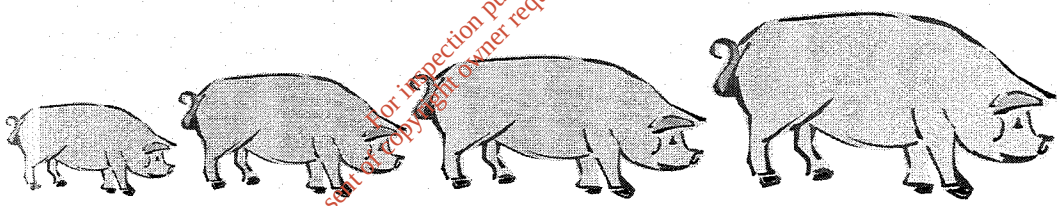
ENVIRONMENTAL IMPACT STATEMENT

Relating to

AN EXISTING PIG FARM

AT

BALLYKNOCKANE, BALLYMACKEY,
NENAGH,
CO. TIPPERARY



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For

WOODVILLE PIG FARMS LTD
WOODVILLE, BALLYMACKEY. NENAGH,
CO. TIPPERARY

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1. NON-TECHNICAL SUMMARY

1.1 This proposal for permission to demolish 11 No. old pig fattening houses, construction of 3 No. new modern pig fattening houses and associated site works on an existing pig farm at Ballyknockane, Ballymackey, Nenagh, Co. Tipperary (Grid Ref E1981550, N822050), is being put forward by NRGE (Nutrient Recovery to Generate Electricity) Ltd, whose registered office is at Mooresfort, Lattin, Co. Tipperary. This application has been prepared and submitted by NRGE on behalf of Woodville Pig Farms Ltd, (Site Owners), whose registered office is at Woodville, Ballymackey, Co. Tipperary to improve the environmental performance of the existing facility. The facility will conform to the highest standards. This development comprises of an activity in relation to which a licence under Part IV of the new first schedule to Environmental Protection Agency 1992 as amended by Protection of the Environment Act 2003 is required at Ballyknockane, Ballymackey, Nenagh.

1.2 The development will occupy a landscaped site of approximately 2.74 hectares, (6.77 acres). The proposed works will not increase the stock numbers on site, which is currently 8,000 pigs reared to bacon weight, but rather provide compliance with the forthcoming E.C. Regulations on Animal Welfare, Nitrate Directives, and incorporates emission reduction measures, as required by their IPPC Licence, along with the replacement of existing old structures on site.

1.3. The buildings and their layout will be 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 2), and directed into the monitoring point identified as SW1,which is marked on said drawing. These monitoring points are visually inspected weekly, and sampled quarterly. All soiled water is diverted into the adjacent pig manure storage tanks. Each of the proposed structures will have an independent leak detection system, with individual inspection chambers, which will be connected to a site inspection chamber at the south western end of the site identified as LD1, on the site layout plan.

1.4. An application for an IPPC Licence will be submitted to the Agency shortly as the stock numbers on site are greater than the capacity for which an IPPC Licence is required. It is planned to submit this application within the next month. The main components of this proposal are;

(i) Provision of new animal houses providing area compliance with Animal Welfare Regulations.
(ii) Provision of covered pig manure storage to replace existing open Pig Manure Storage tanks.
(iii) Provision of independent leak detection systems under all proposed structures on site
(iv) Covering of all passageways used for pig movement.
(v) Removal of pig manure from under pig houses to proposed anaerobic digester for treatment within 2-4 weeks of production.
(vi) Bunding of all feed tanks and fuel tanks on site.
(vii) Treatment of pig manure in proposed anaerobic digester which is the subject of a separate planning application.

1.5 The estimated annual production of pig manure from this pig farm is 15,276 m3.

1.6 The pig farm and anaerobic digester (which is currently subject of a separate application) will give direct employment to 6 staff members, and a trained manager. It will also give rise indirectly to another 40 jobs in the pig meat processing, milling and service sectors.

1.7 The application of animal manure to farmland is now regulated under S.I. No. 378 of 2006 and distribution of manure from this site will comply with those regulations. This facility is entitled to supply manure to any local farmer who wants it, and is obliged to record all dispatches from the holding and the farmers acquiring manure are obliged to record all consignments acquired and to use it in compliance with the regulations. Manure will not be supplied to customer farms between 15th October and 31st January in any year except with the consent of the local authority, or any other relevant authority. Outside that period, manure will be supplied from the site to a customer farmer, only in response to an order. Managed and used in this way, manure produced at this facility will not have any adverse impact on environmental parameters either inside or outside the site.

1.8 Steps have been taken in the selection of the customer farms whereupon it is proposed to use digestate and in designing the management of its use to ensure that no contamination of surface and groundwater takes place. The proposed development of an anaerobic digester on an adjacent site will significantly reduce the risk to surface and groundwater.

1.9 An Environmental Impact Assessment was carried out in support of this application. This entailed site surveys of water quality analyses, geohydrological surveys, Flora & Fauna, archaeological monuments and traffic levels were also noted. The following statements may be made.

(a) The customers lands selected whereupon pig manure will be used are well drained. 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

(b) The quality of the surface and groundwater leaving the area of customer farms 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.

1.10 Proposals for monitoring surface and ground waters at the site are set down in the Environmental Impact Statement. A register of digestate 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 were studied. See report by Carl Dixon of Dixon Brosnan Environmental Consultants (Appendix No. 4). Flora and fauna should not be affected by this development. 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 digestate applications. An archaeological report is included in appendix No 8.

1.15 Disturbance of the landscape will be minimal during the construction period. The site will be suitably landscaped, with the planting of trees etc., in a manner sensitive to the environment. This site is not in or near any NHA, SAC or SPA and does not threaten any such site in any way.

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, and the resultant reduction of existing impacts from emissions. The development is located in an agricultural area and the buildings will blend into the surrounding area. Also, the development will be landscaped with a screening of trees, shrubs and flowers. Thus, there will be no nuisance or loss of amenity. A landscaping report is included in appendix No 13.

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 from this pig farm by the replacement of 4 No existing open pig manure storage tanks with an engineered geomembrane covered storage basin. If the proposed development on an anaerobic digester at Ballyaghveny, Ballymackey, Nenagh, Co. Tipperary, should proceed), the current practice of pig manure application to agricultural land, will be replaced by application of digestste, resulting in an 80% reduction of odours generated, due to gas extraction. Pig manure will also be moved fresh from the farm to the Anaerobic Digester, every 2-4 weeks, thereby further reducing emissions from the pig farm. Low protein diets are being utilised on site, which can achieve a reduction of 30%, 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.

1.18 In a discussion paper published by the Environmental Protection Agency (January 2005), it concluded that "*Anaerobic Digestion has the potential to deliver multiple environmental benefits, including reduced water pollution potential, lower green house gas emissions, and reduced odours from agricultural slurries.*"

1.19 This proposed development has the potential to benefit all stakeholders adjacent to the proposed site and the customer farms. The nett result of this proposed development will be a reduction of existing impacts to the order of at least 50%, from the site and 80% from the application of digestate in place of pig manure to customer farms, should the proposed anaerobic digester be constructed.

2 INTRODUCTION

2.1 Relevant Regulations for Environmental Impact Statements (EIS)

The proposed development will result in the development of an installation that belongs in a class listed in Schedule 5 Part 2 of the Planning and Development Regulations 2001, and so the submission of an Environmental Impact Assessment is a mandatory requirement. This report follows the structure and protocols detailed in *Advice notes on current practice in the preparation of Environmental Impact Statements (EPA 2003)* and *Guidelines on the information to be contained in Environmental Impact Statements (EPA 2002).*

The scale of the proposed development is above the threshold for Class 1(e) (ii) activity, "*Installations for intensive rearing of pigs not included in Part 1 of this Schedule which would have more than 2000 places for production pigs (over 30 Kilograms), in a finishing unit, more than 400 places for sows in a breeding unit or more that 200 places for sows in an integrated unit*" The existing facility operates as an 8000 fattening pigs to factory weight and the proposed facility will operate at the same level. This statement is drafted with particular regard to Article 94 and schedule 6 in the 2001 regulations, and is submitted to provide information which may be helpful to the planning authority in making its decision on the application for permission to construct this new facility.

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 (See Appendix No. 23).

Currently the Department of agriculture and food is providing grant aid for the construction of new animal houses, to help ensure compliance with new Animal welfare Regulations, as well as grant aid to improve facilities, structures, and equipment to ensure compliance with the Nitrate Directive Regulations.

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

This proposal envisages the re-development of the existing facility which has the capacity to accomadate 8000 fattening pigs comprising the facilities necessary for this pig farm, and associated meal and manure storage and distribution facilities. This proposal incorporates such features as a covered engineered geomembrane storage basin, covered passageways, which when coupled with the use of low protein diets, and anaerobic digestion at the adjacent site, ensure the overall reduction of emissions, which is in

accordance with BATNEEC, and conditions of IPC Licence which will have to be applied for to incorporate the new proposed developments. It is planned to submit this IPPC License application shortly. Drawings of the proposed new structures are presented in Appendix 2.

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 demand for manure, economic viability and labour efficiency. This application does not propose to increase from the current capacity of 8000 fattening places.

In full production the pig population at this site will comprise at any one time 8000 fattening pigs. Pigs will be slaughtered at approximately 105-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. Development involves the construction of new buildings and items of plant to comply with Animal Welfare Regulations, and Nitrate Directive Regulations. It is also proposed to replace the existing over-ground pig manure storage tanks, with an engineered covered storage basin. Details of siting and design are shown in Appendix 2.

3.3.1. CONSTRUCTION DETAILS

A site location map and planning notice and a site plan are provided as part of Appendix 2.

3.3.2. DESIGN

In arriving at an overall design of new 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.

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 15,276 m3, the calculation for which is set out in Table 1 overleaf. It is intended that all pig manure will be diverted fresh to the proposed anaerobic digester, on an adjacent site which is subject

of a separate planning application to produce digestate, for export to customer farms as fertiliser.

TABLE 1: Pig manure Production
BALLYKNOCKANE FATTENING UNIT
CALCULATION OF PIG MANURE VOLUMES

PIG TYPE	NUMBER OF STOCK	NEAT excreta Pig/week (litres)	Total Litres	Total M3
Farrowing Sows	0	0	0	0.00
Dry Sows	0	0	0	0.00
Boars	0	0	0	0.00
Gilts	0	0	0	0.00
Weaner	0	0	0	0.00
Fattener	8000	34	272000	272.00
Total Pig Manure per week			272000	272
Total Pig Manure per annum			14144000	14144
Extreanous water 8%			1131520	1132
Total annual production pig manure			**15275520**	**15276**

(a) Extraneous Water

In addition to the pig manure there currently is extraneous water for washing at a rate of 8% for fatteners, which equates to a further 1132 m3 to the annual figure of 14144 m3.

The total volume of pig manure generated at this facility will therefore be 14144 m3 neat pig manure and 1132 M3 extraneous, arriving at 15276 M3. This figure is herein used for all calculations, but it is expected it will be reduced following the development of this new facility, by exclusion of rainfall ingress to pig manure storage tanks, and a more efficient feeding system on site.

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% =	0
Piglets	@	8% =	0
Weaners	@	1.5% =	0

Fattening Pig @ 1% = 800

Carcasses will be temporarily stored in a covered sealed metal skip for transport by Beechfield Products Ltd who is an authorised waste collector and disposal to Premier Proteins Ballinasloe who are a licensed rendering plant at regular intervals. A signed agreement to this effect is given in Appendix 6.

3.4.3 AIR EMISSIONS

The main objective of this application is to aid the overall reduction of emissions from this facility. This issue was discussed in a report prepared by Odournet UK Ltd, in 2001 titled "**Odour Impacts and Odour Emission Control Measures for Intensive Agriculture Part A Odour annoyance assessment and criteria for intensive livestock production in Ireland",** which was commissioned by the Environmental Protection Agency, wherein section 9.6 page 69 it states " *that a reduction in odour emission is not likely to be greater than 50% and more likely to be in the order of 25-30%"* by reducing crude protein levels in the diets. Emissions from open slurry storage tanks are also discussed in section 9.9 page 74 wherein it states that ammonia emission reductions of 70-80% have been achieved by covering open tanks. Removal of pig manure from this facility at present is by tanker armoured suction hose inserted into the tank with minimal odour release.

The development of the proposed anaerobic digester on an adjacent site proposes that all pig manure from this farm will be utilised to produce gas via the anaerobic digester, and transferred to adjacent covered storage tanks, after separation of solids, from where the odourless digestate will be exported to customer farms as liquid fertiliser. Odours that can arise during land spreading of the pig manure will be eliminated by this technology.

Control Measures to Minimise and Abate Odour on site at present

Emissions from the Woodville Pig Farm Ltd site are currently contained using the following recommendations;

1. Reducing uncontrolled air movements on site and leakage from the ventilation system and from pig houses (I.E windows and doors)
2. The use of a high-tech computerized ventilation system, in animal houses with a back up system.
3 Minimising the generation of odours during meteorological conditions which favour spread of odours.
4. The storage of carcasses in covered sealed containers on site.
5. A 100mm buffer is maintained at the top of all covered pig manure storage tanks to allow for the accumulation of gases.
6. Minimisation of the agitation of pig manure and the filling and emptying of liquid storage tanks from below the surface of the stored manure.
7. Transporting pig manure in suitably contained leak proof vehicles.
8. Limited areas where pigs are moved outside buildings, and covering of passageways and yards where animals have access.

9. Use of low protein diets to all animals on site has reduced emissions on site by 30%.

Proposed Measures to further Minimize and Abate Odour on site

1. Continued incorporation of low protein diets on site in line with recommendations from Nutech Nutrition Ltd. It is estimated that 30% reductions have already been achieved, in line with recent research.
2. All pig manure will be delivered fresh to the proposed anaerobic digester within 2-4 weeks of production, thereby greatly reducing emissions from under floor storage tanks. The fresher the pig manure is delivered to the digester the greater the gas production levels that will be achieved. Removal of pig manure regularly from the storage tanks under the pig houses will effectively qualify these houses as low emission housing. This process is described in detail in a document that is publicably available on the internet, at http://www.infomil.nl/luch/index.htm.
3. The development of the anaerobic digester will negate the requirement of agitation of raw pig manure in open storage tanks, which we know is a major source of emissions from this site currently, as all pig manure leaving this facility is agitated in one of the four existing over-ground storage tanks. Odournet UK Ltd who have acted as the Agency's experts on a number of sites to date have referenced in a report prepared for another pig farm that *"The specific emission rate of an open storage tank, is assumed to increase from 150 ouE`m$^{-2}$·s$^{-1}$ to 500 ouE`m^{-2}·s^{-1}, when the slurry is being agitated"* this is stated in page 10. Section 2.2, of a report prepared by Odournet UK titled **'Review of Odour impact of two pig production units and options for improvement'.**
4. The replacement of the current use of 4 No open pig manure storage tanks with an engineered geomembrane covered storage basin, will also reduce emissions from the site.

The nett result of this proposed development will be a major reduction of the current level of emissions from this facility, in the order of at least 50%.

3.5. PIG MANURE USE PROPOSALS

It is proposed to supply all the pig manure from this facility as fuel to the proposed anaerobic digester, for gas production. After digestion, the solids will be separated containing approx 70-80% of the P content. This material will be suitable for supply to a nursery, garden centre, or alternatively to fertilise an agricultural crop with a high P demand (e.g. Beet or maize). The remaining digestate will be exported to customer farmers operating in the hinterland, who are currently customers for pig manure, in accordance with Nitrate Directive Regulations (S.I. No 378 of 2006). Odours that arise currently during application of pig manure will be reduced by 80% approx by this proposal.

3.6. PIG MANURE TANKERS OWNED AND AVAILABLE

The developer will engage a professional contractor to supply a tanker for the purpose of delivering the digestate to customer farms in the area.

3.7. REQUESTS TO USE PIG MANURE DIGESTATE AS FERTILISER

This facility will supply digestate to customer farmers in the area, upon request, and all deliveries will be documented on site. A copy of this register format is included in Attachment 10, and same will be available on site for inspection by North Tipperary County Council, and Agency inspectors. All customer farms are now required to comply with the Nitrate Directive regulations (S.I. No. 378 of 2006), and will thereby have to record these manure imports on site. A composite map of existing customer farms is included in appendix 3 on a map scale 1:50,000.

3.8. DETAILS OF SERVICES REQUIRED

The estimated daily water requirement of the unit in full production is 35000 litres (35 M3). A bored well provides water and this well has sufficient capacity for the new development. The analysis of a water sample taken from this well is included in Appendix 9, along with location map.

A 200 KVA transformer, adjacent to the site provides electricity supply. A generator on site provides the back up supply with a 450 KVA capacity.

An Energy Efficiency Audit of the current site is currently being carried, and a copy of the resultant report will be available for inspection.

3.9 DETAILS OF FEEDSTUFFS

About 85 tonnes per week of a balanced meal mixture will be consumed on the unit by the fattening pigs. This feed is milled on site on a least cost basis using the following raw materials (barley, wheat, soyabean meal, sugar beet pulp, pollard, Soya oil, molasses, minerals and vitamins). All feeds are prepared on a low protein basis, which is a process that has been introduced slowly, with proper assessment of ongoing performance. This work is supervised on site by Nutech Nutrition. 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 (CuS04 5H20) 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.

3.10 MAXIMUM SOIL CONTAMINANT CONCENTRATION

The pig manure currently applied, does 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 m3/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. The proposed development of an anaerobic digester on site will greatly reduce the nutrient content, and environmental impact of the digestate to be spread as liquid fertiliser on customer farms.

4. DESCRIPTION OF ALTERNATIVES CONSIDERED

4.1. Alternative Sites Considered

Woodville Pig Farms Ltd engaged NRGE (Nutrient Recovery to Generate Electricity Ltd), to carry out a feasibility study for the development of this site. The existing pig farm is located in an agricultural area on a level site elevated about 110mOD. The existing site also has an existing mill facility at the western end of the site. Most of the existing pig houses on site are old, and the main pig manure storage capacity on site is in open storage tanks. It was decided to replace these open storage tanks with an engineered covered geomembrane storage basin, and to construct 3 No new houses to replace 11 No old pig houses, which even with the additional space per animal requirement, would be more compact and provide a better environment for stock, staff members, and all stakeholders alike. It was also proposed to export all pig manure to the proposed anaerobic digester which is currently being processed in a separate planning application.

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, 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. The proposed anaerobic digester will utilise the pig manure from this pig farm to generate gas. In the process solids will be removed including 70% of P. The digested material is stabilized by the process so it is almost odour free. Much of the carbon has been removed from it and has been homogenized during the process so it becomes thinner and of an even consistency and the nutrient it contains has become plant available so it is a valuable fertiliser. The method proposed (low trajectory splash-plate/band spreading) is very practicable for applying this product. The use of low emission housing designs, and covered storage basin, along with the use of low protein diets on

site will greatly reduce emissions from this pig farm, which could be further reduced by the export of pig manure within 2-4 weeks of production to the proposed anaerobic digester.

5. DESCRIPTION OF EXISTING ENVIRONMENT

5.1. Location of Structures

The site location map (Ordnance Survey map sheet No TY016 and TY022 County Tipperary) is included in Appendix 1, and the drawings and site plans for this development are included in Appendix 2. The proposed unit is located in the Townland of Ballyknockane, Ballymackey, approx. 4km from Moneygall on the N7 (Limerick to Dublin Road), and 4Km due north of town of Toomevara. This facility is located in a wholly agricultural area.

5.2. Deliveries to Customer Farms of pig manure which is currently used as a fertiliser & where it is proposed to apply digestate.

The application of animal manure to farmland is now regulated Under S.I. 378 of 2006 and distribution of manure from the site will comply with those Regulations. The Applicant is entitled to give manure to any local farmer who wants it and is obliged to record all despatches from the holding and the farmers acquiring manure are obliged to record all consignments acquired and to use it in compliance With the Regulations. A composite map of existing customer farms is included in appendix No3.

Animal manure produced in the existing facility is currently distributed to local farmers in response to their demand and for their use on their farmland. The manure that would be produced by animals to be housed in the proposed development would be similarly distributed. Local demand for pig manure is buoyant. The applicant has more customers and more demand than can be satisfied from the existing herd. The applicant is entitled to supply it to his customer farmers who want it and are not prohibited from using it. The use of animal manure to fertilise farmland is subject to statutory control under S.I. 378 of 2006.

Manure from the site would be supplied in response to customer farmers' demand and in compliance with law. The calculation of expected manure production is discussed in section 3.4.1 page 13 of this report, and the manure storage capacity is calculated on the Farm Structures Table in Appendix No 2.

5.3 GENERALISED DESCRIPTION OF THE EXISTING ENVIRONMENT

5.3.1 Land Use and Cropping History

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

5.3.2 Water Quality Analysis

Water samples were taken from the well supplying the unit, and full analyses results from an independent laboratory are included in Appendix No 9, along with a map showing the location of the well. The well will be analysed annually, and the stormwater monitoring points will be visually inspected weekly and water samples taken quarterly.

5.3.3 Air Quality

Currently emissions to air from the site are not an issue, and would be mostly attributable to the animals that are currently on the site. The odour associated with this site does not and will not cause annoyance and will not interfere with amenity outside the boundary of the site. The nearest dwelling to this site is at a distance of 100 metres. This development will reduce current emissions by use of modern house designs, and ventilation systems.

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 on the environment and this situatation will be greatly improved as a direct result of this development. The covering of all passageways and open yard area where pigs have access, along with the covering of existing open storage tanks, will reduce the environmental impacts of this facility. In addition to these measures the installation of the proposed anaerobic digester would greatly enhance the environmental performance of this facility.

5.3.4 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.

Noise emissions from this pig farm are not audible, at the site boundary. Noise levels are generally low and typical of a quiet rural area during daytime.

5.3.5 Traffic Levels

Woodville Pig Farms Ltd

Details are set out below of the current and proposed traffic movements of this pig farm. They come under the following headings.

1. Staff transport
   There are currently two movements to and from work daily. On completion of this development staff numbers will remain the same.
2. Stock Deliveries
   There will be 3 deliveries of weaner pigs per week. This figure will remain the same on completion of the new development.
3. Feed Deliveries
   There currently are 5 deliveries of feed per week and this volume will remain the same on completion of this proposed development.
4. Stock sales & Carcasses
   There are currently a maximum of 3 loads of fat pigs delivered to the factory weekly from this site and this will be the same on completion of this development. Carcasses are currently removed fortnightly from this site and this will remain the same on completion of this development.
5. Service staff, sales, inspectors, etc.
   There is currently and will be an average of 3 car visits per week for service men, salesmen, and inspectors from all regulatory authorities to this facility.
6. Delivery of pig manure to proposed anaerobic digester or to customer farmers.
   There will be 15,276 M3 approx of Pig manure/digestate to be delivered to customer farmers per annum. This will require 12 lorry loads per week as all liquid digestate will be transported off site by lorry tanker. Currently approx 50% of the pig manure being transported off site is carried by tractor tanker with 2500gal capacity. The current practice requires 275 lorry movements and 658 tractor movements per annum to transport pig manure off site. It is proposed to cease use of tractor tanker movements off site thereby reducing overall traffic movements

Table 2: Current Traffic Movements Servicing this Site

No	Vehicle Type Car/Lorry etc	Details	Capacity	Weekly Units	Annual Units
1	Car	Staff to work		24	1248
2	Lorry	Weaners to the fattening unit		6	312
3	Lorry	Feed deliveries	20 Tonne	10	520
4	Lorry Lorry	Fat pigs to factory Carcasses to rendering	260 15 Tonne	6 1	312 52
5	Car	Service staff; sales men; Inspectors		6	312
6	Lorry Tractor	Pig manure to customer farmers	27.3 M3 11.4 M3	11 25	550 1300
Totals				89	4606

Table 2a: Proposed Traffic Movements to Service this Site

No	Vehicle Type Car/Lorry etc	Details	Capacity	Weekly Units	Annual Units
1	Car	Staff to work		24	1248
2	Lorry	Weaner deliveries		6	312
3	Lorry	Feed deliveries	20 Tonne	10	520
4	Lorry Lorry	Fat pigs to factory Carcasses to rendering	260 15 Tonne	6 1	312 52
5	Car	Service staff; sales men; Inspectors		6	312
7	Lorry	Pig Manure to Anaerobic Digester or customer farmers	27.3 M3	22	1144
Totals				75	3900

Upon completion of this proposed development the volume of traffic will be less than current levels as set out in Tables 2 and 2a above.

6. DESCRIPTION OF IMPACTS AND MITIGATION MEASURES

6.0 Employment and Human Well-being.

In full production this pig unit and the proposed anaerobic digester on an adjacent site will employ 6 full time staff and a manager. These staff will reside locally with a significant positive economic impact on the area. The unit will also indirectly lead to another 40 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 rural area. The structures comprise long low A-roofed houses. The proposed three new pig houses will have a total floor area of about 4561.3 M2, for the accommodation of pigs. These pig houses will be 109.05, 54.83 and 64.68 long respectively, and 18, 18.3, and 18.3 meters wide respectively, and 2.64 meters at the eves and 5.22 meters at the apex. The tallest structure on site

are the existing meal bins at 8. The proposed buildings consist of single storey; steel framed structures with PVC coated metal cladding externally to walls and sloping roof. Chimneys will be of grey or green 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 County 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. The landscaping proposal is included as appendix No. 12 of the EIS submitted in support of this application provides for the provision of semi mature native trees.

6.1.2. PIG MANURE STORAGE, SURFACE AND GROUND WATER

All pig manure on site will be stored in underground concrete tanks, and the proposed engineered storage basin, built to Dept of Agriculture specifications, from where it will be transferred fresh to the proposed anaerobic digester, and to customer farmers in the interm. All pig manure on site will be stored in covered storage tanks, constructed according to Dept. of Agriculture specifications.
A freeboard of 100mm has been allocated to all tanks under slats to contain gasses. All new storage tanks will be provided with independent leak detection systems, which will have independent inspection chambers. There will be no impact from these on surface or ground waters.

The pig manure will be diverted directly from the tanks under the pig houses to the covered storage tanks. All new structures will be provided with leak detection systems which will be visually inspected regularly, and samples analysed quarterly for COD/BOD. These visual inspections will be documented in a register on site which will be available to North Tipperary County Council and EPA officials for inspection at all reasonable times.

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 incorporating best available technologies including anaerobic digestion, covering of areas used for animal movement, fresh removal of pig manure to separate covered storage, and low protein diets, are insignificant outside the confines of buildings and adjoining yards. Significant reductions of emissions from the application of digestate rather than pig manure will also be achieved. The Nett result of this proposed development is a marked reduction of existing emission levels of possibly 50%. This will benefit all stakeholders in the hinterland of this pig farm, and the customer farms utilising the digestate to fertilise their lands.

6.1.5. ESTIMATED INCREASE IN TRAFFIC

On completion of the development, there will be a reduction in traffic volumes over current levels. 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/Digestate is the only material of concern, as feed and oil storage tanks on site will be locally bunded. 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. An Emergency Response Procedure has been put in place to deal with such a situation. This procedure is included in Appendix 13.

6.1.8. CONTROL OF RODENTS

Staff members successfully carry out the control of rodents on the site. Woodville Pig Farms Ltd 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. 21.

6.2. APPLICATION OF PIG MANURE/DIGESTATE

6.2.1. Digestate application rates and Nutrient Balance

Digestate/pig manure will be used by customer farmers to supply nutrient requirements to agricultural crops, in accordance with the requirements of the Nitrate Directives (S.I. No. 378 of 2006).

The use of digestate which is planned to replace the current practice of application of raw pig manure to lands to replace chemical fertilisers, will be much more user friendly for the customer farmers, for the following reasons;

(i) The ratio of phosphorus to nitrogen is better from a crop nutrient requirement point of view, due to the separation of fiberous material with 70 – 80% of P.

(ii) The digestate will provide more available nutrients for the farmer. The anaerobic digestive process transforms organic bound nutrients to a mineral form, which is readily available for crops, thereby providing a better product for the farmer.

(iii) The odour emissions from the application of digestate instead of pig manure will be reduced by 80%, due to the gas extraction associated with the anaerobic digestive process, thereby reducing impacts on neighbours.

In relation to chemical loading, the application of the digestate 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 Statutory Instrument S.I. 378 of 2006 (European Communities Good Agricultural Practice for Protection of Waters), is included in Appendix 20.

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 application 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. The proposed development of the anaerobic digester will greatly reduce the potential impacts on surface and groundwater.

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.
There has been no historical contamination of groundwater at this site. This proposed development will further reduce the potential impacts at this site, for the following reasons

(i) The removal of raw pig manure on a regular basis from the existing storage tanks and channels under the houses will reduce the loading pressure on these tanks.

(ii) A leak detection system will be provided under all new structures and facilities in this proposed development.

(iii) The application of digestate from the proposed facility, which will replace the current practice of application of raw pig manure, will greatly reduce the risk of nitrate-nitrogen contamination of groundwater, due to the alteration of nitrogen which occurs in the process, rendering it more suitable for plant uptake.

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 Code of Good Practice for Landspreading (Appendix 11) 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.

The EPA Discussion document (**Anaerobic Digestion: Benefits for Waste Management, Agriculture, Energy, and the Environment Discussion Document 2005**), notes that "*in addition to the benefits of energy recovery and displacement of greenhouse gas emissions from fossil fuels, anaerobic digestion produces several beneficial outcomes*". Of the beneficial outcomes listed the following are considered relevant to water quality;

(i) Anaerobic Digestion reduces the organic pollution potential of animal slurries. Tests of animal slurries from pilot and farm scale digesters show a reduction of 55% of BOD for cattle slurry, 75% for pig slurry, and 80% for poultry slurries.

(ii) An appreciable portion of the geology of the country is of a karst limestone composition which makes groundwater particularly vulnerable to pollution. The lower pollution potential of AD processed slurries will provide additional protection to groundwater.

(iii) AD increases the proportion of nutrients immediately available for uptake by plants, due to the mineralization of nutrients during the digestion process.

6.2.3. AIR QUALITY AND PIG MANURE USE

The proposed customers lands whereupon it is proposed to use pig manure digestate 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 is being 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. Customer farmers will be advised not to apply pig manure digestate 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. The proposed development of the anaerobic digester on an adjacent site and the application of digestate rather than pig manure will significantly reduce impacts on air quality. The nett result of this proposed development will be a reduction of current emission levels of at least 50%. This will benefit all stakeholders in the hinterland of the site and associated customer farms.

6.2.4. MANAGEMENT OF CO-PRODUCT USE

The area available for use of pig manure/digestate is much greater than that required. Pig manure/Digestate will be applied at the rates provided for in the Nitrate Directive Regulations (S.I. no. 378 of 2006). A delivery register will be maintained on site showing the date, amount of pig manure digestate 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. A copy of this register is included in Appendix 10.

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 Beechfield Products Ltd, on a regular basis, and delivered to a licensed rendering plant.
(d) It is intended to further develop the use of low protein diets on site.
(e) All passageways will be covered.
(f) The existing open pig manure storage tanks will be replaced by an engineered covered storage basin
(g) All pig manure will be treated by the proposed anaerobic digestion facility on an adjacent site.

6.2.5.2.PERIODS AND RATES OF USE OF PIG MANURE/DIGESTATE

This issue is regulated by the Nitrate Directive Regulations (S.I. No. 378 of 2006), which provides for application of pig manure digestate in this area between 15 January to 15 October, in accordance with a fertiliser plan. Parknageragh Pig Breeders Co Ltd is committed to ensuring that the use of pig manure/digestate from this facility, is carried out in accordance with these regulations, and will advise all customer farmers to comply.

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 notifable 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 Woodville Pig Farms Ltd have an agreement with Beechfield Products Ltd, to remove all carcasses from the site in sealed containers, and delivery of same to a licensed rendering plant (See Appendix 7).

6.2.5.6 REDUCTION OF RISK OF POLLUTION TO SURFACE AND GROUND WATER

PART 4 of the Nitrate Directive States

PREVENTION OF WATER POLLUTION FROM FERTILISERS AND CERTAIN ACTIVITIES

Organic fertiliser or soiled water shall not be applied to land within –

(a) subject to sub-article (5), 200m of the abstraction point of any surface watercourse, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying $100m^3$ or more of water per day or serving 500 or more persons,

(b) subject to sub-article (5), 100m of the abstraction point (other than an abstraction point specified at paragraph (a)) of any surface watercourse, borehole, spring or well used for the abstraction of water for human consumption in a water scheme supplying $10m^3$ or more of water per day or serving 50 or more persons,

(c) subject to sub-article (5), 25m of any borehole, spring or well used for the abstraction of water for human consumption other than a borehole, spring or well specified at paragraph (a) or (b),

(d) 20m of a lake shoreline,

(e) 15m of exposed cavernous or karstified limestone features (such as swallow-holes and collapse features), or

(f) subject to sub-articles (8) and (9), 5m of a surface watercourse (other than a lake or a surface watercourse specified at paragraph (a) or (b)).

It is proposed that on-site storage capacity for pig manure following this development will be sufficient for about 36 weeks on site, which is well in excess of the 6 months storage capacity generally required for pig manure.

Guidelines on the optimum times for spreading are also available. Under S.I. 378 of 2006 for this area these are 15th January to 15th October, and 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/Digestate

- 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

Dixon.Brosnan Environmental Consultants were engaged to prepare a report in respect of the Impacts of the proposed development on the Study area. The site is not in or near any NHA, SAC or SPA areas. The site of the proposed development is currently a farmyard. There is no special or natural flora or fauna associated with this. Structures and paved areas will cover a significant fraction of the site and the proposed landscaping will cover and so influence the flora and fauna in significant fraction of the remainder of the site. The changes will affect such a small area that any impact will be close to zero or neutral with the local area. The site is surrounded by farmland and a public road. It is considered that this proposed development will not impact in any way on the flora or fauna in any of the surrounding area. This report is included in full in appendix No 4.

6.3.2. ARCHAEOLOGY AND CULTURAL HERITAGE

There are no known archaeological sites and no reason to suspect the presence of such sites within or near the site of the proposed development. This issue is addressed in Appendix No 8.

6.3.3. TRAFFIC

This issue is discussed in Section 5.2.5 above. The traffic volume servicing this facility upon completion will be less than current traffic levels, as set out in Tables 2 and 2a of this E.I.S. 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. Climatology report of the area from Met Eireann is included in Appendix No 22.

6.3.5. INTERACTIONS

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

6.3.6. 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 as identified on site layout plan included in Appendix 2, to a monitoring point to the south western side of the unit, identified as SW1 on the site layout plan. A sample will be 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 will be made and recorded weekly. A copy of the stormwater visual inspection register is included in Appendix 6.

7.2. GROUNDWATER AND SURFACE WATER

The well supplying water to the site will be analysed annually and results will be maintained for inspection by North Tipperary County Council, and EPA officials, at all reasonable times. The location of this well is marked on the site location maps (See Appendix 9).

7.3. PIG MANURE/DIGESTATE 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.

7.4. PIG MANURE/DIGESTATE STORAGE

The pig manure/Digestate storage capacity on site will be monitored 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.

7.5. OTHER WASTES

A register of all other wastes (i.e. carcasses, veterinary waste, fluorescent tubes, and refuse) will be 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.

- Carcass Register. (see Appendix 18)
- Veterinary Waste Register (see Appendix 19)
- Refuse Register (see Appendix 14)
- Fluorescent Tubes Register (see Appendix 15)

8.0 Measures envisaged in order to avoid, reduce and if possible, Remedy significant adverse effects.

The measures considered necessary are:

(1) Provision of sufficient and safe access to the site and measures to avoid excessive soiling of the public road during construction on the site.

(ii) A secure fence around the site and effective landscaping, comprising hedging, trees, and landscaped earth embankments where necessary, to screen the installation from obtrusive view from the public road and to blend it into the rural landscape.

(iii) Provision of a storm water drainage system to properly collect and discharge to field drainage all clean rainwater from roofs and clean surfaces via monitoring point SW1 as identified in Site Layout Plan, included in Appendix 2.

(iv) Provision of soiled water drains to properly collect any effluent or soiled water and diverts it to the nearest manure tank.

(v) The collection and the removal from the site of all pig manure digestate to be used by local farmers and fertiliser on their farmlands.

(vi) The collection and the removal from the site of hazardous waste materials (spent fluorescent lighting tubes, empty aerosol containers and veterinary waste) generated on the site. Such wastes removed from the site are to be removed only to sites authorised or agreed as appropriate for the disposal or recovery of the waste concerned.

(vii) The collection and the removal from the site of all dead animals and all animal tissues. Collection is currently undertaken by Beechfield Products Ltd who are an authorised waste collector, and transport the carcasses for disposal or recovery at an authorised rendering plant (Premier Proteins).

(viii) Ensure connection of animal tissue from the site is in appropriate watertight and covered containers, and timely removal so as to ensure minimal

generation or release of odours either at the site, or during transit to the disposal/recovery destination.

(ix) Monitor and maintain records of all monitoring of storm water discharged from the site.

(x) Record and maintain required records of all consignments of waste despatched from the site.

Implementation of the above will ensure that significant effects on the environment will be avoided and the risk of incidents of environmental significance will be near zero.

Signed:

Michael Sweeney
Director
Nutrient Recovery to Generate Electricity Ltd (NRGE)
MOORESFORT
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CO TIPERARY
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APPENDIX NO. 1

LOCATION MAPS

Record PLACE Map

Surveyed 1838-1840
Revised 1901-1955
Levelled 1955

ITM CENTRE PT COORDS

596618,681932

DESCRIPTION

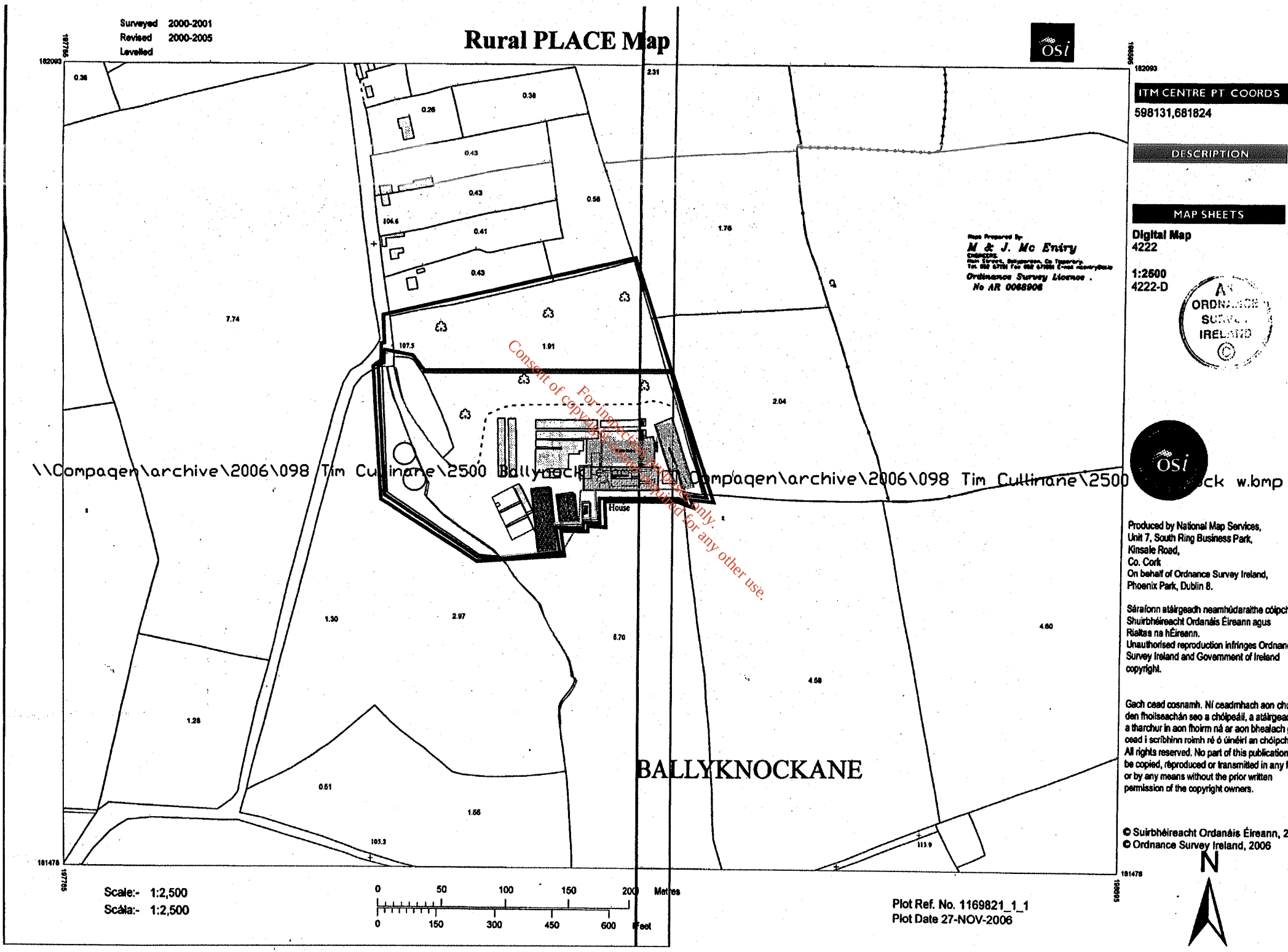
M & J. Mc Eniry

Ordnance Survey Licence .
No AR 0068906

MAP SHEETS

6 inch
TY016
TY022

Produced by The Map Centre,
John Roberts Square, Waterford City
On behalf of Ordnance Survey Ireland,
Phoenix Park, Dublin 8.



ITM CENTRE PT COORDS

598131,681824

DESCRIPTION

MAP SHEETS

Digital Map
4222

1:2500
4222-D

ORDNANCE SURVEY IRELAND ©

Produced by National Map Services,
Unit 7, South Ring Business Park,
Kinsale Road,
Co. Cork
On behalf of Ordnance Survey Ireland,
Phoenix Park, Dublin 8.

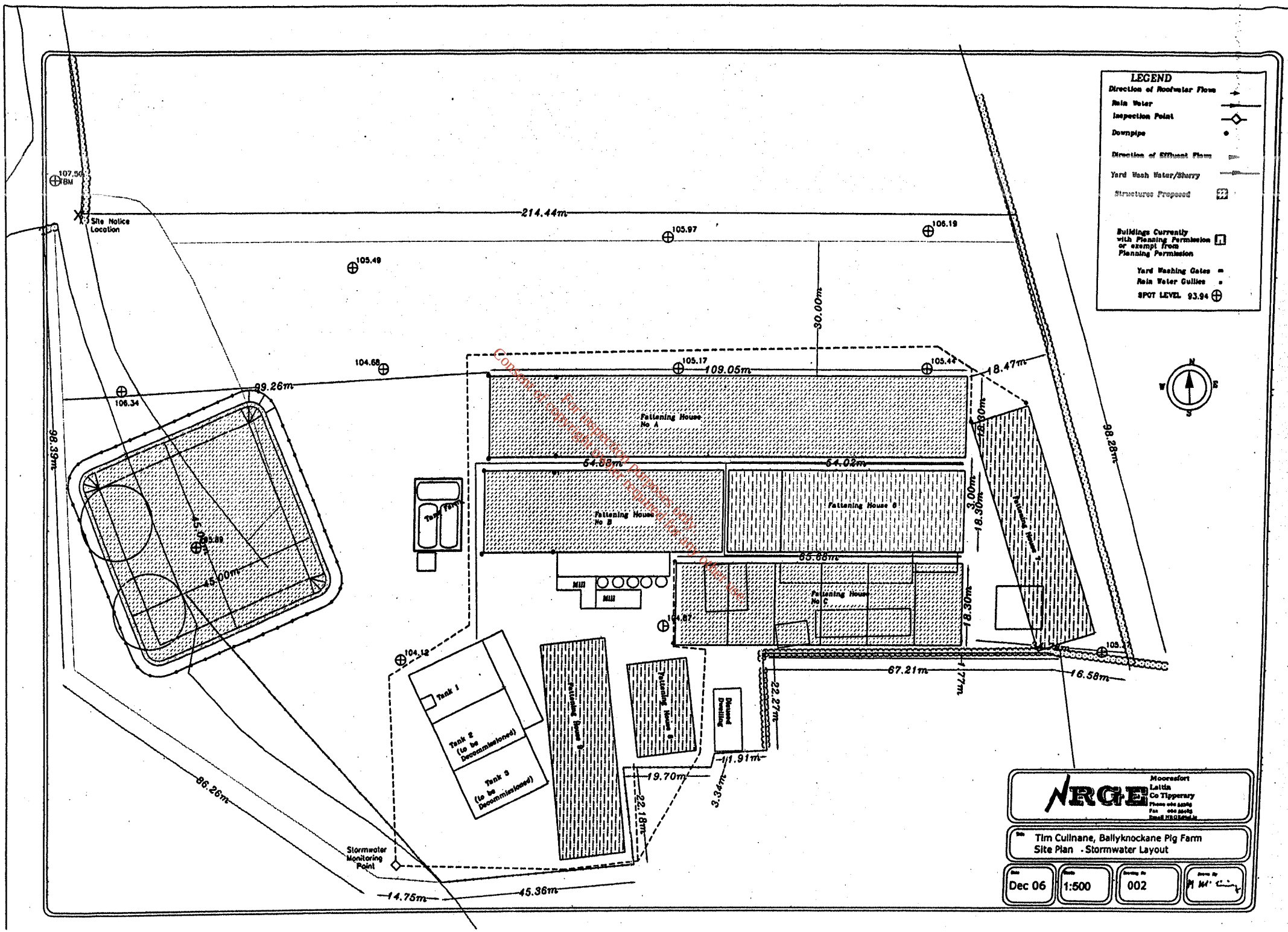
APPENDIX NO. 2

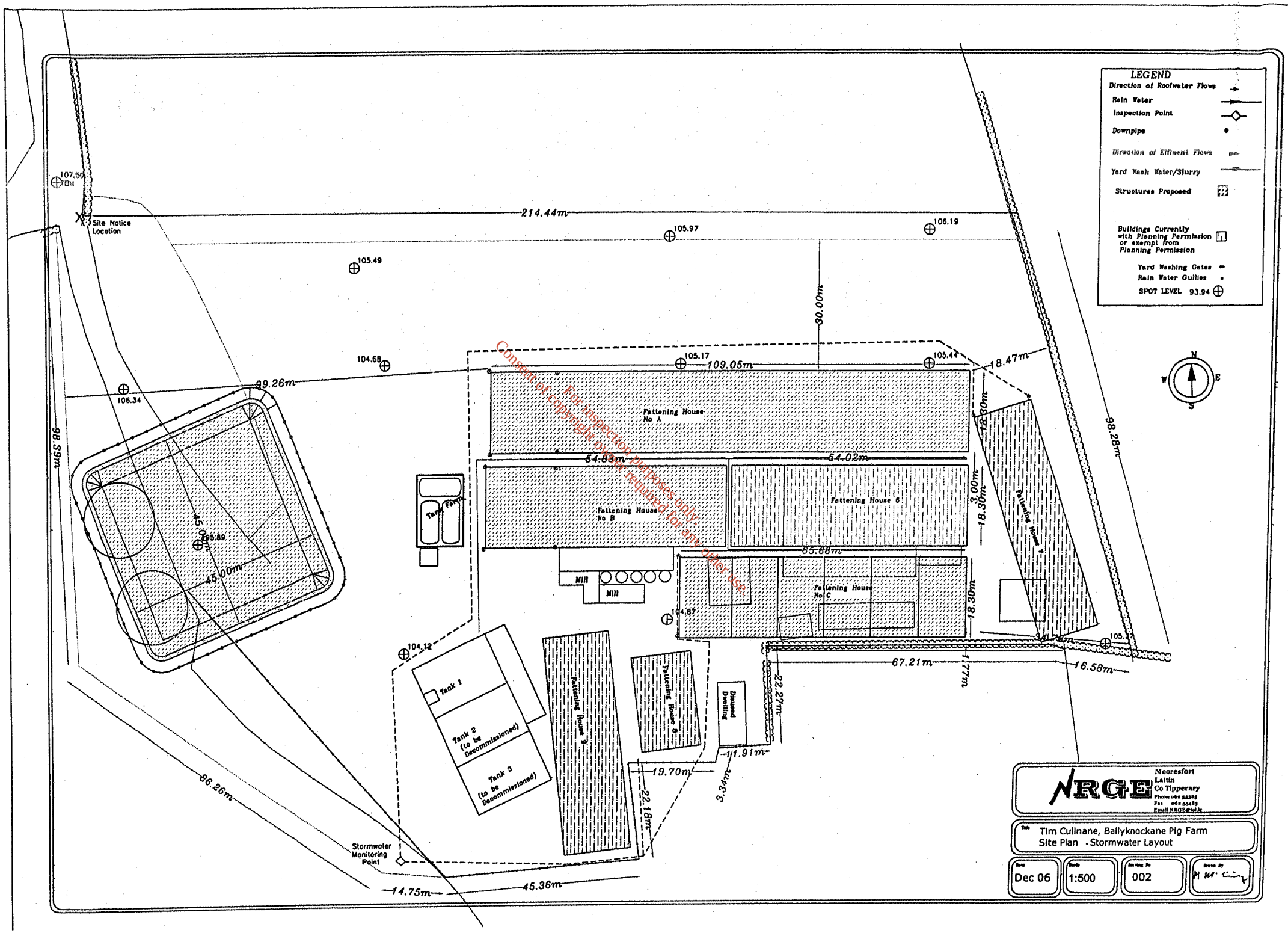
PLANS & DRAWINGS & STRUCTURES TABLE OF BALLYKNOCKANE PIG FARM

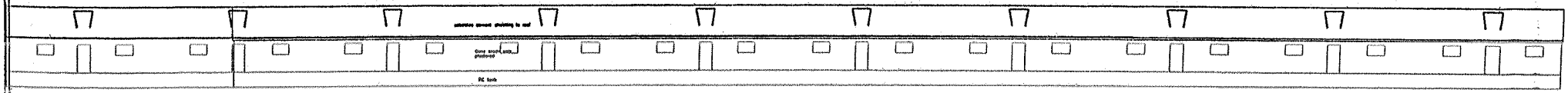
Woodvale Pig Farm, Ballyknockane Fattening Unit

*Covered Structures to Stormwater System 9876
Paved Areas to Stormwater System only
Paved Areas to Foul/Stormwater System
Paved Areas to Foulwater System Only
Unpaved Areas

TITLE	STATUS	CLASS	STRUCTURE LGT (M)	STRUCTURE WTH (M)	AREA SQ MTS	TOTAL AREA B/F		TANK WIDTH	TANK LENGHT	TANK DEPTH	CAPACITY CUBIC MTS	TOTAL CAPACITY	EFFECTIVE WITH 200 P. B.	TOTAL CAPACITY
Fattening House 6	Existing	6	54.02	18.3	988.6	988.566	*	18.3	54.0	0.9	889.7	889.7	692.0	692.0
Fattening House 7	Existing	6	37	13.5	392.4	1380.92	*	13.5	37.0	1.5	749.3	1639.0	649.4	1341.3
Ditto	Existing	6	16	8.0	100.5	1481.5	~	8.0	16.0	1.5	192.0	1831.0	166.4	1507.7
Fattening House 8	Existing	6	21.5	18.3	309.1	1689.98	*	18.3	43.0	0.9	708.2	2539.2	550.8	2058.6
Fattening House 9	Existing	6	49.25	15.0	1600.0	3289.98	*	1.3	98.5	0.9	110.8	2650.0	86.2	2144.8
Manure tank 1	Existing	7	18.75	12.0	176.7	176.7	~	12.0	18.8	2.1	579.6	3229.5	360.0	2504.8
Manure tank 2	Existing	7	18.75	12.0	176.7	353.5	~	12.0	18.8	2.1	472.5	8948.2	360.0	2864.8
Manure tank 3	Existing	7	18.75	12.0	176.7	530.2	~	12.0	18.8	2.1	472.5	8948.2	360.0	3224.8
							~							
Mill Building 1	Existing	7	14	4.0	8.5	8.5	~							
Mill Building	Existing	7	9	3.0	8.5	17.1	~							
Meal Bin 1	Existing	8	2.5	2.5	4.9	4.9	~							
Meal Bin 2	Existing	8	2.5	2.5	4.9	9.8								
Meal Bin 3	Existing	9	2.5	2.5	4.9	14.7								
Meal Bin 4	Existing	9	2.5	2.5	4.9	19.6								
Tank Farm	Existing	9	16.5	10.1	80.1289	99.8								
Fattening House A	Proposed	6	109.05	18	1962.9	1962.9		18.0	109.1	0.6	5601.1	14549.2	785.2	4009.9
Fattening House A Channel	Proposed	7	109.05	1.8	196.3	2159.2		1.8	109.1	1.2	11202.2	25751.4	137.4	4147.3
Fattening House B	Proposed	6	54.83	18.3	1003.4	3162.6		18.3	54.8	0.6	1416.0	15965.2	401.4	4411.3
Fattening House B Channel	Proposed	7	54.83	1.8	98.7	3261.3		1.8	54.8	1.2	2832.0	28583.4	69.1	4216.4
Fattening House C	Proposed	6	64.68	18.3	1183.6	4444.9		18.3	64.7	0.6	1970.4	30553.8	473.5	4689.9
Fattening House C Channel	Proposed	7	64.68	1.8	116.4	4561.3		1.8	64.7	1.2	3940.9	32524.2	81.5	4297.9
Manure Basin	Proposed	7	45	45	2025.0	2025.0		41	41	4	5278.3	37802.6	6387.8	10685.7







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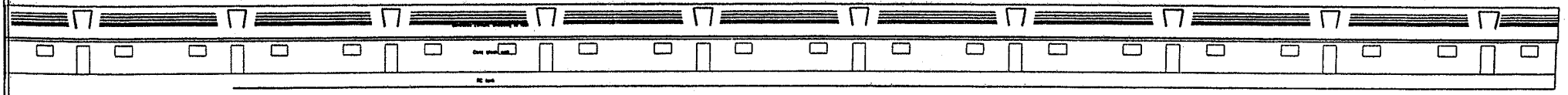

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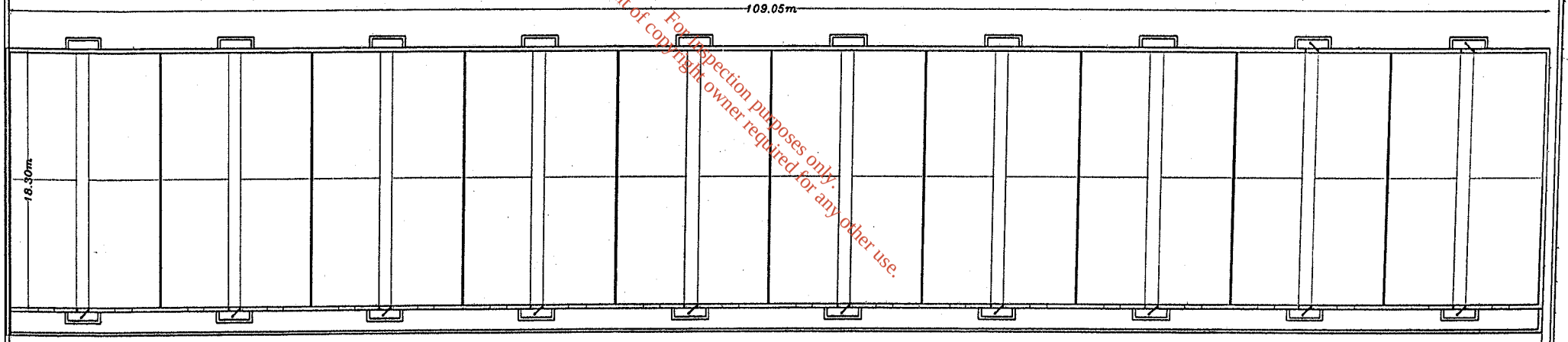

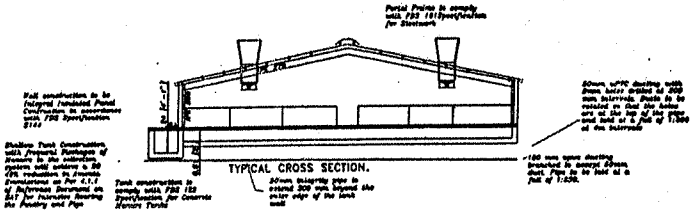

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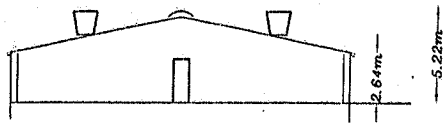
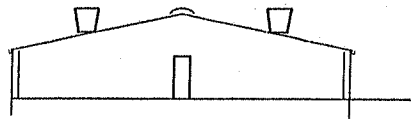
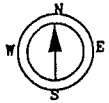






RGE

Mooresfort
Lattin
Co Tipperary

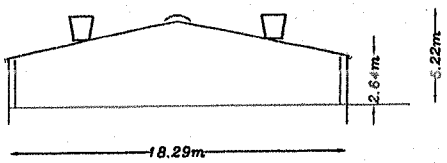
Title: Fattening House A

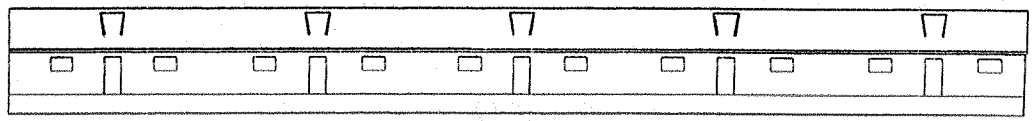
Date: Dec 06

Scale: 1:200

Drawing No: 005

Drawn By:





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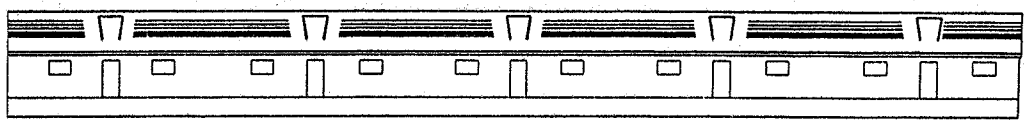

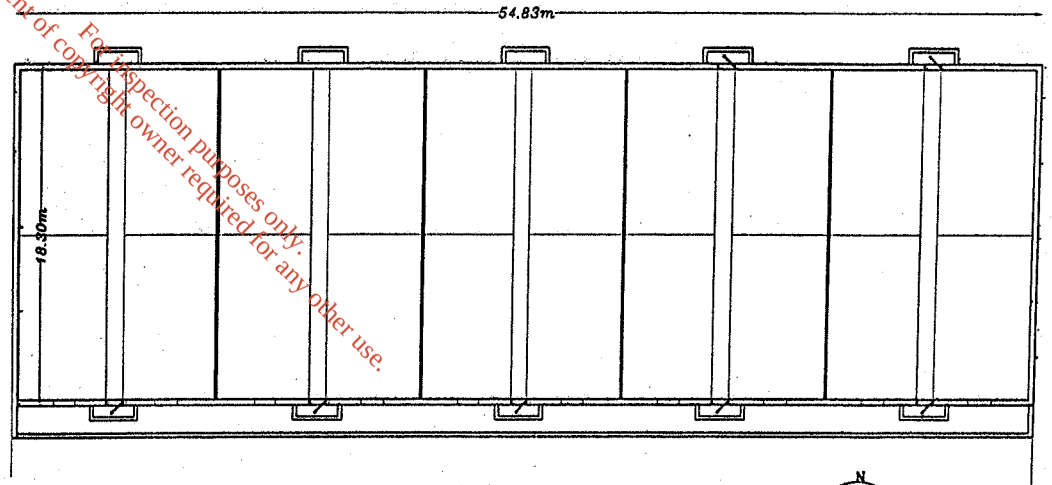

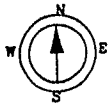

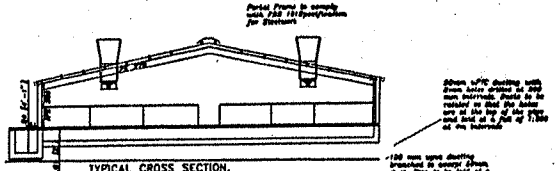

TYPICAL CROSS SECTION.

NRGE
Moorefort
Lattin
Co Tipperary
Phone
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Title
Fattening House B

Date	Scale	Drawing No	Drawn By
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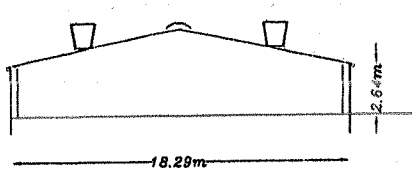

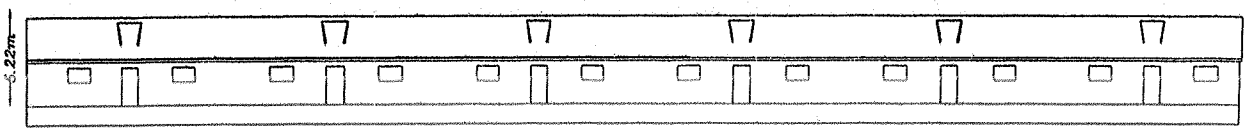

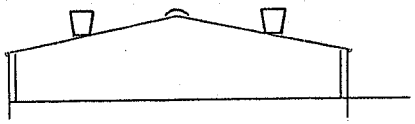

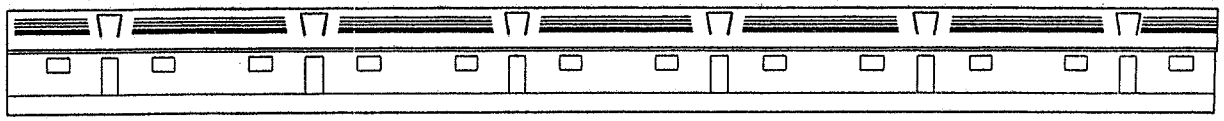

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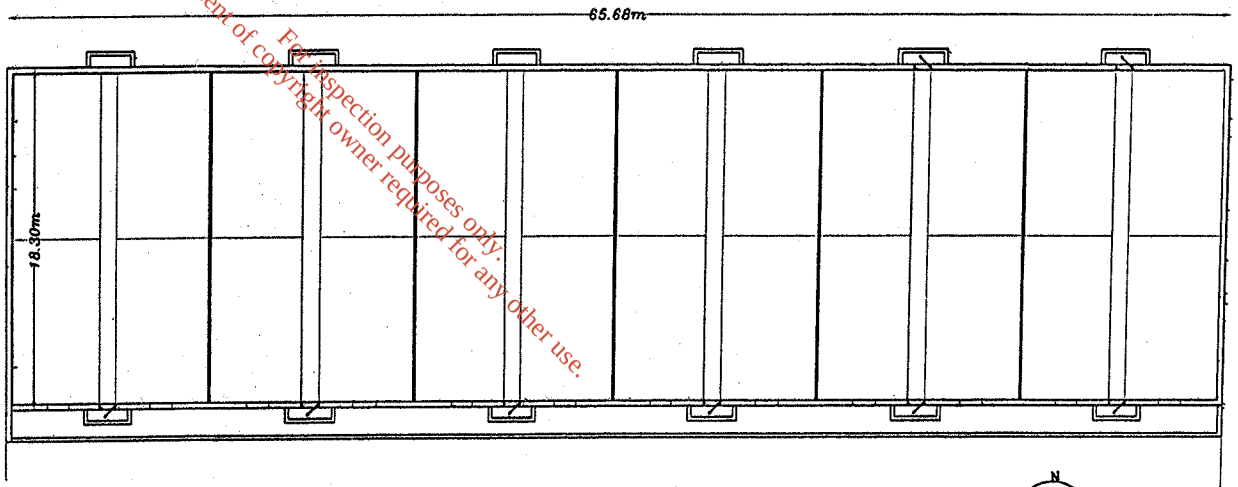

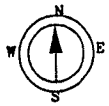

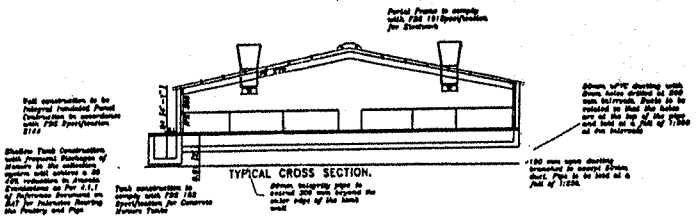

NRGE
Moorefort
Lattin
Co Tipperary

Title: Fattening House C

Date	Scale	Drawing No	Drawn By
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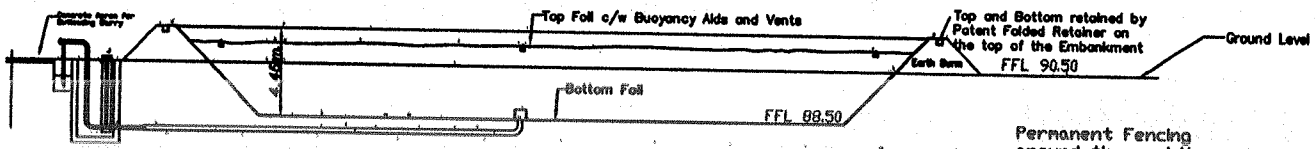
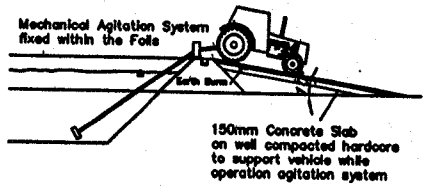
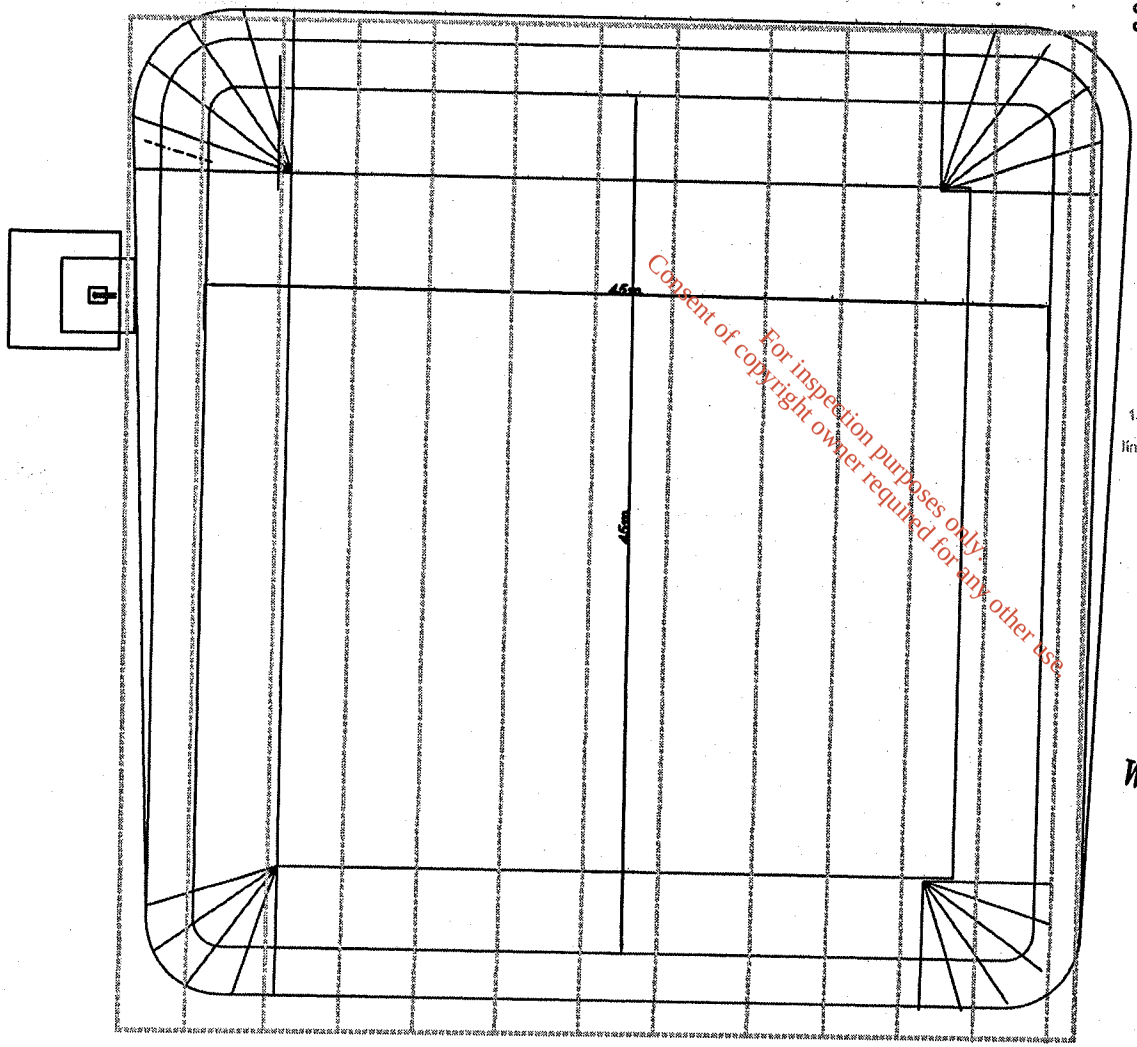
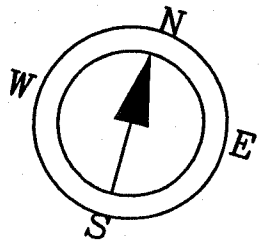


Permanent Fencing around the perimiter of basin





Leak Detection Pipework
150mm Perforated Pipe around the perimeter of the tank lines of 100mm Perforated Pipe at 4m intervals all with a gradient of 1:240.



RGE
Moorefort
Lattin
Co Tipperary

Title: Digestate Basin

Date	Scale	Drawing No	Drawn By
Aug 2006	1/300	006	

APPENDIX NO. 3

COMPOSITE MAP OF CUSTOMER FARMS

Discovery Series No.

Discovery Series No. 59

WOODVILLE PIG FARMS LTD

APPENDIX NO. 4

DIXON.BROSNAN REPORT

Dixon.Brosnan
environmental
consultants

project title	Ecological survey at the site of a pig unit at Ballaghveny, Ballymackey, Nenagh, Co. Tipperary
client	NRGE Ltd
client ref.	-
our ref.	07067
revision	1st draft
date	16th September, 2007
approved by	Carl Dixon B.Sc. Applied Ecology

Dixon.Brosnan Environmental Consultants
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Carl Dixon: 086 8511437
Damian Brosnan: 086 8131195
email: carl@dixonbrosnan.com

1. Introduction

Dixon.Brosnan Environmental Consultants were asked to carry out an ecological assessment of the site of a fattening pig unit at Ballaghveny, Ballymackey, Nenagh, Co. Tipperary. This report describes and evaluates the habitats with their representative flora and fauna in order to describe and assess the impacts that would result from the development. This report follows the structure and protocols detailed in *Advice notes on current practice in the preparation of Environmental Impact Statements (EPA 2003)* and *Guidelines on the information to be contained in Environmental Impact Statements (EPA 2002).*

2. Methodology

One site visit was conducted in September 2007. All habitats were classified to level 3 of the classification scheme outlined in *A Guide to Habitats in Ireland (Fossitt 2000).* It should be noted that some of the habitats are transitional and where this occurs they are placed in the category they most resemble

3. Receiving environment

3.1 Surrounding landscape

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The study area consists of an existing pig unit which is accessed via a track from a minor road. The unit consists of a mixture of buildings, access tracks and open yards. There is a large planted shelter belt to the north of the site and native hedgerow to the east and south. One old disused dwelling remains on the site. There are several mature trees on a western boundary along which there is also a drain. The area is characterised by intensive grassland with smaller amounts of tillage.

No rare species of flora were noted and the presence of rare species is considered unlikely. None of the floral species recorded during the surveys in any of the habitat types is listed in The Irish Red Data Book (Curtis and McGough, 1988) or is protected by Flora (Protection) Order (S.I. No. 272 of 1987) under the Wildlife Act, 1976 and 2000. Similarly none of the habitats noted within the site boundary are listed under Annex I of the Habitats Directive (92/43/EEC). There are no environmental designations pertaining to the area surveyed nor is this area likely to be designated in the future. The site does not form part of any Natural Heritage Area (NHA), Special Protection Area (cSPA), Special Area of Conservation (cSAC), Statutory Nature Reserve or National Park.

3.2 Habitat types

The survey area was divided into the following habitat types:

- *Recolonising bare ground ED3/Spoil and bare ground ED2/ Buildings and artificial surfaces BL3*
- *Dry meadows and grassy verges GS2*
- *Treelines WL2/ Hedgerows WL1*
- *Drainage ditch FW4*
- *Broadleaved woodland WD1*

- *Recolonising bare ground ED3/Spoil and bare ground ED2/ Buildings and artificial surfaces BL3*

Most of the site consists of these habitats which are of minimal ecological value. Plants are largely absent from much of the site with common weed species in disused corners and access tracks.

- *Dry meadow and grassy verges GS2*

On more fertile ground such as along access tracks poor examples of this habitat type have developed. Although some taller grasses such as false oat grass and cocksfoot are present the high fertility leads to a dominance by nettle.

- *Treelines WL2/ Hedgerows WL1*

A small section of native hedgerow occurs along the eastern and part of the southern boundary. It is of moderate quality and includes typical hedgerow species such as hawthorn and elder. There is a line of mature trees (lime and beech) along the western boundary.

- *Depositing river FW2*

A stream/drain runs along the western boundary. Flows are minimal and it does not have any fisheries potential although it is noted that it does eventually discharge to the Nenagh River. Clean surface water from the site discharges to the drain and no evidence of nutrient enrichment was noted.

- *Broadleaved woodland WD1*

A broad band of woodland has been planted along the northern boundary where it forms an effective screen. This planted woodland is dominated by sycamore and is heavily shaded. This has suppressed ground flora which is largely absent.

3.3 Birds

The habitats on site are highly modified and not of particular value for birds. However some common countryside species including pigeon, rook, jackdaw, dunnock and swallow were noted. These birds are common in the Irish countryside.

3.4 Mammals

No signs of otters or badgers were noted and it is unlikely that the site is of significant value for either species. Rabbits do occur within the planted woodland. Some rodent species are ubiquitous in the Irish countryside and both brown rat and field mouse are almost certainly present within hedges and scrub. Bats may also occur in this area. Other species, which may be present on occasions, include hedgehog and stoat although no evidence of either species was noted.

4. Evaluation of impacts

4.1 Proposed development

The old unit which was build in the 1960s will be partially decommissioned. There are currently 2 over-ground and 3 underground tanks on the site and it is proposed that only 1 underground tank will be retained. A new engineered, geo-membrane-lined covered storage basin will be provided. Stock numbers at the site will not increase (i.e. maximum number 8,000 animals). All clean and soiled water will be separated and clean storm water will be diverted to the small watercourse which runs along the western boundary

4.2 Habitat value

The relative values of habitat types are detailed in **Table 1.** It should be noted the value of a habitat is site specific and will be partially related to the amount of that habitat in the surrounding landscape. The evaluation scheme used in **Table 1** is based on the scheme detailed in the NRA publication *Guidelines for assessment of ecological impacts of National Road Schemes* (**Appendix 2**).

TABLE 1 **HABITAT VALUES**

Habitat Type	Relative Habitat Value	Comments	Impacts
Recolonising bare ground ED3/Spoil and bare ground ED2/ Buildings and artificial surfaces BL3	Low value habitat (E)	Low value habitat with minimal biodiversity.	Overall however the habitats to be affected are not of high value and the impact will be **minor negative.**
Treelines (WL2)/ Hedgerows WL1	Moderate local value (D)	The mature lime trees along the northern boundary are of value and could potentially support bat roosts. The native hedgerow on the is also of some local value.	Mature trees and hedgerows will be retained and thus no impact on these habitats is expected to occur.
Depositing river FW2	Moderate local value (D)	The section of watercourse which adjoins the site has minimal flows and is not a high value habitat. However it of value as part of an overall river catchment area.	The development could potentially impact on the site by allowing excess nutrients to reach the watercourse. Provided the relevant mitigation measures and design parameters are put in place it is considered highly unlikely that the development will have an impact on the watercourse.
Broadleaved woodland WD1	Low to moderate local value (E to D)	Broad band of planted woodland of primarily non-native species. Poorly developed ground flora.	There will be no impact on this development.

5. Mitigation measures

The following mitigation measures are recommended:

Full details of mitigation measures are given in the main body of the EIS.

Mature trees on site will be retained and the most important trees are those along the small watercourse. Any damage to these trees or there roots must be avoided.

In no circumstances should silt or suspended solids be allowed to reach the watercourse. Machinery should not enter the watercourse and it is important that the bank structure is not changed or destabilised. The construction management of the site will take account of the recommendations of the CIRIA guides *Control of Water Pollution from Construction Sites 2001* and *Control of water pollution from linear construction projects 2006* to minimise as far as possible the risk of pollution to the stream.

Where practicable, the boundary landscape planting should be predominantly of Irish native species that reflect the existing vegetation of the area. These should be derived from local native-origin stock .Suitable native species would include hawthorn, blackthorn, ash, hazel, gorse, willow and holly.

Hedgerows and trees which are to be retained should he securely fenced prior to commencement of works. Such fencing should be clearly visible to machinery operators.

6. Residual impacts

There will be a loss of some low value habitat and some short-term disruption to populations of common birds. There may be some short-term displacement of birds during the construction phase. Provided the design parameters and mitigation measures are implemented no significant deleterious impact on the watercourse is expected to occur. No significant impact on native hedgerows, mature trees or the stream is expected to occur. A minimum of three lines of native trees will be planted on the un-vegetated parts of the boundary providing additional habitats.

7. Spreadlands

Pig manure will be treated via an anaerobic digester which is to be located close-by and subsequently supplied to customer farms. The customer farms consist of agricultural land dominated by intensive grassland and tillage. The land which is flat to softly undulating is considered high quality farmland. Many of the hedges are well developed with significant numbers of mature trees however some hedges have been removed to increase field size. As the fields on which the pig manure will be applied are all intensively farmed they will have received significant quantities of chemical fertiliser or animal matures in the past. Provided that all mitigation measures are implemented and that all pig manure is applied with due regard to the relevant legislation and regulations it is considered unlikely that there will be a significant deleterious impact on the ecology of the customer farms and watercourses.

8. Mitigation

Solids will be separated including 70%-80% of the phosphorous. The liquid fertiliser will be supplied to customer farms in accordance with the requirements of S.I. No.378 of 2006. This process should significantly reduce the risk to both surface and groundwater.

Further details on relevant mitigation measures are provided in the main body of the environmental impact statement for this development and further detail on the use of digest ate is provided in the EIS which relates to the construction of the anaerobic digester.

9. References

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National Road Authority *Guidelines for the crossing of watercourses during the construction of National Road Schemes*

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Whilde A (1993) Threatened Mammals, Birds, Amphibians and Fish in Ireland Dept. of the Environment for Northern Ireland/OPW, HMSO Belfast

Appendix 1 Photographs

Photo 1 showing mature trees on western boundary

Photo 2 showing an internal road with grassy verge to the right and with planted trees to the left.

Photo 3 showing native hedgerow dominated by elder on the eastern boundary.

Appendix 2. Site evaluation scheme

Rating	Qualifying criteria
A	**Internationally important** Sites designated (or qualifying for designation) as SAC* or SPA* under the EU Habitats or Birds Directives. Undesignated sites containing good examples of Annex I priority habitats under the EU Habitats Directive. Major salmon river fisheries.
B	**Nationally important** Sites or waters designated or proposed as an NHA* or statutory Nature Reserves. Undesignated sites containing good examples of Annex I habitats (under EU Habitats Directive). Undesignated sites containing significant numbers of resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive or species protected under the Wildlife (Amendment) Act 2000. Major trout river fisheries. Water bodies with major amenity fishery
C	**High value, locally important** Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or significant populations of locally rare species. Small water bodies with known salmonid populations or with good potential salmonid habitat. Sites containing any resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU
D	**Moderate value, locally important** Sites containing some semi-natural habitat or locally important for wildlife. Small water bodies with some coarse fisheries value or some potential salmonid habitat. Any water body with unpolluted water (Q-value rating 4-5)
E	**Low value, locally important** Artificial or highly modified habitats with low species diversity and low wildlife value. Water bodies with no current fisheries value and no significant potential fisheries value.

*SAC = Special Area of Conservation
SPA= Special Protection Area
NHA= Natural Heritage Area

Criteria for assessing impact significance

(a) Terrestrial habitats

Impact level	Site category* A sites Internationally important	B sites Nationally important	C Sites High value, locally important	D sites Moderate value, locally important	E sites Low value, locally important
Severe negative	Any permanent impacts	Permanent impacts on a large part of a site			
Major negative	Temporary impacts on a large part of a site	Permanent impacts on a small part of a site	Permanent impacts on a large part of a site		
Moderate negative	Temporary impacts on a small part of a site	Temporary impacts on a large part of a site	Permanent impacts on a small part of a site	Permanent impacts on a large part of a site	
Minor negative		Temporary impacts on a small part of a site	Temporary impacts on a large part of a site	Permanent impacts on a small part of a site	Permanent impacts on a large part of a site
Neutral	No impacts	No impacts	No impacts	No impacts	Permanent impacts on a small part of a site
Minor positive				Permanent beneficial impacts on a small part of a site	Permanent beneficial impacts on a large part of a site
Moderate positive			Permanent beneficial impacts on a small part of a site	Permanent beneficial impacts on a large part of a site	
Major positive		Permanent beneficial impacts on a small part of a site	Permanent beneficial impacts on a large part of a site		

Criteria for assessing impact significance
(b) Aquatic habitats

A Sites

	Temporary	Short-term	Medium-term	Long-term
Extensive	**Major**	**Severe**	**Severe**	**Severe**
Localised	**Major**	**Major**	**Severe**	**Severe**

B Sites

	Temporary	Short-term	Medium-term	Long-term
Extensive	**Major**	**Major**	**Severe**	**Severe**
Localised	**Moderate**	**Moderate**	**Major**	**Major**

C Sites

	Temporary	Short-term	Medium-term	Long-term
Extensive	**Moderate**	**Moderate**	**Major**	**Major**
Localised	**Minor**	**Moderate**	**Moderate**	**Moderate**

D Sites

	Temporary	Short-term	Medium-term	Long-term
Extensive	**Minor**	**Minor**	**Moderate**	**Moderate**
Localised	**Not significant**	**Minor**	**Minor**	**Minor**

E Sites

	Temporary	Short-term	Medium-term	Long-term
Extensive	**Not significant**	**Not significant**	**Minor**	**Minor**
Localised	**Not significant**	**Not significant**	**Not significant**	**Not significant**

In line with the EPA Guidelines (EPA 2002), the following terms are defined when quantifying duration:

Temporary: up to 1 year,
Short-term: from 1-7 years,
Medium-term: 7-15 years,
Long-term: 15-60 years,
Permanent: over 60 years.

Localised impacts on rivers are loosely defined as impacts measurable no more than 250m from the impact source. Extensive impacts on rivers are defined as impacts measurable more than 250m from the impact source. Any impact on salmonid spawning habitat, or nursery habitat where it is in short supply, would be regarded as an extensive impact as it is likely to have an impact on the salmonid population beyond the immediate vicinity of the impact source.

APPENDIX NO 5.

CARCASS DISPOSAL AGREEMENT

BEECHFIELD PRODUCTS LTD

ANIMAL COLLECTION SERVICE
LICENSED HAULAGE & SKIPHIRE

January 9, 2007

Re: collection of dead pigs from Woodville Pig Farms

Dear Sir /Madam:

I confirm that we collect dead pigs on the weekly basis from Woodville Pig Farm, Ballymackey, Nenagh, Co. Tipperary and from Ballyknockane Unit, Ballymackey, Nenagh, Co. Tipperary.

Sincerely,

John Hastings
Manager

BEECHWALK • ROSCREA • CO. TIPPERARY
PHONE: 0505 21991 FAX: 0505 24652

APPENDIX NO. 6

STORMWATER VISUAL INSPECTION REGISTER

IPC LICENSE REG NO 000
LICENSEE: Woodville Pig Farms Ltd
LOCATION: Ballyknockane. Ballymackey, Nenagh, Co Tipperary

VISUAL INSPECTION OF STORMWATER MONITORING POINT

Monitoring Point: SW1:

DATE	VOLUME	Comments

APPENDIX NO. 7

DISPOSAL OF CARCASSES IN EVENT OF CATEGORY A DISEASE

BEECHFIELD PRODUCTS LTD
ANIMAL COLLECTION SERVICE
LICENSED HAULAGE & SKIPHIRE

January 9, 2007

Re: collection of dead pigs from Woodville Pig Farms

Dear Sir /Madam:

I confirm that we collect dead pigs on the weekly basis from Woodville Pig Farm, Ballymackey, Nenagh, Co. Tipperary and from Ballyknockane Unit, Ballymackey, Nenagh, Co. Tipperary.

Sincerely,
John Hastings
Manager

BEECHWALK • ROSCREA • CO. TIPPERARY
PHONE: 0505 21991 FAX: 0505 24652

APPENDIX NO. 8

ARCHAEOLOGICAL REPORT

ARCHAEOLOGICAL REPORT

FOR SITE

OF

WOODVILLE PIG FARM'S LTD PIG FARM

AT

BALLYKNOCKANE, BALLYMACKEY, NENAGH, CO TIPPERARY

1. SCOPE OF THE STUDY.

This report assesses the impact on the archaeological environment if any, of the construction of three No. new pig houses to replace 11 No. existing pig houses adjacent to the existing farm at Ballyknockane Ballymackey, Nenagh, Co Tipperary.

2. RESOURCE MATERIAL CONSULTED.

The archaeological status of the lands where it is proposed to construct these new house's, adjacent to the existing pig farm was established by consulting the 'SITES AND MONUMENTS RECORD (SMR) for County Tipperary.

3. ARCHAEOLOGICAL MONUMENTS IDENTIFIED.

This review indicates that there are no archaeological sites on or adjacent to the area referenced.

4. IMPACT OF PROPOSED DEVELOPMENT OF NEW FATTENING HOUSE'S ADJACENT TO EXISTING PIG FARM ON THE ARCHAEOLOGICAL ENVIRONMENT.

The construction of this proposed development will require minimal ground disturbance, as it is being constructed over the foot print of the existing yard area, which when overlayed with the lack of evidence of any historical sites from SMR Records for Co Tipperary, it is clear this proposed development poises no immediate danger to any listed sites.

5. THE SITE.

A review of the archaeological Sites & Monuments Record Maps (1925), indicates that there are no archaeological sites recorded on or adjacent to this proposed site

SUMMARY

(i) There are no archaeological sites recorded on or adjacent to this proposed development site.

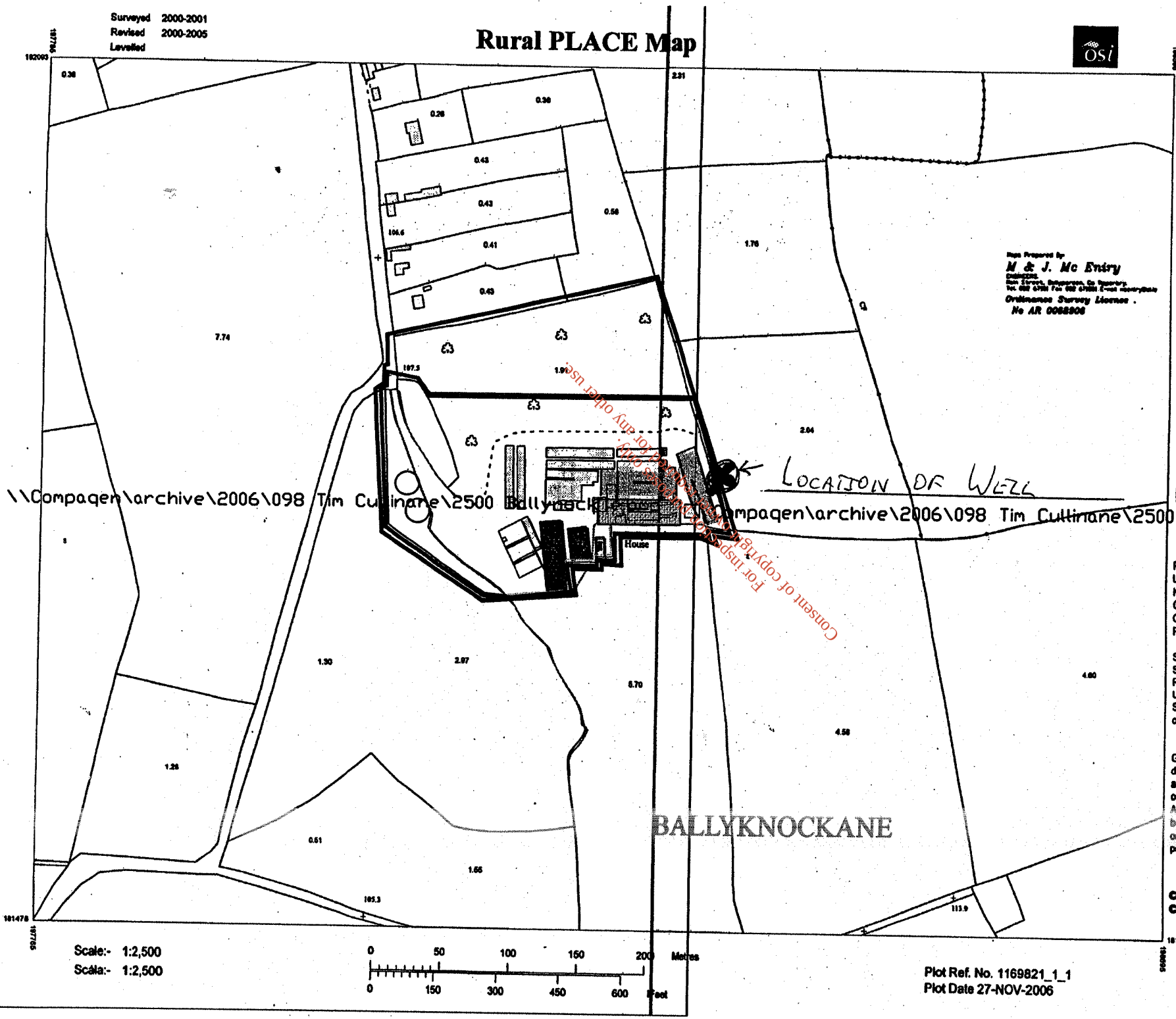
(ii) There is no known archaeological reason to prohibit the construction of these new Pig Fattening House's

APPENDIX NO. 9

WELL WATER ANALYSES & LOCATION MAP

Rural PLACE Map

Surveyed 2000-2001
Revised 2000-2005
Levelled



Scale:- 1:2,500
Scála:- 1:2,500

0 50 100 150 200 Metres
0 150 300 450 600 Feet

Plot Ref. No. 1169821_1_1
Plot Date 27-NOV-2006

ITM CENTRE PT COORDS
598131,681824

DESCRIPTION

MAP SHEETS
Digital Map
4222

1:2500
4222-D

Maps Prepared by:
M & J. Mc Entry
Ordnance Survey Licence .
No AR 0058908

ORDNANCE SURVEY IRELAND ©

Produced by National Map Services,
Unit 7, South Ring Business Park,
Kinsale Road,
Co. Cork
On behalf of Ordnance Survey Ireland,
Phoenix Park, Dublin 8.

N

FBA Laboratories Ltd.

Cappoquin,
Co. Waterford.

ANALYSTS: Agricultural and Environmental
CONSULTANTS: Agricultural and Nutritional

Tel: 058-52861
Fax: 058-52865
admin@fba-labs.com

CERTIFICATE OF ANALYSIS

MS Farm Services,
Mooresfort,
Lattin,
Co. Tipperary.

Sample Ref: W2
Date Received: 09.10.2006
Lab Ref: 10375

Parameter	Units of analysis	Result
Total Ammonia	mg/l NH_3-N	0.0
Nitrate	mg/l NO_3-N	0.1
Total Coliforms	MPN/100mls	3
Faecal Coliforms	MPN/100mls	1

Signed

DIRECTORS: T.M. BUTLER M.AGR.SC., PHD
C.M. BUTLER DIP SCI.

CO. REG. NO: 250639

ISO 9001:2000 EQA QUALITY ASSURED FIRM

APPENDIX NO. 10

PIG MANURE REGISTER

PIG MANURE REGISTER

WOODVILLE PIG FARMS LTD, BALLYKNOCKANE, BALLYMACKEY.

DATE OF DISPATCH	PIG MANURE DELIVERED BY	PIG MANURE SPREAD BY	FARM CODE	FARMER NAME	VOLUME PIG MANURE DELIVERED M3	KGS N PER M3	KGS P PER M3
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
TOTALS					**0**	**0**	**0**