

Statement of Agricultural Benefit – Hafod Farm



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:

Mr Robert Tucker

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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:

Hafod Farm, Ferwig, Cardigan, Ceredigion, SA43 1PU

Wastes to be applied:

Waste Code	Waste Description	Physical Form	Waste Producer
02 05 01	Waste from the dairy products industry – wash water (whey plant)	Liquid	Arla Food Ingredients, Felinfach
02 05 02	Waste from the dairy products industry – sludge from on-site effluent treatment	Liquid	Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) *
02 07 02	Spent wash from spirits distillation	Liquid	The Welsh Whisky Co. – Penderyn Brecon Beacons Distillery, Penderyn

* Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant - Volac International Limited has been acquired by Arla Foods Ingredients. Sensient Flavours Limited is no longer operational at the Felinfach site. A permit variation is pending to reflect these operational and ownership changes as discussed with NRW.

Application:

- All fields apart from field 5194 Hafod 10 will be spread with one application of either Arla Food Ingredients, Felinfach wash water or The Welsh Whisky Co., Penderyn Brecon Beacons Distillery - spent wash up to 50t/ha, or Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) - sludge from on-site effluent treatment up to 26t/ha in July – September 2026 prior to grass being planted. The liquid waste will be incorporated into the soil.
- All fields apart from field 5194 Hafod 10 that haven't been spread in July – September 2026 may be spread into the growing grass crops in February – April 2027 prior to first cut silage, but only with Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) - sludge from on-site effluent treatment. This will be one application up to 26t/ha.
- Field 5194 Hafod 10 will only be spread with Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) - sludge from on-site effluent treatment. The field will be spread in February – April 2027 prior to silage cut and in advance of periods of grazing May – June 2027. Spreading of this field up to 50t/ha may be split into two separate applications.
- 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.
- The fields aren't to be cut or grazed for at least 3 weeks following application.
- 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.
- The liquid wastes are delivered by HGV road tankers which are discharged into a nurse tank, above ground slurry storage tank, or lined lagoon store prior to spreading. Liquid sludge is spread from temporary storage 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. 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.
- The nurse tanks do not have secondary containment, but are impermeable purpose built AW alloy nurse tanks featuring internal bracing, an anti-corrosive interior coating, designated fill and empty valves that can be shut by gate valves. These valves can be locked off in the event of temporary overnight temporary storage if the tank contains liquid to ensure secure temporary storage. The tanks are only for temporary storage and are normally rarely in use other than just prior to or when spreading activity is being undertaken. In most cases the nurse tanks are unlikely to contain liquid overnight. The tank fills from the top via internal pipework with a 'swanneck' reducing chances of any spills when decoupling connecting pipes after filling. The empty valve allows the tank to be completely emptied to the bottom. The tank is sealed with roof to prevent odour, rainwater entering the tank and for safety, and can be vented if required. A hydraulic lifting axle in the middle allows the tank to be positioned and lowered, then locked into position so the whole tank is on the ground.
- The Permastore Trifusion above ground slurry storage tank is made of glass fused to steel and is on a concrete base, is impermeable with fill and empty valves and an open top. A minimum 30cm freeboard will be maintained at all times. The tank has pipework so that it's filled from the top and emptied from the bottom with shut off valves to pipework in series that are at least 1 metre apart. The tank may be used for temporary storage in advance of spreading.
- The lagoon store is lined with impermeable clay and will have a minimum 75cm freeboard maintained in the lagoon at all times prior to spreading at stated timings. The lagoon store has a leak detection system and there is pipework to fill and empty with shut off valves to pipework in series that are over 1 metre apart. The lagoon may be used for temporary storage in advance of spreading and will be completely emptied of cattle slurry before being used. If used, the lagoon will have no cattle slurry added whilst in use for temporary storage of liquid sludge under this deployment.
- These potential temporary storage locations are detailed on the attached field maps & within the LPD1 form.
- All storage will be completely empty before use and no other materials will be added to storage whilst in use to store materials under this deployment.
- **Waste will not be stored or spread in combination (i.e. only one waste stream per field).**
- The maximum application rates for each field are listed in Table 1 and have been made on a field by field basis using The Nutrient Management Guide (RB209).

Benefits from waste application:

- The analysis and nutrient content of the wastes are shown in the waste analysis attachments.
- The wastes are a source of nitrogen, phosphate, potassium and sulphur. The wastes 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 60-120kg SO₃/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 2-6kg SO₃/ha.
- The addition of sodium will improve the palatability of grass 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 ₂ O ₅) kg/ha		Potash (K ₂ O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO ₃) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
Arla Food Ingredients wash water (whey plant) @ 50 t/ha	120	24	19	11	23	18	1	0	22	4
Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) sludge from on-site effluent treatment @ 26 t/ha	65	13	64	38	40	32	9	1	16	3
Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) sludge from on-site effluent treatment @ 50 t/ha	125	25	122	73	76	61	17	2	31	6
Estimated Availability	20%		60%		80%		10%		20%	

Rates of application (t/ha)	Nitrogen kg/ha		Phosphate (P ₂ O ₅) kg/ha		Potash (K ₂ O) kg/ha		Magnesium (MgO) kg/ha		Sulphur (SO ₃) kg/ha	
	Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
The Welsh Whisky Co., Penderyn Brecon Beacons Distillery spent wash @ 50 t/ha	40	4	35	18	44	39	8	1	12	2
Estimated Availability	10%		50%		90%		10%		20%	

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

Field Ref.	Soil Type	Spreadable Area (ha)	Previous Crop	Next Crop	Nitrogen		Phosphate			Potash			Magnesium	
					SNS	N Required (kg/ha)	P Index	P ₂ O ₅ Required (kg/ha)	Crop Use (Offtake) (kg/ha)	K Index	K ₂ O Required (kg/ha)	Crop Use (Offtake) (kg/ha)	Mg Index	MgO Required (kg/ha)
Hafod 8294	Medium soils	5.30	Spring barley	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	2-	280	282	3	0
Hafod 1594	Medium soils	4.70	Winter wheat	Grass 3 cuts silage + grazing	Moderate	250	2	80	80	2-	280	282	3	0
Hafod 2312	Medium soils	2.60	Winter wheat	Grass 3 cuts silage + grazing	Moderate	250	2	80	80	1	320	282	3	0
Hafod 3498	Medium soils	4.90	Winter wheat	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	2+	190	282	3	0
4526 Hafod 7	Medium soils	4.10	Spring barley	Grass 3 cuts silage + grazing	Moderate	250	2	80	80	3	90	282	3	0
5412 Hafod 6	Medium soils	4.10	Spring barley	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	2+	190	282	3	0
5194 Hafod 10	Medium soils	5.70	Grass 1 cut silage + grazing	Grass 1 cut silage + grazing	Moderate	190	0	100	39	1	170	138	2	0
7025 Hafod 9	Medium soils	3.20	Spring barley	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	2-	280	282	3	0
Hafod 7263	Medium soils	4.30	Winter wheat	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	1	320	282	2	0
Hafod 5347	Medium soils	4.90	Winter wheat	Grass 3 cuts silage + grazing	Moderate	250	3	20	80	1	320	282	1	0
TOTAL		43.80												

Nutrient requirements based on:

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 + grazing

Grass 1 cut silage (23t FW/ha at 1st cut), silage 25% DM, totalling 1.7kg/t P2O5 and 6.0kg/t K2O removed in offtake + grazing

Expected DM yields of grass 9-12t/ha, good growth class

	Arla Food Ingredients, Felinfach - wash water (whey plant)						Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) - sludge from on site effluent treatment						The Welsh Whisky Co., Penderyn Brecon Beacons Distillery - spent wash					
Field Ref.	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes	N Applied - Waste (kg/ha)	P ₂ O ₅ Applied - Waste (kg/ha)	K ₂ O Applied - Waste (kg/ha)	MgO Applied - Waste (kg/ha)	Application Rate (t/ha)	Total Tonnes
Hafod 8294	**24	*19	*23	*1	50	265	**13	*64	*40	*9	26	138	**4	*35	*44	*8	50	265
Hafod 1594	**24	*19	*23	*1	50	235	**13	*64	*40	*9	26	122	**4	*35	*44	*8	50	235
Hafod 2312	**24	*19	**18	*1	50	130	**13	*64	**32	*9	26	68	**4	*35	**39	*8	50	130
Hafod 3498	**24	*19	*23	*1	50	245	**13	*64	*40	*9	26	127	**4	*35	*44	*8	50	245
4526 Hafod 7	**24	*19	*23	*1	50	205	**13	*64	*40	*9	26	107	**4	*35	*44	*8	50	205
5412 Hafod 6	**24	*19	*23	*1	50	205	**13	*64	*40	*9	26	107	**4	*35	*44	*8	50	205
5194 Hafod 10					0	0	**25	**73	**61	*17	50	285					0	0
7025 Hafod 9	**24	*19	*23	*1	50	160	**13	*64	*40	*9	26	83	**4	*35	*44	*8	50	160
Hafod 7263	**24	*19	**18	*1	50	215	**13	*64	**32	*9	26	112	**4	*35	**39	*8	50	215
Hafod 5347	**24	*19	**18	**0	50	245	**13	*64	**32	**1	26	127	**4	*35	**39	**1	50	245
TOTAL						1905						1276						1905

Waste will not be stored or spread in combination (i.e. only one waste stream per field).

* 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 Arla Food Ingredients wash water & Volac/Sensient (Arla Food Ingredients) - liquid sludge from effluent treatment are N 20%, P₂O₅ 60%, K₂O 80%, MgO 10%, SO₃ 20%

The assumed availability of total nutrients in the TWWC Penderyn Brecon Beacons Distillery spent wash are N 10%, P₂O₅ 50%, K₂O 90%, MgO 10%, SO₃ 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 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 wastes are produced by managed processes. The wastes do not contain physical contaminants.
- Waste pH: Although the Arla Food Ingredients, Felinfach wash water & The Welsh Whisky Co., Penderyn Brecon Beacons Distillery spent wash are acidic, they are weakly buffered and unlikely to result in a change in soil pH. The acidic nature is associated with the presence of food based organic acids. Acidic food-based wastes are routinely applied to agricultural land without adverse effects on crop health, or significant decreases in soil pH. Use of the waste will be carefully monitored. These two liquid wastes will be surface applied at up to 50t/ha to stubbles in July – September 2026 and will be soil incorporated prior to the planting of the grass crops reducing any chance of temporary stunting or scorching that could occur if spreading was into growing grass crops.
- BOD: The BOD of Volac/Sensient, Felinfach: EPR/BP3135EB effluent treatment plant (Arla Food Ingredients, Felinfach) - sludge from on-site effluent treatment is less than the range for cattle slurry (10-20,000 mg/l), the BOD of The Welsh Whisky Co. Penderyn Brecon Beacons Distillery spent wash is within the range for cattle slurry (10-20,000 mg/l), and the BOD of the Arla Food Ingredients wash water is in the range for pig slurry (20-40,000 mg/l). Consequently, the environmental risks applying the wastes will be similar to 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 max application listed 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 fields & to 15cm depth for arable / temporary grass 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.
- Several fields have a soil magnesium index of 3. The magnesium applied by the wastes is less than or similar to what is likely to be removed by the next crop so there should be no increase to soil magnesium levels. The amount of magnesium being applied is unlikely to have any noticeable difference on soil structure. The liquid sludges also apply calcium which will help soil aggregation and structure, and the fields are all to be grass cropping.
- 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'. On the other hand, high magnesium soils can reduce potassium availability. Application of liquid wastes at the proposed application rates with little magnesium being applied and potassium also being applied in the wastes (plus the balance of crop requirements for potassium applied as manufactured fertiliser by the farmer) is unlikely to reduce potassium availability.
- Several fields have a soil phosphate index of 3 based on soil analysis undertaken which is above target P index of 2 for grassland soils. Application rates for these fields at soil phosphate index 3 have been set so that phosphate applied by the liquid wastes is no more than 64 kg/ha of total phosphate for the next crops for these fields so there's some rundown of phosphate in the soil through crop offtake. The liquid wastes are providing many benefits through application of other nutrients and trace elements. 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 soil 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 Aberarth-Carreg Wylan SSSI, Caeau Crug Bychan, Ty Gwyn a Llwyn Ysgaw SSSI, Cardigan Bay / Bae Ceredigion SAC and West Wales Marine / Gorllewin Cymru Forol SAC within 500 metres of some fields. 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 wastes will be applied following the Code of Good Agricultural Practice. The application rate for each field will not exceed 50t/ha (or the maximum application rate where lower) in any one application to a field. The fields will be spread using precision spreading dribble bar equipment with no spreading areas enforced as per maps. The fields will be cultivated with the wastes incorporated into the soil within 12 hours when spread prior to planting of the grass crops.
- All handling of the wastes will be in accordance to current regulations and relevant mitigation strategies will be adopted.
- Odour may potentially be emitted from the spreading of the liquid wastes. To mitigate odour generation all handling of waste will be done in accordance to current regulations and relevant mitigation strategies will be adopted. The wastes 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. The fields will be cultivated with the wastes incorporated into the soil within 12 hours when spread prior to planting of the next grass crops. If any odour complaints are received, further odour mitigation methods will be implemented.
- 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.
- Wastes 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. Spreading will be carried out at times of low use & waste will be rapidly soil incorporated and within 12 hours when spread prior to planting of grass crops. A 2 metres no spread buffer will be employed to the footpath along field boundary of field Hafod 1594. The footpath in field Hafod 2312 is in an area of the field marked with a 20 metres no spreading area due to proximity to SSSI / SAC.
- Scheduled monument - Crug-Bychan Round Barrow is approximately 50 metres south-east of field 7025 Hafod 9 at the nearest point.
- 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: 18/05/2026