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:

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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 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid sludge	Dairy Partners, Newcastle Emlyn
02 05 02	Waste from the dairy products industry – sludges from on-site effluent treatment	Liquid sludge	First Milk, Haverfordwest
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Strata Florida WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Bontgoch WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Llechryd WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Preseli WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Bolton Hill WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Bryngwyn WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Capel Dewi WTW
19 09 02	Sludge from water clarification	Liquid sludge	Dwr Cymru Welsh Water Cray WTW

Application:

- The fields will be spread in February – April 2026 prior to first cut silage and following silage cuts May – September 2026. Spreading of these grass fields will be split into up to 5 applications & the total of all applications will not exceed the max application rate for each field as listed in table 1. Each individual application will not exceed 50t/ha in any one application to a field.
- 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 for at least 3 weeks following applications.
- 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 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 off 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 positioned and lowered, then locked into position so the whole tank is on the ground.
- The Permastore Trifusion above ground slurry store 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.
- Wastes of the same waste code may be stored together for operational purposes.
- The wastes may be applied separately or in combination to a field.
- The maximum application rates for each field listed in Table 1 apply to an individual waste being applied to a field 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, sulphur and organic matter. 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 120kg SO_3/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 2-14kg SO_3/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:

The maximum application rates of each of the liquid sludges applied on their own to a field are shown in Table 1 and are listed below:

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
Dairy Partners liquid sludge @ 27 t/ha	65	13	39	24	9	7	2	0	10	2
Dairy Partners liquid sludge @ 55 t/ha	132	26	80	48	19	15	4	0	21	4
First Milk liquid sludge @ 42 t/ha	80	16	40	24	10	8	2	0	12	2
First Milk liquid sludge @ 83 t/ha	158	32	79	48	19	15	4	0	24	5
Estimated Availability	20%		60%		80%		10%		20%	

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
DCWW Strata Florida WTW liquid sludge @ 150 t/ha	49	5	40	8	3	1	2	0	58	6
DCWW Strata Florida WTW liquid sludge @ 250 t/ha	82	8	67	13	5	1	3	1	97	10
DCWW Bontgoch WTW liquid sludge @ 53 t/ha	27	3	40	8	1	0	4	1	18	2
DCWW Bontgoch WTW liquid sludge @ 105 t/ha	53	5	80	16	2	0	7	1	37	4
DCWW Llechryd WTW liquid sludge @ 104 t/ha	31	3	40	8	2	0	4	1	25	3
DCWW Llechryd WTW liquid sludge @ 200 t/ha	60	6	78	16	4	1	9	2	48	5
DCWW Preseli WTW liquid sludge @ 150 t/ha	42	4	40	8	3	1	6	1	62	6
DCWW Preseli WTW liquid sludge @ 250 t/ha	69	7	67	13	6	1	11	2	103	10
DCWW Bolton Hill WTW liquid sludge @ 150 t/ha	61	6	40	8	5	1	12	2	77	8
DCWW Bolton Hill WTW liquid sludge @ 200 t/ha	81	8	53	11	7	1	17	3	102	10
DCWW Bryngwyn WTW liquid sludge @ 200 t/ha	33	3	17	3	4	1	14	3	44	4
DCWW Capel Dewi WTW liquid sludge @ 150 t/ha	39	4	40	8	3	1	13	3	41	4
DCWW Capel Dewi WTW liquid sludge @ 190 t/ha	49	5	51	10	4	1	17	3	52	5
DCWW Cray WTW liquid sludge @ 250 t/ha	39	4	7	1	1	0	4	1	137	14
Estimated Availability	10%		20%		20%		20%		10%	

Application of wastes in combination:

When different wastes are applied to the same field the maximum application rates will be set so that for the total combined amount applied 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 (as listed in Table 1), whichever is the greater, and PTEs applied will remain below annual addition limits. Field 7841 Hafod 8, for the total combined amount applied the total phosphate loading will not exceed 40 kg/ha so that there is run down of phosphate in the soil.

The following example shows the maximum rate of application and nutrient content where 75 t/ha DCWW Bolton Hill WTW liquid water clarification sludge and 75 t/ha Preseli WTW liquid water clarification sludge are both spread on a field.
(No more than 50 t/ha spread in a single application.)

Example:

	Rate of application (t/ha)	**Nitrogen kg/ha**		**Phosphate (P_2O_5) kg/ha**		**Potash (K2O) kg/ha**		**Magnesium (MgO) kg/ha**		**Sulphur (SO3) kg/ha**	
		Total	Available	Total	Available	Total	Available	Total	Available	Total	Available
DCWW Bolton Hill WTW liquid sludge	75	30	3	20	4	3	1	6	1	38	4
DCWW Preseli WTW liquid sludge	75	21	2	20	4	2	0	3	1	31	3
TOTAL	**150**	**51**	**5**	**40**	**8**	**5**	**1**	**9**	**2**	**69**	**7**

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)
Hafod 0720	Medium soils	3.50	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	5	0
Bolafron 1404	Medium soils	2.70	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	5	0
Bolafron 2611	Medium soils	1.60	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	5	0
Bolafron 2893	Medium soils	5.70	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	5	0
Hafod 4315	Medium soils	6.20	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	5	0
Hafod 4734	Medium soils	8.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	5	0
Hafod 5761	Medium soils	6.40	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	1	110	80	2-	280	282	5	0
Hafod 1741	Medium soils	2.30	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	5	0
Hafod 2455	Medium soils	3.00	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	1	320	282	5	0
Hafod 4067	Medium soils	3.60	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	2	80	80	2-	280	282	5	0
7841 Hafod 8	Medium soils	4.70	Grass 3 cuts silage	Grass 3 cuts silage	Moderate	250	3	20	80	1	320	282	2	0
TOTAL		47.70												

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

	Dairy Partners, Newcastle Emlyn - liquid sludge						First Milk, Haverfordwest - liquid sludge						Dwr Cymru Welsh Water Strata Florida WTW - liquid water clarification 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	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	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
Hafod 0720	**26	*80	**15	*4	55	193	**32	*79	**15	*4	83	290	**8	*67	**1	*3	250	875
Bolafron 1404	**26	*80	**15	*4	55	148	**32	*79	**15	*4	83	224	**8	*67	**1	*3	250	675
Bolafron 2611	**26	*80	*19	*4	55	88	**32	*79	*19	*4	83	133	**8	*67	*5	*3	250	400
Bolafron 2893	**26	*80	*19	*4	55	314	**32	*79	*19	*4	83	473	**8	*67	*5	*3	250	1425
Hafod 4315	**26	*80	*19	*4	55	341	**32	*79	*19	*4	83	515	**8	*67	*5	*3	250	1550
Hafod 4734	**26	*80	**15	*4	55	440	**32	*79	**15	*4	83	664	**8	*67	**1	*3	250	2000
Hafod 5761	**26	**48	*19	*4	55	352	**32	**48	*19	*4	83	531	**8	**13	*5	*3	250	1600
Hafod 1741	**26	*80	*19	*4	55	126	**32	*79	*19	*4	83	191	**8	*67	*5	*3	250	575
Hafod 2455	**26	*80	**15	*4	55	165	**32	*79	**15	*4	83	249	**8	*67	**1	*3	250	750
Hafod 4067	**26	*80	*19	*4	55	198	**32	*79	*19	*4	83	299	**8	*67	*5	*3	250	900
7841 Hafod 8	**13	*39	**7	*2	27	127	**16	*40	**8	*2	42	197	**5	*40	**1	*2	150	705
TOTAL						2492						3766						11455

	Dwr Cymru Welsh Water Bontgoch WTW - liquid water clarification sludge						Dwr Cymru Welsh Water Llechryd WTW - liquid water clarification sludge						Dwr Cymru Welsh Water Preseli WTW - liquid water clarification 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	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	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
Hafod 0720	**5	*80	**0	*7	105	368	**6	*78	**1	*9	200	700	**7	*67	**1	*11	250	875
Bolafron 1404	**5	*80	**0	*7	105	283	**6	*78	**1	*9	200	540	**7	*67	**1	*11	250	675
Bolafron 2611	**5	*80	*2	*7	105	168	**6	*78	*4	*9	200	320	**7	*67	*6	*11	250	400
Bolafron 2893	**5	*80	*2	*7	105	599	**6	*78	*4	*9	200	1140	**7	*67	*6	*11	250	1425
Hafod 4315	**5	*80	*2	*7	105	651	**6	*78	*4	*9	200	1240	**7	*67	*6	*11	250	1550
Hafod 4734	**5	*80	**0	*7	105	840	**6	*78	**1	*9	200	1600	**7	*67	**1	*11	250	2000
Hafod 5761	**5	**16	*2	*7	105	672	**6	**16	*4	*9	200	1280	**7	**13	*6	*11	250	1600
Hafod 1741	**5	*80	*2	*7	105	241	**6	*78	*4	*9	200	460	**7	*67	*6	*11	250	575
Hafod 2455	**5	*80	**0	*7	105	315	**6	*78	**1	*9	200	600	**7	*67	**1	*11	250	750
Hafod 4067	**5	*80	*2	*7	105	378	**6	*78	*4	*9	200	720	**7	*67	*6	*11	250	900
7841 Hafod 8	**3	*40	**0	*4	53	249	**3	*40	**0	*4	104	489	**4	*40	**1	*6	150	705
TOTAL						4764						9089						11455

Field Ref.	Dwr Cymru Welsh Water Bolton Hill WTW - liquid water clarification sludge					
	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
Hafod 0720	**8	*53	**1	*17	200	700
Bolafron 1404	**8	*53	**1	*17	200	540
Bolafron 2611	**8	*53	*7	*17	200	320
Bolafron 2893	**8	*53	*7	*17	200	1140
Hafod 4315	**8	*53	*7	*17	200	1240
Hafod 4734	**8	*53	**1	*17	200	1600
Hafod 5761	**8	**11	*7	*17	200	1280
Hafod 1741	**8	*53	*7	*17	200	460
Hafod 2455	**8	*53	**1	*17	200	600
Hafod 4067	**8	*53	*7	*17	200	720
7841 Hafod 8	**6	*40	**1	*12	150	705
TOTAL						**9305**

Field Ref.	Dwr Cymru Welsh Water Bryngwyn WTW - liquid water clarification sludge					
	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
Hafod 0720	**3	*17	**1	*14	200	700
Bolafron 1404	**3	*17	**1	*14	200	540
Bolafron 2611	**3	*17	*4	*14	200	320
Bolafron 2893	**3	*17	*4	*14	200	1140
Hafod 4315	**3	*17	*4	*14	200	1240
Hafod 4734	**3	*17	**1	*14	200	1600
Hafod 5761	**3	**3	*4	*14	200	1280
Hafod 1741	**3	*17	*4	*14	200	460
Hafod 2455	**3	*17	**1	*14	200	600
Hafod 4067	**3	*17	*4	*14	200	720
7841 Hafod 8	**3	*17	**1	*14	200	940
TOTAL						**9540**

Field Ref.	Dwr Cymru Welsh Water Capel Dewi WTW - liquid water clarification sludge					
	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
Hafod 0720	**5	*51	**1	*17	190	665
Bolafron 1404	**5	*51	**1	*17	190	513
Bolafron 2611	**5	*51	*4	*17	190	304
Bolafron 2893	**5	*51	*4	*17	190	1083
Hafod 4315	**5	*51	*4	*17	190	1178
Hafod 4734	**5	*51	**1	*17	190	1520
Hafod 5761	**5	**10	*4	*17	190	1216
Hafod 1741	**5	*51	*4	*17	190	437
Hafod 2455	**5	*51	**1	*17	190	570
Hafod 4067	**5	*51	*4	*17	190	684
7841 Hafod 8	**4	*40	**1	*13	150	705
TOTAL						**8875**

Field Ref.	Dwr Cymru Welsh Water Cray WTW - liquid water clarification sludge					
	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
Hafod 0720	**4	*7	**0	*4	250	875
Bolafron 1404	**4	*7	**0	*4	250	675
Bolafron 2611	**4	*7	*1	*4	250	400
Bolafron 2893	**4	*7	*1	*4	250	1425
Hafod 4315	**4	*7	*1	*4	250	1550
Hafod 4734	**4	*7	**0	*4	250	2000
Hafod 5761	**4	**1	*1	*4	250	1600
Hafod 1741	**4	*7	*1	*4	250	575
Hafod 2455	**4	*7	**0	*4	250	750
Hafod 4067	**4	*7	*1	*4	250	900
7841 Hafod 8	**4	*7	**0	*4	250	1175
TOTAL						**11925**

* 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 Dairy Partner & First Milk liquid sludges are N 20%, P_2O_5 60%, K_2O 80%, MgO 10%, SO_3 20%The assumed availability of total nutrients in the DCWW water clarification sludges are N 10%, P_2O_5 20%, K_2O 20%, MgO 20%, SO_3 10%

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.
- The Dairy Partners & First Milk sludges are from on-site effluent treatment plants and are negative for salmonella and e-coli levels are very low (far lower than in cattle slurry, animal manures, other materials such as treated sewage sludges etc.). As in line with guidance and as a precaution the fields will not be cut for at least 3 weeks following applications.
- Dwr Cymru Welsh Water Bontgoch, Bryngwyn, Capel Dewi, Cray and Llechryd water treatment works use iron-based coagulants to condition the water. The liquid sludges will only be spread on fields with a soil pH of 5.5 or above.
- Dwr Cymru Welsh Water Bolton Hill, Preseli & Strata Florida water treatment works use aluminium-based coagulants to condition the water. The liquid sludges will only be spread on fields with a soil pH of 6.0 or above.
- The pH of the receiving soils ranges from pH 6.1 to 6.3.
- Oils, fats & grease: The Dairy Partners liquid sludge contains 1.77% oils, fats & grease. Application at this percentage is unlikely to have detrimental effects on plant growth which can be seen with wastes containing 4% content or more. As a precaution the sludge will be surface applied with low trajectory dribble bar applicator which places the liquid sludge in bands on surface to reduce leaf contact, and the max application rate for each grass field will be split into up to 4 applications.
- Waste pH: Although the Dairy Partners & First Milk liquid sludges are slightly acidic, they're weakly buffered and unlikely to result in a change in soil pH. The slightly acidic nature is most probably 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 wastes will be carefully monitored, through low rates of individual application and close monitoring of crop health, for any adverse signs resulting from acidity around roots.
- BOD: The BOD of the First Milk liquid sludge is within the range for cattle slurry (10-20,000 mg/l). The BOD of the Dairy Partners liquid sludge is in the range for pig slurry (20-40,000 mg/l). Consequently, the environmental risks applying these wastes will be similar to that of the materials mentioned. To mitigate the pollution risk to watercourses the wastes 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 fields & to 15cm depth for 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.
- The fields apart from field 7841 Hafod 8 have a soil magnesium index of 5. 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. 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 and the fields are all in 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'. The receiving soils for these fields have a magnesium index of 5 or 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 little magnesium being applied and potassium also being applied in the sludge (plus the balance of crop requirements for potassium applied as manufactured fertiliser by the farmer) is unlikely to reduce potassium availability.
- Field 7841 Hafod 8 has a soil phosphate index of 3 based on soil analysis undertaken in March 2025, which is above target P index of 2 for grassland soils. Application rates for this field have been set so that phosphate applied by the liquid sludge is no more than half of the crop offtake of phosphate for the next crop for this field so there's 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 this field 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 field is still above target P index 2 and run down is required.

Operations

The fields in this deployment have been designated as 'medium risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones. On the basis of 'medium risk' the proposed operation will be subject to the generic 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 maximum application rate for each field over 50t/ha will be split into multiple applications and will not exceed 50t/ha 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.
- 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 Dairy Partners and First Milk liquid sludges. 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. If any odour complaints are received, further odour mitigation methods will be implemented.
- The Dwr Cymru Welsh Water liquid water clarification sludges are considered to have no noticeable odour.
- 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. There is a public footpath across field 7841 Hafod 8.
- 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:** 06/01/2026