

Statement of Agricultural Benefit

– Hook Farm & Middle Woodstock 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 addresses:

Hook Farm, Ambleston, Haverfordwest, Pembrokeshire, SA62 5QX

Middle Woodstock Farm, Clarbston Road, Woodstock, Pembrokeshire, SA63 4TG

Wastes to be applied:

Waste Code	Waste Description	Physical Form	Waste Producer
19 09 02	Sludge from water clarification	Sludge cake (stackable)	Dwr Cymru Welsh Water Bolton Hill WTW
19 09 02	Sludge from water clarification	Sludge cake (stackable)	Dwr Cymru Welsh Water Preseli WTW
19 09 02	Sludge from water clarification	Sludge cake (stackable)	Dwr Cymru Welsh Water Llechryd 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 Preseli 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	* Mr Daniel Aneurin Rhodri James, Mrs Carys Ellen James, Mr Gareth Rhodri James, and Mrs Sian James - EPR/DB3590ZP Middle Woodstock Lagoons, Middle Woodstock Farm, Clarbston Road, Woodstock, Pembrokeshire, SA63 4TG

* This waste stream to be applied is from permitted temporary storage facility EPR/DB3590ZP Middle Woodstock Lagoons located at Middle Woodstock Farm. The producer of the waste in temporary storage in this permitted facility is Dwr Cymru Welsh Water and is a mix of liquid water clarification sludges from Bolton Hill, Preseli, Bryngwyn, Capel Dewi, Cray, Hirwaun, Cefn Dryscoed, Llechryd, Strata Florida & Bontgoch water treatment works.

Application:

- Hook Farm field Hook Field 10 and Middle Woodstock Farm field Gwarcoed 15 will be spread in March – April 2026 prior to first cut silage, and following silage cuts May – September 2026. Spreading of these grass fields may be split into up to 5 separate applications for liquid sludge & the total of all applications will not exceed the max application rate for each field as listed in table 1. For liquid sludge each individual application will not exceed 50t/ha in any one application to a field (or the maximum application rate given in Table 1 where lower). For sludge cake, spreading may be split into 2 or 3 separate applications for the Hook Farm fields.
- Hook Farm fields Hook Field 6, 7 & 8 will be spread in September – October 2026 prior to cultivations and establishment of the grass crops with either sludge cake, or an application of liquid sludge up to 50t/ha. The fields may then be spread again in February – March 2027 prior to first cut silage (and prior to expiry of the deployment) with sludge cake or an application of liquid sludge up to 50t/ha. The total of all applications will not exceed the max application rate for each field as listed in table 1. For liquid sludge each individual application will not exceed 50t/ha in any one application to a field.
- Hook Farm fields Hook Field 1, 2 & 20 will be spread in March – July 2026 with sludge cake, or an application up to 50t/ha of liquid sludge prior to cultivations and planting of the cauliflower crops.
- Hook Farm field Hook Field 4 will be spread in March – May 2026 with sludge cake, or an application up to 50t/ha of liquid sludge prior to cultivations and planting of the potatoes.
- Middle Woodstock Farm fields Court Farm 33 & 34 will be spread in March – May 2026 with 2 applications of liquid sludge, each up to 50t/ha into the growing winter barley crops. The applications will be at least 3 weeks apart and no more than 50t/ha in a single application.
- 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.
- The stackable water clarification sludge cakes are delivered to the spreading fields and are stockpiled in temporary field heaps prior to spreading. Spreading of the sludge cakes is undertaken with rear discharge muck spreaders.
- Liquid sludge is either to be spread from EPR/DB3590ZP Middle Woodstock Lagoons for this waste stream on the Middle Woodstock Farm fields, or for the other waste streams they will be delivered and placed into temporary storage in nurse tanks before being spread.
- Spreading 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.
- Should the ground or weather conditions mean it's unsuitable for spreading then temporary storage of liquid sludges in nurse tanks may be required. These potential locations are detailed on the attached field maps & within the LPD1 form.
- The nurse tanks do not have secondary containment, but are impermeable purpose built AW Trailers 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 tanks 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 tanks fill 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 tanks to be completely emptied to the bottom. The tanks are 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 tanks to positioned and lowered, then locked into position so the whole tank is on the ground.
- The nurse tanks will be completely empty before use. Only liquid sludges as specified in this deployment will be stored in the nurse tanks.
- For liquid sludges the maximum application rate will be split into multiple applications. Each individual application will not exceed 50t/ha in any one application to a field.
- The liquid water clarification sludges and sludge cakes may be applied separately or in combination.
- 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 25-160kg SO₃/ha. The amount of available sulphur supplied by the wastes at the proposed maximum application rates is 1-20kg SO₃/ha.
- The addition of organic matter to the soil will help 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.

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 DCWW liquid water clarification sludges & water clarification sludge cakes 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 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
DCWW Bolton Hill WTW sludge cake @ 34 t/ha	67	7	42	8	3	1	6	1	68	7
DCWW Bolton Hill WTW sludge cake @ 40 t/ha	79	8	49	10	4	1	7	1	80	8
DCWW Bolton Hill WTW sludge cake @ 53 t/ha	105	11	65	13	5	1	10	2	106	11
DCWW Bolton Hill WTW sludge cake @ 65 t/ha	129	13	80	16	6	1	12	2	130	13
DCWW Preseli WTW sludge cake @ 38 t/ha	66	7	41	8	2	0	5	1	102	10
DCWW Preseli WTW sludge cake @ 46 t/ha	80	8	50	10	2	0	6	1	123	12
DCWW Preseli WTW sludge cake @ 60 t/ha	104	10	65	13	3	1	8	2	160	16
DCWW Preseli WTW sludge cake @ 73 t/ha	126	13	79	16	4	1	10	2	195	20
DCWW Llechryd WTW sludge cake @ 34 t/ha	51	5	41	8	4	1	13	3	53	5
DCWW Llechryd WTW sludge cake @ 41 t/ha	62	6	50	10	4	1	16	3	64	6
DCWW Llechryd WTW sludge cake @ 53 t/ha	80	8	64	13	6	1	20	4	82	8
DCWW Llechryd WTW sludge cake @ 65 t/ha	98	10	79	16	7	1	25	5	101	10
Estimated Availability	10%		20%		20%		20%		10%	

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
DCWW Bolton Hill WTW liquid sludge @ 50 t/ha	20	2	13	3	2	0	4	1	26	3
DCWW Bolton Hill WTW liquid sludge @ 100 t/ha	40	4	27	5	3	1	8	2	51	5
DCWW Bolton Hill WTW liquid sludge @ 200 t/ha	81	8	53	11	7	1	17	3	102	10
DCWW Bolton Hill WTW liquid sludge @ 250 t/ha	101	10	66	13	9	2	21	4	128	13
DCWW Preseli WTW liquid sludge @ 50 t/ha	14	1	13	3	1	0	2	0	21	2
DCWW Preseli WTW liquid sludge @ 100 t/ha	28	3	27	5	2	0	4	1	41	4
DCWW Preseli WTW liquid sludge @ 200 t/ha	56	6	54	11	5	1	9	2	82	8
DCWW Preseli WTW liquid sludge @ 250 t/ha	69	7	67	13	6	1	11	2	103	10
DCWW Llechryd WTW liquid sludge @ 50 t/ha	15	1	19	4	1	0	2	0	12	1
DCWW Llechryd WTW liquid sludge @ 100 t/ha	30	3	39	8	2	0	4	1	24	2
DCWW Llechryd WTW liquid sludge @ 143 t/ha	43	4	56	11	3	1	6	1	35	3
DCWW Llechryd WTW liquid sludge @ 200 t/ha	60	6	78	16	4	1	9	2	48	5
EPR/DB3590ZP Middle Woodstock Lagoons - liquid sludge @ 100 t/ha	10	1	1	0	1	0	2	0	35	3
EPR/DB3590ZP Middle Woodstock Lagoons - liquid sludge @ 250 t/ha	25	3	3	1	3	1	4	1	86	9
Estimated Availability	10%		20%		20%		20%		10%	

Application of wastes in combination:

When more than one waste is applied to the same field the maximum application rate will be set so that 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 (as listed in Table 1), whichever is the greater. Field Gwarcoed 15, for the total combined amount applied the total phosphate loading will not exceed 56 kg/ha so that there's some run down of phosphate in the soil.

The following example shows the maximum rate of application and nutrient content applied based on 100t/ha EPR/DB3590ZP Middle Woodstock Lagoons liquid water clarification sludge and 150t/ha Bolton Hill WTW liquid water clarification sludge being applied to field Gwarcoed 15. (No more than 50t/ha of liquid water clarification sludge spread in a single application)

Example:

	Rate 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
EPR/DB3590ZP Middle Woodstock Lagoons liquid sludge	100	10	1	1	0	1	0	2	0	35	3
DCWW Bolton Hill WTW liquid sludge	150	61	6	40	8	5	1	12	2	77	8
TOTAL	250	71	7	41	8	6	1	14	2	112	11

Field Ref.	Dwr Cymru Welsh Water Bolton Hill WTW - liquid water clarification sludge							Dwr Cymru Welsh Water Preseli WTW - liquid water clarification sludge							Dwr Cymru Welsh Water Llechryd WTW - liquid water clarification sludge							
	Total N Applied - Waste (kg/ha)	Crop Available 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	Total N Applied - Waste (kg/ha)	Crop Available 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	Total N Applied - Waste (kg/ha)	Crop Available 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	
Hook Farm																						
Hook Field 1	20	2	*13	*2	*4	50	290	14	1	*13	*1	*2	50	290	15	1	*19	*1	*2	50	290	
Hook Field 2	20	2	*13	*2	*4	50	180	14	1	*13	*1	*2	50	180	15	1	*19	*1	*2	50	180	
Hook Field 4	20	2	*13	*2	*4	50	250	14	1	*13	*1	*2	50	250	15	1	*19	*1	*2	50	250	
Hook Field 6	40	4	*27	*3	*8	100	380	28	3	*27	*2	*4	100	380	30	3	*39	*2	*4	100	380	
Hook Field 7	40	4	*27	*3	*8	100	280	28	3	*27	*2	*4	100	280	30	3	*39	*2	*4	100	280	
Hook Field 8	40	4	*27	*3	*8	100	480	28	3	*27	*2	*4	100	480	30	3	*39	*2	*4	100	480	
Hook Field 10	101	10	*66	*9	*21	250	1950	69	7	*67	*6	*11	250	1950	60	6	*78	*4	*9	200	1560	
Hook Field 20	20	2	*13	*2	**1	50	165	14	1	*13	*1	**0	50	165	15	1	*19	*1	**0	50	165	
Middle Woodstock Farm																						
Gwarcoed 15	81	8	*53	*7	*17	200	500	56	6	*54	*5	*9	200	500	43	4	*56	*3	*6	143	358	
Court Farm 33	40	4	*27	**1	*8	100	220	28	3	*27	**0	*4	100	220	30	3	*39	**0	*4	100	220	
Court Farm 34	40	4	*27	**1	*8	100	90	28	3	*27	**0	*4	100	90	30	3	*39	**0	*4	100	90	
TOTAL							4785						4785								4253	

EPR/DB35902P Middle Woodstock Lagoons, Middle Woodstock Farm, Clarboston Road, Woodstock, Pembrokeshire, SA63 4TG - liquid water clarification sludge							
Field Ref.	Total N Applied - Waste (kg/ha)	Crop Available 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
Hook Farm							
Hook Field 1						0	0
Hook Field 2						0	0
Hook Field 4						0	0
Hook Field 6						0	0
Hook Field 7						0	0
Hook Field 8						0	0
Hook Field 10						0	0
Hook Field 20						0	0
Middle Woodstock Farm							
Gwarcoed 15	25	3	*3	*3	*4	250	625
Court Farm 33	10	1	*1	**0	*2	100	220
Court Farm 34	10	1	*1	**0	*2	100	90
TOTAL							935

* 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 water clarification sludges are N 10%, P₂O₅ 20%, K₂O 20%, MgO 20%, SO₃ 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.
- Dwr Cymru Welsh Water Llechryd water treatment works use iron-based coagulants to condition the water. The sludges will only be spread on fields with a soil pH of 5.5 or above.
- Dwr Cymru Welsh Water Bolton Hill & Preseli water treatment works use aluminium-based coagulants to condition the water. The liquid sludges & sludge cake will only be spread on fields with a soil pH of 6.0 or above.
- The liquid water clarification sludge from EPR/DB3590ZP Middle Woodstock Lagoons contains a mix of Dwr Cymru Welsh Water liquid water clarification sludges from water treatment works using iron-based & aluminium-based coagulants to condition the water. As such, the liquid sludge will only be spread on fields with a soil pH of 6.0 or above
- The pH of the receiving soils ranges from pH 6.4 to 7.8.
- Soils have been sampled to 15cm depth for temporary grass & 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 Hook Field 7, Hook Field 8 and Gwarcoed 15 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 sludge cakes and liquid sludges also apply organic matter 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 grass fields have a magnesium index of 3 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.
- The Hook Farm fields have a soil phosphate index of 3 based on soil analysis undertaken in August 2024 & November 2025, which is at soil target P index of 3 for the veg fields, but is above soil target P index of 2 for the grass fields. These fields at Hook Farm all feature veg in the crop rotation with veg having a higher target P index of 3, and as a result the farm is maintaining soil P indices at target index 3 for veg. Application rates for these fields have been set so that phosphate applied is no more than crop offtake of total phosphate for the next crop for these fields so there's no increase of phosphate in the soil for these fields.
- Middle Woodstock Farm field Gwarcoed 15 has a soil phosphate index of 3 based on soil analysis undertaken in December 2025 which is above soil target P index of 2 for grassland soils. Application rates for this field have been set so that phosphate applied by the liquid sludges is less than crop offtake of total phosphate for the next crop for these fields so there's some rundown of phosphate in the soil through crop offtake. The liquid sludges are 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 'high risk' following site checks on the proximity to surrounding protected areas (e.g. SSSIs) and groundwater source protection zones as some fields at Hook Farm are within 500m of Afon Cleddau Gorllewinol / Western Cleddau River SSSI, Afon Cleddau Dwyreiniol / Eastern Cleddau River SSSI, Wallis Moor SSSI & Afonydd Cleddau / Cleddau Rivers 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 wastes will be applied following the Code of Good Agricultural Practice. The maximum application rate for each field over 50t/ha where spread with liquid sludges 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 for liquid sludges and with rear discharge muck spreaders for sludge cakes, 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.
- The liquid water clarification sludges and water clarification sludge cakes 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.
- Liquid sludges will be spread on delivery or temporarily securely stored as stated above. The water clarification sludge cakes will be stockpiled in field heaps prior to being spread. 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 and/or lifted out of the soil 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 through the fields to be spread.
- The Hook Farm fields except Hook Field 20 are in a designated Marsh Frithillary butterflies protected species area.
- 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: 17/02/2026