

Item 5 - Report on Planning Applications

Application Ref: NP/15/0315/FUL

Case Officer	Kate Attrill		
Applicant	Mr M Carey		
Agent	Mr W Harries, Harries Design & Management		
Proposal	Installation of 500kw anaerobic digester in connection with existing farming operation		
Site Location	Coedwynog, Felindre Farchog, Crymych, Pembrokeshire, SA41 3XW		
Grid Ref	SN09524036		
Date Valid	16-Jul-2015	Target Date	10-Sep-2015

Summary

Coedwynog Farm is a working dairy farm extending to approximately 1000 acres (170 owned outright, the remainder on long lease) to the north east of Nevern. It is located within the Cemaes Head Landscape Character Area and a tributary of the Nyfer runs along the eastern boundary of this site.

The farm and associated agricultural buildings are located to the north of the B4582, and are partially dug into the landscape. The site is surrounded by mature hedgebanks to the west and south with woodlands strips to the north.

The nearest non related dwelling is a small traditional cottage which lies to the immediate east of the site boundary, Rhydoferiad from which several objections have been received. The dwelling is located approximately 278m from the CHP plant on the western side of the site.

The proposal is a full application for the installation of an Anaerobic Digester with a 500 Kw generating capacity.

The system is designed to process 20,000 tonnes of waste per year to produce 500Kw of energy. The input comprises 12,000 tonnes of slurry waste and 8000 tonnes of solid waste. The slurry is the natural by-product of the dairy herd (550 cows plus followers) while the solids will be derived from a mixture of silage waste, bedding and green crop from the existing farming enterprise.

The proposal to install a 500kW anaerobic digester will reduce pollution and the smells associated with slurry spreading from the local area, while generating a significant amount of renewable energy, is itself a form of farm diversification, and the application is considered to be in compliance with local and national policies for sustainable development, and therefore recommended for approval.

A Screening Opinion under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 was issued on the 18th August to the effect that the Local Authority do not consider the application to be EIA development.

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Consultee Response

PCC - Head of Public Protection: No objection
PCC - Transportation & Environment: No objection
PCC - Drainage Engineers: Conditional Consent
Natural Resources Wales: Conditional Consent
Dyfed Archaeological Trust: Conditional Consent
Nevern Community Council: Approve

Public Response

The application was advertised by way of a public site notice on the 24th June 2015 and five neighbouring properties were written to. Ten letters of representation have been received from neighbouring properties and further afield objecting to the application.

Several letters have been written from owners/occupiers at Rhydoferiad and addresses in Llanybydder, Crymych, Nevern and Essex stating objections based on:

- Disregard by the applicant for normal health and safety concerns
- Inconsistent with traditional farming practices
- Previous expansion of the farm having not been approved
- The excessive size of the digester and buildings
- The lack of a noise assessment (subsequently submitted)
- The introduction of an industrial element which is insensitive and unsympathetic to the landscape area
- Object to the lack of an Environmental Impact Assessment
- Setting a precedent for industrial processes in the area that the installation will be a hazardous one, with risks of explosion
- Risks of pollution due to spillage and contamination of the adjacent property's borehole
- Increase of traffic
- Noise from the CHP plant and flare
- Fears that this will become a centralized facility taking other farm wastes and the increase in traffic this would entail
- Introduction of noise and light to the Park
- Private water supplies being disrupted by the excavation at Coedfryn, Trefoel and Rhydoferiad
- Failure rate of anaerobic digesters and pollution incidents
- Negative impacts on tourism in the area
- The farm is becoming a commercial power plant rather than a traditional farm

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Policies considered

Please note that these policies can be viewed on the Policies page
Pembrokeshire Coast National Park website -

<http://www.pembrokeshirecoast.org.uk/default.asp?PID=549>

LDP Policy 01 - National Park Purposes and Duty
LDP Policy 07 - Countryside
LDP Policy 08 - Special Qualities
LDP Policy 09 - Light Pollution
LDP Policy 11 - Protection of Biodiversity
LDP Policy 15 - Conservation of the Pembrokeshire Coast National Park
LDP Policy 29 - Sustainable Design
LDP Policy 31 - Minimising Waste
LDP Policy 32 - Surface Water Drainage
LDP Policy 33 - Renewable Energy
LDP Policy 53 - Impacts on traffic
PPW7 Chapter 04 - Planning for Sustainability
SPG05 - Sustainable Design
SPG06 - Landscape
SPG14 - Renewable Energy plus Addendum on Field Arrays
TAN 08 - Renewable Energy
TAN 21 - Waste

Constraints

LDP Mineral Safeguard
Biodiversity Issue
Potential for surface water flooding
Recreation Character Areas

Officer's Appraisal

Site and Context

Coedwynog Farm is a working dairy farm extending to approximately 1000 acres (170 owned outright, the remainder on long lease) to the north east of Nevern. It is located within the Cemaes Head Landscape Character Area and a tributary of the Nyfer runs along the eastern boundary of this site.

The farm and associated agricultural buildings are located to the north of the B4582 in a steep sided valley and the newer buildings are partially dug into the landscape. The site is surrounded by mature hedgebanks to the west and south with woodlands strips to the north.

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The nearest non related dwelling is a small traditional cottage which lies to the immediate east of the site boundary, Rhydoferiad from which several objections have been received. The dwelling is located approximately 278m from the CHP plant on the western side of the site.

The application is being reported to Committee due to its classification as a 'Major' application and the site was visited by the Planning Committee members and case officer on the 24th August 2015.

The application was screened under the Environmental Impact Assessment Regulations and it was determined that the proposal was not likely to have significant impacts by virtue of factors such as its nature, size or location and which could not be dealt with as part of the planning process. An Environmental Statement was not therefore required.

Relevant Planning History

NP/14/0622 - Erection of roof over existing silage clamps – retrospective – Approved - 27 December 2014.

NP/15/0015/FUL - Conversion of agricultural outbuilding to form rural enterprise workers dwelling – Approved - 10 March 2015

Anaerobic Digestion

Anaerobic digestion is a natural process where microorganisms break down organic matter (such as food waste, manures and slurries, sewerage sludge and purpose grown crops for energy) in the absence of oxygen. The process can produce both biogas and digestate. Biogas can be used in combined heat and power to produce heat or cleaned and used in the same way as a natural gas or vehicle fuel. Digestate is used as a renewable fertiliser or soil conditioner.

This form of waste treatment has an advantage over composting, since it generates energy, which reduces emissions of climate change gases by offsetting emissions from fossil fuelled power stations. It gives higher net carbon savings than composting.

Due to the production of biogas and digestate in the anaerobic digestion process, anaerobic digestion is considered to have a greater potential to reduce greenhouse gas emissions than other composting treatments.

Silage, slurry and agricultural fuel oil storage

The Water Resources (Control of Pollution) Silage, Slurry and Agricultural Fuel Oil (Wales) Regulations 2010 (SSAFO) are relevant to this application in that they require sufficient storage of slurry. Although not planning legislation, it is a related legislative requirement, and the need for additional slurry storage is one of the justifications given for the size of tanks required in this application.

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Silage, slurry and fuel oil have been the source of serious pollution, often due to inadequate storage capacity or poor construction. Sufficient storage for silage effluent and slurry or manure is essential to prevent the need for spreading outside the growing season or during inappropriate weather and soil conditions.

A slurry storage tank must normally hold at least four months' production, including allowance for likely rain water.

Description of Proposal

The proposal is a full application for the installation of an Anaerobic Digester with a 500 Kw generating capacity.

The system is designed to process 20,000 tonnes of waste per year to produce 500Kw of energy. The input comprises 12,000 tonnes of slurry waste and 8000 tonnes of solid waste. The slurry is the natural by-product of the dairy herd (550 cows plus followers) while the solids will be derived from a mixture of silage waste, bedding and green crop from the existing farming enterprise.

The main components of the application are:

- **Digester Tank** - A 25.3 metre diameter silo finished in green sheeting to a height of 8.5 metres, which then extends to 12.8 metres to the top of the gas dome (when at capacity). Anaerobic digestion takes place in this tank
- **Digestate tank** – a 32.6 metres diameter open topped silo in green sheeting with a height of 7.26 metres. This tank stores the liquid digestate after treatment
- **Liquids tank** – a 10 metre diameter silo finished in green with a height of 7.26 metres which stores slurry prior to digestion
- **Solids feeder** – a large open tank that breaks up the solid waste (fodder etc.) and mixes with slurry prior to delivery into the digester. This area is under cover
- **Separator and Fibre clamp** – this will separate the solid fibre elements (post digestion) prior to the liquid entering the digestate tank. The solid fibre elements will be dropped to a storage clamp below the separator.
- **Combined Heat and power unit (CHP Plant)** – this is a small power generating unit with a flue where the biogas is burned to generate electricity
- **Transformer and substation** – this feeds the electricity to the national grid

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- **Boiler house and Control Room** – this is a modest mono-pitched building from where the AD plant can be operated
- **Surplus gas burner** – this takes the form of a flue/chimney on the edge of the development site to a height of 8.2 metres which acts as a safety valve to allow excess gas to be burnt off
- **Oil tanks** – these are subsidiary fuel storage units to power the plant in the event of the digester failing or being out of operation.

Need

The need for the anaerobic digester has been justified by the applicants as being a sustainable form of renewable energy based on the by-products of a large working dairy farm. Slurry, bedding and feed waste is currently spread on the land as untreated fertilizer, which the anaerobic digester will treat whilst increasing effluent storage capacity on the holding.

The application documents state that the farm has an average of 1150 animals on the holding at any one time, with the dairy herd numbering 550 cows, 220 heifers in calf, and approximately 380 younger stock such as bull calves and beef stock. The amount of slurry produced and available to the anaerobic digester is being based on only the dairy herd.

Key Issues

The application raises the following planning matters:

- Policy and Principle of Development
- Siting, Design and Impact upon the Special Qualities of the National Park
- Highway safety
- Amenity and Privacy
- Landscaping
- Biodiversity
- Land Drainage
- Agricultural assessment

Policy:

The Welsh Governments overarching policy is to provide sustainable development, and both TAN8 and TAN21 are supportive of renewable energy proposals in appropriate locations.

Paragraph 12.8.6 of PPW states that the Welsh Government's aim is to secure an appropriate mix of energy provision for Wales which maximises benefits to our economy and communities, whilst minimising potential environmental and social impacts. This forms part of the Welsh Government's

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aim to secure the strongest economic development policies to underpin growth and prosperity in Wales recognising the importance of clean energy and the efficient use of natural resources, both as an economic driver and a commitment to sustainable development.

Planning Policy Wales goes on to state that: [we] 'recognise that the benefits of renewable energy are part of the overall commitment to tackle climate change by reducing greenhouse gas emissions as well as increasing energy security'.

PPW further elaborates at 12.8.9 that: 'local planning authorities should facilitate the development of all forms of renewable and low carbon energy to move towards a low carbon economy (see 4.4.3) to help to tackle the causes of climate change (see 4.7.3). Specifically, they should make positive provision by:

- considering the contribution that their area can make towards developing and facilitating renewable and low carbon energy, and ensuring that development plan policies enable this contribution to be delivered;
- ensuring that development management decisions are consistent with national and international climate change obligations, including contributions to renewable energy targets and aspirations;
- recognising the environmental, economic and social opportunities that the use of renewable energy resources can make to planning for sustainability.

National Park Policy 33 for Renewable Energy provides a favourable context for renewable energy developments where it does not prejudice the special qualities of the National Park.

Policy 7 provides broad support for farm diversification schemes, in the context of which this application would be considered.

Policy 47 supports development which has a low impact and makes a positive contribution provided that it is well integrated into the landscape and does not have adverse visual effects; is tied to the land on which it is located and involves agriculture, all of which the proposed development accords with.

The Supplementary Planning Guidance for Renewable Energy (adopted 12th October 2011) is a supportive policy, in that small scale renewable energy schemes will be considered favourably, subject to there being no over-riding environmental and amenity considerations.

Guidance is also provided on assessing renewable proposals. Likely contributions for renewable energy and carbon emissions are also set out and have been incorporated in the Monitoring section of the Local Development Plan. In terms of potential for renewables, the Renewable Energy Assessment advises:

- a) On biomass heat/power installations small scale (100kW – 300kW) and medium scale (less than 10MW) proposals are more likely to be appropriate
- b) Similarly small scale anaerobic digestion plants within a complex of buildings are most likely to be acceptable for appropriate wastes (10kW).

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This application falls between the National Park definitions of small and medium, and should this application be approved, it will provide approximately half of the self-set renewable target for anaerobic digestion within the National Park until 2020.

The principle of this form of development within the National Park is therefore supported, however this needs to be carefully balanced against other material considerations such as the impact on special qualities of the surrounding area, highway safety, and residential amenity.

Siting, Design and Impact upon the Special Qualities of the National Park

Policy 8 of the Pembrokeshire Coast National Park Local Development Plan (LDP) is a strategy policy which refers to the special qualities of the National Park and lists priorities to ensure that these qualities will be protected and enhanced.

Policy 15 of the LDP seeks the conservation of the Pembrokeshire Coast National Park with criteria 'a' and 'b' resisting development that would cause significant visual intrusion and/or, that would be insensitively and unsympathetically sited within the landscape. Criteria 'd' and 'e' resists development that would fail to harmonise with, or enhance the landform and landscape character of the National Park and/or fail to incorporate important traditional features.

The National Park Supplementary Guidance on the location of farm buildings specifies that preference should be given to new buildings which sit within or are well related to existing building complexes, which this current proposal does broadly comply with.

In terms of the siting of the development within the holding, extensive consideration has been given to the appropriateness of the siting. The chosen location is one of only two potential and viable sites on the holding. The field to the west in which lies the silage clamps is on much higher land which is also much more visible within the wider landscape. The chosen site is therefore the most appropriate on the holding, and will cause the least impact on the special qualities of the National Park. The combination of the existing land-form, screening and the lowering of the ground levels will result in the proposal having a minimal impact on the special qualities of the National Park and it is as sensitively located as is possible.

Amenity and Privacy:

Policy 30 is a criteria based policy which states that development will not be permitted where it has an unacceptable impact on amenity, particularly where,

- a) the development is for a use inappropriate for where people live or visit and/or;
- b) the development is of a scale incompatible with its surroundings: and/or

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- c) the development leads to an increase in traffic noise or odour or light which has a significant adverse impact; and/or;
- d) the development is visually intrusive.

The closest dwelling to the proposed development is Rhydoferiad, a small single storey traditional dwelling to the east of the proposed development site. The dwelling's principal elevation faces to the south/ south-south east with its gable end facing towards the development site. The garden slopes down to the west to adjoin the development site with views to the west across to Dinas Head.

Visual amenity

Accepting that there is no right to a private view, the cross section supplied with the application demonstrates that long range views from the adjacent garden area will not be adversely affected by the proposal, with the bunded eastern end of the development also providing screening to the existing buildings which are currently visible.

At closer quarters the development will be set at a substantially lower level than the property and not be in direct line of site, the proposed bunding and associated planting atop will provide a clear visual break to a person sitting in the garden. The bund is set at 2M (approx. the same height as the adjoining roadside hedgebank), but it has been suggested that this could be increased if required providing further screening. Officers consider that a 2m bund to match existing hedgebanks would be appropriate.

The edge of the excavated area is about 53M from the garden boundary and 70M from the gable of the property, this coupled with the retention of long-range views, the difference in levels and the screening provided by planting & bund at closer quarters means that the visual amenity of the property will be effectively safeguarded.

Odour

One of the key benefits of anaerobic digestion is the positive impact it has on reducing unpleasant odours. The Case Officer visited an anaerobic digester of a similar scale during the application process and was reassured that the smell is not a significant issue in even close proximity to the digestate tanks and open digestate storage.

The application refers to the environmental benefit of the reduction in odour to the wider area caused by slurry spreading, but does not examine critically the impact on the adjacent property.

Should this application be approved, there will be a constant odour (albeit at a low level) from the digester and the digestate tanks as opposed to occasional slurry spreading and this will be brought closer to an unrelated dwelling house.

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Noise

The noise assessment supplied with the planning application has established that there will be no significant increase in noise to the existing background levels.

The applicants current proposal does not suggest the use of compressors to aerate the digester as the intention is to mechanically rotate the digestate resulting in no significant noise emissions.

Although the Environmental Health section at PCC have not requested a condition relating to noise emissions, it would be prudent to impose such a condition in order to protect this aspect of amenity to the adjacent occupiers for the future and in case of any potential change to the mechanical operation of the plant and machinery.

Subject to acceptable conditions being imposed, it is considered that the current proposal would not be harmful to the residential amenity in terms of noise emissions of the occupiers of Rhydoferiad.

The supporting text to Policy 30 iterates that: 'this policy aims to protect the amenity enjoyed by people in their residences, workspaces and recreational areas. Amenity is defined as those elements in the appearance and layout of town and countryside **which makes for pleasant life rather than a mere existence**. Anything ugly, dirty, noisy, crowded, intrusive or uncomfortable is likely to adversely affect amenity.

In giving consideration to residential amenity, the application documents submitted have asserted that because noise, smell and visual appearance can all be mitigated, there is therefore no negative impact on residential amenity. However, the text above articulates that amenity is a wider issue than just noise and smell. The setting of a dwelling can be considered to be part of amenity, and there will undoubtedly be a detriment to the occupiers of Rhydoferiad as a result of this proposal, although this detriment could be one of perception of amenity rather than a directly measurable impact. The proximity to an industrial complex of buildings will undoubtedly impact on the perception of the setting of the occupants at Rhydoferiad.

Whether this detriment is outweighed by the positive sustainability benefits of providing a renewable form of energy from waste is a matter which will require careful consideration by members. It is the conclusion of officers that any detriment would be outweighed by the positive sustainability benefits of the proposal.

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Highway Safety:

The Highways department of Pembrokeshire County Council were consulted with regard to this application and have no objection to the proposals. Their comments are as follows.

The Planning Assessment document supporting this application is very thorough in explaining the various aspects of the proposal in relationship to current traffic movements on the Highway associated with the farm, and concludes that there will overall be a net decrease in movements for this farm. It states that there will not be any importation of material specifically to feed the Digester. This document is accepted and can be recommended as being an accurate assessment.

During construction there will be the Contractor's construction machinery brought to site and deliveries so that the tanks and surrounding equipment can be erected in place. Access will be directly onto the B4582 County Road which links onto the Trunk Road A487 at each end (approximately 3 miles to Croft or 1.5 miles through Nevern). Excavated material is stated to be generally used, or disposed of, within the owned farm land.

The plans have been studied and the proposed excavations are a significant distance away from the Highway so as not to cause a danger to the structure of the Road.

Landscaping:

The site benefits from existing landscaping in the form of trees and hedgerows. To the west of the site, there is a double line of hedges lining the access track, and a single line to the southern boundary with the B4582. The hedgerow contains a number of mature trees which would be required by condition to be maintained and protected during construction.

The development site lies on the edge of a wooded valley, with natural screening provided to the northern boundaries. The proposal also seeks to lower the ground level to further contain the site visually and match the existing ground level of the cattle housing adjacent. The site is to be enclosed by a 2m high bund to the eastern boundary which would require landscaping to be agreed by condition.

Biodiversity:

An ecological assessment was submitted with the application to which the County Ecologist has assessed and has no objection to the development.

Land Drainage:

The Surface Water Engineer at PCC was consulted as part of the application, and pointed out that no details have been provided with regard to the actual

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designed discharge rate, and the rainfall event the storage has been based on.

The drainage of the site would also be controlled through the Natural Resources Wales (NRW) permit in respect of the slurry storage and risks to pollution, for which a specific pollution prevention condition has been requested by NRW.

As there is not a clear plan showing the extent of concrete surfacing, this has been agreed with the applicants agent to be approved by condition prior to commencement of works.

Other Material Considerations:

Agricultural Consultants Assessment:

An agricultural consultant's assessment has been provided to assess 2 elements of this application, firstly whether the installation of this anaerobic digestion plant is necessary for the farming enterprise and secondly whether the slurry produced will meet the need of the farm.

Although the storage and disposal of slurry is becoming increasingly difficult for farmers the situation is in no way at a point where the farming enterprise will cease if other methods are not found. The installation of an anaerobic digestion plant would be an operation that would complement the enterprise rather than be essential to its future viability.

The application states that the AD plant requires 12000 tonnes of slurry and 8000 tonnes of solid matter per annum in order to function. The holding comprises of a dairy unit of 550 cows plus followers and beef stock. The supporting evidence quotes the slurry output of a dairy cow producing 9000 litres of milk to be 1.92 cubic metres per month with 1 cubic metre equating to 1 ton. The agricultural consultant has cross checked this figure with the John Nix Farm pocket book and the Agricultural budgeting and costing book and can confirm that both publications concur with the figures quoted, meaning that the dairy herd alone would be capable of meeting the slurry inputs required by the plant.

The applicant intends to meet the solid requirement of the AD plant by predominantly using animal bedding waste and topping this up with surplus silage and rye crop crown on the farm. The assessment concludes that there is no doubt that a holding of this size would be capable of achieving 8000 tonnes without the need to buy in other matter.

Conclusion

Both national and local planning policies support the provision of renewable energy in appropriate locations within the park.

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This application is a very finely balanced one, in that the siting within the landscape of the National Park and the land holding is sensitive and the impact on the special qualities of the National Park will be minimal, and yet there may be a detriment to the residential amenity of the adjacent dwelling.

On balance, it is considered that the slight impact on residential amenity to a single dwelling is outweighed by the greater environmental benefits offered by the proposal, and the proposal is therefore recommended for approval.

Recommendation

APPROVE, subject to the following conditions:

1. The development shall begin not later than five years from the date of this decision.

Reason: Required to be imposed pursuant to Section 91 (1) of the Town and Country Planning Act 1990 (as amended).

2. The development shall be carried out in accordance with the following approved plans and documents, existing block plan and site location dated 16/07/15 (1383 05 A), proposed block plan and site location dated 16/07/15 (1383 06 A), sectional elevations (1383 07A), cross sections received 31/07/2015 (1383 08).

Reason: In order to be clear on the approved scheme of development in the interests of protecting visual amenity and the special qualities of the National Park. Policy: Local Development Plan – Policies 1 (National Park Purposes and Duty), 8 (Special Qualities), 15 (Conservation of the Pembrokeshire Coast National Park) and 29 (Sustainable Design).

3. No development or site clearance shall take place until there has been submitted to and approved in writing by the local planning authority a scheme of landscaping. The scheme shall include indications of all existing trees (including spread and species) and hedgerows on the land, identify those to be retained and set out measures for their protection throughout the course of development.

Reason: In the interests of maintaining a suitable scheme of landscaping to protect the visual amenity of the area, to maintain the special qualities of the landscape and habitats through the protection, creation and enhancement of links between sites and their protection for amenity, landscape and biodiversity value. Policy: Local Development Plan – Policies 1 (National Park Purposes and Duty), 8 (Special Qualities), 11 (Protection of Biodiversity), 15 (Conservation of the Pembrokeshire Coast National Park) and 30 (Amenity).

4. All planting, seeding or turfing comprised in the approved details of landscaping shall be carried out in the first planting and seeding seasons following the occupation of the buildings or the completion of the development, whichever is the sooner; and any trees or plants which within a period of 5 years from the completion of the

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development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.

Reason: In the interests of protecting the visual amenity and special qualities of the area. Policy: Local Development Plan - Policies 1 (National Park Purposes and Duty), 8 (Special Qualities), 11 (Protection of Biodiversity), 15 (Conservation of the Pembrokeshire Coast National Park) and 30 (Amenity).

5. The level of noise emitted from the site shall not exceed the existing external background noise level by more than 5dB at the nearest dwelling with no financial interest in the activity when noise is measured and assessed as per BS4142: 2014
Reason: To minimise disturbance to occupiers of Rhydoferiad. Policy: Local Development Plan - Policy 30 (Amenity).

6. Prior to commencement of development, a plan showing the extent of concrete footprint and the surface water drainage scheme of the buildings and yards shall be submitted to, and approved by the Local Planning Authority in conjunction with NRW.
Reason: to ensure that the development is in accordance with the submitted plans and does not conflict the permitting regime required by NRW.

7. The development hereby approved shall not import slurry or waste products from off the land holding (as shown on application documents) without the prior formal approval of the Local Planning Authority.
Reason: In order to protect the amenity of neighbouring properties, highway safety and to accord with the approved details supplied.

8. Details of appropriate means of protection to all trees outlined for retention on the approved plans shall be set out to BS5837 and agreed in writing with the National Park Authority prior to any works commencing on site. The tree protection shall thereafter be carried out in accordance with the approved details and retained throughout the building works.
Reason: To prevent damage to the trees which contribute to the landscaping of the site and surrounding area. Local Development Plan - Policy 15 - Conservation of the Pembrokeshire Coast National Park.

9. Prior to commencement of any excavation works on site, a written scheme, plan and method statement to account for the disposal of excavated land shall be submitted to, and approved by the Local Planning Authority. Such details as are approved shall be complied with thereafter unless formal approval to vary is first granted by the Local Planning Authority.
Reason: In order to control the disposal of waste material and to prevent unsightly bunds being created in inappropriate locations.

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10. No development approved by this permission shall be commenced until a pollution prevention management plan detailing all necessary pollution prevention measures for the construction phase of the development is submitted to and approved in writing by the Local Planning Authority. The details of the plan shall be implemented as approved and must be efficiently communicated to all contractors and sub-contractors (for example, via toolbox talks) and any deficiencies rectified immediately.

Reason: Prevent pollution of controlled waters and the wider environment.

As a minimum we would recommend that the plan include the following points.

- Identification of surrounding watercourses and potential pollution pathways from the construction site to those watercourses.
- How each of those watercourses and pathways will be protected from site run off during construction.
- How the water quality of the watercourses will be monitored and recorded.
- How surface water runoff from the site during construction will be managed/discharged. Please note that it is not acceptable for ANY pollution (e.g. sediment/silt/oils/chemicals/cement etc.) to enter the surrounding watercourses.
- storage facilities for all fuels, oils and chemicals
- construction compounds, car parks, offices etc
- details of the nature, type and quantity of materials to be imported on to the site
- measures for dealing with any contaminated material (demolition waste or excavated waste)
- identification of any buried services, such as foul sewers, so that they are protected
- details of emergency contacts, for example Natural Resources Wales hotline 0800 807 060

11. Prior to commencement of development, the developer shall establish the security of the adjacent properties (Rhydoferiad) private water supply and submit a method statement relating to the construction phase to be approved by the LPA and PCC (pollution protection) . This shall include a professional assessment (by a suitably qualified hydrologist) of the risks associated with the construction of the development and an undertaking to monitor the water quality prior to, during and post construction of the development hereby approved (once prior and once a year thereafter). Should there be any detriment to the water quality as a direct result of the anaerobic digestion facility, the developer shall rectify this immediately liaising with the LPA. Any disagreement over the results of the water quality testing shall be referred to PCC public protection department.

Reason: to protect the amenity of the adjacent property and their water supply.

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12. No development or site clearance shall commence until the local planning authority have been informed in writing of the name of a professionally qualified archaeologist who is to be present during the undertaking of any excavations in the development area so that a watching brief can be conducted. No work shall commence until the local planning authority has confirmed in writing that the proposed archaeologist is suitable and two weeks notice must be given to the LPA. A copy of the watching brief report shall be submitted to the local planning authority within two months of the archaeological fieldwork being completed.

Reason: To assess the archaeological value of the site. Policy: Local Development Plan – Policy 8 (Special Qualities) and Planning Policy Wales (Edition 7, July 2014) – Chapter 6 (Conserving the Historic Environment).

Natural Resources Wales: Informative

The applicant should also be advised that, in addition to planning permission, it is their responsibility to ensure that they acquire all other permits/consents relevant to their development.

Pollution prevention guidance is available from the Environment Agency's website <http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx>.

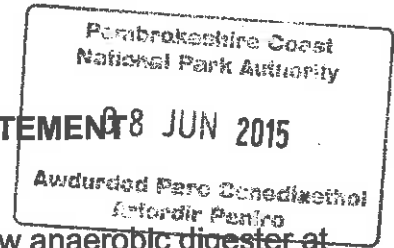


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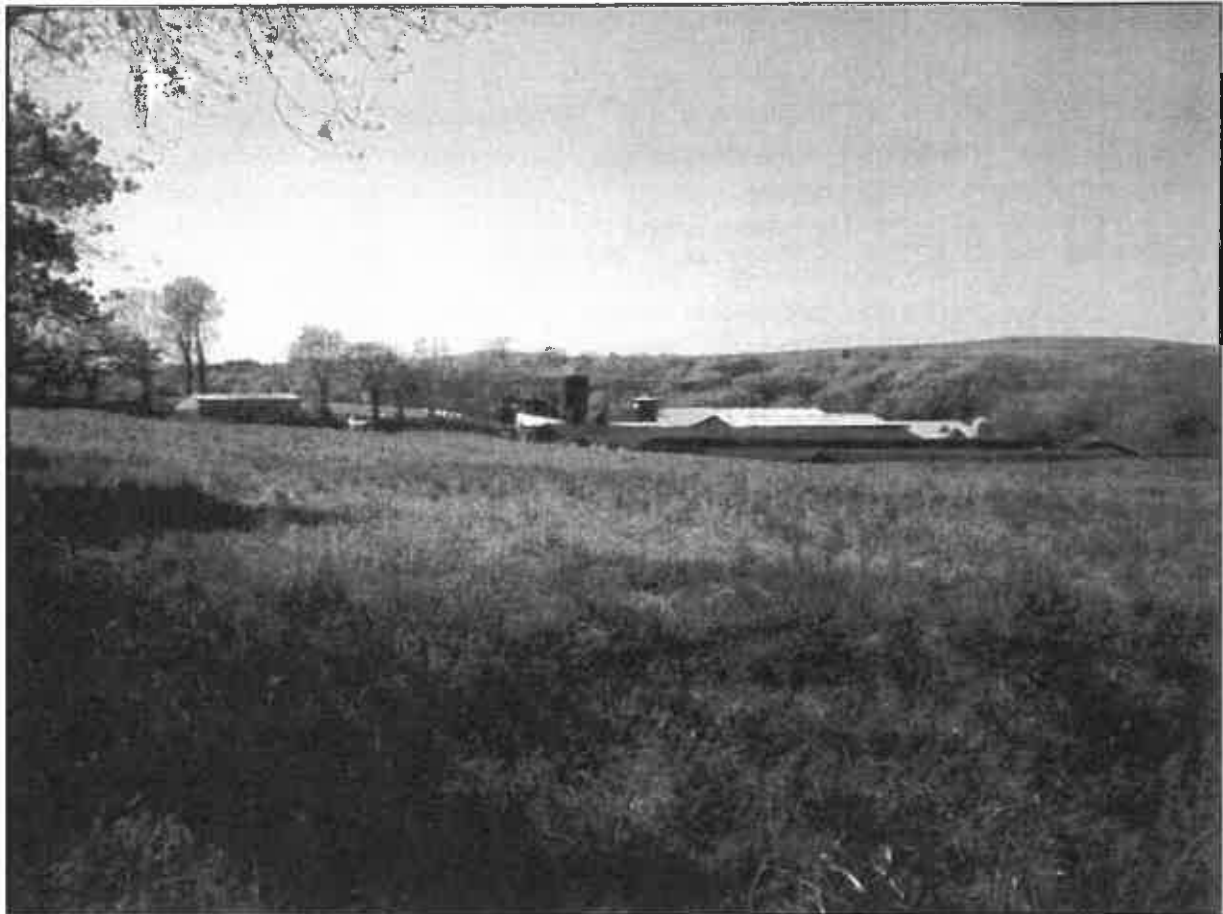
Job no. 1383.wth

Date 29.05.15

PLANNING, DESIGN & ACCESS STATEMENT 8 JUN 2015



Full planning application for the installation of a 500 Kw anaerobic digester at Coedwynog Farm, Nevern, Pembro SA41 3XW on behalf of B.G Carey & Sons.



1. LEGISLATION & GUIDANCE

In preparing this statement regard is had to the following Legislation and Guidance;

- *Town & Country Planning Act 1990 (as amended)*
- *Town & Country Planning (GDP) Order 1995 (as amended)*
- *Town & Country Planning (GPD) Order 1995 (as amended)*
- *Town & Country Planning (GDP) Wales order 2009*
- *Town & Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 1999*
- *Planning Policy Wales 7th ed) – chapters 4, 7 & 13*
- *TAN 6 – Planning for Sustainable Rural Communities*
- *TAN 8 – Renewable Energy*
- *TAN 21 – Waste*
- *Environment Agency (Standard rules SR2012 NO 10) On-farm anaerobic digestion facility using farm wastes only, including use of resultant biogas*

Pembrokeshire Coast National Park Local Development Plan

- Policy 7 Countryside Tier
- Policy 8 Special Qualities
- Policy 15 Conservation of the Pembrokeshire Coast National Park
- Policy 29 Sustainable Design
- Policy 30 Amenity
- Policy 31 Minimising Waste
- Policy 32 – Surface Water Drainage
- Policy 33 – Renewable Energy
- Policy 52 Sustainable Transport

Supplementary Planning Guidance

- Landscape Character Assessment – LCA 25 (Cemaes Head)
- Renewable Energy (April 2014)
- Siting and Design of farm buildings (June 2012)
- Pembrokeshire Good Practice Guidance: Slurry Stores

2. VISION – PROJECT OBJECTIVES

- To affect the more efficient disposal of waste from the existing farming enterprise by increasing overall storage capacity and producing a less environmentally harmful form of Farm effluent.

- To reduce the emission of harmful greenhouse gases from the farming industry and produce a low carbon renewable energy source helping to meet the EU Renewable Energy Directive 2009.
- To diversify the economic basis of the existing farm business

3. CONTEXT AND PROPOSAL

Landscape context

Coedwynog is a working dairy farm extending to approx. 1000 acres (170 owned, remainder on long lease) near Nevern. Accessed off the B4582, the farm sits at 90m AOD and is positioned in a small tributary valley of the Nyfer approx. 1Km NE of the village. The landscape about the holding has a transitional quality between the deeply incised wooded valleys of the Nyfer & its tributaries and the higher more open land to the north. The farm has a sheltered aspect set in an established field system enclosed for the most part by wooded hedgebanks with thicker bands of woodland along the base of the valley directly to the north.

The farmstead has developed in a number of distinct phases with a range of traditional stone & slate outbuildings and farmhouse centred on the historic yard with newer portal frame buildings constructed directly to the south and east. Beyond this are a slurry pit and a series of fodder clamps with further ranges of animal housing & milking parlour to the east and southeast. The historic trend therefore has been for the farm to extend up the north-facing slope from the original farmstead towards the highway.

Coedwynog is located within the Cemaes Head Landscape Character Area (LCA), with the Afon Nyfer LCA extending close to the south and west.

Application site

The application site is on the southeastern edge of the farmstead adjacent to the main access lane into the farm (to west), the milking parlour and animal housing (to north) and the B4582 highway (to south). The site comprises the western portion of an agricultural field currently laid down to permanent pasture. On the western edge of the field is a small fenced off enclosure hosting a static caravan on the western edge. The field is well defined by established wooded hedgebanks to the south & west, farm buildings to the north with open land to the east. The site has a northerly/north-westerly aspect and is above the level of the adjacent farm-buildings but below that of the highway. Access to the site is via the existing farm-gate onto the lane to the west.

4. PROPOSAL

This is a full application for the installation of an anaerobic digester with a 500 Kw generating capacity.

Physical characteristics

The installation will be sited adjacent to the existing farm buildings with access off the farm lane to the west. The site is to be excavated into the slope to a level compatible with the floor level of the adjacent farm buildings. The digester tanks will be positioned on a concrete pad in the excavated area with a ramped access (from the farm lane) cut into the western slope. The control kiosk & power plant (CHP) will be positioned adjacent to the ramp overlooking the tanks. The ramp will provide operational access for tractors to the solids feeder and the tanks. The surplus gas flare will be located to the east of the main facility. The excavated area extends some distance to the east in order to provide a containment area in the unlikely event of spillage or tank breach. Drainage (for surface water only) will be via an underground drainage pipe (fitted with silt trap and attenuation) to the nearby stream. The slurry will be piped along the same route from the existing slurry pit to the digester via an underground pipe fitted with a rising main.

The total site area (including the containment zone) is 10,311 sqm.

Full details of the plant are contained in the accompanying drawings (1383/06 & 07). The main components of the installation however are as follows,

- **Digester Tank** – a 25.3-metre diameter silo finished in green sheeting with a nominal height of 8.5 metres extending to 12.8 metres to the gas holder dome (when at capacity). Anaerobic digestion takes place in this tank.
- **Digestate tank** – a 32.6-metre diameter open topped silo finished in green sheeting with a nominal height of 7.26 metres. This tank stores the liquid digestate after treatment.
- **Liquids tank** – a 10-metre diameter silo finished in green sheeting with a nominal height of 7.26 metres. This tank stores the slurry prior to digestion.
- **Solids feeder** – a large open tank finished in green that breaks up the solid waste (fodder etc) & mixes with the slurry prior to delivery into the digester. This component is under cover.
- **Separator & Fibre clamp** – this will separate the solid fibre elements (post digestion) prior to the liquid entering the digestate tank. The solid fibre elements will be dropped to a storage clamp below the separator.

HARRIES DESIGN & MANAGEMENT

- **Combined heat and power unit (CHP)** – this is a small power generating unit with a flue where the biogas is burned to generate electricity.
- **Transformer and substation** – this will feed the renewable electricity into the national grid.
- **Boiler house and control room** – this is a modest mono-pitched building from where the AD plant can be operated and monitored.
- **Surplus gas burner** - this takes the form of a flue on the edge of the facility (with a 10-metre buffer zone) and is essentially a safety valve for excess gas which may be generated when there is surplus production or when the facility is shut down for maintenance. The burner has a height of 8.2 metres. This feature is not intended to be used intensively but is a necessary safety requirement for periods of shutdown/maintenance.
- **Oil tanks** – these are subsidiary fuel storage units to be utilised on the rare occasions the primary power source (to power the digester) fails or is out of operation.

Process

Whilst anaerobic digestion has a long pedigree in both the UK sewage treatment industry and as a method of recycling nutrients & power generation abroad, this is a relatively new process in the UK agricultural sector; as such, an overview of the process is warranted.

This system is designed to process some 20,000 tonnes of waste per annum to produce 500 Kw of energy; inputs comprise some 12000 tonnes of slurry waste and 8000 tonnes of solid waste. The slurry is the natural by-product of the (550 cow) dairy herd (& followers) whilst the "solids" will be derived from a mixture silage waste, bedding and green crop. All inputs will be from the existing farming enterprise. The silage waste, slurry & bedding are natural by-products of the dairy industry whilst the fodder crops will be grown (on the holding) specifically for the purpose as demand dictates.

The output is treated waste that has had harmful toxins and nuisance odours removed. A natural by-product of the process is biogas; this can be used to generate renewable electricity. The gas comprises a 60% methane & 40% carbon dioxide mixture.

The slurry and solid waste are fed into the digester, the mixture remains in the digester for approx. 50 days for fermentation to occur. The biogas is collected into the digestate storage tank before being piped to the combined heat & power plant; this then powers a generator to produce the electricity. The digested material is separated into solid & liquid form with the liquid element

stored in the digestate tank prior to spreading on to the land. The solid material will be dried and converted into animal bedding.

The solids and digestate produced are an odourless fertilizer where the nitrogen elements are "fixed", producing a more stable and less noxious fertilizer.

5. PLANNING CONSIDERATIONS

Involvement

Pre-application discussions have taken place with the national park authority (Caroline Phillips Bowen), the county ecologist (Lara Lawrie) and Natural Resources Wales (Brian Klass).

The principle of development was deemed acceptable in that the scheme constitutes a farm diversification project, which will contribute to resource efficiency and carbon reduction. This was subject to the proviso that the landscape impact of the scheme could be adequately mitigated and the input from the scheme would be exclusively from the existing farming enterprise (both of which are the case).

Ecologically, the scheme was deemed to be acceptable as the host site (improved grassland) has no intrinsic nature conservation value and existing boundary features are retained. This was subject to the proviso that the holding has the capacity to sustain the amounts of digestate waste onto the land and that mitigation is in place to protect watercourses in the event of spillage.

NRW support the proposal in principle on the grounds that it will increase storage capacity and have pollution control benefits. It was advised that the facility will require a waste permit and that NRW would control the inputs into the facility through this method. Guidance has also been sought on the need for containment facilities in the event of a breach or spillage (need has been confirmed).

A further pre-application meeting with the national park authority tabled full layout plans of the proposal; these were deemed to be acceptable in the context of the proposed facility and the existing farmstead.

Planning Policy

The UK has signed up to the EU Renewable Energy Directive 2009, which agrees legally binding targets for 15% of energy production to be from renewable sources. This commitment is reflected in Planning Policy Wales (7th

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ed) (PPW) which supports moves to a low carbon economy as a way to tackle climate change and advises facilitating development that helps meet this objective. It further advises however that this goal should ensure that development does not produce irreversible harmful effects on the natural environment.

At a local level, the LPA takes a positive view of renewable energy installations with Policy 33 (Renewable Energy) indicating that small to medium scale schemes will be considered favourably where there are no adverse landscape or visual impacts. Guidance (SPG) on renewable energy advises that installations of up to 2MW are classed as medium scale.

Subject to other material considerations on such matters as landscape impact and impact to amenity, the development of renewable energy facilities is generally viewed positively.

Screening opinion

Under the environmental impact regulations (Sch 2, 3(i)), a screening opinion is required where the development exceeds 0.5 Hectares.

In this instance the total site area (including access, landscaping & drainage provision) exceeds 0.5 Hectares, however the facility itself falls below this threshold. Notwithstanding this, it has been advised that due to its purely localised impact, an EIA will not be required to support the application as the main issues can be dealt with effectively in the planning submission itself.

PLANNING BENEFITS

The scheme will bring a number of benefits, that are material in planning terms;

- **Carbon reduction and renewable energy generation** – the scheme will contribute towards the UK's strategic goal of combating climate change by both reducing greenhouse production and increasing the proportion of energy produced via renewable sources. The effluent produces a carbon dioxide/methane mix, the facility will utilise the methane (which would otherwise be realised into the atmosphere) to produce up to 500Kw of green energy. As such, the scheme is a logical use of a potentially harmful by-product of the dairy industry and complies with national advice in PPW and at a local level LDP policy 33 and the supporting SPG. It is acknowledged that favourable consideration of such schemes is subject to acceptable environmental & amenity impacts; in this instance, such impacts are deemed to be

acceptable in the context of the scheme and are addressed in under “constraints” below.

- **Effluent storage capacity & pollution control** – the farm is currently served by two slurry stores with a three month storage capacity whereas NRW guidelines advise six months capacity. The proposed facility will increase the storage capacity for effluent on the holding in line with current advice. Given the location of the farmstead near the headwaters of a tributary of the Nyfer (which leads to Newport estuary some 4.Km to the west), effective storage is vital to minimise the danger of pollution (through spillage) to this sensitive environment.

In addition to the storage benefits, the facility will treat the effluent prior to disposal on the land reducing its potentially harmful effects whilst maximising its benefits as a fertilizer. The effluent is particularly high in nitrates, the digestion process stabilises these harmful elements and converts them into available forms, which have had harmful pathogens removed. These are more effective as fertilizers which as well as reducing the need to import artificial nitrate fertilizers also reduce the risk of nitrate run off into rivers. Given that certain areas in west wales are at risk of being declared as **Nitrate Vulnerable Zones**, this represents a significant benefit in environmental terms.

Given the above considerations, the scheme will aid in protecting the natural environment & local biodiversity as well as safeguarding the special qualities of the national park.

- **Farm diversification** – the proposed development will help to underpin the economic basis of the business. In addition to creating a full time position, the facility will generate power for the milking process with the surplus passed onto the national grid cutting expenditure and potentially creating a new income stream. Both Policy 7 of the LDP & TAN6 encourage farm diversification projects as a way of safeguarding the vitality & viability of the rural economy. In this instance, the project is intimately connected with the farming operation with all inputs derived from the holding.

PLANNING CONSTRAINTS

The scale & siting of the proposal and its amenity effects are potential constraints to effective development and explanation is required to address these issues.

Scale & siting

The siting of the AD had been carefully considered by balancing operational requirements & position of power supply against landscape impact. The proposed site is adjacent to the existing farm complex, sited as far as possible from any controlled waters with convenient access from the lane and to electricity connections. Whilst the site is upslope from the farm, the facility will cut into the existing slope to the level of the adjacent buildings, this will ensure the tanks etc. are set into the land and do not form an obtrusive feature in the landscape. In terms of scale the largest elements of the scheme are the tanks themselves, these are akin to overground slurry stores in both appearance and size and they possess a considerably smaller footprint than many of the adjacent farm buildings.

The biggest potential impact in landscape terms is the excavated area required as a containment bund (in event of spillage). This is an essential requirement and cannot be avoided. Whilst the excavated area is larger than the plant (sufficient to absorb the 10,000 cubic metres or so of waste) and as such will extend eastwards into the field, this element will left to green over naturally thereby forming an uncultivated area which will not look incongruous in the wider landscape.

Turning to wider landscape views, Coedwynog is in a valley location where there are limited long-term views of the surrounding countryside. Analysis of viewpoints in the vicinity failed to find an effective view of the farm in the landscape other than at quite close quarters. This indicates that the long-range views of the facility will be occasional at best and when visible will be viewed firmly in the context of the existing farmstead.

Given the comparable scale, location adjacent to the farmstead and setting into the ground the plant is considered compatible in terms of scale with the existing farming operation and by reason of this compatibility not to form an incongruous element in the landscape. Given these considerations, the proposal is considered to be acceptable in this rural context and to preserve the special character of the national park in accordance with policies 8 & 15 of the LDP.

Amenity

Amenity impacts can take a number of forms, traffic, noise, odour & visual. Visual matters are addressed above.

In general, terms the site stands in a relatively isolated rural location in a landscape typified by nucleated farmsteads and occasional detached houses.

The closest dwelling (Rhydoffeiriad) is a detached cottage some 250 metres to the east.

Traffic – the proposal sees the processing on on-farm products and so there will be **no demonstrable increase** in traffic movements, the inputs are derived entirely from the holding i.e slurry from the herd & “solids” as either by-products of the farming process (silage waste) or green drop (Rye Grass) grown specifically for the purpose. In this respect, the scheme is considered to comply (where relevant) to policies 29 & 52 of the LDP in that the facility will not give to significant traffic concerns.

Noise – noise impacts will be limited to traffic movements to “feed” the facility and the CHP unit.

The traffic movements will mostly be the tractor/tipper loading the solids, this is a continuous but intermittent activity that will not take place at night, in this sense it can be equated to conventional traffic movements in association with the normal running of the farm, as such it is not considered that neighbours will experience undue impacts from this source.

The CHP is stationed within its own container with a sound level of approx. 75db at 1 metre from the plant, this will fall further as one moves away from the facility, indeed testing of similar facilities indicates that beyond 20-25 metres from the facility noise levels will be negligible. Due to the distance of the site from the closest residential property (250 metres) it is felt that a noise assessment is not necessary in this instance.

Odour – AD is a biological process that breaks down organic matter in a contained, oxygen free environment designed to eliminate odour release into the atmosphere (instead utilising it as fuel). The digestate produced is an odour free product that can then be deposited onto the land. As such, the scheme represents significant improvements in this respect and it is not anticipated that odour release will be a problem.

Given the above considerations the scheme is considered to comply with policy 30 (amenity) of the LDP in that the facility is compatible with its surrounding, will not result in any increases in traffic, will not cause undue impact on neighbouring properties by reason of noise and will reduce the potential for odour release which can be a potential anti-social aspect of the dairy farming industry.

DESIGN & ACCESS STATEMENT

6. CHARACTER

- Sustaining or enhancing local character
- Promoting legible development
- Promoting a successful relationship between public and private space
- Promoting innovative design

The site is located in a high quality and sensitive environment and care needs to be taken to ensure the character of the landscape is not compromised, notwithstanding this; appreciation of the fact that this is a working countryside where farms need the scope to expand is also required.

In character terms, the main issue is the scale of the proposed installation relative to the existing farmstead. The existing farm is of a significant scale with a wide range of building types as well as silage clamps, slurry stores etc. Many of the buildings are of a large portal-frame type typical of the modern farming industry. The anaerobic facility is relatively modest in itself though the associated excavated area (required to facilitate an effective containment area in the unlikely event of the breach) enlarges the site area considerably.

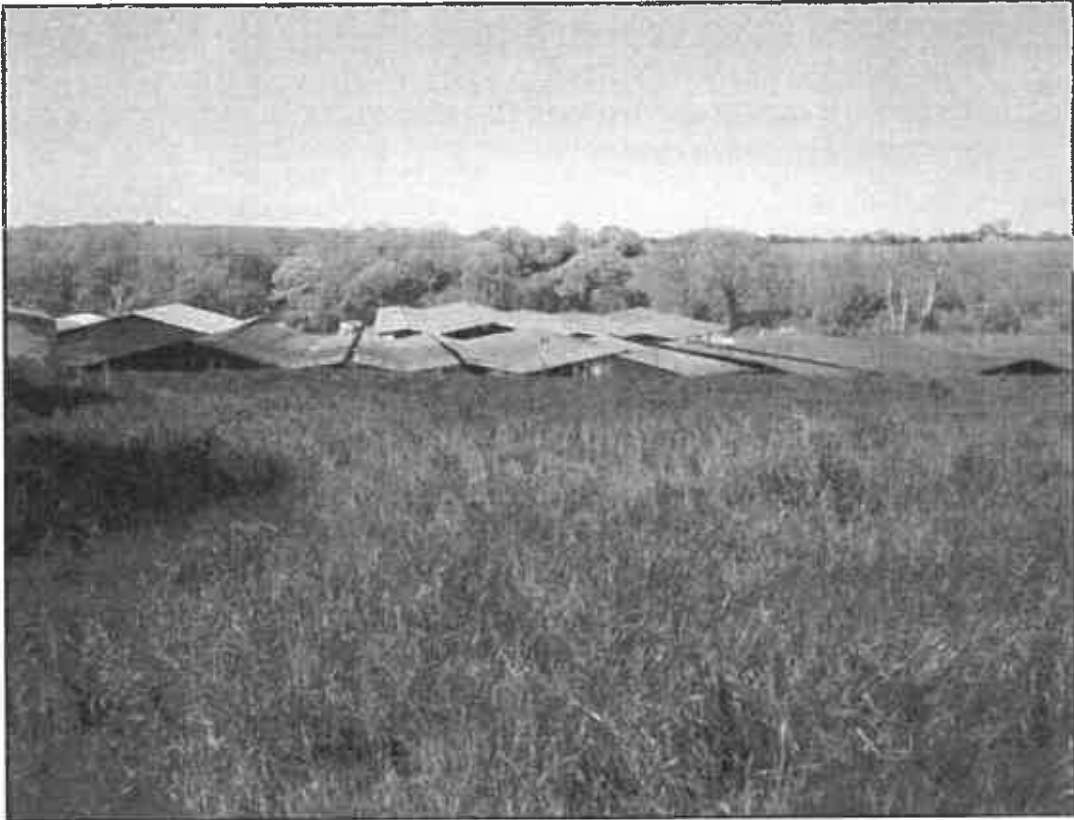
As the farmstead has expanded southwards from its base, new buildings (mostly cattle housing) have been successively cut into the existing slope, whilst this enables easier operation and retains the working element mostly on one level, it also serves to significantly reduce the landscape impact of the new buildings (see below).

The siting for the anaerobic digester plant follows the same approach by excavating down to a level comparable with the adjacent buildings (see section below), this will ensure the height of the tanks is not excessive.

Both short & long-range views of the site will therefore be restricted. The cutting of the site into the existing slope and the strong boundary hedgebanks to the south & west largely screens the site from the road to the south whilst siting adjacent to the buildings mean the facility will be viewed firmly in the context of the farmstead. The associated containment area will be kept largely free of development and allowed to natural grass over, as such though this element will have a stark appearance when first excavated it will over time naturalise and form potentially valuable marginal habitat.

Long-range views of the facility will be minimal to non-existent, the site is located in a valley context framed by heavily wooded hedgebanks, there are no natural vantage points to view the farm and the local road network (and

hence public viewpoints) is largely hemmed in by tall and well-maintained hedgebanks.



Existing farm from application site (from north)

The facility itself will have an agricultural character, the tanks resembling large silos and coloured green whilst the other components (control kiosk, CHP plant etc.) will be minor in scale and fit easily into the site.

Given the above considerations, the facility will fit comfortably into its landscape context being seen (where visible) in the wider landscape as part of the wider farmstead, whilst at closer quarters the individual components will form an integral part of the building stock of the farm.

7. COMMUNITY SAFETY

- Ensuring attractive, safe public spaces
- Security through natural surveillance

This is a proposal for works in connection with a private farm business, no public footpaths cross the site and the public will not have ready access to the facility. Whilst near the entrance to the farmstead, the property is occupied and manned 24-hours a day, as such there is a constant presence on the farm for both security and emergencies.

8. ENVIRONMENTAL SUSTAINABILITY

- Achieving efficient use and protection of natural resources.
- Enhancing bio diversity
- Designing for change

The environmental benefits of the scheme are manifest.

- The facility will increase the slurry storage capacity of the farm from three to six months thus meeting NRW standards in this respect and substantially reducing the risk of spillage and contamination into nearby watercourses (which flow ultimately to the Nyfer Estuary)
- The facility will reduce the toxicity of the treated slurry resulting in less impact to the treated land (the proposal will for example remove nitrates from the slurry waste). This will in turn reduce the danger of contamination to controlled waters.
- The facility will produce up to 500Kw of energy, which in addition to powering the farm can be fed into the national grid.

In biodiversity terms, the site currently comprises improved grassland with a low overall value. The proposal will retain all features of note such as perimeter trees and hedgebanks whilst the excavated containment area will be left undeveloped and allowed to re-seed naturally. This area, which will comprise poor sub-soils and shale's, will arguably provide an improved habitat to the current field in many respects allowing a niche for succession plants which often prefer poorer habitats.

7. MOVEMENT & ACCESS

- Promoting sustainable means of travel
- ensuring ease of access for all

Movement

In movement terms, the scheme entails the feeding of both liquids (slurry) and solids (bedding & silage waste, fodder crop) into the facility. The proposal will not however result in any overall increase in vehicle movements.

Slurry is currently spread onto the attendant land from storage facilities on the holding, this element will merely be diverted into the digester via underground pipes with the treated material prior to final disposal on the land. The solids will be fed into the feeder via tractor and trailer; the silage/bedding waste will come from nearby animal sheds and silage clamp whilst the fodder crops will be grown on the holding itself. The treated end product will be disposed of on the holding, the liquid effluent being spread conventionally and the solids elements being reused as animal bedding. In this respect therefore the facility

represents a closed system with the only off farm movement being the surplus electricity.

The farm itself extends to around 1000 acres (the majority rented on five year farm business tenancies), most of which can be reached across interconnecting fields remote from metaled highways.

The facility will likely generate an additional full-time post on the holding, it is hoped/anticipated that this will be taken up by a family member who will ultimately be resident on the holding.

Notwithstanding the above considerations, referring to the SPG on Accessibility, farm diversification schemes (for which this qualifies) represent an exception to the generally quite stringent rules on accessibility imposed by the national park authority.

Access

The facility itself will be accessed directly off the main farm lane; the main movements will be vehicular as opposed to pedestrian with tractors entering via a ramp on the western edge of the excavated area. The control kiosk & CHP are located adjacent to the ramp overlooking the tanks. The site provides good levels of operational access with sufficient space around individual components for maintenance etc, the pad for the facility will be in concrete with the remainder surfaced in hardcore/subsoil. In the context of the proposed facility the scheme is considered to offer appropriate levels of access for both vehicles and pedestrians.

Site specific conditions

There are no site-specific features over and above those identified in this statement.

Maintenance of access features

The applicants B.G Carey & Sons own and run the farm and as such will be the end users of the facility and maintain the features described.

9. CONCLUSION

The proposal rationalises the storage and treatment of the waste products from the agricultural process substantially reducing the environmental impacts of slurry spreading onto the land whilst also providing for diversification of the economic activities on the holding and contributing to the UK target of producing 15% of total energy needs through renewables by 2020.

HARRIES DESIGN & MANAGEMENT

The development of the facility can be achieved without compromising the special landscape qualities of the Pembrokeshire Coast National Park through the sensitive siting of the works in an unobtrusive location adjacent to the existing farm complex. All inputs will derived exclusively from the existing agricultural operation with attendant traffic movements restricted to the holding.

The proposal is therefore considered to comply with the relevant policies & guidance of the national park LDP as well as national guidance published in Planning Policy Wales and relevant associated Technical Advice Notes.

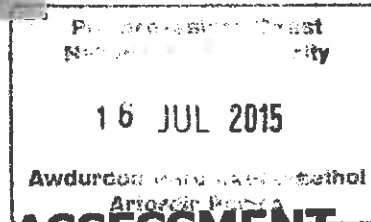
Irvine Johnston MRTPI
Harries Design & Management

HARRIES DESIGN & MANAGEMENT



Job no. 1383

Date 06.07.15



WASTE PLANNING ASSESSMENT

Proposal – Installation of 500 Kw anaerobic digester in connection with existing farming operation

Site – Coedwynog, Felindre Farchog, Pembrokeshire, SA41 3XW

Planning Ref – NP/15/0315/FUL

This statement is prepared in light of the requirements under TAN 21 (waste) for waste developments to be accompanied by a Waste Planning Assessment demonstrating how the proposed development contributes towards Wales's overriding objectives for dealing with waste. The guidance under TAN 21 advises that any waste assessment be proportionate in terms of the scale of the proposal and its likely impacts.

The comments in this report are made in light of the positive consultation response received from NRW as well as the points raised through public consultation (see main issues).

Note on Agricultural Waste – whilst agricultural waste is controlled in the same way as industrial waste, manure deriving from the agricultural operation is not classified as waste if it is being used as fertilizer on the farm holding on which it originates. In this instance, the proposal aims to treat agricultural waste (slurry from the holding) prior to its use as fertilizer (on the holding) with a by-product of the treatment being power generation.

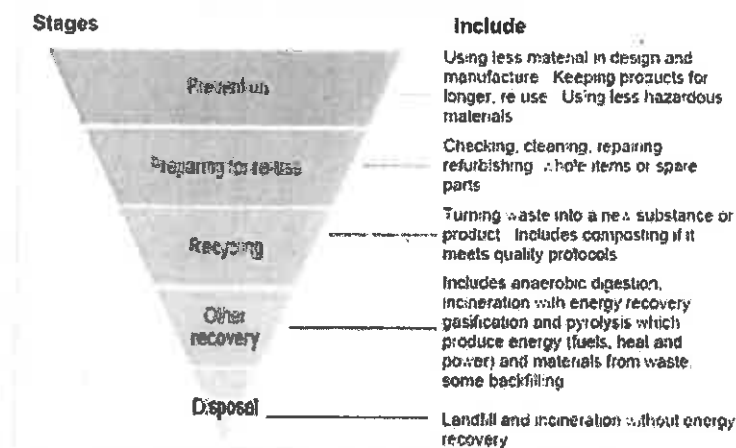
As such, neither the original input (slurry and green crop) nor the outputs (digestate) are strictly classed as waste products under 1990 Environmental Protection Act. Notwithstanding this, the proposal raises many of the same issues (noise, traffic, odour, hours of operation etc) as a conventional waste

HARRIES DESIGN & MANAGEMENT

proposal and a waste assessment appears the most logical way to address these matters.

APPLICATION OF THE WASTE HEIRARCHY

Referring to TAN21, the waste hierarchy (below) advises a sequential approach to waste management with waste reduction the preferred option, followed by re-use/recycling, composting, waste recovery & landfill (in that order).



In this instance, the proposed development relates to the recovery and re-use of agricultural slurry waste through anaerobic digestion.

Traditionally, the slurry is applied untreated to the land as a fertilizer. This proposal will see the slurry treated prior to its final application onto the land.

Referring to the waste hierarchy, the proposal represents both the recovery and re-use of an existing waste stream. The Welsh Government recognises the benefits of anaerobic digestion and encourages it as a viable way of reducing greenhouse gas emissions (both through preventing discharge of methane/carbon dioxide into the atmosphere and the creation of power through renewable energy). The resulting digestate is a safer and more effective fertilizer to apply to the land whilst the proposal will also increase the storage capacity for slurry on the holding.

The benefits of the system are therefore manifest with numerous positive outcomes that are felt both locally and globally.

PLANNING POLICY

Planning Policy Wales (7th ed) states that planning decisions should *“support the need to tackle the causes of climate change by moving towards a low carbon economy. This includes facilitating development that reduces emissions of greenhouse gases in a sustainable manner, provides for*

HARRIES DESIGN & MANAGEMENT

renewable and low carbon energy sources at all scales and facilitates low and zero carbon developments"

In this context, the Welsh Government is aiming for annual carbon emission reductions of 3% per year with a commitment of at least a 40% reduction (in Wales) by 2020. This is part of the UK renewable energy contribution to European Union targets (legally set in the UK Renewable Energy Strategy at 15% by 2020). There is therefore explicit in principle support at a national level for renewable energy development which will help meet these targets.

At the local level, the need to tackle climate change is identified as a priority for the national park and several policies relate either directly or indirectly to this objective.

Policy 33 (Renewable Energy) in particular provides a favourable context to development (where it does not prejudice the special qualities of the national park) whilst Policy 7 (Countryside Tier) provides a positive context for farm diversification schemes. In addition, an SPG provides guidance on various renewable energy proposals within the national park (including anaerobic digestion) and recognises their positive benefits in terms of carbon reduction.

The general thrust of the policies and guidance is that such schemes will be supported where they are proportionate to need, appropriate to their location and where the potential impacts can be adequately controlled.

In this instance, the scheme constitutes a farm diversification scheme with all inputs derived from the existing farming operation and which contributes to the reduction of carbon emissions through the production of electricity from renewable sources. The scheme has the additional benefit of neutralising a potentially harmful by-product of the agricultural industry (slurry waste) & producing a more effective fertilizer whilst the tanks themselves will increase the slurry storage capacity on the holding.

PROPOSAL

The facility is a 500Kw anaerobic digester located at Coedwynog, an established beef & dairy farm extending to approx. 700 acres, in open countryside close to the village of Nevern, north Pembrokeshire. The facility is sited on the southern edge of the farmstead adjacent to the existing milking parlour and the main access lane into the holding.

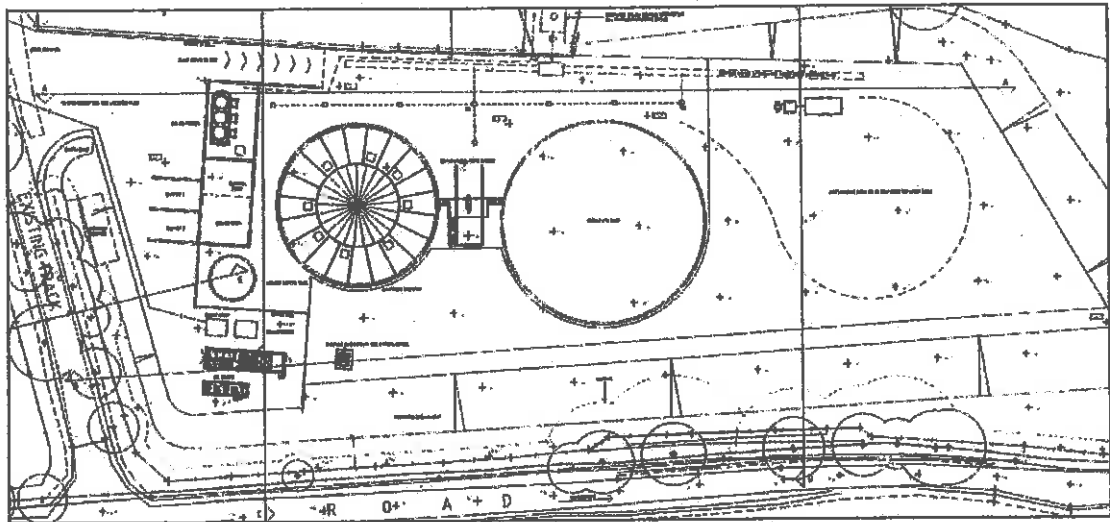
The facility itself constitutes two larger tanks (where anaerobic digestion takes place and the treated digestate is stored), a smaller liquids tank (where slurry is stored prior to treatment), solids feeder & fibre clamp. The operation is to be

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directed from a boiler house/control room directly to the west with the biogas (60% methane & 40% carbon dioxide) directed to a combined heat & power plant. Other components include an electricity sub-substation and surplus gas burner.

The site of the facility has been excavated to provide a containment area equating to 110% of the total volume of the storage capacity of the tanks.

The basic layout is depicted below, however full plans of the proposal are included on drawing numbers 1383/05, 1383/06 & 1383/07.



The application is supported by an ecological assessment and by a noise assessment. Both reports are positive with respect to impact.

The facility has been designed to accord with the standard rules (SR2012 No 10) issued by the Environment Agency for on-farm anaerobic digestion facilities (with capacity of less than 100 tonnes of waste per day).

INVOLVEMENT

Pre-application discussions based on the submitted proposal have taken place with the national park authority (Caroline Phillips Bowen), the county ecologist (Lara Lawrie) and Natural Resources Wales (Brian Klass).

The principle of development was deemed acceptable in that the scheme constitutes a farm diversification project, which will contribute to resource efficiency and carbon reduction. This was subject to the proviso that the landscape impact of the scheme could be adequately mitigated and the input from the scheme would be exclusively from the existing farming enterprise (both of which are the case).

HARRIES DESIGN & MANAGEMENT

Ecologically, the scheme was deemed to be acceptable as the host site (improved grassland) has no intrinsic nature conservation value and existing boundary features are retained. This was subject to the proviso that the holding has the capacity to sustain the amounts of digestate waste onto the land and that mitigation is in place to protect watercourses in the event of spillage.

NRW support the proposal in principle on the grounds that it will increase storage capacity and have pollution control benefits. It was advised that the facility will require a waste permit and that NRW would control the inputs into the facility through this method. Guidance has also been sought on the need for containment facilities in the event of a breach or spillage (need has been confirmed).

A further pre-application meeting with the national park authority tabled full layout plans of the proposal; these were deemed to be acceptable in the context of the proposed facility and the existing farmstead.

SCREENING OPINION

Under the environmental impact regulations (Sch 2, 3(i)), a screening opinion is required where the development exceeds 0.5 Hectares.

In this instance, the total site area (including access, landscaping & drainage provision) exceeds 0.5 Hectares, however the facility itself falls below this threshold. Notwithstanding this, it has been advised that due to its purely localised impact, an EIA would not be required to support the application as the main issues can be dealt with effectively in the planning submission itself.

MAIN ISSUES

The scheme is considered to comply in principle with the relevant national & local policies & guidance on renewable energy schemes.

Matters of landscape impact & appearance are addressed in the accompanying Planning, Design & Access Statement. In brief, however, the facility, which is located adjacent to the existing farming operation, is considered of an acceptable scale in the context of existing farmstead with every effort made to minimise its impact on the landscape of the national park.

The issues addressed in this statement are derived from comments received during the course of consultation on the application, they are;

- Need for development and ability of the holding to supply inputs
- Traffic impacts
- Odour

HARRIES DESIGN & MANAGEMENT

- Noise impacts & hours of operation
- Excavated material

NEED FOR DEVELOPMENT

The size of the proposed digester is derived from guidance received by the manufacturer on the optimum size of facility for the size of herd at Ceodwynog. Notwithstanding this, the sensitivity of the location (open countryside in national park) is also a factor in the scale of the proposal.

In terms of need, Ceodwynog is a working dairy farm with a large resident herd. The inevitable by-products are large amounts of slurry, bedding and feed waste. These products are traditionally spread onto the land untreated as a fertilizer. The proposed anaerobic digester will see the treatment of these potentially harmful waste products prior to their final application onto the land. The process will lead to the generation of renewable power as well as treatment to eliminate harmful toxins and create a more effective fertilizer. The facility will also increase the effluent storage capacity on the holding.

Three scenarios were originally mooted by the manufacturer, each based on a 25 M diameter digester processing 10,000 tonnes of slurry per annum (see table below). The applicant opted for scenario 1 albeit with a slightly larger tank (32.6 M diameter) that processes 12,000 tonnes of slurry per annum. In addition to the slurry input, the digester will process some 8,000 tonnes of solid matter per annum achieving a total input of 20,000 tonnes per annum.

Slurry inputs

NOTE - 1 ton of undiluted excreta = 1 m³

The farm has an average of 1150 animals on the holding at any one time, of these, the dairy herd averages 550 cows whilst the remainder comprises heifers in calf (approx. 220) and other cattle (approx. 380 animals - predominantly younger stock such as bull calves and beef stock).

Referring to information supplied by Dairy Co, the average dairy cow (producing over 9000 litres of milk) will produce 1.92 m³ of undiluted waste a month (64 litres a day)

The existing dairy herd at Ceodwynog (550 animals) will therefore produce **1,056 m³ of undiluted slurry a month or 12,672 m³ per annum.**

The existing dairy herd of 550 animals will therefore be able to supply the anticipated 12,000 tonnes per annum of slurry to run the digester. This does not take account of the remainder of the stock on the holding namely the herd followers, calves or beef stock.

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Three illustrative feedstock, output and energy utilisation scenarios are provided based around the 25m diameter Semi-Plug Flow digester:

- 1: 25m diameter SPF digester system with feedstocks to produce biogas to 500kWe CHP. 90% of surplus heat from CHP utilised for Renewable Heat Incentive (RHI).
- 2: 25m diameter SPF digester system with feedstocks to produce biogas to 600kWe CHP. 90% of surplus heat from CHP utilised for RHI.
- 3: 25m diameter SPF digester system with feedstocks to produce biogas to 500kWe CHP plus additional biogas to boiler. 90% of surplus heat from CHP and 90% of heat from boiler utilised for RHI.

	Scenario 1			Scenario 2			Scenario 3		
	SPF500			SPF600			SPF500		
Feedstock	tonnes/yr	% volume	% energy	tonnes/yr	% volume	% energy	tonnes/yr	% volume	% energy
Slurry	10,000	51	12	10,000	46	10	10,000	46	10
Wholecrop	1,500	8	18	1,740	8	17	1,500	8	16
Grass Silage	2,000	10	18	2,000	9	15	2,000	9	15
Maize	3,000	15	33	4,000	18	37	4,000	18	37
Bed	3,000	15	19	4,000	18	21	4,000	18	21
Feedsystem	tonnes/day			tonnes/day			tonnes/day		
Solids	26			32			32		
Liquids	27			27			27		
Recycled digester liquor	0			0			0		
Water	0			0			0		
Digestion process	days			days			days		
Hydraulic retention time	60			54			54		
Biogas	(m³/day)			(m³/day)			(m³/day)		
Biogas Production	5,398			6,482			6,428		
Methane Production	2,946			3,544			3,512		
Electricity Production	kWe			kWe			kWe		
CHP Electrical Output	499			600			499		
Heat Production	kWh			kWh			kWh		
CHP Heat Output	523			556			523		
Boiler Heat Output	0			0			199		
Total Heat Production	523			556			722		
Digestate	tonnes/day			tonnes/day			tonnes/day		
Whole Digestate	46.5			51.3			51.0		
Separated Digestate Liquor	40.3			44.7			44.6		
Separated Digestate Fibre	6.2			6.6			6.4		

Utilisation scenarios – from Marches Biogas preliminary calculations for proposed digester (feb 2015)

Solid inputs

The utilisation scenarios from the manufacturer anticipate feedstock inputs, however solid inputs are derived in the main from animal bedding & surplus/waste feedstuffs. It is anticipated that this will be able to supply the 8,000 tonnes annual requirement on its own, in the event of a shortfall however, a rye or other grain crop will be employed. The animal bedding will be derived from the adjacent animal housing units and comprise a mixture of straw & woodchip. Existing animal housing is extensive and when not

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occupied by the dairy herd is occupied by calves, heifers & other herd followers thus ensuring a year round supply of bedding waste. Surplus/waste foodstuffs will be a mixture of silage and ryecrop, these are to be grown on the holding itself as opposed to being imported in.

The precise proportion of each element is uncertain at this time and will depend firstly on availability and secondly on effectiveness as a catalyst to the digestion process.

Traffic Movements

As a working farm with scattered landholdings, Coedwynog generates some traffic movements. These include the import of bedding, fertilizer & foodstuffs as well as the tractor movements in association with slurry spreading and silage cropping. In addition, there are periodic animal movements as well as milk collections, which occur on a daily basis.

The farm itself extends to approx. 700 acres (170 owned with remainder on long lease). The attached maps show that much of the land can be accessed direct from the farmstead without accessing the local road network, the lands to the north of the farm (generally utilised for silage and grazing) in particular are connected via internal trackways.

Irrespective of the proposed anaerobic digester, traffic movements associated with the import of bedding, fertilizers and feedstuffs will continue occur as they are an integral part of a modern farming operation, similarly the spreading of slurry onto the lands in the applicants control would continue unregulated irrespective of the proposal.

The digester will therefore merely recycle/reuse materials already imported onto the holding for other purposes and treat a natural by-product of the farming process (slurry) produced on the holding. As such, it is not anticipated that the proposal will increase traffic movements into or out of the holding, though it may reasonably lead to some change in the structure of traffic movements. Arguably, the proposal will lead to a net reduction in traffic movements in that the treated digestate is recognised as a more effective fertilizer reducing the amount of artificially produced imported onto the farm whilst there are opportunities for the potential re-use of digested fibres for animal bedding (subject to effective drying techniques).

The level of traffic generation is an understandable concern for neighbouring properties. Aside from the fact that much of the concern arises from general farm traffic not specifically related to Coedwynog (this being an area with a number of farms and much resulting local traffic) the proposal will be

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processing existing by-products of the farming operation and will not be importing any waste specifically for the purpose. The nature of any input will be regulated via the environmental permitting system in accordance with the standard rules issued by the environment agency (NRW) for on-farm anaerobic digestion facilities.

Odour

The existing herd produces significant amounts of slurry which as untreated animal waste generates odour, this is particularly acute during spreading onto the land and is a process that can have significant adverse amenity impacts. The digestion process depends on the capture of these gases for power generation. Subject to satisfactory management of the facility, the proposal will lead to significant improvements in air quality.

Noise, hours of operation

The digester will run on a 24-hour basis (notwithstanding periodic shutdowns for maintenance). Significant concern has been expressed (by the neighbouring property in particular) over the potential for nuisance from noise.

The loudest component part of the digester is the combined heat & power unit (CHP) which generates electricity from the gases produced by digestion. The CHP will be housed in an acoustic containment system and manufacturer's literature states that noise generation is 75 dBA at 1 metre from the facility. The noise assessment carried out in support of the proposal confirms that the noise levels at the closest noise sensitive property (the neighbouring property some 220 metres to the east) will be below recorded background levels and hence within acceptable parameters

Excavated material

The proposal will see a significant amount of excavation.

Having assessed the quality and volume of material the following are advised.

- The top soil will be spread onto existing fields for disposal
- The sub layers will be used to construct earthen bunds around the eastern perimeter of the site and around silage clamp building to the west (required as a condition under NP/14/0622) with the remaining material used to maintain the network of internal trackways & repair gateways.
- Some of the surplus material will be stockpiled for ongoing maintenance purposes with the remainder disposed of off the holding.

Referring to the British Geological Survey (& LANDMAP), the underlying bedrock is comprised of Nantmel Mudstones (Shales) overlain with glacial tills

HARRIES DESIGN & MANAGEMENT

(clay). The surface layers will therefore be suitable for spreading whilst the underlying material suitable for maintenance purposes.

The volume to be excavated is in the region of 62,000m³.

The breakdown for use is as follows

- Topsoil (depth of 450mm) = 4600m³
- Hedgebanks (total length 183m, width 2.4m, height 2m) = 878m³
- Trackway maintenance (1.6km length, depth 200mm, width 5m) = 1600m³
- Gateway maintenance (assume same volume as trackways) = 1600m³
- Stockpiled for continued maintenance = 3000m³
- Total = 11,678m³

The applicant is happy to accept a condition requiring further details on the disposal of the remainder of the material, however it is likely this will be removed off the holding for disposal elsewhere, possibly for regarding and re-use as aggregate material or for further agricultural improvements on the applicants own lands.

CONCLUSION

This statement demonstrates a clear need for the proposed anaerobic digester and demonstrates that the scale of the operation is proportionate to the identified need. All inputs are derived from waste material derived from the existing agricultural operation with no input from any other operation. Potentially adverse amenity impacts (such as noise) can be adequately mitigated against and there will be no demonstrable increase in traffic arising from the operation. The scheme will have clear benefits in terms of the processing of harmful farm waste and the generation of power from a renewable energy source.

DECLARATION

This statement sets out how the Waste Hierarchy has been considered in developing the proposals currently forming this planning application

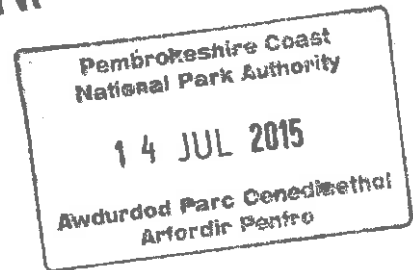
Signed *[Signature]*

Date 16/07/15



www.rhenvironmental.co.uk

NP 15 3 15



Coedwynog

Nevern

Pembrokeshire

SA41 3XW

Noise Impact Assessment

July 2015

Submitted by
RH Environmental Limited
Environmental Health Consultants
PO Box 59
Llandysul
SA44 5WX

0844 801 0733
info@rhenvironmental.co.uk
www.rhenvironmental.co.uk

Summary Sheet

Premises: Proposed 500Kw Anaerobic Digester at
Coedwynog, Nevern, Pembs SA41 3XW.

Project: Noise Impact Assessment

Date: 14th July 2015

Author: Jeff Sharples AMIOA

RH Environmental Limited
Tivy Dene, 5 Bridge Street,
Newcastle Emlyn,
Carmarthenshire
SA38 9DX
0844 8010733
info@rhenvironmental.co.uk

Owner: RH Environmental Ltd

Client: B G Carey & Sons

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Status: Final

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- 2.0 Location**
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- 5.0 Day-time Assessment**
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- 7.0 Calculations**
- 8.0 Conclusions**

Appendices

- 1 Calibration Certificates**
- 2 Section through site**
- 3 Site plan**

1.0 Introduction and Purpose

- 1.1 Mr Carey operates a dairy farm at Coedwynog where he proposes to install a 500Kw Anaerobic Digester. RHE has undertaken to assess external specific noise arising from the digester by comparison against the existing LAeqT. This will aim to provide details for both daytime and nighttime noise, including the ambient noise environment and noise arising from the proposed digester.
- 1.2 The digester installation comprises the following elements;
- o **Combined heat and power unit (CHP)** – this is a small power-generating unit with a flue where the biogas is burned to generate electricity.
 - o **Transformer and substation** – this will feed the renewable electricity into the national grid.
 - o **Boiler house and control room** – this is a modest mono-pitched building from where the AD plant can be operated and monitored.
 - o **Surplus gas burner** - this takes the form of a flue on the edge of the facility (with a 10-metre buffer zone) and is essentially a safety valve for excess gas which may be generated when there is surplus production or when the facility is shut down for maintenance. The burner has a height of 8.2 metres. This feature is not intended to be used intensively but is a necessary safety requirement for periods of shutdown/maintenance.
- 1.3 The CHP unit runs 24 hours/day and is by far the largest source of noise from the above elements. The CHP will be stationed within its own dedicated acoustic container.
- 1.4 The continuous noise level emanating from the CHP, running within the container, is 75dBA at 1 metre in free field (data supplied by manufacturer Edina UK Ltd).
- 1.5 Change in existing LAeq,T Noise levels

The degree of change in LAeq, T noise levels can be used to assess the impact due to digester noise. The digester noise is identified and added to the existing LAeq, T noise climate at the NSP and the degree of change in noise level assessed as follows.

Table 1

Change in noise level, dBA	Subjective Impression	Impact
0 to 2.0	Imperceptible change	Negligible
2 to 3.0	Perceptible change	Minor
3 to 5	Marginal change	Marginal
6 to 10	Up to a doubling or halving of loudness	Significant
10 to 15	More than a doubling or halving of loudness	Substantial

Whilst this methodology is not detailed in a British Standard, it is a commonly adopted assessment procedure. It has the advantage of being site specific, with assessment against the existing external noise climate.

1.6 The process for completing this assessment is as follows;

- Measure ambient noise at the NSP, 180 mins daytime and 90 mins night time in order to gather a representative sample.
- Calculate attenuation of CHP noise by distance to the NSP.
- Calculate attenuation of CHP noise by intervening landscaping/barriers.
- Calculate the effect of the CHP noise on the ambient noise at the NSP.
- Rate the impact of the CHP noise, acting on the NSP, using Table 1 above.

2.0 Location

2.1 The installation will be sited adjacent to the existing farm buildings with access off the farm lane to the west. The site is to be excavated into the slope to a level compatible with the floor level of the adjacent farm buildings. The control kiosk & CHP are located adjacent to the ramp overlooking the tanks.

See appendix 2 of section through the site.

2.2 The noise will be measured and assessed at the boundary of the nearest Noise Sensitive Property (NSP), Rhyofferiad.

The NSP is situated approx 220mts to the east of the CHP, alongside the B4582. See site plan appendix 3.

3.0 Measurements

3.1 The measurements were made using a B & K 2260 SLM fixed onto a tripod. All of the measurement positions were made at 1.2m height, at a distance of more than 6m from the nearest building facade. The measurements were made of only the general ambient noise, the meter was paused, as required, in order to exclude any extraneous noise events. E.g. close proximity traffic movements.

3.2 As far as could be ascertained the measurement positions were not near any source of electrical interference.

4.0 Equipment

4.1 B & K 2260 SLM: Serial number 2290666
B & K 4231 Acoustic Calibrator: Serial number 2291878
Tripod

Windshield
Anemometer
See appendix 1 calibration certificate details.

General Protocol

- 4.2 The sound level meter was calibrated before and after each measurement and no drift was noted between the two readings. Both the Sound Level Meter and Calibrator have been calibrated to national calibration standards.
- 4.3 Batteries were checked before and after the measurements were undertaken by referring to the sound level meter's battery charge indicator and were sufficiently charged throughout the measurements.

Measurement Parameters

- 4.4 The Sound Level Meter was set to measure and log data throughout the measurement period. The Sound Level Meter was set to a 'Fast' time weighting and the range was set to 0 - 80dB. All measurements were free field.

5.0 Day-Time Assessment

Noise Measurements Day

	Time On	Time Off	LA _{eq}
Measured Noise at NSP (LA _{eq} , 180mins)	11:00	14:00	39dB

Weather Conditions

- 5.1 Daytime measurements were taken between 11:00 and 14:00 on 25th July 2015. Weather was dry with partial cloud and still. The temperature varied between 18 and 21° C. Wind speed measurements did not exceed 1 m/s from the West.

Background Environment

- 5.2 The general ambient noise environment was comprised of:
- Livestock and farm tractors in surrounding fields.
 - Noise from stream running alongside Rhydofferaid.
 - Nearby bird song.
 - Occasional high altitude aircraft noise.
 - Close proximity traffic movements along B4582 were excluded, by pausing the sound meter.

6.0 Night-Time Assessment

Noise Measurements Night

	Time On	Time Off	LA _{eq}
Measured Noise at NSP (LA _{eq, 90mins})	23:30	01:00	31dB

Weather Conditions

- 6.1 Night-time measurements were taken between 23:30 and 01:00 on 25th & 26th July 2015.. Weather was dry, clear and still. The temperature was 13° C. Wind speed measurements did not exceed 1 m/s from the West.

Background Environment

- 6.2 The general ambient noise environment was comprised of:
- Noise from nearby stream.
 - Automated plant within nearby farm sheds.
 - Occasional high altitude aircraft noise.

7.0 Calculations

Propagation by distance.

- 7.1 The measured specific noise emitted by the CHP must be amended to allow for the propagation effect created by its distance away from NSP.

This has been calculated using the equation

$L_2 = L_1 - 20\log(d_2/d_1)$. Where the source is at ground level and the propagation is hemispherical.

The noise sensitive property is approx 220m from the CHP. The continuous noise level emanating from the CHP, running within the container, is 75dBA at 1m. Therefore,

$$L_2 = 75 - 20\log(220/1)$$

$$L_2 = 75 - 46 = 29\text{dB.}$$

The level of 24 hour digester noise acting on the NSP, adjusted for distance, is 29dBA.

Propagation by landscaping/barriers.

- 7.2 The site is to be excavated into the slope to a level compatible with the floor level of the adjacent farm buildings.

Additional landscaping in the form of a mound, running north-south, adjacent to the eastern boundary of the excavated area will be built up to a height of approx. 2mts.

The above measures will cause the CHP unit to be well hidden from the NSP, this will result in a 6dB attenuation of the noise reaching the NSP, therefore.

The level of 24-hour digester noise acting on the NSP, adjusted for distance and landscaping, is 23dBA.

8.0 Conclusions

Day-time Assessment

- 8.1 Measurements show that the level of ambient noise acting on the NSP is 39dB. The level of 24-hour digester noise acting on the NSP, adjusted for distance and landscaping, is 23dBA. By reference to Table 1 in the introduction, the conclusion is that the digester noise is 16dB below the level where it would create a negligible impact on the noise climate at the NSP.

Night-time Assessment

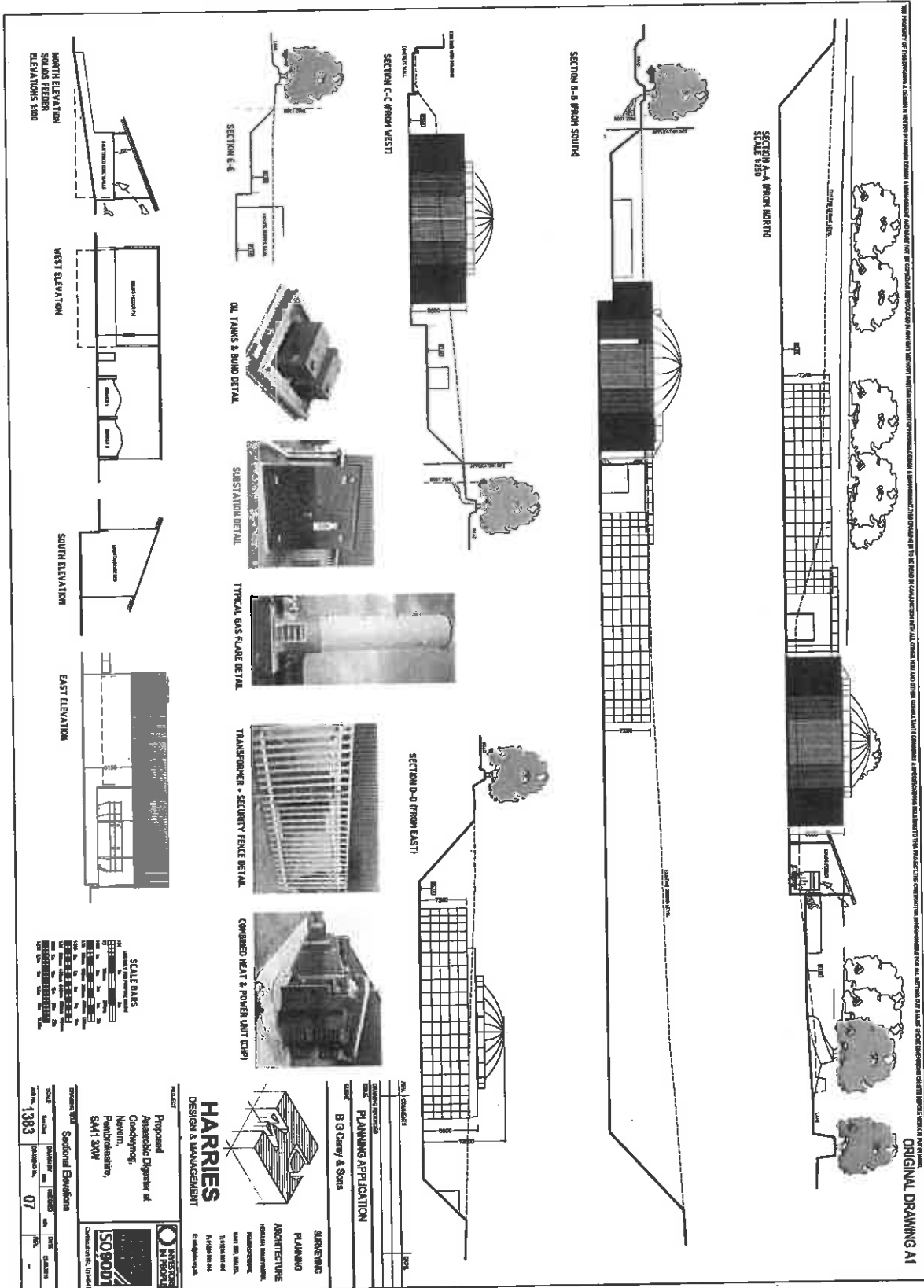
- 8.2 Measurements show that the level of ambient noise acting on the NSP is 31dB. The level of 24-hour digester noise acting on the NSP, adjusted for distance and landscaping, is 23dBA. By reference to Table 1 in the introduction, the conclusion is that the digester noise is 8dB below the level where it would create a negligible impact on the noise climate at the NSP.

Appendices**Appendix 1****Equipment Calibration Certificates**

Equipment Description / Manufacturer / Type	Serial number	Date of expiration of calibration	Calibration Certification Number
Modular Precision Sound Analyser Brüel & Kjær 2260	2290666	23/2/2016	U15559
Calibrator Brüel & Kjær 4231	2291878	23/2/2016	U15558

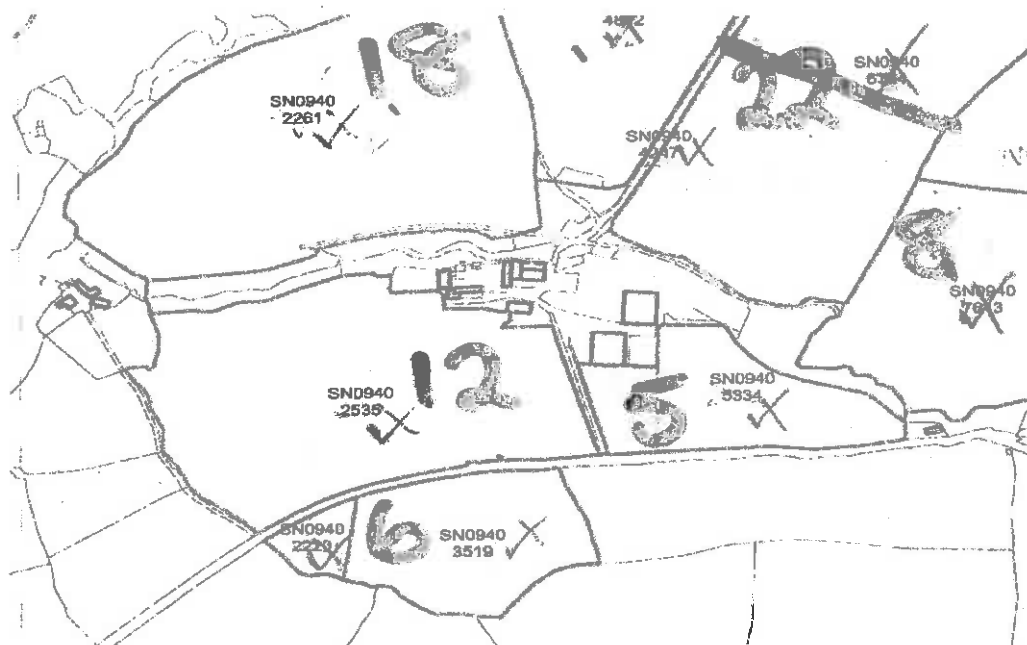
Appendix 2

Section through site



Appendix 3

IACS Plan - Rhydofferaid is the single property to the east of 5334.



IACS Symbols

 IACS parcel boundary

Egluriad i'r Symboliau

 Ffiniau Parseli IACS

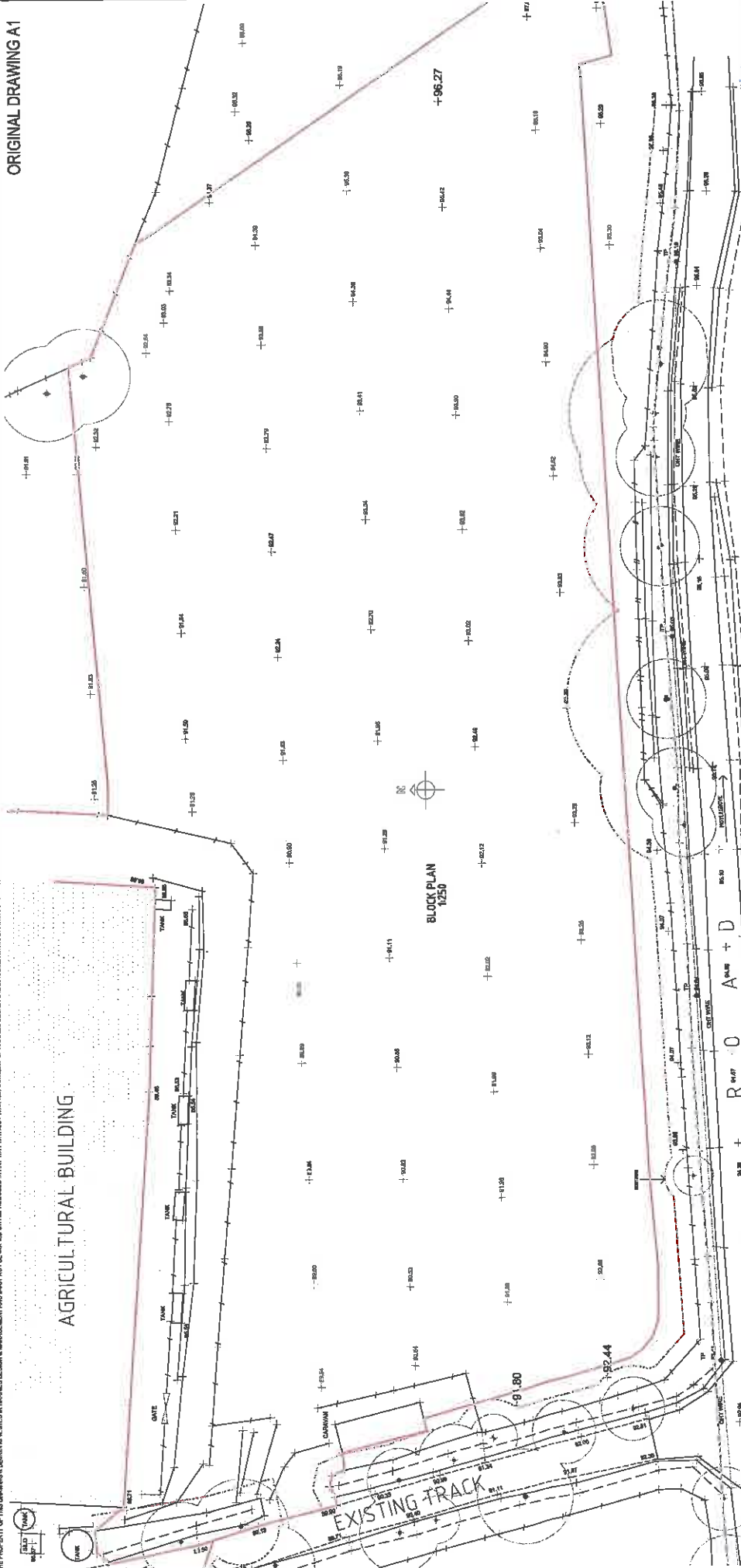
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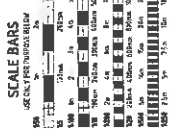


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 DRAWN/RECORDED
 NAME PLANNING APPLICATION
 CLIENT B G Carey & Sons
 PROJECT Proposed Anaerobic Digester at Coedwynog, Nevein, Penmorfaethre, SA41 3XW

INVESTORS IN PEOPLE
 THE BRITISH ASSOCIATION OF ARCHITECTS
509001
 Confirmation No. 015184

CONTRACT TITLE Block & Location Plan as Existing

SCALE 1:1000
 DATE 18/07/2015
 JOB No. 1383
 CHECKED 05
 REV. A



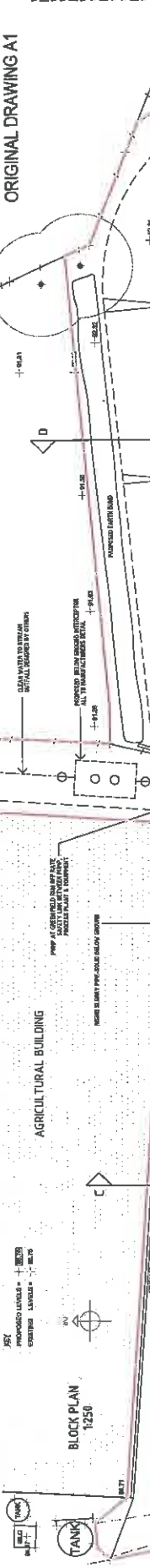
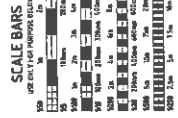
SURVEYING
 PLANNING
 ARCHITECTURE
HARRIES DESIGN & MANAGEMENT

HERMAN, EDWARDS & CO
 PENRICHGORIE
 SA1 3AP, WALES
 T: 01222 851100
 F: 01222 891105
 E: h@dmg.com.au

LICENCE NUMBER = 100012867
 LOCATION PLAN
 1:2500

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BLOCK PLAN 1:250

16 JUL 2015
Approved by: [Signature]
Checked by: [Signature]

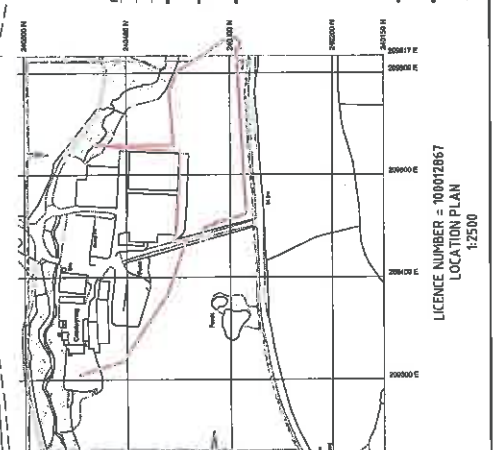
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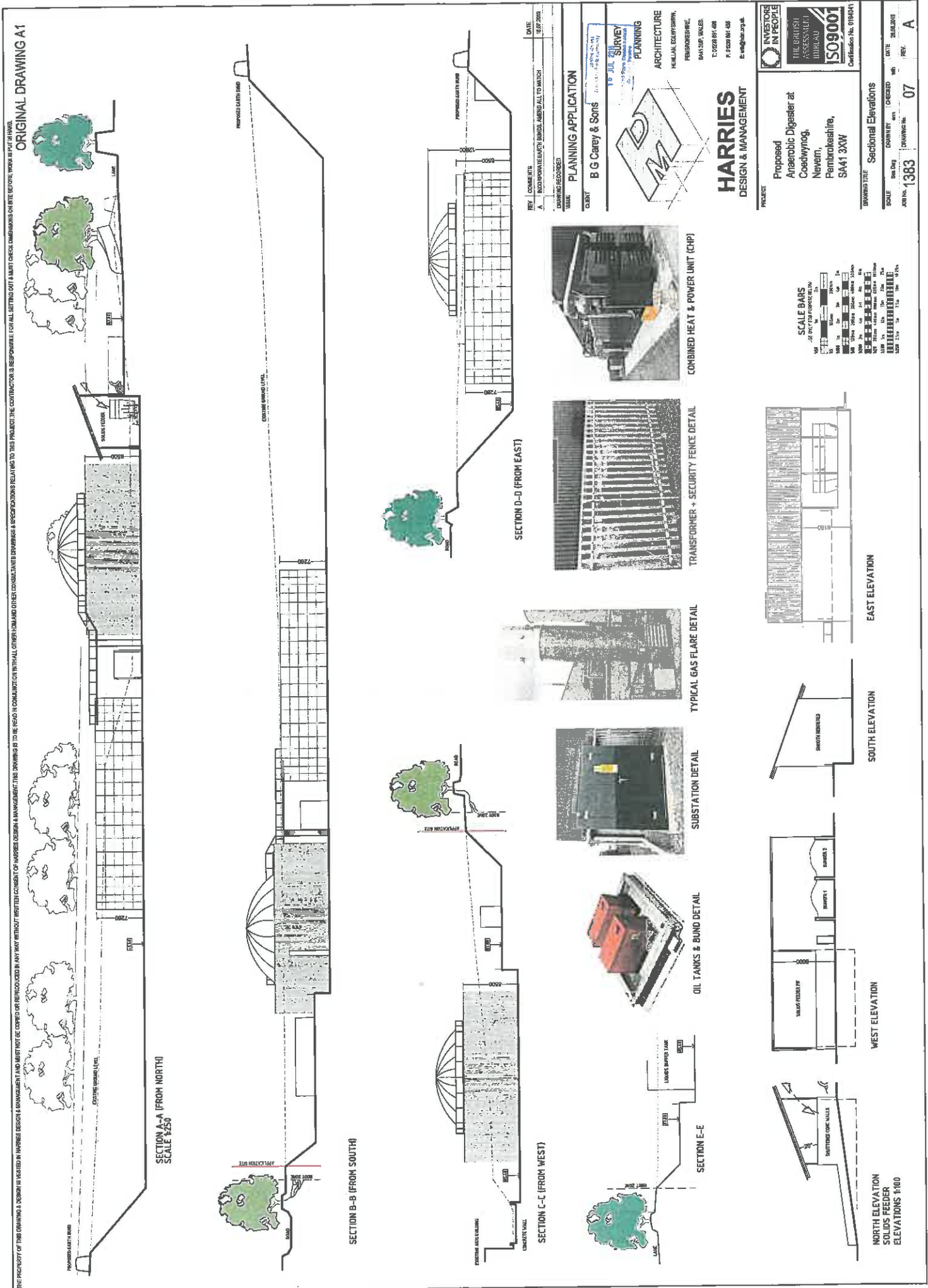
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HIL BRITISH ASSOCIATION
RIBBAU
ISO9001
 Certification No. 01/04/01

LICENCE NUMBER = 100012617
LOCATION PLAN
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HARRIES DESIGN & MANAGEMENT
 SURVEYING
 PLANNING
 ARCHITECTURE
 HELENAL ELLIOTT-WYLLIE
 PEMBROKESHIRE
 5441 3XP, WALES
 T: 01252 811 699
 F: 01252 311 452
 E: info@harries.com

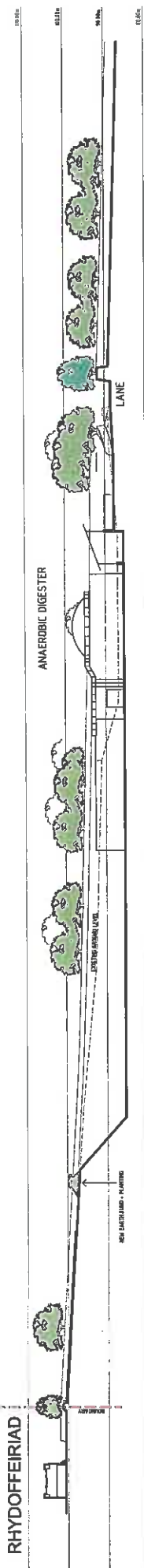
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 CHECKED BY: [Name]
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 JOB No. 1383
 Revision No. 06
 REV. A





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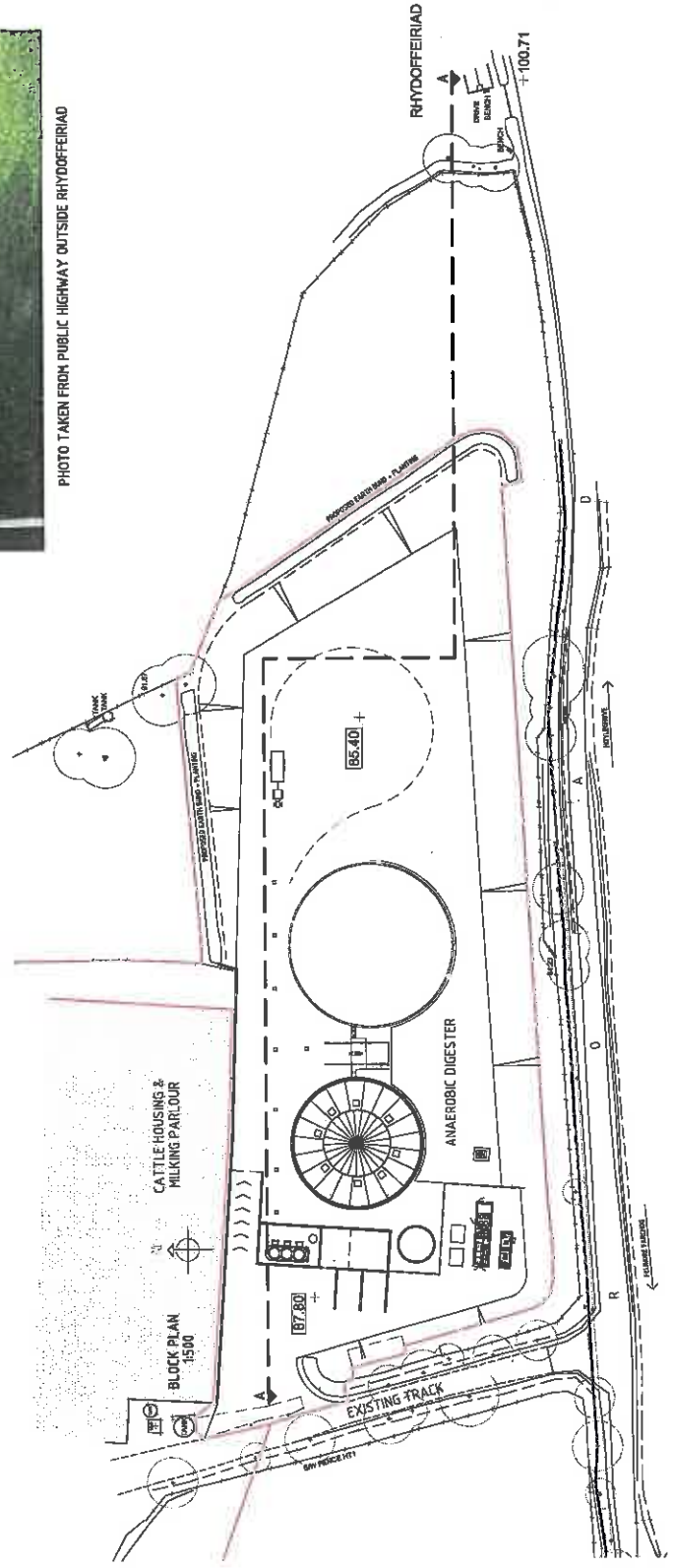
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SECTION A-A (FROM NORTH)
SCALE 1:500



PHOTO TAKEN FROM PUBLIC HIGHWAY OUTSIDE RHYDOFFEIRIAD



SCALE BARS
AS SHOWN ON DRAWING

0m	1m	2m	3m	4m	5m
0m	1m	2m	3m	4m	5m
0m	1m	2m	3m	4m	5m
0m	1m	2m	3m	4m	5m

REV.	COMMENTS	DATE
1	ISSUED FOR TENDERS	11.10.2015

PLANNING APPLICATION
CLIENT: B G Carey & Sons

HARRIES
DESIGN & MANAGEMENT

SURVEY
PLANNING
ARCHITECTURE
HERITAGE CONSULTING
FEBRUARY 2015

6441 300' WALKS
T: 01292 891188
F: 01292 891185
E: info@harrises.co.uk

PROJECT: Proposed Anaerobic Digester at Coedwynog, Nevertm, Penrholleshite, SA41 3XW

INVESTORS IN PEOPLE
THE BRITISH ASSESSMENT BUREAU
ISO 9001
Certification No. 0704001

DRAWING TITLE: Site Plan & Sectional Elevation

SCALE	DATE	DESIGNED BY	DATE	SCALE
1:500	11.10.2015	1383	08	1:500

1. THIS DRAWING IS PRELIMINARY ONLY, AND MUST NOT BE USED FOR DETAILED DESIGN. Design ambient temperature of -10 to +50 °C. Other design conditions are as specified in the notes.

2. Container noise specification: 75 dBA @ 1m in free field conditions.

3. Container verification noise specification: 75 dBA @ 1m in free field conditions. Other noise specifications are as specified in the notes.

4. For site and site specific conditions, please contact Edina Sales for more information.

5. Some terminations and door positions can be required to suit a specific application.

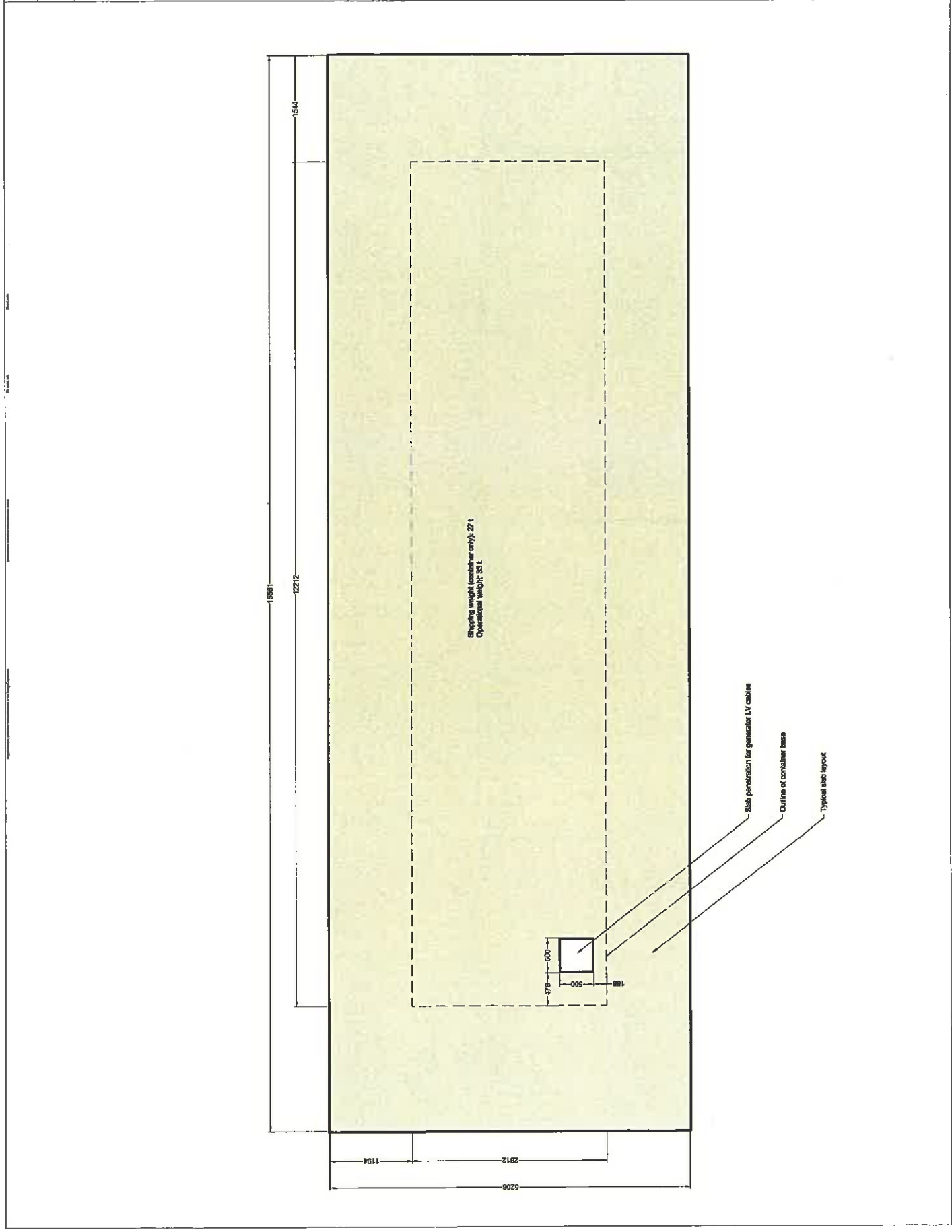
Please contact Edina Sales to discuss your requirements.

Notes:

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<p>Edina Sales Ltd Units 10-12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</p>	<p>Edina Sales Ltd Units 10-12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</p>	<p>Edina Sales Ltd Units 10-12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</p>
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<p>Edina Sales Ltd Units 10-12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</p>	<p>Edina Sales Ltd Units 10-12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100</p>
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Edina LLC
 1800 100th Street, Suite 100
 Edina, MN 55425
 Tel: 763.933.1313
 Fax: 763.933.1314
 www.edinallc.com

Notes:
 1. THIS DRAWING IS PRELIMINARY ONLY, AND MUST NOT BE USED FOR DETAILED DESIGN.
 2. Design ambient temperature of -10 to +35 °C. Other conditions may apply.
 3. Container noise specification 75 dBA @ 1m in free field conditions.
 4. Container ventilation noise specification 75 dBA @ 1m in free field conditions. Other noise specifications can be met if required.
 5. Heating and cooling capacity and heat recovery and all tanks are built into the container.
 6. Some terminations and door positions can be adjusted to suit a specific application.
 Please contact Edina Steam to discuss your requirements.

ISO 9001:2015
 ISO 14001:2015
 ISO 45001:2018
 ISO 9001:2015
 ISO 14001:2015
 ISO 45001:2018

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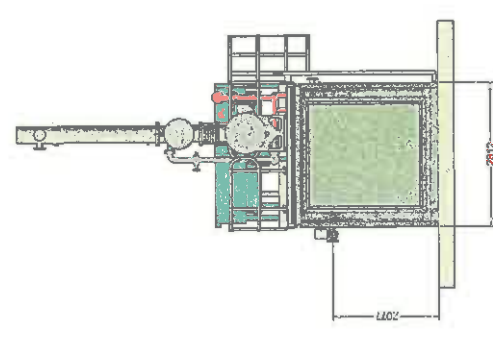
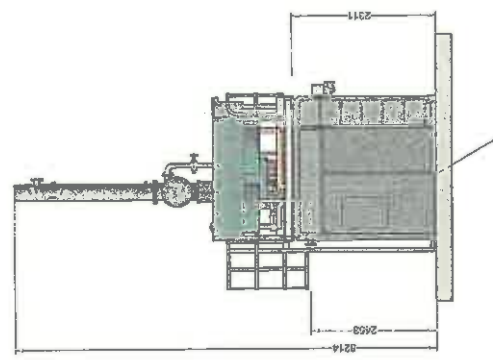
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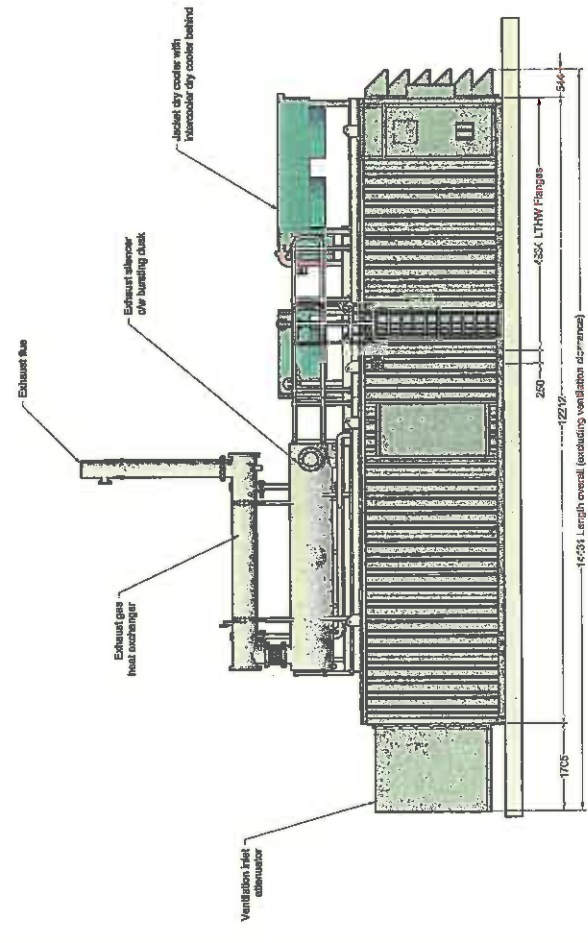
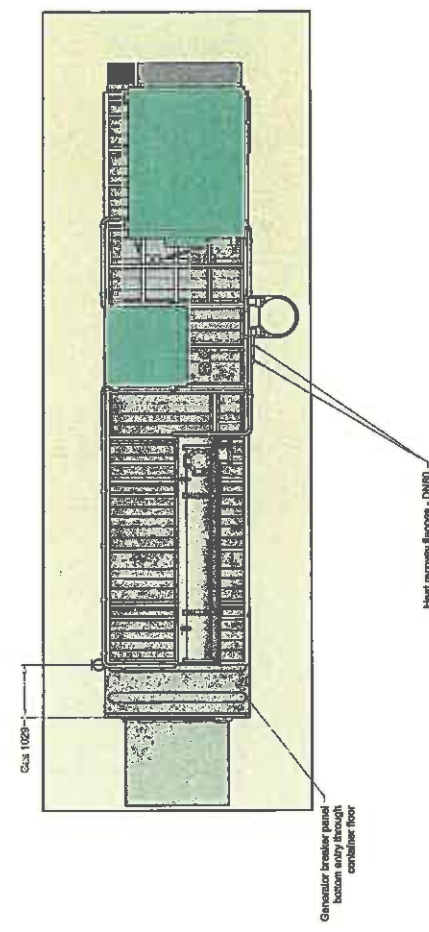
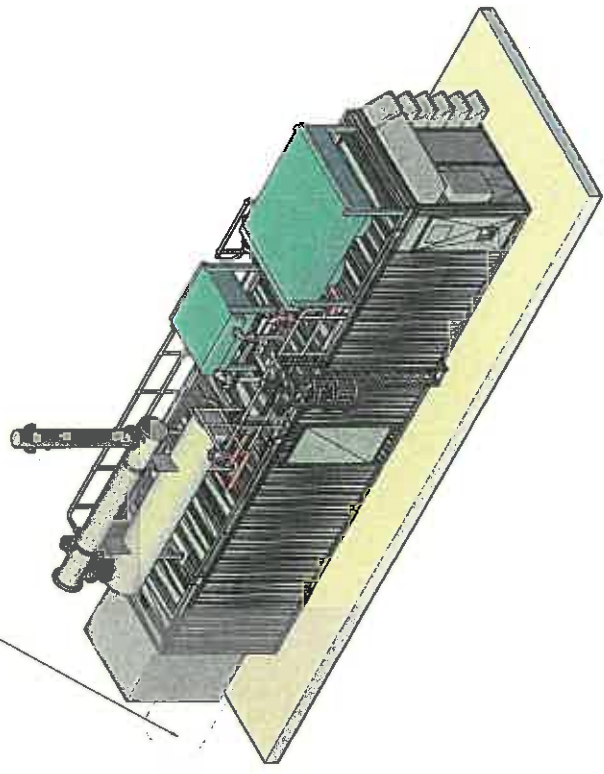
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Clearance for pallet removal - 4800 by 1700
 All inlet attenuator is dimensionable



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Project	800 kW TCG 2016 V16
Client	Standard Container (75 dBA/30 DegC)
Drawn	1 of 2
Scale	PRELIMINARY
Sheet No.	CHP Layout
Revision	Example
Drawn By	AT
Checked By	P00