Agricultural Benefit Statement

For the application of beneficial wastes to fields at;

Henllys, Llanfair TH, Abergele, Conwys, LL22 8TF

19th January 2026

1 Person with appropriate technical expertise and permit details

This benefit statement has been compiled by Dawn Loos (Lead 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
- Facts Qualified Advisor (FE/7676)

Verified by Jonathan Lloyd; FACTS Qualified Advisor (No. FE/ 4524)
Permit number under which this deployment application is being made: EPR/GP3792SK

2 Where the waste is to be spread

Table 1. Where the waste is to be spread

Farm address:	Henllys, Llanfair TH, Abergele, Conwys, LL22 8TF	
Stockpile grid reference:	Refer to Table 4	
Area of the receiving land:	49.15 ha	
Quantity to be stored at any one time:	Stackable: 0	Non-Stackable: 0
Total maximum quantity to be spread:	12,288 t	
Location map document reference:	H-01	

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 09 02	Sludges from water clarification. Potable water treatment effluent.	4Recycling Ltd (Henllys Lagoon EPR/ DB3597HD)	Non-stackable ferric liquid sludge originally produced by DCWW Bryn Cowlyd and stored in permitted lagoon. This will be the only waste stored in this lagoon.
2	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Bala	Non-stackable alum liquid sludge
3	19 09 02	Sludges from water clarification. Potable water treatment effluent.	DCWW Cefni	Non-stackable alum liquid sludge
4	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Cwellyn	Non-stackable alum liquid sludge
5	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Dolbenmaen	Non-stackable alum liquid sludge
6	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Gwastadgoed	Non-stackable ferric liquid sludge
7	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Mynydd Llandegaai	Non-stackable alum liquid sludge
8	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Llyn Conwy	Non-stackable ferric liquid sludge
9	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Penybont	Non-stackable alum liquid sludge
10	19 09 02	Sludges from water clarification. Potable water treatment effluent	DCWW Rhiwgoch	Non-stackable ferric liquid sludge

4 Operational details

4.1 Cropping details

Table 3. Cropping details

Current crop including projected yield if known:	Refer to tables 6-15
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 6-15
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), Farming Rules for Water, NVZ regulations and the permit holder's Environmental Management System (EMS). Spreading will also comply with the Water Resources (Control of Agricultural Pollution) Wales Regulations 2021, Targeted periods of spreading on grass fields will be between February - May and after any silage cuts, June through to October. This will allow time for grassland fields to have use of late autumn grazing. No more than 50t/ha of liquid sludge 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. Wastes application will commence from the deployment issue date, as soon as ground, weather, and crop conditions are favourable. Wastes will be split into applications of 50 tons per hectare, as explained above, until the capacity is reached. This is in order to reduce the chances of run off.

4.2 Waste storage

Table 4. Waste storage

How is the waste to be stored? *e.g. mobile tank, field heap, spread on delivery*	NA
Where is the waste to be stored prior to spreading?	NA

Why were these storage locations chosen?	NA
Additional storage information	One waste stream – 4Recycling/Bryn Cowlyd will be stored under a separate permit

4.3 Waste application

Table 5. Waste application

How is the waste to be spread and why is it to be spread that way?	Liquid sludges will be surface spread by tractor and tanker using a low-trajectory splash plate.
How do you plan to incorporate the waste following application?	There is no requirement for further incorporation of wastes due to low ammonia content and minimal odour.
With liquid wastes is there any mole draining or sub-soiling planned? *Are there land drains in the field?*	No No
Other relevant operational information:	The wastes may be applied separately or in combination. If the wastes are applied in combination the total combined amount applied will not exceed 250t/ha, the total nitrogen loading will be less than 250kg/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.

Table 6. DCWW Bryn Cowlyd

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	1.5	2	98	75	66.9*	0	300	248	4.7	2	0	1.2	250	250
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	33.4	1	270	248	4..7	3	0	1.2	250	250
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	1.5	2	98	75	66.9*	2-	255	248	5.2*	2	0	1.2	250	375
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	1.5	1	143	75	33.4	1	270	248	4..7	2	0	1.2	250	875
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	33.4	1	270	248	4..7	2	0	1.2	250	613
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	1.5	2	98	75	66.9*	1	270	248	4..7	2	0	1.2	250	615
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	1.5	2	98	75	66.9*	2-	255	248	5.2*	2	0	1.2	250	418
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	1.5	2	98	75	66.9*	2-	255	248	5.2*	2	0	1.2	250	720
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	1.5	2	98	75	66.9*	1	270	248	4..7	2	0	1.2	250	875
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	1.5	1	142	75	33.4	1	270	248	4..7	2	0	1.2	250	950
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	1.5	2	98	75	66.9*	2-	255	248	5.2*	2	0	1.2	250	938
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	1.5	2	98	75	66.9*	2-	255	248	5.2*	2	0	1.2	250	2125
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	33.4	1	270	248	4..7	2	0	1.2	250	563
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	1.5	1	143	75	33.4	1	270	248	4..7	2	0	1.2	250	860
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	1.5	1	143	75	33.4	1	270	248	4..7	2	0	1.2	250	1863
Total (Ha)	**60.85**	**49.15**																			12288

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 50.6 kg/ha

Table 7. DCWW Bala

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	1.5	2	98	75	6.7*	0	300	248	0.6	2	0	4.3	**250**	**250**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	3.4	1	270	248	0.6	3	0	4.3	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	3.4	1	270	248	0.6	2	0	4.3	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	1.5	2	98	75	6.7*	2-	255	248	0.6	2	0	4.3	**250**	**720**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	1.5	2	98	75	6.7*	1	270	248	0.6	2	0	4.3	**250**	**875**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	1.5	2	98	75	6.7*	2-	255	248	0.6	2	0	4.3	**250**	**2125**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	3.4	1	270	248	0.6	2	0	4.3	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5395**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 69.9 kg/ha

Table 8. DCWW Cefni

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	**Total Area**	**Sprd Area**	**Current Crop**	**Next Crop**	**pH**	**SNS**	**Recc**	***In Waste**	**P Ind**	**Recc**	**Crop Use**	***In Waste**	**K Ind**	**Recc**	**Crop Use**	***In Waste**	**Mg Ind**	**Recc**	***In waste**	**Total rate**	**Totals**
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	3.2	2	98	75	67.1*	0	300	248	4.7	2	0	2.0	**250**	**250**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	3.2	1	143	75	33.5	1	270	248	4.7	3	0	2.0	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	3.2	0	188	75	33.5	1	270	248	4.7	2	0	2.0	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	3.2	2	98	75	67.1*	2-	255	248	5.3*	2	0	2.0	**250**	**720**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	3.2	2	98	75	67.1*	1	270	248	4.7	2	0	2.0	**250**	**875**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	3.2	2	98	75	67.1*	2-	255	248	5.3*	2	0	2.0	**250**	**2125**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	3.2	1	143	75	33.5	1	270	248	4.7	2	0	2.0	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5395**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 77.4 kg/ha

Table 9. DCWW Cwellyn

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	**Total Area**	**Sprd Area**	**Current Crop**	**Next Crop**	**pH**	**SNS**	**Recc**	***In Waste**	**P Ind**	**Recc**	**Crop Use**	***In Waste**	**K Ind**	**Recc**	**Crop Use**	***In Waste**	**Mg Ind**	**Recc**	***In waste**	**Total rate**	**Totals**
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	2.7	2	98	75	67.8*	0	300	248	4.8	2	0	2.1	**250**	**250**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	2.7	1	143	75	33.9	1	270	248	4.8	3	0	2.1	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	2.7	0	188	75	33.9	1	270	248	4.8	2	0	2.1	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	2.7	2	98	75	67.8*	2-	255	248	5.3*	2	0	2.1	**250**	**720**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	2.7	2	98	75	67.8*	1	270	248	4.8	2	0	2.1	**250**	**875**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	2.7	2	98	75	67.8*	2-	255	248	5.3*	2	0	2.1	**250**	**2125**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	2.7	1	143	75	33.9	1	270	248	4.8	2	0	2.1	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5395**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

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To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 129.4 kg/ha

Table 10. DCWW Dolbenmaen

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	3.2	2	98	75	66.4*	0	300	248	4.7	2	0	1.1	**250**	**250**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	3.2	1	143	75	33.2	1	270	248	4.7	3	0	1.1	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	3.2	0	188	75	33.2	1	270	248	4.7	2	0	1.1	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	3.2	2	98	75	66.4*	2-	255	248	5.2*	2	0	1.1	**250**	**720**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	3.2	2	98	75	66.4*	1	270	248	4.7	2	0	1.1	**250**	**875**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	3.2	2	98	75	66.4*	2-	255	248	5.2*	2	0	1.1	**250**	**2125**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	3.2	1	143	75	33.2	1	270	248	4.7	2	0	1.1	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5395**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 92.4kg/ha

Table 11. DCWW Gwastadgoed

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	**Total Area**	**Sprd Area**	**Current Crop**	**Next Crop**	**pH**	**SNS**	**Recc**	***In Waste**	**P Ind**	**Recc**	**Crop Use**	***In Waste**	**K Ind**	**Recc**	**Crop Use**	***In Waste**	**Mg Ind**	**Recc**	***In waste**	**Total rate**	**Totals**
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	1.5	2	98	75	65.1*	0	300	248	4.6	2	0	1.4	**250**	**250**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	32.6	1	270	248	4.6	3	0	1.4	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	1.5	2	98	75	65.1*	2-	255	248	5.1*	2	0	1.4	**250**	**375**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	1.5	1	143	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**875**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	1.5	2	98	75	65.1*	1	270	248	4.6	2	0	1.4	**250**	**615**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	1.5	2	98	75	65.1*	2-	255	248	5.1*	2	0	1.4	**250**	**418**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	1.5	2	98	75	65.1*	2-	255	248	5.1*	2	0	1.4	**250**	**720**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	1.5	2	98	75	65.1*	1	270	248	4.6	2	0	1.4	**250**	**875**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	1.5	1	142	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**950**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	1.5	2	98	75	65.1*	2-	255	248	5.1*	2	0	1.4	**250**	**938**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	1.5	2	98	75	65.1*	2-	255	248	5.1*	2	0	1.4	**250**	**2125**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	1.5	1	143	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**860**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	1.5	1	143	75	32.6	1	270	248	4.6	2	0	1.4	**250**	**1863**
Total (Ha)	**60.85**	**49.15**																			**12288**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 59.1kg/ha

Table 12. Mynydd Llandegaai

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	1.4	2	98	75	74.8*	0	300	248	4.2	2	0	2.1	**226**	**226**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	41.1	1	270	248	4.7	3	0	2.4	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	41.4	1	270	248	4.7	2	0	2.4	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	1.4	2	98	75	74.8*	2-	255	248	4.7*	2	0	2.1	**226**	**651**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	1.4	2	98	75	74.8*	1	270	248	4.2	2	0	2.1	**226**	**791**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	1.4	2	98	75	74.8*	2-	255	248	4.7*	2	0	2.1	**226**	**1921**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	41.4	1	270	248	4.7	2	0	2.4	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5014**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 106.3 kg/ha

Table 13. Llyn Conwy

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	0.7	2	98	75	74.7*	0	300	248	5.3	2	0	0.9	**110**	**110**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	84.9	1	270	248	12	3	0	1.9	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.7	2	98	75	74.7*	2-	255	248	5.9*	2	0	0.9	**110**	**165**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	1.5	1	143	75	84.9	1	270	248	12	2	0	1.9	**250**	**875**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	84.9	1	270	248	12	2	0	1.9	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.7	2	98	75	74.7*	1	270	248	5.3	2	0	0.9	**110**	**271**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.7	2	98	75	74.7*	2-	255	248	5.9*	2	0	0.9	**110**	**184**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	0.7	2	98	75	74.7*	2-	255	248	5.9*	2	0	0.9	**110**	**317**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	0.7	2	98	75	74.7*	1	270	248	5.3	2	0	0.9	**110**	**385**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	1.5	1	142	75	84.9	1	270	248	12	2	0	1.9	**250**	**950**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.7	2	98	75	74.7*	2-	255	248	5.9*	2	0	0.9	**110**	**413**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	0.7	2	98	75	74.7*	2-	255	248	5.9*	2	0	0.9	**110**	**935**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	84.9	1	270	248	12	2	0	1.9	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	1.5	1	143	75	84.9	1	270	248	12	2	0	1.9	**250**	**860**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	1.5	1	143	75	84.9	1	270	248	12	2	0	1.9	**250**	**1863**
Total (Ha)	**60.85**	**49.15**																			**8751**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 72.7 kg/ha

Table 14. Penybont

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	**Total Area**	**Sprd Area**	**Current Crop**	**Next Crop**	**pH**	**SNS**	**Recc**	***In Waste**	**P Ind**	**Recc**	**Crop Use**	***In Waste**	**K Ind**	**Recc**	**Crop Use**	***In Waste**	**Mg Ind**	**Recc**	***In waste**	**Total rate**	**Totals**
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	1.4	2	98	75	74.5*	0	300	248	4.3	2	0	3.1	**232**	**232**
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	40.3	1	270	248	4.7	3	0	3.4	**250**	**250**
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	40.3	1	270	248	4.7	2	0	3.4	**250**	**613**
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.0	2	98	75	0	1	270	248	0	2	0	0.0	**0**	**0**
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	1.4	2	98	75	74.5*	2-	255	248	4.8*	2	0	3.1	**232**	**668**
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	1.4	2	98	75	74.5*	1	270	248	4.3	2	0	3.1	**232**	**812**
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	0.0	1	142	75	0	1	270	248	0	2	0	0.0	**0**	**0**
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.0	2	98	75	0	2-	255	248	0	2	0	0.0	**0**	**0**
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	1.4	2	98	75	74.5*	2-	255	248	4.8*	2	0	3.1	**232**	**1972**
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	40.3	1	270	248	4.7	2	0	3.4	**250**	**563**
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	0.0	1	143	75	0	1	270	248	0	2	0	0.0	**0**	**0**
Total (Ha)	**60.85**	**49.15**																			**5109**

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 56.8 kg/ha

Table 15. Rhiwgoch

Nutrient Chart - Henllys

						N			P_2O_5				K_2O				Mg				
Field Reference	Total Area	Sprd Area	Current Crop	Next Crop	pH	SNS	Recc	*In Waste	P Ind	Recc	Crop Use	*In Waste	K Ind	Recc	Crop Use	*In Waste	Mg Ind	Recc	*In waste	Total rate	Totals
1 SH 89879 67828	1.42	1.00	GRASS	GRASS	6.20	M	220	0.8	2	98	75	74.5*	0	300	248	2.4	2	0	0.4	129	129
2 SH 89952 67762	1.84	1.00	GRASS	GRASS	6.40	M	220	1.5	1	143	75	72.2	1	270	248	4.7	3	0	0.8	250	250
3 SH 89760 67671	1.93	1.50	GRASS	GRASS	5.60	M	220	0.8	2	98	75	74.5*	2-	255	248	2.7*	2	0	0.4	129	194
5 SH 90003 67569	4.12	3.50	GRASS	GRASS	5.50	M	220	1.5	1	143	75	72.2	1	270	248	4.7	2	0	0.8	250	875
7 SH 90128 67258	3.12	2.45	GRASS	GRASS	6.30	M	220	1.5	0	188	75	72.2	1	270	248	4.7	2	0	0.8	250	613
11 SH 89801 67059	2.88	2.46	GRASS	GRASS	5.50	M	220	0.8	2	98	75	74.5*	1	270	248	2.4	2	0	0.4	129	317
12 SH 89684 67282	2.17	1.67	GRASS	GRASS	5.60	M	220	0.8	2	98	75	74.5*	2-	255	248	2.7*	2	0	0.4	129	215
13 SH 89623 67140	3.30	2.88	GRASS	GRASS	6.40	M	220	0.8	2	98	75	74.5*	2-	255	248	2.7*	2	0	0.4	129	372
14 SH 89683 66937	4.25	3.50	GRASS	GRASS	6.30	M	220	0.8	2	98	75	74.5*	1	270	248	2.4	2	0	0.4	129	452
15 SH 90419 67561	5.10	3.80	GRASS	GRASS	5.70	M	220	1.5	1	142	75	72.2	1	270	248	4.7	2	0	0.8	250	950
17 SH 90094 67992	4.30	3.75	GRASS	GRASS	5.90	M	220	0.8	2	98	75	74.5*	2-	255	248	2.7*	2	0	0.4	129	484
18 SH 90212 68300	10.16	8.50	GRASS	GRASS	6.00	M	220	0.8	2	98	75	74.5*	2-	255	248	2.7*	2	0	0.4	129	1097
19 SH 90203 68539	3.20	2.25	GRASS	GRASS	6.20	M	220	1.5	1	143	75	72.2	1	270	248	4.7	2	0	0.8	250	563
20 SH 90466 68572	4.36	3.44	GRASS	GRASS	5.80	M	220	1.5	1	143	75	72.2	1	270	248	4.7	2	0	0.8	250	860
21 SH 90533 68931	8.70	7.45	GRASS	GRASS	5.90	M	220	1.5	1	143	75	72.2	1	270	248	4.7	2	0	0.8	250	1863
Total (Ha)	**60.85**	**49.15**																			9231

Grass = 2 silage cuts + grazing

SNS based on excess winter rainfall of >400mm, soil type and previous cropping.

Soil type :Soilscapes (13) Freely draining acid loamy soils over rock.

Recommendations based on the following (as per RB209, 2023) :

Soil analysis (pH, P,K) based on sample data, where multiple soil samples have been collected per field, highest value (index or pH) has been selected for each field.

Crop use based on **Grass** totalling **38t/ha** yield (25%DM) where **1.7kg/t P^2O^5** and **6kg/t K^2O** removed in offtake

To account for aftermath grazing 1/2 of the P & K requirements for grazing have been added and 10 kg/ha P and 20kg/ha K added for crop use.

N,P_2O_5,K_2O and Mg stated are **Available** concentrations in kg/ha

***Total** P2O5 and K2O stated where soil indices >2

Availability of nutrients in waste - N measured as NH4,P2O5 50%,K2O 90% Mg 10%

Total N Supplied at max application rate of 250t/ha is 63.3kg/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 ☐ (skip to section 6)</td></tr>
<tr><td>Do closed periods apply for the wastes to be applied?</td><td>Y ☐ N ☒

Applicable to: NA

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, refer to table 6 – 15</td></tr>
<tr><td>Previous applications:</td><td>None</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 6-15 above. General soil type(s) for the fields to be registered are:

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 ample background concentrations of Mg (*i.e.,* ADAS Index of 2-3). However, for livestock management, if grass magnesium concentration is low, animals can be at risk of hypomagnesaemia, so applying more Mg to the soil can raise herbage Mg content to safer levels.

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 tables 6-15 above.

Limiting factors for the different wastes are as follows:

- Total max application rate (250t/ha): DCWW Bryn Cowlyd, Bala, Cefni, Cwellyn, Dolbenmaen, Gwastadgoed, Mynydd Llandegaai, Llyn Conwy, Penybont, Rhiwgoch.
- Phosphorous: DCWW Mynydd Llandegaai, Llyn Conwy, Penybont, Rhiwgoch.
- Alum based sludges not spread on fields below pH 6.

Important information

- DCWW report all their analysis on a dry matter basis, including the liquid treatment sludges, unless otherwise stated.

6.3 *Summary of benefits*

These wastes are a source of essential elements RAN, 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 Tables 6-11 are based on the crop requirement and soil analysis.

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.

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

7.1 *Potentially Toxic Elements (PTEs)*

All 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 levels in the wastes range from 5.7-7.

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 between 5.5 and 6.4, 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.

The potable water treatment sludges contain varying amounts of Al and Fe due to the flocculation process in the water treatment. At low pH (<6.0), aluminium can potentially transform into the toxic Al^{3+} species, it is therefore necessary to avoid spreading Al flocculated wastes on fields with pH <6.0 as this can cause stunt root growth and induced phosphate deficiency in crops. Additionally, care will be taken to prevent the waste entering a watercourse because aluminium can harm aquatic life. This will be achieved through observing buffer zones as per the location plan and the SSRA. Also, watercourses will be checked before, during and following spreading.

Iron flocculated wastes also have potential disbenefits if applied to inappropriate soils. Spreading high Fe wastes onto soils with pH < 5.0 is not recommended. Spreading onto fields with soil pH between 5.0- 5.5 requires consideration and possible mitigation. Due to potential for Fe-oxide formation which can reduce P_2O_5 mobility, spreading of Fe-flocculated wastes onto fields that are pH 5.0-5.5 has been avoided.
.

7.3 *Operational factors*

1. Liquid wastes will be surface spread, applied using a low trajectory splash plate.

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. Sampling methods will be consistent with those set out in the RB209, and the analysis for PTEs are consistent with the code of agricultural practice.
4. 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 Practices to reduce the impacts of the operation on identified sensitive receptors

Three sensitive receptors have been identified in the greater surrounding area as per the attached spreading maps and SSRA, and have the appropriate buffers in place.
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. Liquid spreading machinery will be turned off and lifted away from soil prior to turning at the end of each run.
5. Machinery will be checked daily when in use, regularly serviced and spreading equipment calibrated. Umbilical hoses will be regularly checked for damage to prevent leaks.
6. Machinery turns will not be executed in the buffer strips.
7. All spillages will be reported immediately to the EA.

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

In circumstances where the wastes cannot be spread beyond normal capacities, wastes will be diverted to a local alternative deployment or their point of origin.

10 Nominated Competent Person

The NCP works remotely to the 4R Office in Newent and is available to be on site within 2 hours of the spreading time. They will also be on site within 4 hours at any other time in accordance with rule 1.1.1 of the Landspreading: how to comply with your permit guidance.