLE 4 Organic Nitrogen Loading of Spreadlands**

Farm Code	Usable Area (Ha)	Org N Produced (Kgs)	Org N Imported (Kgs)	Total Org N (Kgs)	Total Org N Kgs/Ha
6	59.3	6480	1741.11	8221.11	138.64
8	43.9	8550	664.77	9214.77	209.9
9	68.0	10290	3980.2	14270.2	209.86
10	125.37	11040	8262.97	19302.97	153.97
11	98	8820	10382.95	19202.95	195.95
12	19.8	0	857.02	857.02	43.28
15	55.5	5530	5376.17	10906.17	196.51
16	140.0	16770	5873.75	22643.75	161.74
18	54.5	4470	1417.49	5887.49	108.03
22	69.2	5790	6544.08	12334.08	178.24
32	44.5	6480	2851.3	9331.3	209.69
34	130.8	17890	9522.74	27412.74	209.58
38	65.5	4496	5427.92	9923.92	151.51
39	23.0	4190	625.74	4815.74	209.38
40	114.9	10295	9224.59	19519.59	169.88
41	37.7	665	5746.77	6411.77	170.07
43	61.0	10230	2536.42	12766.42	209.29
44	32.5	4884	630.13	5514.13	169.67
49	72.4	8125	4144.57	12269.57	169.47
56	134.7	8100	10422.36	18522.36	137.51
58	80.31	10630	2398.7	13028.7	162.23
59	53.0	7840	3281.19	11121.19	209.83
60	68.8	6915	7296.41	14211.41	206.56
61	13.91	2205	1838.89	4043.89	169.13
65	99.26	10680	9337.01	20017.01	201.66
66	4.1	648	146.88	794.88	193.87

67	17.7	1259	872.94	2131.94	120.45
68	49.2	6000	2345.36	8345.36	169.62
72	11.0	1070	613.01	1683.01	153.0
73	51.38	5385	1082.08	6467.08	125.87
74	12.3	972	1173.08	2145.08	174.4
75	31.3	3970	2581.4	6551.4	209.31
78	137.38	4565	2323.86	6888.86	50.14
79	44.9	6400	2315.07	8715.07	194.1
80	13.75	240	1039.93	1279.93	93.09
81	93.92	8041	5306.47	13347.47	142.12
84	35.19	1440	704.64	2144.64	60.94
85	17.39	3375	262.4	3637.4	209.17
86	110.26	18230	1913.7	20143.7	182.69
90	26.69	4405	1187.93	5592.93	209.55
91	34.78	5575	1724.95	7299.95	209.89
92	69.7	5700	4458.13	10158.13	145.74
94	9.3	1140	703.37	1843.37	298.21
95	23.9	0	3599.64	3599.64	150.61
96	73.01	7500	7787.05	15287.05	209.38
97	43.4	6840	1526.95	8366.95	192.79
98	27.09	2529	943.2	3472.2	128.17
100	38.43	5255	1270.59	6525.59	169.8
101	16.97	2328	488.6	2816.6	165.98
102	108.23	10045	3653.1	13698.1	126.56
103	64.93	11585	173.75	11758.75	181.1
TOTALS	2942.05	315862	170583.33	486445.33	165.34

### 5.3.3. Water Quality Analysis

Water samples are taken from the 2 wells (AGW1, AGW2) supplying the pig farm annually, and from the stormwater runoff points (SWD1, SWD2, SWD3) quarterly. Full analyses results from an independent laboratory are included in Appendix 11, of the most recent tests. The results of water monitoring carried out in 2003 are set out in the Annual Environmental Report in Appendix 15. The stormwater monitoring points are visually inspected weekly, and a water sample taken quarterly, as required by IPC Licence Reg No 437.

### 5.3.4. Air Quality

The proposed development will take place in an entirely agricultural hinterland where typical farm odours are to be found and expected. These odours arise from farmyards and lands during the day to day operations such as silage feeding, slurry agitation and land spreading. The existing unit, using best available practices, is already operating without a significant effect of the environment and will continue to strive to minimise all environmental impacts.

### 5.3.5. Noise Levels

A simple definition of noise is "unwanted sound". The major noises associated with a pig unit are animals at feeding time, ventilation fans, feed unloading and tractors loading pig manure.

Noise levels are measured in decibels and a weighting factor (A) is applied to approximate the frequency response to the human ear. This weighted decibel scale, dB (A) correlates well with human sensations of loudness, disturbance and annoyance.

Due to the isolated location of this facility, and experience of similar sized units we conclude that noise emissions from this facility will not be audible, at or beyond the site boundary

### 5.3.6. Traffic Levels

Details are set out hereunder of traffic volumes servicing this site.

#### Section (A)

	TRAFFIC DETAILS	VEHICAL TYPE	WEEKLY UNITS
STAFF	4 to and from site daily	car	40
FEED DELIVERIES	4 Deliveries weekly	lorry	8
SERVICE STAFF	average 1 per week	van	2
SALESMEN	average 1 per week	car	2
INSPECTORS etc	average 1 per week	car	2
MISC	1 per week	car	2
PIG DELIVERIES TO FACTORY	2 per week	lorry	4
	1 per week	lorry	2
<b>TOTAL A</b>			<b>62</b>

- Total A remains unchanged for the proposed development.

#### SECTION (B)

##### PIG MANURE DELIVERIES TO LANDS.

The volume of pig manure to be produced in the proposed development is calculated in Tables 1, and 2, coming to 20932 m3 per annum. The volume of pig manure produced on site prior to this was 14259 M3. Typically tractor drawn vaccum tankers (1100-3000 gallons capacity, 5-13.6 m3) previously transported about 50% of the pig manure from this site, with the remainder being transported by 6000 gallon tanker (27.3 M3). Assuming that the pig manure was removed by these four tanker sizes, the Table below outlines the traffic volumes generated, when transporting pig manure by traditional tanker sizes.

##### (A) Traffic volumes generated by pig manure transport to date

TABLE 5: VOLUME OF PIG MANURE TO BE TRANSPORTED ANUALLY....14259 m3

TANKER SIZE GALLONS	TANKER SIZE M3	VOLUME OF PIG MANURE TRANSPORTED.. GALLONS	VOLUME OF PIG MANURE TRANSPORTED ...M3	No OF TANKER MOVEMENTS REQUIRED	TRAFFIC VOLUMES GENERATED
1100	5	522 830	2376.5	475	950
2000	9.1	522 830	2376.5	261	522
3000	13.6	522 830	2376.5	175	350
6000	27.3	1,567 566	7125.3	261	522
<b>TOTALS</b>			<b>14259</b>		<b>2344</b>

A review of the tanker sizes used to deliver pig manure to customer farmers, was undertaken as part of this study, with a view to reducing traffic volumes. As a result it is proposed to transport the pig manure produced with 6000 gal lorry tankers, and to stop the use of vaccum tankers, with less than 3000 gal capacity. It is proposed to deliver 75% of pig manure with the larger tankers. The table below outlines the proposed traffic volumes generated, when transporting pig manure under this regime.

##### (B) Traffic volumes to be generated by movement of pig manure to customers

TABLE 5A: VOLUME OF PIG MANURE TO BE TRANSPORTED ANUALLY....20932 m3

TANKER SIZE GALLONS	TANKER SIZE M3	VOLUME OF PIG MANURE TRANSPORTED GALLONS	VOLUME OF PIG MANURE TRANSPORTED M3	No OF TANKER MOVEMENTS REQUIRED	TRAFFIC VOLUME GENERATE D
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3000	13.6	1,151,260	5233	385	770
6000	27.3	3,453 780	15699	575	1150
TOTALS			20932		1920

It is clear from the totals of the tables outlined above that the volume of traffic will be greatly reduced in the area of this pig unit with the new arrangements for the transportation of pig manure to the proposed customers. The proposed reduction of pig manure volumes by covering the open storage tanks will further reduce this impact.

## 6. DESCRIPTION OF IMPACTS AND MITIGATION MEASURES

### 6.0 Employment and Human Well-being.

In full production the pig unit will employ 6 full time staff. These staff will reside locally with a significant positive economic impact on the area. The unit will also indirectly lead to another 24 jobs in pig meat processing, feed compounding and the service sectors.

The pig unit is designed to operate with the best technology under the supervision of a highly trained and experienced manager. The working conditions will meet the standards of the British Control of Substances Hazardous to Health Regulations (COSHH) which implement EC Directive 80/07/EEC.

### 6.1. STRUCTURES

#### 6.1.1. Landscape and visual aspects

The proposed unit is located in a remote area. The structures comprise long low A-roofed houses. The tallest structures on site is the mill house at 14.9m. The proposed buildings primarily consist of single storey; steel framed structures with PVC coated metal cladding externally to walls and sloping roof. Chimneys will be of grey PVC pipe.

#### Mitigation Measures

##### (a) External Finishes

All new buildings and re-cladding to be in selected colour/colours to blend with the surrounding landscape as much as possible. It is proposed to discuss and agree with North Tipperary Co. Council a scheme prior to commencement.

##### (b) Building Heights

All new buildings to be designed to keep ridge heights to the lowest possible level. This is achieved by minimising roof slopes and ground floor to eave levels.

##### (c) Landscaping

It is proposed to provide selected landscaping in the form of specimen trees, shrubs and flowerbeds, particularly at the site entrance. This site is already screened from all sides.

#### 6.1.2. PIG MANURE STORAGE, SURFACE AND GROUND WATER

All pig manure on site will be stored in underfloor reinforced concrete tanks, constructed according to Dept. of Agriculture specifications, or the existing overground steel tank. High level alarms have been fitted to the reception tanks. A freeboard of 100mm has been allocated in the underfloor storage tanks, and 500mm to the open storage tanks to contain gasses, and allow for rainfall. All new storage tanks will be provided with a leak detection system. In accordance with the requirements of IPC Licence Reg 437, the previous owners (Dairygold Farms), engaged Mr Jer Keohane of Geotechnical & Environmental Services Ltd, to prepare a report on the risk to groundwater from the possibility of leakages from the pig manure storage tanks on site. This report which recommended the putting in place of 3 No boreholes at identified locations around the site is included in full as Appendix 16. The 3 No boreholes have been installed, and a follow up report is in the early stages of preparation by Mr Jer

Keohane. The replacement of some of the older storage tanks on site under the pig houses which it is proposed to demolish, with shallow mass concrete tanks, set above individual leak detection facilities, and the covering of all passageways, will greatly reduce the risk to surface and groundwater from this facility.

### 6.1.3. NOISE LEVELS

Apart from the noise level at feeding time (10-15 minutes) and from delivery vehicles referred to in Section 5.2.5. the noise levels from the pigs at other times are insignificant.

Other noises arise from the operation of feed preparation plant and ventilating fans. The noise generated by these is inaudible outside the immediate vicinity of the buildings and adjoining yards.

Insulation levels in modern pig unit are high, normally 60mm extruded polystyrene in walls and 60mm extruded polystyrene in ceilings. This will greatly muffle noise levels from the interiors of the pig buildings.

### 6.1.4. ODOURS AND EMISSIONS

Odours and emissions from modern well-managed pig units are insignificant outside the confines of buildings and adjoining yards. Significant odours and emissions at the unit only arise during the removal of pig manure from the storage tanks. The release of these odours is minimised by inserting the tankers armoured suction hose in a fixed pipe in the walls of the tanks, and the use of low protein diets on site.

### 6.1.5. ESTIMATED INCREASE IN TRAFFIC

On completion of the development, there will be no increase in traffic volumes. In fact a reduction will be achieved, by using larger tankers to transport the pig manure to the proposed customers. Full details of the current and proposed traffic volumes are discussed in Section 5.3.6.

### 6.1.6. MORTALITY, TRANSPORT AND DISPOSAL OF CARCASSES

Management practices on the unit will be actively focused on minimising pig mortality. Nevertheless, some will occur and the mortality under good management has been estimated in Section 3.4.2.

Carcasses will be temporarily stored in a covered sealed trailer skip for transport to a licensed rendering plant at regular intervals in the manner normal on such farms (See Section 3.4.2.)

### 6.1.7. ACCIDENTAL SPILLAGES

Pig manure is the only material of concern, as feed and oil storage tanks on site will be locally banded. Since tankers must be pressurised for delivery of the pig manure, the risk of any sizeable leakage or spillage is minimal. In the case of an accidental spillage occurring the developer will notify North Tipperary County Council & the EPA and will take the necessary measures to clean up such a spillage. All tankers will be kept clean.

### 6.1.8. CONTROL OF RODENTS

Staff members successfully carry out the control of rodents on the site. Mr Michael Monagle insures that this work is carried out professionally and that proper records are maintained. A copy of the format used to record this procedure is included in Appendix No. 13.

## 6.2. APPLICATION OF PIG MANURE

### 6.2.1. Pig manure application rates and Nutrient Balance

The land area of the customers lands whereupon it is proposed to use pig manure is 2940 ha. The farming enterprises in the area are mainly dairying, cattle, and tillage. Pig manure will be applied to match crop requirements for P, P levels required for crop growth. The levels of P requirement for each

customer are shown on Table 3, and full individual farm fertiliser plans, have been submitted to the Environmental Protection Agency, as part of the IPC Licence requirements for this facility. Pig manure will be applied at an average rate of 15m<sup>3</sup>/ha. Pig manure will be used to help meet crop P requirements in the plots except where there is a danger of over applying organic nitrogen. In this case the balance of P will be spread in the form of chemical fertiliser.

In relation to chemical loading, the application of the pig manure entails the substitution of nutrients from chemical fertilisers by those from organic manure. There is no nett increase in the application of plant nutrients leading to accumulation, particularly of phosphorus and nitrogen. The nutrient status of the soil was determined by chemical analysis. The rate of pig manure application will be based on the nutrient status of the soil. A schedule of the average soil phosphorus levels and phosphorus requirements of the land on each farm is represented in Table 4 above.

The total phosphorus requirement of the customer farms is 51020 kgs. (See total of Table 3) after allowing for the phosphorus supply by the on-farm cattle slurry, and the phosphorus supplied in its artificial form for balancing purposes, there is a deficit which needs to be made up by 41605 m<sup>3</sup> of pig manure (42853kgsP). Only 21560 kgs P, is produced on site, leaving a soil deficit of 21293 kgsP. Spreading rates are based on the soil phosphorus (P) index of the lands involved. This soil P. Index is shown on Table 6 overleaf, along with maximum phosphorus limits for silage, hay and grazing. The maximum phosphorus limits for all cereals (kgs/ha) are shown in Table 7, and the maximum phosphorus limits for other tillage crops are shown in Table 8. Table 6, 7 and 8 are taken from THE DEPARTMENT OF AGRICULTURE AND FOOD, REPS RECOMMENDATIONS (Revised 1 Jan, 2000)

TABLE 6 MAXIMUM PHOSPHORUS LIMITS FOR GRAZING, SILAGE/HAY

Soil Index	P Level-Mineral Soils	P Level-Peat Soils	Grassland Kg/ha	
			Target Index 3	Target Index 2
1	0.3 mg/L	0-10 mg/L	29	19
2	3. 2-6 mg/L	10. 1-20mg/L	19	9
3	6. 1-10 mg/L	20. 1-30 mg/L	9	0
4	>10 mg/L	> 30 mg/L	0	0

TABLE 7 MAXIMUM PHOSPHORUS LIMITS FOR ALL CEREALS (KG/HA)

Soil Index	P	
	Straw Ploughed in	Straw removed
1	35	45
2	30	35
3	20	25
4	0	0

TABLE 8 MAXIMUM PHOSPHORUS LIMITS FOR OTHER TILLAGE CROPS (KG/HA)

Soil P Index	Sugar Beet/	Potatoes	Swedes Turnips	Oilseed Rape/	spring Rape/	Field Peas	Field Beans	All Other

	Fodder		Linseed		Kale		Crops	
1	70	125	70	35	43	40	50	85
2	55	100	60	25	32	25	40	65
3	40	75	40	15	21	20	20	40
4	*20	50	** 40	0	11	0	0	15

### 6.2.2. PIG MANURE USE AND THE QUALITY OF SURFACE AND GROUND WATERS

Pig Manure can cause serious water pollution if discharged directly to groundwater or surface waters. Whether or not land spreading creates a risk to the aquatic environment is largely dependent on a number of natural physical characteristics. These include such factors as geology, soils, climate, hydrology and hydro-geology, and on more anthropogenic factors such as operational procedures and the proximity of other potentially polluting features such as farmyards, silage pits. Slurry pits and septic tanks.

The assessment of the likely impacts from the landspreading needs to consider all of the above factors in a holistic way.

#### 6.2.2.1. Relevant Guidelines

Over the past few years a number of working parties have produced guidelines on the environmental management of intensive agricultural developments.

These include: -

- The Geological Survey of Ireland guidelines for the assessment of the vulnerability of groundwater to various potentially polluting activities and proposed approaches to the risk assessment of groundwater pollution (Daly, 1994)
- The BATNEEC guidance note for the Pig Production Sector, published by the EPA
- Guidance notes prepared as the result of the work of a Technical Sub-Committee under the aegis of the Management committee of the Regional Water Laboratory, which looked at the land-spreading of animal wastes and the scoping of Environmental Impact Statements related to piggery developments (Moore 1995)
- Guidelines for good farm practice detailed in the Rural Environment Protection Scheme documentation (1992 & 1999) also include a section on landspreading.
- Guidance notes and oral communications with EPA representatives relating to the Integrated Pollution Control Licensing Application procedures (1997)

Reference was made to all these sets of guidelines in the preparation of this report.

#### 6.2.2.2. Discussion of Likely Significant Impacts

##### Groundwater

Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. The travel time, attenuation capacity of the soils and the nature of the contaminants are important elements in

determining the vulnerability of groundwater. The Geological Survey of Ireland has prepared guidelines, which help in categorising the vulnerability.

Applying these guidelines and using the properties of the subsoils and bedrock, vulnerability ratings can be determined for the proposed landspread areas. The vulnerability classifications determined by Geotechnical & Environmental Services for the aquifer protection are outlined in their report, which is included in full in Appendix 7.

When the aquifer classification is considered, in addition to the vulnerability, a groundwater resource assessment can be made, to determine the potential risk from a potentially polluting activity.

### Surface Water

Where subsoils are of low permeability there is an increased risk to surface water, resulting from reduced infiltration to the ground and increased risk of surface run-off. For this reason, it is important that good farm practices are adhered to in relation to surface water protection. Of particular importance are areas sloping towards watercourses that may be prone to surface run-off.

Pig manure will be uniformly spread on dry land and in the growing season. February through October. Adherence to the Teagasc Code of Good Practice for Slurry Spreading (Appendix 13) will forestall surface run-off, which is the most likely route for phosphorus enrichment of surface waters. Moreover, under the proposed spreading schedules, accumulation of phosphorus in the soil will not take place. Applying the pig manure during the growing season will ensure that nitrate-nitrogen (which is leachable) will be fully taken up by the grass roots and that leaching potential is minimal because of low recharge.

#### **6.2.3. AIR QUALITY AND PIG MANURE USE**

The proposed customers lands whereupon it is proposed to use pig manure are entirely located in a farming area where the air quality is determined by odours emitted from manure, animals and foodstuffs (e.g. Silage). Nevertheless, every effort will be made to reduce offensive odours to insignificant levels. All manure will be spread from tankers fitted with a low trajectory splash plate or band spreader to minimise aerosol formation and dispersion. No pig manure will be spread nearer than 100 meters of any dwelling house save with the express approval of the inhabitants in writing. No spreading of pig manure will be permitted in windy weather close by dwelling houses or main roads.

#### **6.2.4. MANAGEMENT OF CO-PRODUCT USE**

The area available for use of pig manure is much greater than that required: Pig manure will be applied at the rates specified in Section 6.2.1. A pig manure register will be maintained, on site showing the date, amount of pig manure delivered, the owner and farm code of the land and the volume of N and P delivered. This register will be available for inspection by North Tipperary County Council, and EPA official's at all reasonable times.

#### **6.2.5. MITIGATION MEASURES**

##### **6.2.5.1. REDUCTION OF ODOUR EMISSIONS**

This issue is addressed in Sections 3.4.3 and 6.2.3. In addition the following measures will be taken to reduce odour from the development.

- (a) Fans and chimneys in houses will be so that foul air is dissipated high into the atmosphere where it will be mixed with fresher air thus reducing odours in the locality.
- (b) Strict hygiene and cleanliness will be observed at and around the unit.
- (c) The skip for collecting dead animals will be covered at all times. Carcasses will be removed off site by an approved contractor, on a regular basis, and delivered to a licensed rendering plant.

(d) It is intended to incorporate the use of low protein diets on site.

#### 6.2.5.2. PERIODS AND RATES OF USE OF PIG MANURE

This issue is addressed in Sections, 5.3.2.6., 6.2.1, and 6.2.2. Mr. Michael Monagle is committed to ensuring that the use of pig manure from this unit is carried out in accordance with the individual farm fertiliser plans, which will be updated annually, and the guidelines set down in the BATNEEC Guidance Note for the Pig Production Sector (see Appendix 2).

#### 6.2.5.3. REDUCTION OF RISK OF DISEASE SPREAD

The economic viability of a pig production unit at going rates depends primarily on feed conversion ratio and low mortality. High standards of hygiene will ensure that disease is controlled and contained. Access to the unit is strictly restricted, to control the spread of disease to the pig herd. The procedures for dealing with dead animals, as set down in Section 6.1.6. are standard for the industry.

#### 6.2.5.4. DE-COMMISSIONING/LIFE SPAN OF DEVELOPMENT

All pig units require a major capital investment every 10-20 years to keep them efficient and pleasant places to work. So long as this investment is made there is no reason that a unit of this type could not operate for up to 40 years. However, if for economic reasons or technical reasons this does not occur decommissioning will take place. All pig manure and organic matter will be thoroughly removed from the site. All equipment and materials of value will be salvaged. Unused feed, medication, and fuel will be returned to suppliers. It is then proposed that the unit be left standing after making it safe and secure. It is highly unlikely that this scenario would ever develop due to the high initial capital investment in the unit.

#### 6.2.5.5. DEPOPULATION

Depopulation of a unit occurs when a disease such as atrophic rhinitis or haemophilus pneumonia becomes so rampant on a unit that pig production becomes uneconomic. In this event, services cease and pigs are sold so that within 6 months the unit is empty of stock. The unit is left idle for 6 weeks, thoroughly washed and disinfected. After this 6 week period repopulation commences.

Destocking of a unit or complete slaughter of stock on a unit because of a notifiable disease has not happened in Ireland for more than 40 years. In the unlikely event of such a disease outbreak, the Department of Agriculture takes total control. In this event Mr. Michael Monagle has an agreement with his carcass removal contractor, to remove all carcasses from the site in sealed containers, and delivery of same to a licensed rendering plant.

#### 6.2.5.6 REDUCTION OF RISK OF POLLUTION TO SURFACE AND GROUND WATER

Guidelines for the land application of animal manures (1993) suggest that animal manures in general should not be applied: -

- On wet or water logged lands.
- On steep slopes, particularly sloping towards watercourses.
- On frozen or snow covered lands.
- On exposed bedrock.
- Fields that have been pipe or mole drained and the soil is cracked down to the drains or backfill.
- Fields that have been pipe or mole drained in the previous 12 months.
- Fields that have been subsoiled over a pipe or mole drainage system in the previous twelve months.

- Within 15m of exposed karstified limestone or karst features such as swallow holes and collapse features.
- Where permeable bedrock is overlain by shallow (less than 1m from the surface) free draining subsoils, such as sands, gravels and sandy tills. Where the bedrock is limestone or dolomite a greater depth of subsoil is desirable. (2m)
- Where the watertable is within 1m of the surface in free draining areas.

The guidelines suggest a storage capacity of 24-26 weeks in case of extreme wet conditions. The proposed storage capacity for this development is 30 weeks, in the pig production unit.

Guidelines on the optimum times for spreading are also available. Although precise calendar dates are not listed, the advice suggests that the application of nutrients should coincide with the periods of plant growth, so that the nutrients within the pig manure will be utilised by the growing crop. Application of natural fertilisers (i.e.; pig manure) should be avoided when the soil conditions prevent infiltration, such as wet or waterlogged soil, frozen or snow covered soils and on land sloping steeply towards watercourses. Unsuitable climatic conditions include when heavy rain is forecast within 48 hours.

In this proposal for the use of Pig Manure

- Spreading will not be undertaken within 10m of any watercourse and the cordon sanitaire is increased in some instances where the slope towards the watercourse was deemed excessive.
- Spreading will not be undertaken within 50m of a domestic supply well.
- Spreading will be done in a safe manner in strict accordance with the best available weather forecasts.
- The proposed spreading rates are considered low and this also help to mitigate any potential impacts.

### 6.3. GENERAL

#### 6.3.1. FLORA AND FAUNA OF THE LANDS WHEREUPON IT IS PROPOSED TO USE PIG MANURE, AND THE SITE

The Flora and Fauna on and adjacent to the facility and customer farms will not be impacted by this development, when all the requirements of the Batneec Guidance Notes for the Pig Production Sector, and the conditions of IPC Licence Reg 437 are complied with. Mr Michael Monagle is committed to ensuring that all regulatory requirements are satisfied, and plans to operate this facility to the highest standard.

#### 6.3.2. ARCHAEOLOGY AND CULTURAL HERITAGE

All archaeological sites on or adjacent to the site and customer farms are identified on the maps in Appendix 1, and the relevant buffer zones have been incorporated in the individual farm nutrient management plans.

#### 6.3.3. TRAFFIC

There will be no increase in traffic due to this development (see Section 6.1.5.). In fact a reduction in traffic volumes will be achieved, with a variation of tanker sizes used to deliver pig manure. The road surface and foundation is sound and is unlikely to deteriorate with the proposed traffic volumes.

#### 6.3.4. CLIMATOLOGY

The existing and proposed development has not had and will not have any effect on the climate in the area.

### INTERACTIONS

When interactions between humans, flora, fauna, soil, water, air, climate and landscape are examined, no significant negative impacts are envisaged.

#### **6.3.5. MATERIAL ASSETS**

There is no reason to suggest that material assets will be affected or devalued in the locality due to the proposed development. The proposed development will operate in as sensitive manner as possible and as such no negative impacts on material assets are envisaged. In fact this development when complete, will improve upon the existing situation.

### **7. MONITORING**

#### **7.1. DRAINAGE FROM THE SITE**

Uncontaminated roof water from the pig unit is collected via the proposed stormwater collection system, to monitoring points adjacent to the unit, identified as SWD1, SWD2, SWD3 on the site layout plan. Samples are taken from these points quarterly and analysed for COD at an independent laboratory. All soiled water from the site is diverted to the pig manure storage tanks. A visual inspection of these monitoring points are made and recorded weekly.

#### **7.2. GROUNDWATER AND SURFACE WATER**

The wells supplying water to the site are analysed annually and results are maintained for inspection by North Tipperary County Council, and EPA officials, at all reasonable times. The location of these wells is marked as AGW1 & AGW2 on the location maps. (see Appendix 19).

#### **7.3. SOILS**

Soils of the customers lands whereupon it is proposed to use pig manure will be sampled every 3 years and analysed chemically at an independent laboratory, in accordance with IPC Licence requirements. These analyses will be maintained in a register for inspection by North Tipperary County Council, and EPA official's at all reasonable times. Whenever necessary, adjustments will be made to the rate of spreading and to the lands to be used, to take into account the results of the soil analyses. Before any adjustments are made, notification in writing to North Tipperary County Council, and the EPA shall be made for approval.

#### **7.4. PIG MANURE USE**

A register of all pig manure delivered from the facility will be kept on site. This will record the date, quantity, destination, N and P content of pig manure supplied to customer farmers. This will be available for inspection by North Tipperary County Council, and EPA official's at all reasonable times.

#### **7.5. PIG MANURE STORAGE**

The pig manure storage capacity on site is monitored weekly and recorded monthly, and a record of this register will be kept on site for inspection by North Tipperary County Council, and EPA officials at any reasonable time.

#### **7.6. OTHER WASTES**

A register of all other wastes (i.e. carcasses, veterinary waste, fluorecent tubes, and refuse) is maintained on site, recording the date, volume and destination. A copy of these registers will be available on site for inspection by North Tipperary County Council, and the EPA at any reasonable time.

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**EPA (1996)** Integrated Pollution Control Licensing. BATNEEC guidance notes for the pig production sector.

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**Moloney J. (1991)** Environmental Impact Assessment of 10,000 place pig fattening unit. 3 April, 1991

**Moore, b,** Land spreading animal wastes. Tipperary S.R. County Council.

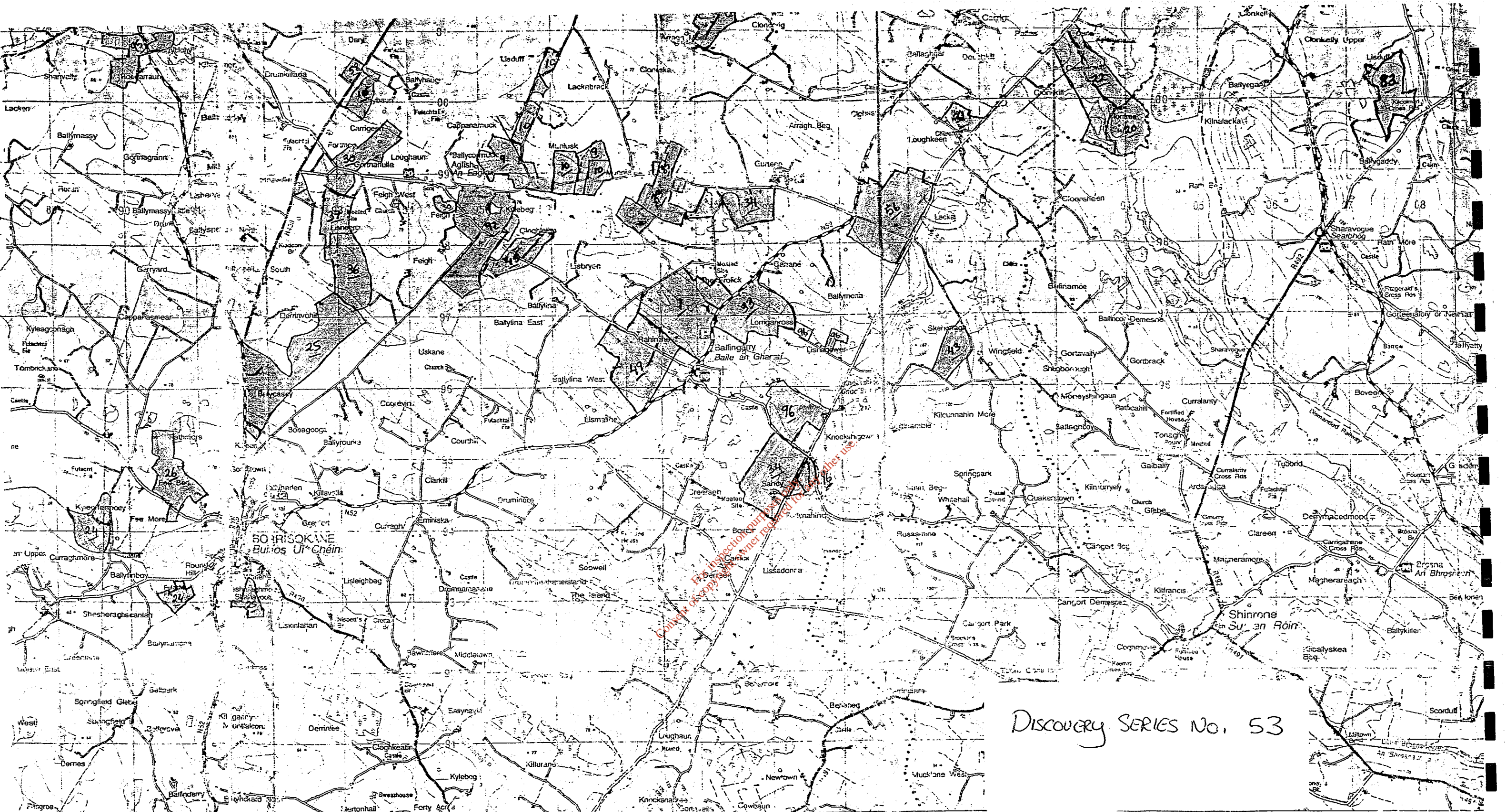
**Teagasc 1993)** Management data for Farm Planning 1993

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**Tunney, H and Power V (1988)** Soil Fertility in Ireland – Phosphorus. Farm and Food Research – October Edition.

**+Teagasc (1988)** Draft guidelines for nutrient use in intensive agricultural enterprises. Proceedings of one day technical conference 107 pp





BOIRISOKANE  
Buides Uí Chéin

Shinrone  
Su'an Róin

This information must not be released to the public  
 without the express written consent of the Director General

Discovery Series No. 53

Co. TIPPERARY  
Co. Thiobraid Árann

Co. OFFALY  
Co. Uíbh Fhailí

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Golfchúrsa, maoinne golf  
Golf Course or Links  
Terrain de Golf  
Golplatz (mit Golfbanne)

Síochanachas le comharthaí  
Waymarked Walks: Green  
Parcours de marche signalés  
Beschilderter Wege: Grün

OS

Baineann an léarscáil seo le aithníocht nua léarscáilanna d'Éirinn a thaispeáint  
é a thaispeáint a bhfuil ar scála 1:40 000. Glacfaidh an tsraith seo  
ionad na sráithe ar scála oiriain sa mhéid 1:63360. Baineann an léarscáil seo  
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sonraí seo. Fíricí seo a thaispeáint roghnaithe inspáise ar scála 1:25 000 c. omh  
maith.

Teorainn ionad  
International boundary  
Frontière internationale  
Grenze

Rann Míleata  
Military Ranges  
Champ de tir militaire  
Militär-Übungsplatz

Plátaí  
Plaques  
Plaque

Páirc Náisiúnta

Stochomarthas Ainmne  
Name of Spot  
Monuments mentionnés  
Monuments mentionnés  
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Stochomarthas Ainmne  
Name of Spot  
Monuments mentionnés  
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Céim líne comharde 50m  
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50m Höhenintervall