Agricultural Benefit Statement

For the application of beneficial wastes to fields at:

Bodwina & Boderw, Gwalchmai, Holyhead, Anglesey, LL65 4RL

25th September 2025

1 Person with appropriate technical expertise and permit details

This benefit statement has been compiled by Dawn Loos (Consultant at 4R Group) who has the following qualifications and experience:

- B. Agric Plant production
- PGDip Agronomy
- MSc Sustainable Agriculture
- 3 years of agronomic experience
- 4R Group Deployment Training Course

Verified by Jonathan Lloyd; FACTS Qualified Advisor (No. FE/ 4524)

Permit number under which this deployment application is being made: EPR/CB3791ZU

2 Where the waste is to be spread

Table 1. Where the waste is to be spread

Farm address:	Bodwina & Boderw, Gwalchmai, Holyhead, Anglesey, LL65 4RL	
Stockpile grid reference:	Refer to Table 4	
Area of the receiving land:	50.0 ha	
Quantity to be stored at any one time:	Stackable: NA	Non-Stackable: 1,250 t
Total maximum quantity to be spread:	12, 430 t	
Location map document reference:	ERW-01a-c	

3 What is the waste to be spread?

Table 2. Description of waste(s) to be applied

Waste	*EWC Code*	*Description*	*Waste Producer*	*Additional Information*
1.	19 05 99	Liquor and digestate from aerobic treatment of source segregated biodegradable waste only.	Penhesgyn In-Vessel Composting (tank) FP3498EQ	Non-stackable liquid
2.	19 05 99	Liquor and digestate from aerobic treatment of source segregated biodegradable waste only.	Penhesgyn In-Vessel Composting (lagoon) FP3498EQ	Non-stackable liquid

4 Operational details

4.1 Cropping details

Table 3. Cropping details

Current crop including projected yield if known:	Refer to Table 6 & 7
Is straw removed?	Y ☐ N ☐ N/A ☒
Following crop and any sensitive crops within rotation which you are amending the soil for in good time:	Refer to Tables 6 & 7
When do you intend to apply this waste, e.g. post-harvest – pre-ploughing, during seed bed cultivations, on the stubble over winter:	Spreading will only take place subject to ground conditions and following the Code of Good Agricultural Practice (Defra, 2011), NVZ regulations and the permit holder's Environmental Management System (EMS). Spreading activities will also comply with The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. Targeted periods of spreading on grass fields are Feb – August, following cutting of silage, and prior to grazing through summer. This will not exceed 5 applications of a waste (250t/ha/50t/ha max application rate per 3 weeks) No more than 50t/ha will be spread on a field in any 3-week period in accordance with CoGAP, and no more than 250t/ha will be spread within any 12-month period. If wastes are mixed, this will only be for operational purposes. The nutrient requirements of the crop as stipulated in the nutrient charts; the max application rate of

	250t/ha and max N addition of 250kg/ha will not be exceeded.

4.2 Waste storage

Table 4. Waste storage

How is the waste to be stored? *e.g. mobile tank, field heap, spread on delivery*	Portable above-ground tank, lagoon or spread on delivery.
Where is the waste to be stored prior to spreading?	***Portable above ground storage tank:*** SH 39814 75760 ***Lagoon location:*** SH 39640 75740 Lagoon is lined with clay, providing an impermeable barrier. It also contains sufficient freeboard (min 300 mm) so that no waste can be leaked or overfilled. The lagoon will be clean and empty before storing waste from this deployment and there will be no mixing of wastes. Furthermore, waste will only be stored in the lagoon once it is available to use. The tank is a steel which provides an impermeable barrier. The tank also contains lockable valves to prevent any leaks and spillages. Although there is not secondary containment, the tank will be maintained and inspected regularly for any leaks, spills, and any signs of wear. Please note that only the wastes as specified in this deployment will be stored in the proposed storage locations above. *No more than 1250 t will be stored across both locations jointly at any one time.
Why were these storage locations chosen?	Above ground storage tank has good accessibility and space for movement, is on hardstanding land and away from any sensitive receptors.

4.3 Waste application

Table 5. Waste application

How is the waste to be spread and why is it to be spread that way?	The wastes will be shallow disc injected.

How do you plan to incorporate the waste following application?	There is no requirement for further incorporation of wastes on grass fields. Sludge residues can be broken up using a chain harrow if necessary.
With liquid wastes is there any mole draining or sub-soiling planned? *Are there land drains in the field?*	No Yes
Other relevant operational information	The waste may be applied separately or in combination. If the wastes are applied in combination the total combined amount applied will not exceed 250 t/ha, the total nitrogen loading will be less than 250 kg/ha, and the amount of available nitrogen and total or available phosphate and potash (whichever is appropriate) will not exceed the fertiliser recommendation or the amount removed in crop offtake, whichever is the greater. Some wastes have BOD higher than the limit for surface waters. It's important that the mitigation measures cited in the benefit statement and in the SSRA are followed to prevent waste from entering surface waters and water courses.

Table 6. Penhesgyn IVC Tank

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Previous Crop	Next Crop	Soil pH	SNS	Req kg/ha	In Wst kg/ha	P Ind	Req kg/ha	Crop Use kg/ha	In Wst kg/ha	K Ind	Req kg/ha	Crop Use kg/ha	In Wst kg/ha	Mg Ind	Req kg/ha	In Wst kg/ha	Rate t/ha	Totals tonnes
1	3.4	3.4	grass	grass	6.1	M	250	47.1	1	110	80	2.8	2-	250	282	281.2*	3	0	4.8	217	**738**
2	5.1	5.1	grass	grass	6	M	250	47.1	2	80	80	5.6*	2-	250	282	281.2*	3	0	4.8	217	**1107**
3	3.6	3.5	grass	grass	6.1	M	250	47.1	1	110	80	2.8	2-	250	282	281.2*	3	0	4.8	217	**760**
4	6.6	6.3	grass	grass	6.1	M	250	47.1	2	80	80	5.6*	2-	250	282	281.2*	3	0	4.8	217	**1367**
5	1.3	1.1	grass	grass	6	M	250	47.1	1	110	80	2.8	2+	160	282	281.2*	3	0	4.8	217	**239**
7	0.6	0.6	grass	grass	6	M	250	23.4	1	110	80	1.4	3	90	282	140*	2	0	2.4	108	**65**
8	1.0	0.8	grass	grass	6.3	M	250	47.1	1	110	80	2.8	2+	160	282	281.2*	3	0	4.8	217	**174**
9/10	2.6	2.3	grass	grass	6.1	M	250	47.1	1	110	80	2.8	2-	250	282	281.2*	2	0	4.8	217	**499**
11	3.5	3.4	grass	grass	6.1	M	250	47.1	1	110	80	2.8	2+	160	282	281.2*	3	0	4.8	217	**738**
12	2.8	2.7	grass	grass	6.2	M	250	47.1	1	110	80	2.8	2+	160	282	281.2*	3	0	4.8	217	**586**
13	3.1	2.9	grass	grass	6.3	M	250	23.4	2	80	80	2.8*	3	90	282	140*	3	0	2.4	108	**313**
14	3.6	3.5	grass	grass	6.6	M	250	52.1	1	110	80	3.1	1	260	282	279.9	2	0	5.3	240	**840**
15	3.8	3.8	grass	grass	6.3	M	250	47.1	1	110	80	2.8	2-	250	282	281.2*	2	0	4.8	217	**825**
16	3.1	3	grass	grass	6.2	M	250	52.1	1	110	80	3.1	1	260	282	279.9	2	0	5.3	240	**720**
17	3.5	3.4	grass	grass	6.2	M	250	52.1	1	110	80	3.1	1	260	282	279.9	3	0	5.3	240	**816**
18	3.6	3.6	grass	grass	6.2	M	250	52.1	1	110	80	3.1	0	280	282	279.9	3	0	5.3	240	**864**
Ha	**51.2**	**49.4**																			**10649**

Nutrient requirement based on values described in the nutrient management guide (RB209 2020)
Phosphate and Potash requirements based on **Grass Silage, 3 Cuts (47t/ha)** (target DM yield 9-12t/ha)
Crop use based on **Grass (25%DM)** totalling **47t/ha** yield where **1.7kg/t P_2O_5** and **6kg/t K_2O** removed in offtake
N, P, K and Mg stated are **Available** concentrations in kg/ha
***Total** nutrient content of waste used on P and K index 2 or above.
Availablity of nutrients in waste - N measured as NH_4, P_2O_5 50%, K_2O 90%, Mg 20%
Total N supplied at an application rate of 240 t/ha is 52.1 kg/ha

Table 7. Penhesgyn IVC Lagoon

						N			P_2O_5				K_2O				Mg				
Field Reference	**Total Area**	**Sprd Area**	**Previous Crop**	**Next Crop**	**Soil pH**	**SNS**	**Req kg/ha**	**In Wst kg/ha**	**P Ind**	**Req kg/ha**	**Crop Use kg/ha**	**In Wst kg/ha**	**K Ind**	**Req kg/ha**	**Crop Use kg/ha**	**In Wst kg/ha**	**Mg Ind**	**Req kg/ha**	**In Wst kg/ha**	**Rate t/ha**	**Totals tonnes**
1	3.4	3.4	grass	grass	6.1	M	250	4.9	1	110	80	1.1	2-	250	282	130.8*	3	0	1.6	250	**850**
2	5.1	5.1	grass	grass	6	M	250	4.9	2	80	80	2.3*	2-	250	282	130.8*	3	0	1.6	250	**1275**
3	3.6	3.5	grass	grass	6.1	M	250	4.9	1	110	80	1.1	2-	250	282	130.8*	3	0	1.6	250	**875**
4	6.6	6.3	grass	grass	6.1	M	250	4.9	2	80	80	2.3*	2-	250	282	130.8*	3	0	1.6	250	**1575**
5	1.3	1.1	grass	grass	6	M	250	4.9	1	110	80	1.1	2+	160	282	130.8*	3	0	1.6	250	**275**
7	0.6	0.6	grass	grass	6	M	250	4.9	1	110	80	1.1	3	90	282	130.8*	2	0	1.6	250	**150**
8	1.0	0.8	grass	grass	6.3	M	250	4.9	1	110	80	1.1	2+	160	282	130.8*	3	0	1.6	250	**200**
9/10	2.6	2.3	grass	grass	6.1	M	250	4.9	1	110	80	1.1	2-	250	282	130.8*	2	0	1.6	250	**575**
11	3.5	3.4	grass	grass	6.1	M	250	4.9	1	110	80	1.1	2+	160	282	130.8*	3	0	1.6	250	**850**
12	2.8	2.7	grass	grass	6.2	M	250	4.9	1	110	80	1.1	2+	160	282	130.8*	3	0	1.6	250	**675**
13	3.1	2.9	grass	grass	6.3	M	250	4.9	2	80	80	2.3*	3	90	282	130.8*	3	0	1.6	250	**725**
14	3.6	3.5	grass	grass	6.6	M	250	4.9	1	110	80	1.1	1	260	282	117.7	2	0	1.6	250	**875**
15	3.8	3.8	grass	grass	6.3	M	250	4.9	1	110	80	1.1	2-	250	282	130.8*	2	0	1.6	250	**950**
16	3.1	3	grass	grass	6.2	M	250	4.9	1	110	80	1.1	1	260	282	117.7	2	0	1.6	250	**750**
17	3.5	3.4	grass	grass	6.2	M	250	4.9	1	110	80	1.1	1	260	282	117.7	3	0	1.6	250	**850**
18	3.6	3.6	grass	grass	6.2	M	250	4.9	1	110	80	1.1	0	280	282	117.7	3	0	1.6	250	**900**
Ha	**51.2**	**49.4**																			**12350**

Nutrient requirement based on values described in the nutrient management guide (RB209 2020)
Phosphate and Potash requirements based on **Grass Silage, 3 Cuts (47t/ha)** (target DM yield 9-12t/ha)
Crop use based on **Grass** (25%DM) totalling **47t/ha** yield where **1.7kg/t P_2O_5** and **6kg/t K_2O** removed in offtake
N, P, K and Mg stated are **Available** concentrations in kg/ha
*__Total__ nutrient content of waste used on P and K index 2 or above.
Availablity of nutrients in waste - N measured as NH_4, P_2O_5 50%, K_2O 90%, Mg 20%
Total N supplied at an application rate of 250 t/ha is 5.5 kg/ha

5 Compliance with NVZ regulations

Table 14. Compliance with NVZ regulations

<table>
<tr><td>Does the site fall within a designated NVZ?</td><td>Y ☒ N ☐ (Please skip to section 6)</td></tr>
<tr><td>Do closed periods apply for the wastes to be applied?</td><td>Y ☒ N ☐ N/A ☐

Applicable to: All

If yes, please indicate the appropriate period:

<table>
<tr><th>Start Date</th><th>End Date</th><th>Land Use</th><th>Soil Type</th><th></th></tr>
<tr><td>1st Aug</td><td>31st Dec</td><td>Tillage Land</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>1st Sept</td><td>31st Dec</td><td>Grassland</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>16th Sept</td><td>31st Dec</td><td>Tillage Land*</td><td>Shallow/Sandy</td><td>☐</td></tr>
<tr><td>1st Oct</td><td>31st Jan</td><td>Tillage Land</td><td>All Other Soils</td><td>☐</td></tr>
<tr><td>15th Oct</td><td>31st Jan</td><td>Grassland</td><td>All Other Soils</td><td>☒</td></tr>
</table>

*For Tillage Land with crops sown on or before 15th September

If no, applications will be carried out as per CoGAP i.e. when ground conditions are suitable and when no heavy rain is forecast.</td></tr>
<tr><td>Will application rates comply with crop requirement and field/whole farm limit?</td><td>Yes, see Table 6 & 7</td></tr>
<tr><td>Previous applications:</td><td>Refer to LPD1 Supplement</td></tr>
</table>

6 Benefits and nutrients supplied to the soil or crop from this application.

6.1 Receiving soils

The nutrient status of individual fields to be registered are provided in Tables 6 & 7 above. General soil type(s) for the fields to be registered are:

Seasonally wet, slightly acid loamy and clayey soils

Table 15. Soil type

Light sand soils	Soils which are sand, loamy sand or sandy loam to 40cm depth and are sand or loamy sand between 40 and 80 cm, or over sandstone rock.	☐
Shallow soils	Soils over impermeable subsoils and those where the parent rock (chalk, limestone, or other rock) is within 40cm of the soil surface. Sandy soils developed over sandstone rock should be regarded as light sand soils.	☐
Medium soils	Mostly medium-textured mineral soils that do not fall into any other soil category. This includes sandy loams over clay, deep loams, and silty or clayey topsoils that have sandy or loamy subsoils.	☒
Deep clayey soils	Soils with predominantly sandy clay loam, silty clay loam, clay loam, sandy clay, silty clay, or clay topsoil overlying clay subsoil to more than 40cm depth. Deep clayey soils normally need artificial field drainage.	☐
Deep silty soils	Soils of sandy silt loam, silt loam, or silty clay loam textures to 100 cm depth or more. Silt soils formed on marine alluvium, warp soils (river alluvium) and brickearth soils are in this category. Silty clays of low fertility should be regarded as other mineral soils.	☐
Organic soils	Soils that are predominantly mineral but with between 10 and 20% organic matter to depth. These can be distinguished by darker colouring that stains the fingers black or grey.	☐
Peat soils	Soils that contain more than 20% organic matter derived from sedge or similar peat material.	☐

The soil analyses (**Soil Analysis**) show the soils to have background concentrations of Mg at ADAS Index 2-3. Grass Mg offtake ranges from 30-40t/ha. The wastes add small amounts of Mg (less than 20% of offtake) therefore, the indices will remain to be run down gradually rather than abruptly, aiding in limiting the potential risk for hypomagnesemia to livestock. Future soil analysis will be used to monitor the Mg levels.

Also, there will be no risk to the environment as applications are very unlikely to increase the soil Mg index (0.9-5.3kg/ha). Therefore, other nutrients and organic matter additions will incur benefit against no harm from Mg.

6.2 Waste characterisation

Full characterisations of individual wastes with total and available nutrients at the recommended rates for each waste stream are supplied in **Waste Analysis**. This information is further summarised against the nutrient requirements for proposed crops in Table 6 and 7 above.

The limiting factors for the different wastes are as follows:

- Max rate of 250 t/ha: Penhesgyn IVC lagoon
- K Indices: Penhesgyn IVC tank, Penhesgyn IVC lagoon

6.2 *Summary of benefits*

The wastes are a source of essential elements N, P, K, macronutrients Mg, Ca, S and provide trace amounts of micronutrients. Wastes are beneficially used to replace a proportion of the bagged mineral fertiliser used by farmers. The recommended application rates shown in Table 6 & 7.

The compost leachates contain organic matter. Additions of organic matter to soil will improve soil structural stability, biological activity, water, and nutrient holding capacity, i.e. resistance to drought, and reduction of localised flooding, reduced leaching of nutrients, and improved workability in soil. Organic matter is a particularly good source of N and S, and organic acids that aid nutrient solubility and uptake, as well as enhancing microbial activity for enhanced nutrient cycling in soils.

6.3 *Additional requirements*

Fields may require additional N, P, and K to achieve optimum yield.

7 Potential negative impacts to the soil or crop from this application

7.1 *Potentially Toxic Elements (PTEs)*

The wastes contain traces of PTEs; however, concentrations applied to the receiving soils are below maximum upper limits for heavy metal applications described in the Sludge (Use in Agriculture) Regulations 1989 (SI, 1989). Refer to interpretations in **Waste Analysis**.

7.2 *Other waste characteristics*

The pH of all wastes is given in **Waste Analysis.**

It is unlikely that soil pH will decrease following the application detailed here due to the extensive buffering capacity of the receiving soils. The pH levels of the receiving soils are ≥ 5.8 therefore it is unlikely that availability of any naturally occurring heavy metals present in these soils will become more available after application of these wastes.

Some of the wastes have a BOD which is higher than the limit for surface waters. It is important that the best practices and appropriate guidance are followed to prevent the contamination of any local waters. This includes observing the no spread buffers as per the spreading plan, following the advice and methods in CoGAP (applying when weather and ground conditions are appropriate) and applying wastes as per the recommended methods.

The wastes are high in RAN, although both available and total nitrogen are well below crop need. Wastes will be applied during active growth periods of the grass crop to ensure optimum uptake. Buffers indicated on the attached spreading maps will be closely adhered to in order to reduce the risk of RAN affecting sensitive receptors, and no spreading will occur during periods of high rainfall. Closed periods as stipulated in table 14 will be adhered to.

7.3 *Operational factors*

1. The wastes will be spread using shallow disc injection.
2. Potential compaction of receiving soil will be mitigated by suitable adjustment of tyres/tyre pressure to match soil conditions, direction of spreading and load to be spread.
3. Wastes will be applied when ground and weather conditions are suitable, following CoGAP to avoid soil damage including wheel ruts, compaction, structural damage, erosion, and run-off.

8 Sensitive human and environmental receptors

Please refer to site specific risk assessment (**SSRA**). Locations of sensitive receptors are shown in **Location Plan ERW-01**. Prevailing winds are south-westerly.

9 Practices to reduce the impacts of the operation on identified sensitive receptors.

Mitigation measures to safeguard site-specific high and moderate likelihood of emission detection by sensitive receptors are shown in **ERW SSRA**. Generic measures (in addition to permit requirements and following the EMS) to reduce potential negative impacts of the proposed spreading operation will be as follows:

1. Spreading will only be undertaken when weather conditions are suitable within restrictions outlined in CoGAP and any relevant closed periods.
2. Spreading will not be carried out in any areas of a field that will be sub-soiled.
3. Machinery operations will take account of soil conditions, slopes *etc.*
4. Machinery will be checked daily when in use, regularly serviced and spreading equipment calibrated.
5. Machinery turns will not be executed in the buffer strips.
6. Waste deliveries to field/stores will be supervised.
7. All spillages will be reported immediately to NRW.

10 Contingency planning

Replacement spreading machinery will be available to prevent waste being retained in faulty machinery. Hire vehicles will be used if required. All machinery will be fully serviced.

There will be enough trained staff available to ensure that the operation continues throughout operational hours (*i.e.* there will be sufficient cover for illness, holiday *etc.*).

In adverse weather, storage will be available until ground/weather conditions become favourable for land application or wastes will not be collected.