Statement of Agricultural Benefit – Ffynnoncyff Farm (1)

STEPSIDE AGRI CONTRACTORS
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Applicant: Mr Daniel James and Mrs Carys James (Stepside Agricultural Contractors)
Permit: SR2010 No4: mobile plant for land-spreading
Permit number: EPR/AB3891CX

Agricultural benefit statement is prepared by:

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This agricultural benefit statement has been prepared based on information provided by Stepside Agricultural Contractors. It is made on the understanding that all information provided is correct and representative of the fields to which the material is to be applied and of the waste material to be applied.

Farm address:

Ffynnoncyff Farm, Ferwig, Cardigan, Ceredigion, SA43 1QD

Waste to be applied:

Waste Code	Waste Description	Physical Form	Source
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid sludge	Mr Daniel Aneurin Rhodri James, Mrs Carys Ellen James, Mr Gareth Rhodri James, and Mrs Sian James - EPR/DB3090CE Ffynnoncyff Lagoon, Ffynnoncyff Farm, Ferwig, Ceredigion, SA43 1QD (Producer: Volac/Sensient, Felinfach)

The waste to be applied is from permitted temporary storage facility - Mr Daniel Aneurin Rhodri James, Mrs Carys Ellen James, Mr Gareth Rhodri James, and Mrs Sian James EPR/DB3090CE Ffynnoncyff Lagoon, Ffynnoncyff Farm, Ferwig, Ceredigion, SA43 1QD. The producer of the waste in temporary storage in this permitted facility is Volac/Sensient, Felinfach – permit: EPR/BP3135EB.

Application:

- Fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) will be spread in a single application up to 37t/ha in February – April 2026 prior to cultivations and the spring barley crops being planted. The liquid sludge will be incorporated into the soil within 12 hours following spreading.
- Field Ffynnoncyff 28 will be spread in February – April 2026 prior to first cut silage and following silage cuts May – September 2026. Spreading of this grass field will be split into up to 4 applications & the total of all applications will not exceed the max application rate for the field as listed in table 1. Each individual application will not exceed 50t/ha in any one application to the field.
- The liquid sludge is to be spread from permitted temporary storage facility EPR/DB3090CE Ffynnoncyff Lagoon onto the deployed fields at the required timings as stated above. This is done by either umbilical method with the liquid delivered to tractor in deployed fields pumped through hose and spread by dribble bar applicator mounted onto the back of the tractor, or a tractor and vacuum tanker with dribble bar applicator. The dribble bar applicator places the liquid in bands onto the surface of the ground. This spread method is effective in limiting odour generation & nutrient losses associated with higher trajectory spread methods such as splash plate. Spreading is undertaken with the use of flow meters to ensure correct rates are applied.
- Spreading of the waste will be carried out in accordance with the Code of Good Agricultural Practice, The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 and in accordance with the requirements of the deployment and Environmental Permitting Regulations.
- NRW will be informed at least 48 hours prior to any spreading commencing and no spreading will occur within 48 hours of forecasted heavy rainfall.

Benefits from waste application:

- The analysis and nutrient content of the waste is shown in the waste analysis attachments.
- The waste is a source of nitrogen, phosphate, potassium, sulphur, sodium, calcium and organic matter. The waste can be beneficially used to replace a proportion of bagged mineral fertiliser.
- The risk of sulphur deficiency has been estimated as 'High' based on the soil texture and expected winter rainfall (RB209). The crop requirements are 50-120kg SO_3/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 1-6kg SO_3/ha.
- The addition of sodium will improve the palatability of grass for field Ffynnoncyff 28 and is important in the diet for livestock health.
- The recommended maximum application rates are shown in Table 1 and have been made on a field by field basis using The Nutrient Management Guide (RB209).

Materials applied in previous 12 months:

The fields within this deployment application have received the rates (t/ha) of materials as in 'Table 4 - Previous Land Treatment' within the previous 12 months.

It's considered that the nutrients applied from these applications were for the requirements of the previous crops before the material within this deployment is applied for the next crops.

Nutrients supplied by this application:

Rates of application (t/ha)	Nitrogen kg/ha		Phosphate (P_2O_5) kg/ha		Potash (K_2O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO_3) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
Liquid sludge @ 37 t/ha	41	8	44	27	47	38	6	1	7	1
Liquid sludge @ 150 t/ha	165	33	180	108	191	153	23	2	30	6
Estimated Availability	20%		60%		80%		10%		20%	

Table 1: Field, Soil & Cropping Details, Fertiliser Recommendations and Application Rates

					Nitrogen		Phosphate			Potash			Magnesium	
Field Ref.	**Soil Type**	**Spreadable Area (ha)**	**Previous Crop**	**Next Crop**	**SNS**	**N Required (kg/ha)**	**P Index**	**P_2O_5 Required (kg/ha)**	**Crop Use (Offtake) (kg/ha)**	**K Index**	**K_2O Required (kg/ha)**	**Crop Use (Offtake) (kg/ha)**	**Mg Index**	**MgO Required (kg/ha)**
Ffynnoncyff 1 (A&B)	Medium soils	5.60	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	2-/1	135 / 165	135	2	0
Ffynnoncyff 2	Medium soils	4.60	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	1	165	135	2	0
Ffynnoncyff 3 (A&B)	Medium soils	6.60	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	1	165	135	2	0
Ffynnoncyff 4	Medium soils	2.60	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	2-	135	135	3	0
Ffynnoncyff 5	Medium soils	4.40	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	2-	135	135	3	0
Ffynnoncyff 6	Medium soils	4.40	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	2-	135	135	2	0
Ffynnoncyff 7 (A,B&C)	Medium soils	11.20	Grass 1 cut silage	Wholecrop spring barley	1	140	3	0	45	2-	135	135	2	0
Ffynnoncyff 28	Medium soils	3.90	Grass 2 cuts silage + grazing	Grass 3 cuts silage	Moderate	250	0	140	80	1	320	282	2	0
TOTAL		**43.30**												

Nutrient requirements based on:
Wholecrop spring barley 25t FW/ha
Grass 3 cuts silage (23t FW/ha at 1st cut, 15t FW/ha at 2nd cut, 9t FW/ha at 3rd cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake
Expected DM yields of grass 9-12t/ha, good grass growth class

	EPR/DB3090CE Ffynnoncyff Lagoon, Ffynnoncyff Farm, Ferwig, Ceredigion, SA43 1QD - Volac/Sensient, Felinfach liquid sludge					
Field Ref.	**N Applied - Waste (kg/ha)**	**P_2O_5 Applied - Waste (kg/ha)**	**K_2O Applied - Waste (kg/ha)**	**MgO Applied - Waste (kg/ha)**	**Application Rate (t/ha)**	**Total Tonnes**
Ffynnoncyff 1 (A&B)	**8	*44	*47	*6	37	207
Ffynnoncyff 2	**8	*44	**38	*6	37	170
Ffynnoncyff 3 (A&B)	**8	*44	**38	*6	37	244
Ffynnoncyff 4	**8	*44	*47	*6	37	96
Ffynnoncyff 5	**8	*44	*47	*6	37	163
Ffynnoncyff 6	**8	*44	*47	*6	37	163
Ffynnoncyff 7 (A,B&C)	**8	*44	*47	*6	37	414
Ffynnoncyff 28	**33	**108	**153	*23	150	585
TOTAL						**2042**

* Total nutrient content of waste used on P, K or Mg index 2 or above
** Available nutrient content of waste used on P, K or Mg index 0 or 1
The assumed availability of total nutrients in the Volac/Sensient liquid sludge are N 20%, P_2O_5 60%, K_2O 80%, MgO 10%, SO_3 20%

Potential negative impacts from this application and mitigation measures planned:

Waste composition & receiving soils

- Potentially Toxic Elements: The supplied concentrations at the proposed application rates are all significantly lower than the maximum permissible levels detailed in the Sludge (Use in Agriculture) Regulations for biosolids applied to agricultural land, which is believed to be a suitable comparison for wastes applied to agricultural land.
- Physical contaminants: The waste is produced by managed processes. The waste does not contain physical contaminants.
- BOD: The BOD of the liquid sludge is low and below the range for cattle slurry (10-20,000 mg/l). Consequently, the environmental risks applying the waste will be less than that of the material mentioned. To mitigate the pollution risk to watercourses the waste will not be applied at a rate greater than 50 t/ha in a single application, or the maximum application rate given in Table 1 where lower. The proposed method of application, no-spread zones and precautions as stated in this document should be sufficient to minimise the pollution risk to manageable levels.
- Soils have been sampled to 7.5cm depth for permanent grass field Ffynnoncyff 28 & to 15cm depth for arable fields with a 'half cheese' corer soil sampler walking a 'W' pattern across each field collecting approx. 25 sub samples per field.
- Receiving soils have been analysed and are suitable for application at the proposed application rates.
- Fields Ffynnoncyff 4 & 5 have a soil magnesium index of 3. The magnesium applied by the wastes is less than is likely to be removed by the next crop so there should be no increase to soil magnesium levels with greater crop offtake than that applied. There is also a planned following crop of grass for fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) with 1 cut of silage where no magnesium will be applied providing some potential rundown of magnesium in the soil through crop offtake. The amount of magnesium being applied is unlikely to have any noticeable difference on soil structure. The liquid sludge also applies greater levels of calcium which will help soil aggregation and structure.
- Field Ffynnoncyff 28 - grass is not responsive to magnesium however herbage levels should be maintained to prevent 'Grass Staggers' in lactating animals. Potassium applications can reduce magnesium uptake resulting in 'Staggers'. The receiving soil for field Ffynnoncyff 28 has a magnesium index of 2 and so the risk is low.
- On the other hand, high magnesium soils can reduce potassium availability. Application of liquid sludge at the proposed application rates with potassium also being applied in the sludge is very unlikely to reduce potassium availability which can be seen in soils where the magnesium index is 5 or above.
- Fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) have soil phosphate indices of 3 based on soil analysis undertaken in May 2024, which are above target P index of 2 for arable soils. Application rates have been set so that phosphate applied by the liquid sludge is less than crop offtake of phosphate for the next crop for these fields so there's no increase to soil phosphate. There's also a planned following crop of grass for these fields with 1 cut of silage where no phosphate will be applied providing some rundown of phosphate in the soil through crop offtake. The liquid sludge is providing many benefits through application of other nutrients, trace elements and some organic matter. The soil phosphate levels of these fields will be monitored by the farm through regular soil analysis with the aim to run down the phosphate in the soils to target P index 2 over a number of years should future soil analysis indicate the fields are still above target P index 2 and run down is required.

Operations

The fields in this deployment have been designated as 'high risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones with some fields being within 500 metres of Aberarth - Carreg Wylan SSSI and Cardigan Bay / Bae Ceredigion SAC. On the basis of 'high risk' the proposed operation will be subject to a site-specific risk assessment for deploying mobile plant under a SR2010 No.4. The potential risks associated with the application of waste on this deployment have been identified as;

- Potential run-off after application: The waste will be applied following the Code of Good Agricultural Practice. The maximum application rate for field Ffynnoncyff 28 will be split into multiple applications and will not exceed 50t/ha in any one application. The fields will be spread using precision spreading dribble bar equipment with no spreading areas enforced as per maps. Fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) will be cultivated within 12 hours following spreading with the liquid sludge incorporated into the soil prior to the spring barley crops being planted.
- All handling of the waste will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- Odour may potentially be emitted from the spreading of the waste – to mitigate odour generation all handling of waste will be done in accordance to current regulations and relevant mitigation strategies will be adopted. Waste will be spread with low trajectory dribble bar applicator. This is an efficient method to prevent odour transmission & nutrient losses associated with higher trajectory spread methods such as splash plate. If any odour complaints are received, further odour mitigation methods will be implemented in accordance with the site-specific odour management plan.
- The liquid sludge has high readily available nitrogen (over 30% RAN). Spreading is in line with good practice and regulations with the liquid sludge spread with a low trajectory precision dribble bar applicator which places the liquid sludge in bands on the surface of the ground. This method of application minimises contact with the air reducing ammonia volatilization. Fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) will be cultivated within 12 hours following spreading with the liquid sludge incorporated into the soil prior to the spring barley crops being planted. Field Ffynnoncyff 28 will be spread into the growing grass. The fields are all in a nitrate vulnerable zone (areas designated as being at risk from agricultural nitrate pollution) which applies across Wales. The closed period for spreading organic manures with high readily available nitrogen (Volac / Sensient liquid sludge) on grass field Ffynnoncyff 28 is 15th October – 15th January & 1st October – 31st January for tillage land - fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) under The Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021. The stated spreading timings in this deployment are from February to September for grass field Ffynnoncyff 28 and February – April for fields Ffynnoncyff 1 (A&B), 2, 3 (A&B), 4, 5, 6, 7 (A,B&C) when there is crop nutrient requirements and not in the closed periods. The liquid sludge applies far less than the crop requirements for nitrogen with the balance required to grow the crops applied as fertiliser by the farmer.
- Spillages: all spillages will be reported immediately to NRW.
  No waste will be spread within 10m of any ditch, pond or surface water, within 50m of any spring, well, borehole, or reservoir that supplies water for human consumption or farm dairies.
- Waste will be spread on delivery (or securely stored as stated above). Operators will aim to empty spreading equipment before the end of each working day to avoid overnight storage of waste in machinery.
- Regular servicing of all machinery is conducted and spreading equipment is annually calibrated. To prevent waste being held in faulty machinery replacement spreading equipment will be available.
- Spreading machinery will travel over the field in a direction which will most easily allow the machinery to turn within the boundaries of the field. Any spreading equipment will be turned off prior to turning at the end of each run.
- Machinery turns will be routed to avoid rutting and wheel slip. The turns will not be executed on any buffer strips.
- There will be sufficient trained staff available to ensure that the operation continues throughout operational hours (i.e. there will be sufficient cover for illness, holiday etc.).
- Rights of way have been marked on the spread risk maps. There are no public rights of way in the fields to be spread under this application.
- Weather conditions will be monitored prior to spreading with wind speed and direction assessed.
- Consideration for the public and local residential receptors will be taken into account.

Signed: Robert Tucker	**Date:** 24/12/2025