



Application for an environmental permit: Part LPD1 – Application for a deployment

1091 - The Firs

Use this form for deployments for the landspreading of waste where the operator holds a permit for any of the following standard rules:

- SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit);
- SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land;
- SR2010No6 Mobile plant for landspreading of sewage sludge; or a
- Bespoke mobile plant permit for landspreading or land reclamation.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that

come with it. All relevant guidance documents can be found on our website.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

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Natural Resources Wales
Fully Received

21 JUN 2019

Cardiff

1 About the permit

1a Discussions before your application

If you have had discussions with us before your application, give us the case reference or details on a separate sheet.

Case or document reference

1b Permit number

Permit number this application relates to

FB3606GC

1c What type of permit do you want to deploy under? (Please tick)

- SR2010No4 Mobile plant for landspreading (land treatment resulting in agricultural or ecological benefit) ☒
- SR2010No5 Use of mobile plant for land reclamation, restoration or improvement of land ☐
- SR2010No6 Mobile plant for landspreading of sewage sludge ☐
- Bespoke mobile plant permit for landspreading or reclamation, restoration or improvement of land ☐

2 About you

Please give us details of the permit holder. For companies, the details must match Companies House.

Organisation name (if relevant)

Agrispread Ltd

Title

Mr

First name

R & R

Last name

Piggott

Address

22 Coniston Drive

	Frodsham
	Frodsham
	Cheshire
Postcode	WA6 7LR
Telephone - mobile	
Telephone - office	01978 661866
Email address	agrispreadltd@gmail.com

If you are applying as an organisation of individuals, every partner needs to give us their details, including their title. If necessary, continue on a separate sheet and tell us the reference you have given the sheet.

Document reference	
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3 Contact details

Who can we talk to about your application? This can be someone acting as a consultant or 'agent' for you.

Title	Mr	
First name	Richard	
Last name	Street	
Telephone - mobile		
Telephone - office	01978 661866	
Email address	agrispreadltd@gmail.com	

4 About the deployment

4a Multiple deployments for one area of land

You may spread more than 10 waste streams on the same area of land, provided you submit additional fully completed deployment forms listing the additional wastes. Your benefit statement must take into account the total benefit to the land of all wastes to be spread.

Is this deployment one of a batch (multiple deployments) for the same area of land?

No ☒ *Go to section 4b*

Yes ☐ How many deployments are in the batch?

4b Nominated competent person

4b1 Give us details of the nominated competent person. This is the person who will be responsible for compliance with the permit for this deployment. See the guidance notes on LPD1 for further details.

Title	Mr	
First name	Richard	
Last name	Street	
Telephone - mobile		

Telephone - office

01978 661866

Email address

agrispreadltd@gmail.com

4b2 What evidence are you using to show the nominated competent person has suitable technical skills and knowledge to manage the activity?

An approved technical scheme ☒ *Go to section 4b3*

Documented in-house training ☐ You must provide evidence – see below.

You must provide evidence to show the documented in-house training meets the requirements set out in technical guidance. See the guidance notes on LPD1 for further details and give us the document reference.

Document reference

Go to section 4c

4b3 Which approved scheme are you using to show you have the suitable technical skills and knowledge to manage your facility?

CIWM / WAMITAB ☒

ESA / EU ☐

4b4 Tick to confirm you've included all original *and* continuing competence evidence.

☒

4c Which risk band does the activity fall within?

Please complete Table 1 below to indicate which risk band your activity falls within. This is a combination of waste types and proximity to sensitive receptors.

Once you have selected the risk band your activity falls within, the form guidance tells you what additional information you need to send with the application.

The risk banding affects the fee you need to send with your deployment application. See section 6.

Table 1 – risk band

Permit type	Lower risk location	High risk location	
	<ul style="list-style-type: none"> - Not in an SPZ 2, and/or - Over 500 meters from: <ul style="list-style-type: none"> • European site, and/or • Ramsar, and/or • SSSI 	<ul style="list-style-type: none"> - In a Source Protection Zone 2, and/or - 500 meters or less from: <ul style="list-style-type: none"> • European site, and/or • Ramsar, and/or • SSSI <p>You must submit a site specific risk assessment.</p>	
SR2010No4 List A wastes (Lower risk)	Low risk deployment <input type="checkbox"/>	Medium risk (2) deployment <input type="checkbox"/>	
SR2010No4 List B wastes (Higher risk)	Medium risk (1) deployment <input type="checkbox"/>	High risk deployment <input checked="" type="checkbox"/>	
SR2010No5 (Any waste listed)	Medium risk (1) deployment <input type="checkbox"/>	High risk deployment <input type="checkbox"/>	
SR2010No6 (Any waste listed)	Medium risk (1) deployment <input type="checkbox"/>	High risk deployment <input type="checkbox"/>	
Bespoke mobile plant permit	Low risk deployment <input type="checkbox"/>	Medium risk deployment <input type="checkbox"/>	High risk deployment <input type="checkbox"/>

4d Additional information on sensitive receptors

Is the deployment within an SPZ 2 and/or 500m of a European site, Ramsar or SSSI, or being made under a bespoke permit?

No ☐

Yes ☒ You must submit a site specific risk assessment (see question 4e).

4e Site specific risk assessment

Your site specific risk assessment must show how you intend to prevent any harm to any SPZ 2, European site, Ramsar or SSSI. For more information on risk-assessment please see the accompanying guidance to LPD1 and Technical Guidance Note 'TGN 8.01'.

Please tick a box below to indicate which type of risk-assessment you have submitted.

I have attached a site-specific risk-assessment as the deployment is within and SPZ 2 and/or 500m of a European site, Ramsar or SSSI. I have also addressed risks to other receptors in the risk assessment ☒

I am not within an SPZ 2 and/or 500 m of a European site, Ramsar or SSSI but have addressed risks to other receptors in my benefit statement. ☐

I am deploying under a bespoke permit and have attached a site-specific risk assessment (regardless of location). ☐

4f About the waste

Please list all the individual waste streams you want to spread/use under this deployment, in Table 2 below. We've included an example to help you.

Please note: You can only spread/use 10 waste types per deployment.

Table 2 – waste types					
	List of Waste code (6 digit)	Waste description	Physical form	Waste producer	Total amount being spread/used (tonnes)
e.g.	03 03 05	De-inked paper	Sludge	Smith's Newsprint	500
1	02 02 04	Sludges from on-site ETP from abattoirs, poultry preparation plants, rendering plants or fish preparation plants only	Sludge	Secanim	7954.2
2	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only	Sludge	PZ Cussons	10212.8
3	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only	Sludge	Croda Goole	2307.7
4	02 05 02	Sludges from on-site ETP	Sludge	Meadow Foods	10900.2
5	02 03 05	Sludges from on-site ETP	Sludge	Croda Widnes	12275
6	02 07 05	Sludges from on-site ETP	Sludge	Encirc	11489.4
7	02 03 05	Sludges from on-site ETP	Sludge	Kelloggs	9869.1
8	02 03 01	Sludge from washing, cleaning, peeling, centrifuging and separation	Sludge	English Provendur	7070.4
9	02 03 05	Sludges from on-ETP	Sludge	Authentic Food Company	1571.2

10	02 02 01	Sludges from washing and cleaning	Sludge	Maelor Foods	1767.6
Total tonnage					75417.6

4g About the land you want to treat

4g1 Please give details of the main address of the land to be treated.

Address	The Firs Farm
	Cloy Lane
	Overton on Dee
Postcode	LL13 0HP
National grid reference (12 digit)	SJ 38662 42889

4g2 What type of land do you want to treat?

Agricultural land	<input checked="" type="checkbox"/>	Please give your County/ Parish/ Holding number	56 243 0084
Non-agricultural land	<input type="checkbox"/>		

4h The parcels of land you want to treat

Please list all the individual areas (parcels) of land you want to include this deployment, in Table 3 below.

Please note: the total area to be treated must not be more than 50 hectares.

Table 3 – parcels of land				
	Field name/ number/ reference	Grid reference - centre of field (12 digit)	Waste types to be spread/used (List of Waste code) Separate using commas.	Size (hectares)
1	See Table 3 (Field Details) 18 fields		As Above	
2				
3				
4				
5				
6				
7				
8				
9				
10				
Total hectares				49.1

4i Is the permit holder the owner or occupier of the land you want to spread on/treat?

Yes	<input type="checkbox"/>	Go to section 4k
No	<input checked="" type="checkbox"/>	You must give us details of the land owner or occupier, below.

Organisation name (if relevant)	
Title	Mr
First name	Graham
Last name	Manley
Address	The Firs Farm
	Cloy Lane
	Overton on Dee
Postcode	LL13 0HP
Telephone - mobile	01978 710 268
Telephone - office	
Email address	

If there is more than one owner or occupant for the area covered by this deployment, you must give us details of each. Please continue on a separate sheet and tell us the reference you have given the sheet.

Document reference

4j Do you have the consent of the owner or occupier to carry out the activity?

Yes ☒ *Go to section 4k*

No ☐ You must tell us why you think you can carry out the activity without the consent of the occupier. Please give an explanation in the box, below. Continue on a separate sheet if needed.

Explanation

4k Previous land treatment

Has any of the land listed in Table 3 been treated with other wastes, sewage sludge, slurries or manures etc. in the last 12 months?

No *Go to section 4l*

Yes ☒ You must give us details in Table 4 below *and* account for them in your benefit statement.

Table 4 – previous land treatment					
	Field name/ number/ reference	Describe the waste spread (in last 12 months)	Person/ company who spread the waste	Quantity spread per hectare (in	Deployment/ other reference (if known)

				tonnes)	
e.g.	East field	Digested sewage sludge cake	Eastern Waters	20	PAN 000000
1	All Fields (18 Fields) See table4	FYM	Farmer	4	
2					
3					
4					
5					
6					
7					
8					
9					
10					

4I Waste storage

Are you proposing to store waste in connection with this deployment?

No ☐ Go to section 5

Yes ☒ You must give us details in Table 5 below.

Table 5 – waste storage details

	Grid reference (12 digit)	Waste type being stored (6 digit List of Waste code)	Storage method	Quantity stored at any one time (in tonnes)
1	SJ 38730 42836	See Table 2	Temporary Storage Tanks	120
2				
3				
4				
5				
6				
7				
8				
9				
10				

5 Payment

5a Tick an option below to show how you will pay for the application.

Electronic transfer (for example, BACS) ☐ Go to section 5b

Cheque ☒ Go to section 5c

Postal order	<input type="checkbox"/>	<i>Go to section 5d</i>
Credit or debit card	<input type="checkbox"/>	<i>Go to section 5e</i>

5b Paying by electronic transfer

If you choose to pay by electronic transfer use the following information to make your payment.

Company name: Natural Resources Wales
Company address: Income Dept., PO BOX 663, Cardiff, CF24 0TP
Bank: RBS
Address: National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA
Sort code: 60-70-80
Account number: 10014438

Reference number

You can use any reference number but we prefer the number to be 'EPDEP' followed by the first five letters of your organisation name followed by a four-digit number.

For example, for a company named Joe Bloggs Ltd, the reference number might be EPDEPJOEBL0001.
(Remember you can use any four-digit number at the end.)

The reference number you will provide will appear on our bank statements so we can check your payment.
We may need to contact your bank to make sure the reference number is quoted correctly.

You should also email your payment details and payment reference number to
banking.team@naturalresourceswales.gov.uk / banking.team@cyfoethnaturiolcymru.gov.uk or fax it to 0300
065 3001 and enter it in the space provided below.

BACS reference

Amount paid

Making payments from outside the UK

These details have changed. If you are making your payment from outside the United Kingdom (which must be received in sterling), our IBAN number is GB70 NWBK6070 8010 0144 38 and our SWIFT/BIC number is NWBKGB2L.

If you do not quote your payment reference number, there may be a delay in processing your payment and application.

5c Paying by cheque or postal order

You should make cheques or postal orders payable to Natural Resources Wales and they should be marked 'A/c Payee'. We will not accept post-dated cheques (cheques with a future date written on them).

Cheque/ postal order number

Amount paid

5d Paying by credit or debit card

If you are paying by credit or debit card, please fill in the separate form CC1.

You can download this from our Website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only.

6 Supporting documents

You must provide all relevant documents to support your application. The information we need depends on the type of deployment application you're making. If you don't provide us with all the information we need, we won't be able to assess your proposal and the application may be rejected.

Better quality deployments result in shorter processing times. If we don't need to come back to you for more information, we'll be able to give you a decision quicker.

6a What supporting evidence do you need to send?

Are you applying to spread/use waste under a SR2010 No4 standard rule set permit?

Yes ☒ Complete the checklist in Table 6 and Table 7 *Go to section 6b*

No ☐ Complete the checklist in Table 7 only. *Go to section 6c*

6b Checklist for deployments under SR2010 No4 only

Complete the checklist in Table 6, below. Tick to confirm you've completed the action.

Table 6	
Do the grid references (for fields and storage areas) match the map locations?	<input checked="" type="checkbox"/>
Are the grid references in the correct format i.e. AB 12345 67890?	<input checked="" type="checkbox"/>
Have details of previous land treatment been provided?	<input checked="" type="checkbox"/>
Have you included a location map?	<input checked="" type="checkbox"/>
Does the map include all the relevant features as set out in the guidance?	<input checked="" type="checkbox"/>
Have you included a waste analysis?	<input checked="" type="checkbox"/>
Is the waste analysis for each waste less than 12 months old?	<input checked="" type="checkbox"/>
Does the waste analysis include pH, Nitrogen (N), Phosphorus (P), Potassium (K), % dry matter and Potentially Toxic Elements (PTE's)?	<input checked="" type="checkbox"/>
Have you included a soil analysis?	<input checked="" type="checkbox"/>
Is the soil analysis less for each field than 4 years old?	<input checked="" type="checkbox"/>
Does the soil analysis provide the soil pH, Potassium (K), Phosphorus (P), Magnesium (Mg) and PTEs if they are high in the waste?	<input checked="" type="checkbox"/>
Have the soil indices for P, K and Mg for each field been provided?	<input checked="" type="checkbox"/>
Have you included a Certificate of Agricultural Benefit?	<input checked="" type="checkbox"/>
Has the proposed cropping regime been stated?	<input checked="" type="checkbox"/>
Has the waste application rate been stated?	<input checked="" type="checkbox"/>
Has the timing of application been stated and is it appropriate for the cropping regime?	<input checked="" type="checkbox"/>
Has the intended method of waste application been stated?	<input checked="" type="checkbox"/>
Have the total nutrients supplied by the waste been stated and have they been provided in oxide format?	<input checked="" type="checkbox"/>
Has the nutrient requirement for the proposed crop been provided?	<input checked="" type="checkbox"/>
Has the soil nitrogen supply (SNS) for each field been provided?	<input checked="" type="checkbox"/>
If the land has been treated with other wastes, sewage sludge, slurries manures etc. in the last 12 months, has relevant information been provided?	<input checked="" type="checkbox"/>
If more than one waste stream is to be applied to the land; has the benefit for each individual waste stream been demonstrated?	<input checked="" type="checkbox"/>
Have you included a site specific risk assessment? (where relevant)	<input checked="" type="checkbox"/>
Does the Site Specific Risk Assessment; consider all potential receptors, identify all risks from the activity, and include information on all measures you'll use to minimise or mitigate the impact and why they're suitable.	<input checked="" type="checkbox"/>

6c Checklist for all types of deployment application.

Complete the checklist in Table 7, below. Tick to confirm you've completed the action.

Table 7		
Item	Complete	Your document reference/ description
Location map (required for all deployments)	<input checked="" type="checkbox"/>	Figure 1 – Appendix A
Benefit statement (required for all deployments)	<input checked="" type="checkbox"/>	Appendix A – Agricultural Benefit Statement
Waste analysis (required for all deployments)	<input checked="" type="checkbox"/>	Appendix D – Waste Analysis and Evaluation
Receiving soil analysis (required for all deployments)	<input checked="" type="checkbox"/>	Appendix C – Soil Analysis
Site-specific risk assessment (in accordance with 4e)	<input checked="" type="checkbox"/>	Appendix B – Site Specific Risk Assessment
Any other additional information	N/A	
	N/A	
	N/A	
	N/A	

7 The data Protection Act 1998

We, the Natural Resources Body for Wales (hereafter “Natural Resources Wales”), will process the information you provide so that we can:

- deal with your application;
- make sure you keep to the conditions of the licence, permit or registration;
- process renewals; and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues;
- carry out research and development work on environmental issues;
- provide information from the public register to anyone who asks;
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows).

We may pass the information on to our agents or representatives to do these things for us.

8 Confidentiality and national security

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by ticking the box below and enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application.

Please treat the information in my application as confidential.

☐

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Welsh Ministers and you must still include the information in your application. We will not include the information in the public register unless the Welsh Ministers decides that it should be included.

Only tick the box below if you are certain that you wish to claim confidentiality or national security for your application. This may delay your application.

I attach a letter stating that I have written to the Welsh Ministers explaining why my information should not be included on the public register for national security reasons

☐

9 Declaration

You must read this section before making the declaration and sending your form to us.

A relevant person should make the declaration. You must be a relevant person or have the authority of a relevant person to sign this application on their behalf.

Relevant people means each applicant, and in the case of a company, a director, manager, company secretary or any similar officer or employee listed on current appointments in Companies House. In the case of a Limited Liability Partnership (LLP), it includes any partner. If the permit holder is an organisation of individuals, each individual (or individual trustee) must complete the declaration.

To simplify and speed up the application process we recommend that the declaration is filled in by an officer of a company or one of the partners in a Limited Liability Partnership (LLP).

If you wish a manager, employee or consultant etc. to sign the declaration on behalf of a relevant person, we will need written confirmation from a relevant person; that is, an officer of the company, a partner in the LLP or the individual, confirming that the person has the authority to fill in the declaration.

If you are joint permit holders you should each fill in your own declaration. We have provided a separate sheet for this.

Where the operator is the subject of any insolvency procedure, the declaration must be filled in by the official receiver/appointed insolvency practitioner.

9a Are you signing the form on *behalf* of a relevant person?

If you are *not* a relevant person, but want to sign the application on their behalf, you must include confirmation that you can do this.

I have included written confirmation from a relevant person to confirm I can sign on their behalf.

☐

9b Does your deployment application relate to a standard facility permit?

If your deployment application is being made in relation to a standard facility permit (SRP), you also need to confirm that you are able to meet all relevant criteria of the standard rule set/sets under which you are applying.

I confirm that my activity/activities will fully meet the rules of the permit deployment I have applied for.

☒

9c Sign to confirm you understand the declaration.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- I may be prosecuted; and
- if convicted, I may have to pay a fine and/or go to prison.

By signing below, you are confirming that you understand and agree with the declaration above.

Title

Mr

First name

Richard

Last name

Street

On behalf of (if relevant)

Today's date (DD/MM/YYYY)

13/06/2019



Continuing Competence Certificate

This certificate confirms that

Richard George Street

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 23/01/2019

LS

Land Spreading

Expiry Date:
23/01/2021

Verification date: 21/01/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 22940

Certificate No.: 5138263

Date of Issue: 23/01/2019

CIWM Executive Director



The Chartered Institution
of Wastes Management



00127091

Agrispread Ltd
22 Coniston Drive
Frodsham
Cheshire
WA6 7LR

Natural Resources Wales
29 Newport Road
Ty Cambria
Cardiff
CF24 0TP

5th August 2017

To whom it may concern

Re: Deployment Applications declarations

I write to confirm that Richard Street of Trade Effluent Services Ltd is authorised to complete deployment applications and sign declarations on behalf of Agrispread Ltd.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'R. Netzband-Piggott', written in a cursive style.

Robert Netzband-Piggott
Company Secretary

Agricultural Benefit Statement

Report Index

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1. Permit Details and Appropriate Technical Expertise

The following benefit statement has been written by Richard Street on behalf of Agrispread Ltd. (permit no. FB3606GC).

Relevant Qualifications & Experience include:

- FACTs Qualified – Basis registration no. R/FE/5689
- 9 Years' experience of waste to land recycling operations
- Land spreading of non-farm wastes course (3 day course – May 2010)
- BSc. (Hons) Environmental Management (University of Central Lancashire)

2. Land Details

The following benefit statement proposes to spread up to 10 wastes to land. The land details are listed in Table 1, and the site map can be found in Figure 1.

Table 1: Farm and Land Details

Farm Name	The Firs Farm
Farm Address and Postcode	Cloy Lane, Overton on Dee, LL13 0HP
Farm NGR	SJ 38662 42889
Land Address and Nearest Postcode	Cloy Lane, Overton on Dee, LL13 0HP
Total Area to be Spread (hectares)	49.1

Up to 30m³ of waste will be stored in each mobile storage tank at the land to be spread, with no more than 120m³ in total being stored on site. This is suitable storage and the storage tank locations will be situated in appropriate locations. The storage location is marked on the site map in Figure 1, which is at the following grid reference location: SJ 38730 42836.

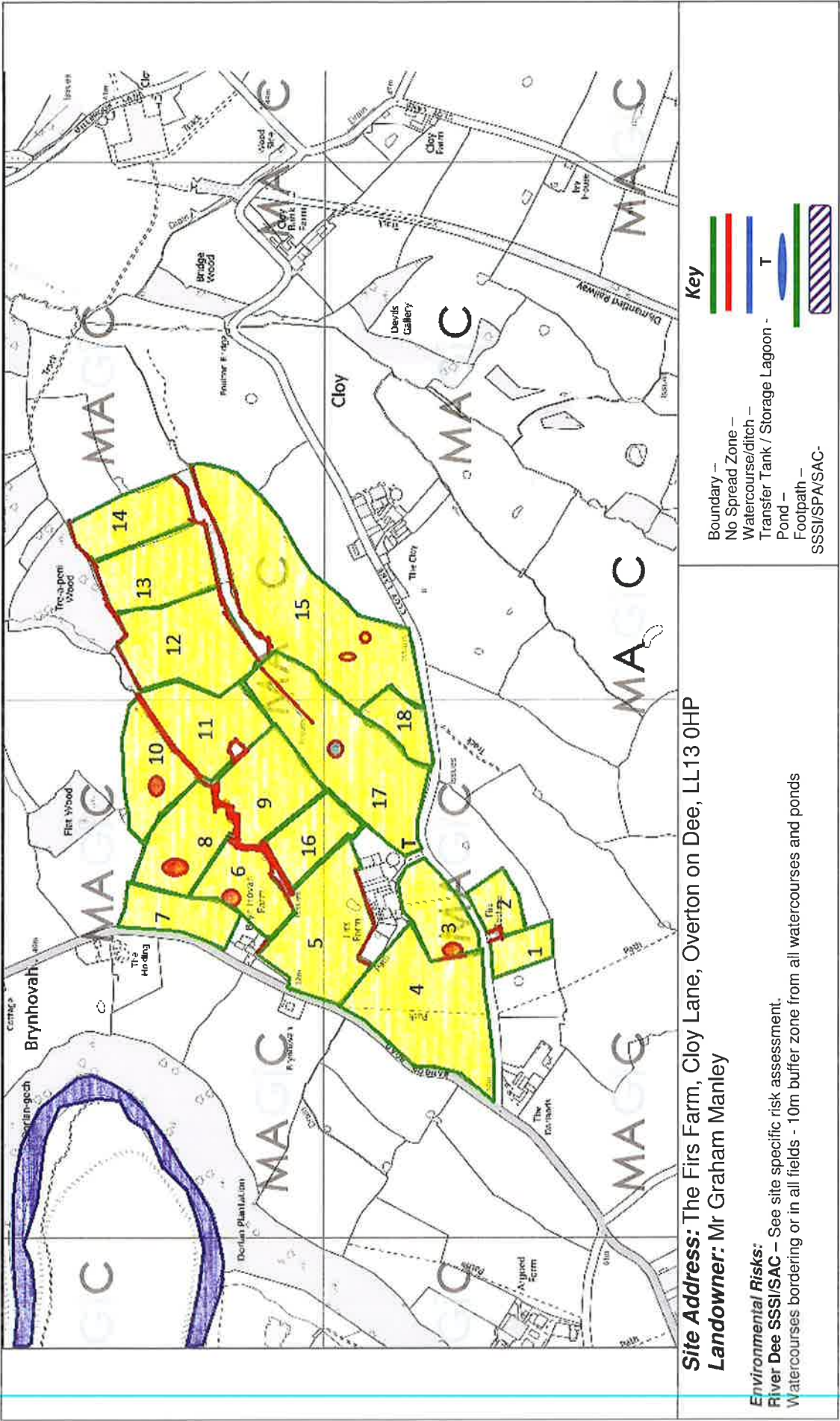


Figure 1: Site map including the fields to spread, receptors, storage (T), and spreading control measures

3. Waste Details

The wastes generally arise from food and beverage manufacturers and are primarily sludge from on-site effluent treatment plants, and materials unsuitable for consumption and processing. The waste details are displayed in Table 2.

Waste Producer	EWC Code	Waste Description
Secanim	02 02 04	Sludges from on-site ETP from abattoirs, poultry preparation plants, rendering plants or fish preparation plants only
P Z Cussons	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only
Croda Chemicals (Goole)	07 07 12	Sludges from on-site biological effluent treatment plant at chemical manufacturing sites other than those mentioned in 07 01 11 only
Meadow Foods	02 05 02	Sludge from on-site ETP
Maelor Foods	02 02 01	Sludges from washing and cleaning
Encirc	02 07 05	Sludge from on-site ETP
English Provender	02 03 01	Sludge from washing, cleaning, peeling, centrifuging and separation
Croda Widnes	02 03 05	Sludges from on-site ETP
Authentic Food Company	02 03 05	Sludges from on-site ETP
Kelloggs (Kellogs)	02 03 05	Sludges from on-site ETP

Table 2: Waste Details

The wastes have been analysed by NRM laboratories for nitrogen, phosphorous, potash and PTE's, and individual waste analyses are attached in Appendix D.

To avoid the need for multiple deployments when a range of wastes are available, it is necessary to include them all to accommodate such variables as the amount of material produced by the waste producer and the timing of application

Due to the coding of the Secanim and Maelor Foods waste stream (02 02 04 and 02 02 01 respectively), a visual inspection was made to determine if analysis for fats, oil and grease (FOGs) was required. It was deemed not necessary. The waste will be closely monitored during the spreading of this site, and so the requirement for FOGs analysis will be reviewed periodically. The Secanim waste is not expected to contain Selenium, Arsenic, Molybdenum and Fluoride, and so has not been tested for such elements.

4. Operational Details

The wastes will be delivered to the site by road tanker and off-loaded into the mobile storage tanks. It is intended to spread the wastes by sub-soil injection to reduce the risk of environmental incidents, such as run-off and odour issues; to minimise disbenefit to the growing crop, such as through smothering or leaf scorch; and to provide nutrients to the root zone. Typically, wastes will be applied by deep-leg injector. However, a shallow injector or surface application may be used dependant on soil/weather conditions at the time of application. In drought conditions, wastes with low odour potential and low risk of smothering crop leaf may be surface applied, and will provide additional benefit through irrigation.

It is intended to spread the wastes to grass fields as a split when the leaf is short or after silage cuts. For this application, the wastes are expected to be applied to all fields in July and September 2019 after cuts of silage. However, this may change due to farmer requirements and weather conditions. **and Crop Requirement**

The sludges will be applied to all fields and so the crop requirements for all fields, as well as the field sizes and grid references, are displayed in Table 3. Fertiliser requirements are based on figures from the RB209 (9th edition). The magnesium recommendation for all fields is 0 kg/ha.

Table 3: Field Details and Crop Requirements (* denotes crop offtake)

Field	Size	Grid Reference	Current Crop	Next Crop	Expected Yield	Nitrogen	Phosphate	Potash
	ha				t/ha	kg/ha	kg/ha	kg/ha
1	0.8	SJ38534263	Grass	2 cut silage and grazing	38	260	0 Off take 65	70
2	0.9	SJ38614267	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
3	1.7	SJ 38614279	Grass	2 cut silage and grazing	38	260	65	170
4	4.9	SJ 38424280	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
5	3.8	SJ38574298	Grass	2 cut silage and grazing	38	260	0 Off take 65	0 Off take 228
6	1.8	SJ38654314	Grass	2 cut silage and grazing	38	260	0 Off take 65	0 Off take 228
7	1.5	SJ38594327	Grass	2 cut silage	38	260	20 Off take 65	70

				and grazing				
8	2.3	SJ38744325	Grass	2 cut silage and grazing	38	260	0 Off take 65	70
9	2.6	SJ38834311	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
10	2.1	SJ38874331	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
11	2.7	SJ38954322	Grass	2 cut silage and grazing	38	260	65	260
12	3.8	SJ39114326	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
13	2.4	SJ39244332	Grass	2 cut silage and grazing	38	260	0 Off take 65	120
14	2.1	SJ39334335	Grass	2 cut silage and grazing	38	260	20 Off take 65	120
15	7.4	SJ39174305	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
16	1.7	SJ38744303	Grass	2 cut silage and grazing	38	260	20 Off take 65	70
Total	49.1							

The soil nitrogen supply (SNS) for all fields is moderate.

5. NVZ Compliance

The site falls outside an NVZ designated area, which is illustrated in Figure 2. The majority of wastes do not apply for the closed periods as they contain low percentages of available nitrogen.. The application rates of the wastes will comply with crop requirement as no more than crop offtake of all nutrients will be applied to fields. In order to aid the landowner or farmer with their recording requirements, a post-notification of nutrients applied will be provided after spreading.



Table 4: Previous Nutrients Applied

Field	Waste Applied	Month Applied	Application Rate	Nitrogen	Phosphate	Potash
			t/ha	kg/ha	kg/ha	kg/ha
All Fields	FYM	March 2019	4	24	12.8	32

The wastes will be used to provide plant nutrients that will replace a percentage of the fertiliser that the farmer would normally apply to their crop. The wastes will also provide benefit through the addition of organic matter and trace elements. The applied nutrients provided by the wastes may be subject to change: determined by analysis of individual samples during the agreed 12 month deployment period. The sludge is regularly analysed and application rates will be adjusted according to changes in analysis and volumes arising.

Table 5: Summary of Waste Nutrients and Application Rate

Waste	App Rate	Nitrogen		Phosphate		Potash	
		(total)	(available) 30%	(total)	(available) 50%	(total)	(available) 90%
Secanim	162	145	44	65	32	39	35
P Z Cussons (Rob Morgan)	208	248	74	8	4	8	7.2
Croda Chemicals (Goole)	47	94	28	63	32	10	9
Meadow Foods	222	155	47	56	28	22	20
Maelor Foods	36	122	37	63	32	8	7
Encirc	234	140	42	56	28	19	17
English Provender	144	144	50	65	32	14	13
Croda Widnes	250	100	30	33	16	15	14
Authentic Food Company	32	102	31	55	28	6	5
Kelloggs (Kellogs)	201	181	54	56	28	31	28

Wastes will be applied on an individual basis and applications, which are established for each waste when applied in isolation, will be carefully managed and monitored to ensure that nutrients are applied at or below crop requirement/offtake values. It may however be necessary to apply the wastes as a mix such as during storage during adverse weather. In this case, the waste with the highest nutrient, PTE or other limiting factor is used as the maximum application rate, and thus wastes will be applied at the lowest individual application rate. Application rates will be adjusted by variation in tractor speed and or pump speed. It should be noted that if application rates are adjusted, they will not be increased above the application rates stated in this benefit statement (see Table 5).

Nitrogen

The waste analysis shows that the ammoniacal and nitrate nitrogen in the majority of wastes is relatively low; indicating that only a small proportion of nitrogen will be available immediately. The remaining total nitrogen applied will become available to the crop through mineralisation throughout following seasons. The rate of nitrogen release will be affected by several factors including climate, timing and method of application, and soil type.

Phosphorus

Applications of wastes are limited to ensure that phosphate is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil P reserves.

Potash

The wastes applied will supply up to 39kg/ha of potash, which will not meet crop offtake for all fields, but it will allow the landowner/farmer to considerably reduce the amount of chemical fertiliser required to meet the crop need. Applications of wastes are limited to ensure that potash is applied at or below crop off take values, as calculated from the RB209, ensuring that the spreading activities do not increase soil reserves.

Organic Matter

The wastes will also provide a small increase in soil organic matter. This can help to improve soil structure and water, and nutrient holding capacity.

pH

Pz Cussions (Rob Morgan) has a pH of 4.45 and English Provender 4.51 which are slightly acidic, the receiving soil have pH ranging from 5.9 to 6.8 and will buffer the waste pH with not detrimental effect anticipated. The soils at The Firs Far, are classified on soil scapes as Loamy and clayey soils Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. These soil types are at a much lower of risk to the effect of pH than other soils such as Non-calcareous sandy soils

Soils

Additionally, full soil analysis of the proposed fields to be spread has been attached in Appendix C, and a summary table has been included in Table 6.

Table 6: Summary of soil pH and major nutrients for the fields to be spread

Field	Soil pH	Phosphate		Potash		Magnesium	
		mg/l	Index	mg/l	Index	mg/l	Index
1	6.7	52.4	4	334	3	254	5
2	6.2	40.2	3	314	3	262	5
3	6.1	15.8	2	172	2-	277	5
4	6	29.0	3	267	3	280	5
5	6.3	64.4	4	434	4	310	5
6	6.1	50.6	4	487	4	320	5
7	6.0	37.6	3	308	3	308	5
8	6.3	60	4	282	3	289	5
9	6.3	52.8	4	349	3	337	5
10	6.1	36.8	3	259	3	334	5
11	6.1	18.6	2	102	1	287	5
12	6.2	44	3	319	3	254	5
13	6.1	57.2	4	234	2+	240	4
14	5.8	28.2	3	223	2+	240	4
15	6.1	43.4	3	336	3	322	5
16	6.0	39.1	3	245	3	295	5

The soils were sampled in April 2019 in accordance with the sampling procedures described in the RB209 (9th Edition). Analysis was carried out by NRM laboratories for pH, major plant

nutrients, and potentially toxic elements (PTEs) described in the Sludge (Use in Agriculture) Regulations.

Soils were found to be medium loam categorised in accordance with RB209 (9th edition) as mineral soils for crop recommendations.

Soil pH ranges from 5.8 and 6.7, and are generally at or around the target value, although it shouldn't affect crop performance. Soil P index's range from 3 to 4, and the soils are at or before the guideline target index of 2. Soil K levels ranged from index 1 to 4 and are generally around the target index level of 2-. The magnesium index for all fields was satisfactory. PTE concentrations for all fields is low and within the typical range of uncontaminated soil.

7. Potential Negative Impacts

There are no known or expected elevated levels of PTEs within the wastes.

Site Hazards

Hazards have been identified on the site plan in Figure 1, and relevant control measures and buffer zones have been identified. Operations are to be carried out in accordance with the company generic risk assessment for landspreading, which will reduce the impacts of the operation on the receiving soil.

Odour and Noise Control

The wastes have the potential to cause odour, however storage will be sited away from dwellings, and it is unlikely to cause nuisance odour issues. Additionally, application of sludge via an umbilical cord sub soil injection system will minimise the risk of odour. The operation will be carried out in accordance within normal agricultural hours to minimise the risk of odour and noise complaints.

Storage Tanks

Storage tanks are inspected daily by the operator and wherever possible left empty at the end of the working day. Storage tanks will not be sited within 10m of watercourses or at the top of a steep embankment. Signage on the tanks identifies the company and activity, and has emergency contact details. Anticipated location of storage tanks are shown in Figure 1, but locations may vary slightly due to unforeseen operational requirements.

8. Sensitive Receptors

There are a number of properties within 500m of the fields proposed to be spread. Odour and noise will be controlled, as detailed in section 8, in order to minimise the disruption caused to residents.

There are no footpaths or tracks crossing the fields to be spread, and no boreholes, wells or springs have been identified within the spreading area.

The site is within a flood prone area and the land is outside a ground water protection zone (Figure 3). The wastes will be spread in appropriate conditions with weather and field conditions continuously examined.

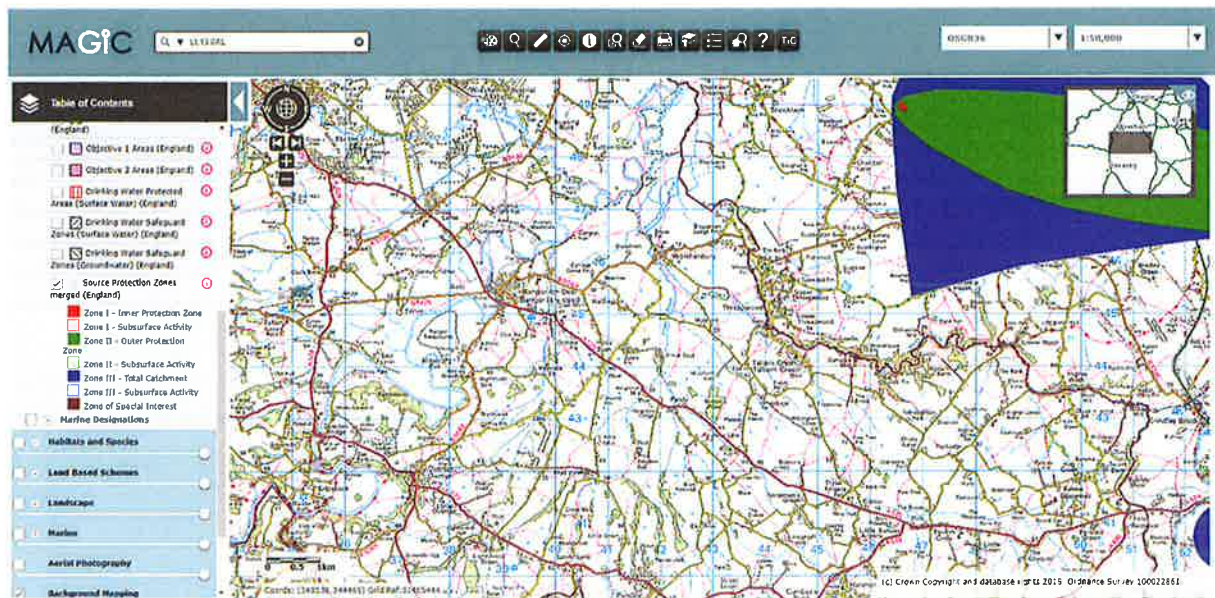


Figure 3: Maps of flood prone areas and ground water protection zones of the land to be spread. These were obtained from the NRW website (naturalresources.wales/evidence-and-data/maps/long-term-flood-risk) and 'Magic Maps' (magic.defra.gov.uk/MagicMap.aspx) respectively.

The site is within 500m of a statutory designated environmentally sensitive area as defined by Magic Maps (magic.gov.uk). This is the River Dee and Bala Lake SSSI/SAC, and a site specific risk assessment can be found in Appendix B.

9. Contingency Planning

To cover machinery breakdown, replacement machinery is available or can be hired from suppliers and mobile mechanics are available to attend sites. All machinery is regularly serviced.

There is sufficient trained staff to maintain sickness and holiday cover.

Spreading operations will not be carried out when there are adverse weather conditions that are likely to interfere with the operation. These conditions include; heavy rain, or during periods of heavy snow or frozen ground as defined in the Code of Good Agricultural Practice (COGAP).

Site Specific Risk Assessment – To be read in conjunction with landspreading Generic Risk Assessment

Farm Name: The Firs Farm

Address: The Firs Farm, Cloy Lane, Overton on Dee, LL13 9YE

Site Specific Risk Assessment for: Mobile Plant for Landspreading – SR2010No4 – The Firs Farm

Risk Assessment Carried out by: R G Street Date: 13/06/2019

Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is the risk? What do I wish to protect?	The agent or process with potential to cause harm	The harmful consequences if things go wrong	How the receptor might come into contact with the source	How likely is contact?	Severity of the consequences if this occurs	The overall magnitude of the risk	Basis of my judgement	How I can best manage the risk to reduce the magnitude	Magnitude of the risk after management
SSSI – River Dee and Bala	Concentrations of nutrients in the waste	Contamination of ground water: Chronic effects: Contamination of groundwater requiring treatment of water	Surface run off, Leaching.	Moderate	Moderate	Moderate	Waste is spread in accordance with COGAP. Wastes that are to be surface applied have low application rates.	Waste spread in accordance with COGAP Operations carried out using best available techniques Spreading to be carried out during appropriate conditions Regular checks of watercourses in the area surrounding spreading operation 20m Buzzer zone on boundaries adjacent to SSSI	Low
SAC - River Dee and Bala	Concentrations of nutrients in the waste	Contamination of ground water: Chronic effects: Contamination of groundwater requiring treatment of water	Surface run off, Leaching.	Moderate	Moderate	Moderate	Waste is spread in accordance with COGAP. Wastes that are to be surface applied have low application rates.	Waste spread in accordance with COGAP Operations carried out using best available techniques Spreading to be carried out during appropriate conditions Regular checks of watercourses in the area surrounding spreading operation 20m Buzzer zone on boundaries adjacent to SSSI	Low

Written by:	R J Piggott	Approved by:	R J Piggott	Date:	28/06/2012
Title	SP2010No4\TEMP\Mobile Plant Site Specific Risk Assessment	Version	1	Last Printed	13/6/2019 12:28

Site Specific Risk Assessment – To be read in conjunction with landspreading Generic Risk Assessment

Written by:	R Piggott	Approved by:	R J Piggott	Date:	28/06/2012
Title	SP2010No4\TEMP\Mobile Plant Site Specific Risk Assessment	Version	1	Last Printed	13/6/2019 12:28



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 1

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51979
Sample Number 432200

ANALYTICAL RESULTS on 'dry matter' basis.

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.7						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	52.4	4							
Available Potassium	334	3							
Available Magnesium	254	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	28.9	Arable 135					
		Grassland 225					
Total Zinc	125	Arable 200					
		Grassland 200					
Total Nickel	26.2	Arable 75					
		Grassland 125					
Total Cadmium	0.24	Arable 3					
		Grassland 3					
Total Lead	51.2	Arable 300					
		Grassland 300					
Total Chromium	35.8	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1 Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by

Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 2

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

Report Number 51979
Sample Number 432201

ANALYTICAL RESULTS on 'dry matter' basis.

pH ⁽¹⁾

Determinand	Result	Soil pH						
		4	5	6	7	8	9	
Soil pH	6.2							

Soil Nutrients ⁽¹⁾

Determinand	Result mg/litre	Soil Index	Soil Index						
			0	1	2	3	4	5	6
Available Phosphorus	40.2	3							
Available Potassium	314	3							
Available Magnesium	262	5							

Potentially Toxic Elements ⁽²⁾

Determinand	Result mg/kg	Maximum mg/kg	% of maximum permissible concentration of PTE in arable/grassland soil					
			0%	25%	50%	75%	100%	
Total Copper	33.6	Arable 135						
		Grassland 225						
Total Zinc	148	Arable 200						
		Grassland 200						
Total Nickel	29.1	Arable 75						
		Grassland 125						
Total Cadmium	0.25	Arable 3						
		Grassland 3						
Total Lead	80.2	Arable 300						
		Grassland 300						
Total Chromium	37.7	Arable 400						
		Grassland 600						
Total Mercury	<0.2	Arable 1						
		Grassland 1.5						

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 3

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References



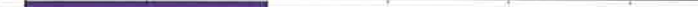
Report Number 51979
Sample Number 432202

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Determinand	Result	Soil pH					
		4	5	6	7	8	9
Soil pH	6.1						

Soil Nutrients ⁽¹⁾

Soil Nutrients ⁽¹⁾			Soil Index						
Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	15.8	2							
Available Potassium	172	2-							
Available Magnesium	277	5							

Potentially Toxic Elements ⁽²⁾

Determinand	Result mg/kg	Maximum mg/kg	% of maximum permissible concentration of PTE in arable/grassland soil					
			0%	25%	50%	75%	100%	
Total Copper	23.0	Arable 135						
		Grassland 225						
Total Zinc	112	Arable 200						
		Grassland 200						
Total Nickel	31.1	Arable 75						
		Grassland 125						
Total Cadmium	0.16	Arable 3						
		Grassland 3						
Total Lead	46.4	Arable 300						
		Grassland 300						
Total Chromium	38.4	Arable 400						
		Grassland 600						
Total Mercury	<0.2	Arable 1						
		Grassland 1.5						

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by

Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 4

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51979
Sample Number 432203

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Determinand	Result	4	5	6	7	8	9
Soil pH	6.0						

Soil Nutrients ⁽¹⁾

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	29.0	3							
Available Potassium	267	3							
Available Magnesium	280	5							

Potentially Toxic Elements ⁽²⁾

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	24.7	Arable 100					
		Grassland 170					
Total Zinc	122	Arable 200					
		Grassland 200					
Total Nickel	26.1	Arable 60					
		Grassland 100					
Total Cadmium	0.38	Arable 3					
		Grassland 3					
Total Lead	45.6	Arable 300					
		Grassland 300					
Total Chromium	32.4	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1 Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 5

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51979
Sample Number 432204

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.3						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	64.4	4							
Available Potassium	434	4							
Available Magnesium	310	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	35.0	Arable 135					
		Grassland 225					
Total Zinc	144	Arable 200					
		Grassland 200					
Total Nickel	27.4	Arable 75					
		Grassland 125					
Total Cadmium	0.31	Arable 3					
		Grassland 3					
Total Lead	44.3	Arable 300					
		Grassland 300					
Total Chromium	37.5	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 6

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

Report Number 51979
Sample Number 432205

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.1						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	50.6	4							
Available Potassium	487	4							
Available Magnesium	320	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	28.6	Arable 135					
		Grassland 225					
Total Zinc	132	Arable 200					
		Grassland 200					
Total Nickel	26.4	Arable 75					
		Grassland 125					
Total Cadmium	0.26	Arable 3					
		Grassland 3					
Total Lead	44.4	Arable 300					
		Grassland 300					
Total Chromium	35.2	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by *Myles Nicholson*

Date *17/04/19*

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 7

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

Report Number 51980
Sample Number 432206

ANALYTICAL RESULTS on 'dry matter' basis.

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.0						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	37.6	3							
Available Potassium	308	3							
Available Magnesium	308	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	27.9	Arable 100 Grassland 170					
Total Zinc	121	Arable 200 Grassland 200					
Total Nickel	29.2	Arable 60 Grassland 100					
Total Cadmium	0.23	Arable 3 Grassland 3					
Total Lead	42.2	Arable 300 Grassland 300					
Total Chromium	37.6	Arable 400 Grassland 600					
Total Mercury	<0.2	Arable 1 Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by

Myles Nicholson

Date

17/04/19

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SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 8

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51980
Sample Number 432207

ANALYTICAL RESULTS on 'dry matter' basis.

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.3						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	60.0	4							
Available Potassium	282	3							
Available Magnesium	289	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	32.1	Arable 135					
		Grassland 225					
Total Zinc	139	Arable 200					
		Grassland 200					
Total Nickel	27.6	Arable 75					
		Grassland 125					
Total Cadmium	0.32	Arable 3					
		Grassland 3					
Total Lead	47.7	Arable 300					
		Grassland 300					
Total Chromium	42.4	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

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Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 9

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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G MANLEY
FIRS FARM

SOIL

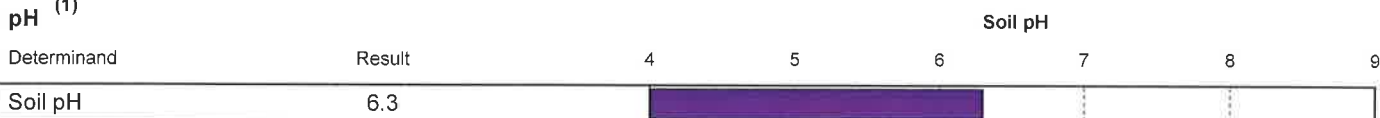
Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

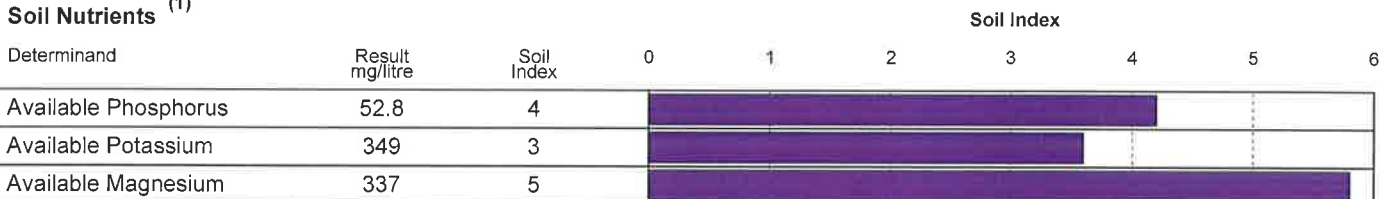
Report Number 51980
Sample Number 432208

ANALYTICAL RESULTS on 'dry matter' basis.

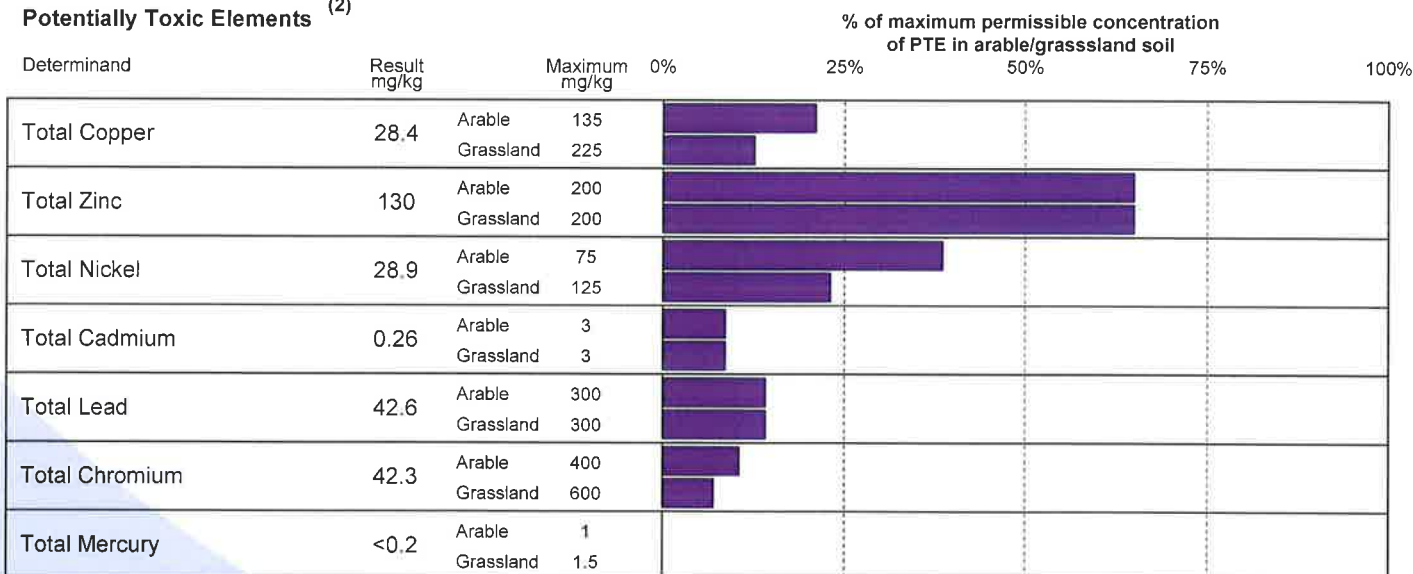
pH ⁽¹⁾



Soil Nutrients ⁽¹⁾



Potentially Toxic Elements ⁽²⁾



(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

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Date **17/04/19**

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 10

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51980
Sample Number 432209

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.1						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	36.8	3							
Available Potassium	259	3							
Available Magnesium	334	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	25.6	Arable 135 Grassland 225					
Total Zinc	124	Arable 200 Grassland 200					
Total Nickel	30.4	Arable 75 Grassland 125					
Total Cadmium	0.23	Arable 3 Grassland 3					
Total Lead	49.1	Arable 300 Grassland 300					
Total Chromium	43.6	Arable 400 Grassland 600					
Total Mercury	<0.2	Arable 1 Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

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Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 11

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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G MANLEY
FIRS FARM

SOIL

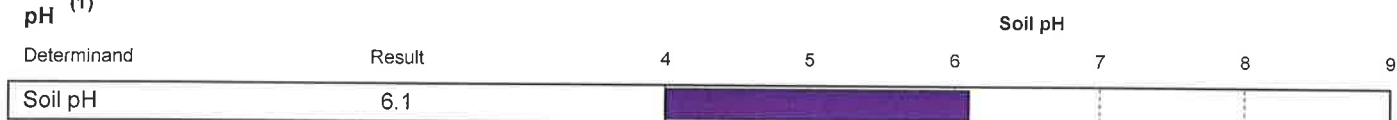
Laboratory References

Report Number 51980
Sample Number 432210

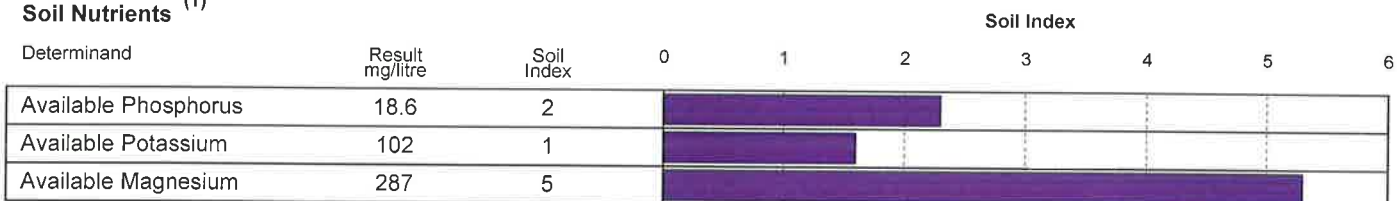
Date Received 12-APR-2019
Date Reported 17-APR-2019

ANALYTICAL RESULTS on 'dry matter' basis.

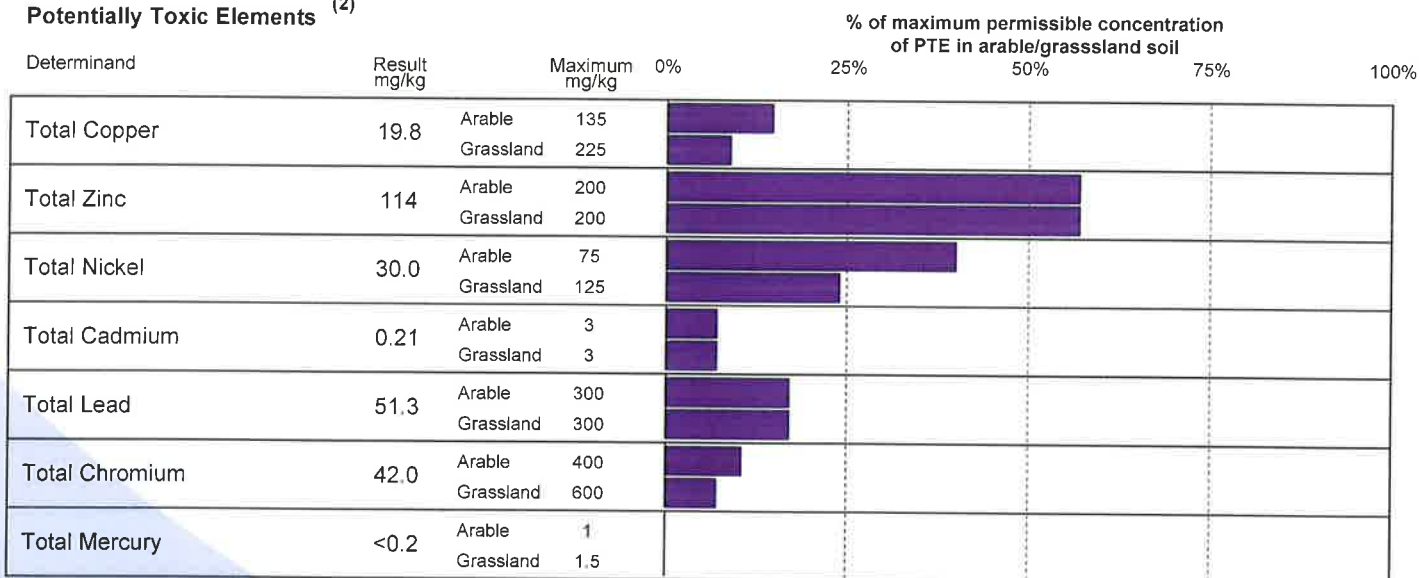
pH ⁽¹⁾



Soil Nutrients ⁽¹⁾



Potentially Toxic Elements ⁽²⁾



(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

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Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 12

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51980
Sample Number 432211

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.2						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	44.0	3							
Available Potassium	319	3							
Available Magnesium	254	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	27.5	Arable 135					
		Grassland 225					
Total Zinc	120	Arable 200					
		Grassland 200					
Total Nickel	28.2	Arable 75					
		Grassland 125					
Total Cadmium	0.22	Arable 3					
		Grassland 3					
Total Lead	43.6	Arable 300					
		Grassland 300					
Total Chromium	39.7	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 13

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

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G MANLEY
FIRS FARM

SOIL

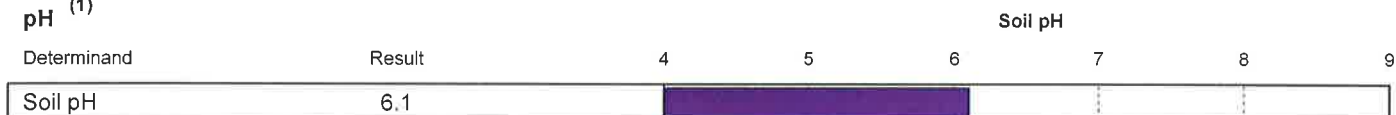
Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

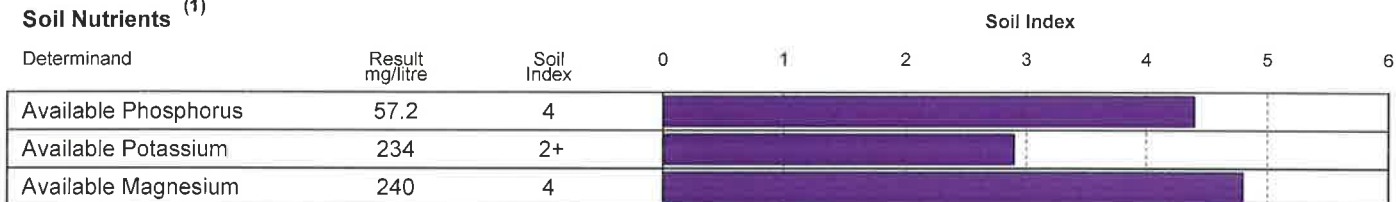
Report Number 51981
Sample Number 432212

ANALYTICAL RESULTS on 'dry matter' basis.

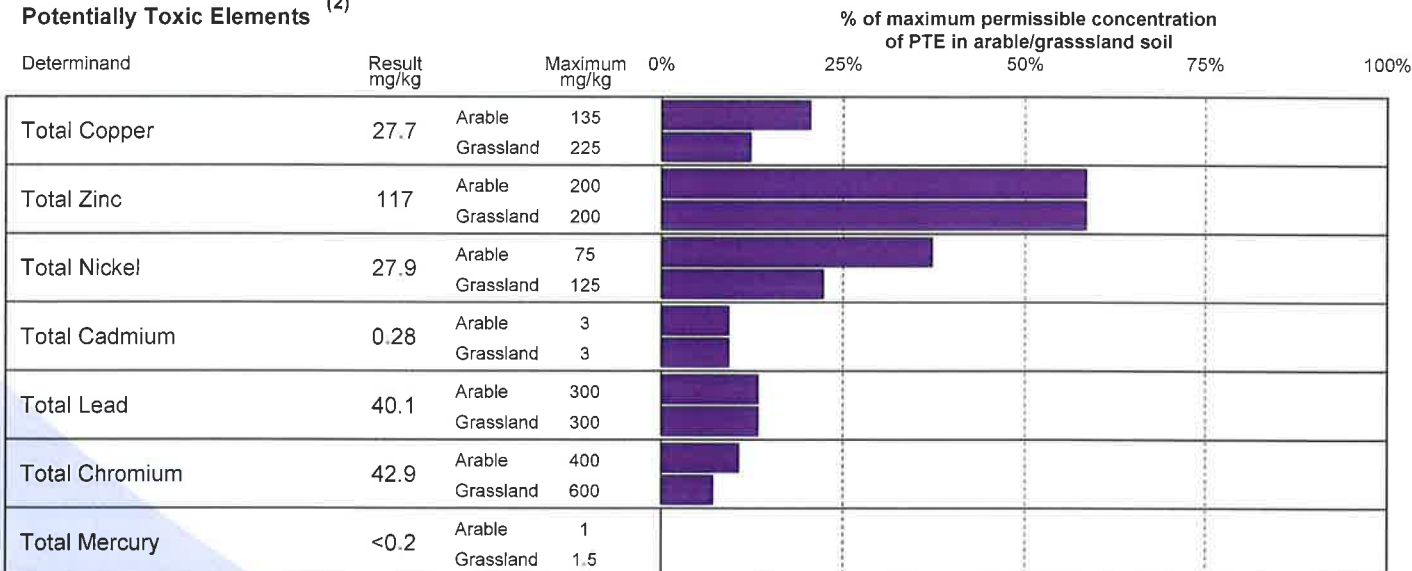
pH ⁽¹⁾



Soil Nutrients ⁽¹⁾



Potentially Toxic Elements ⁽²⁾



(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by

Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 14

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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G MANLEY
FIRS FARM

SOIL

Laboratory References

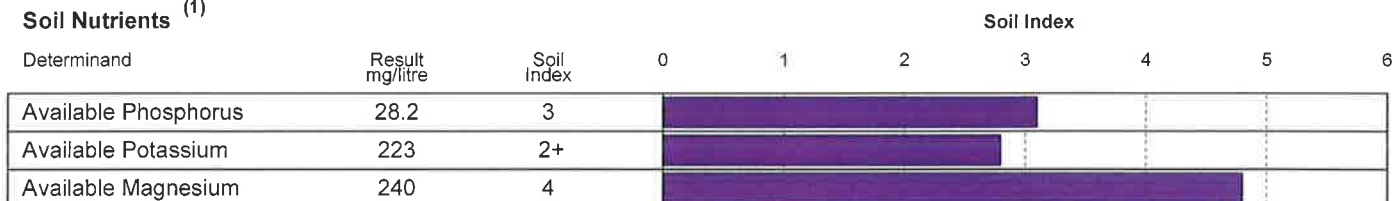
Report Number 51981
Sample Number 432213

ANALYTICAL RESULTS *on 'dry matter' basis.*

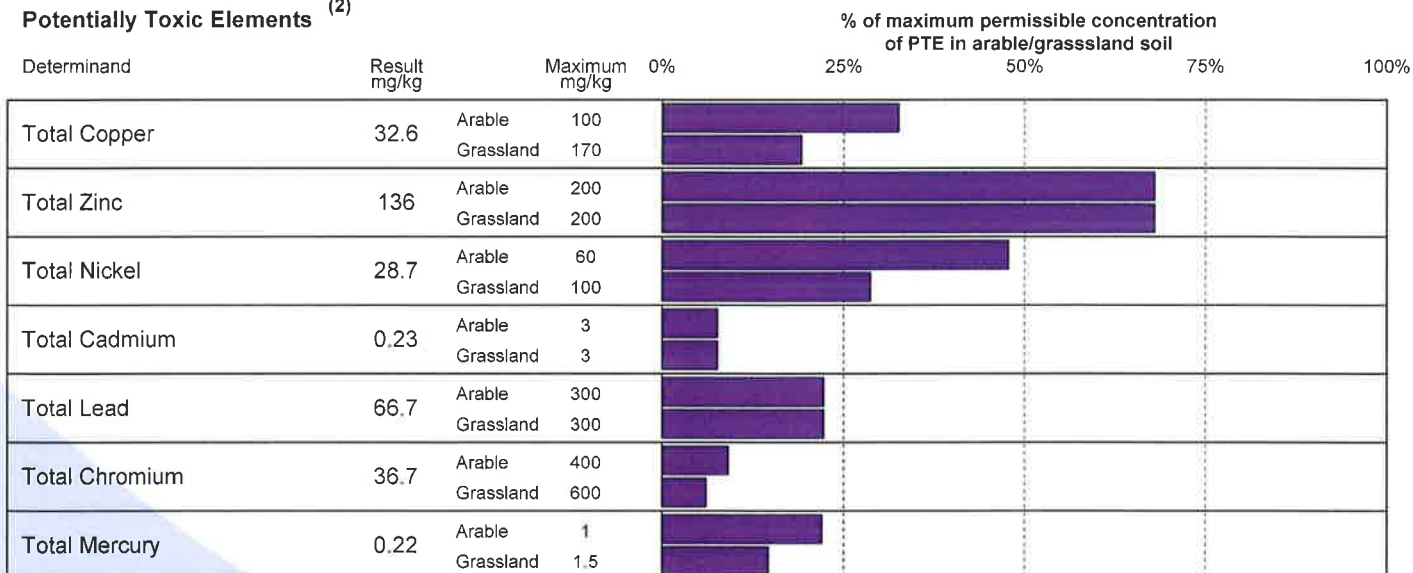
pH ⁽¹⁾



Soil Nutrients ⁽¹⁾



Potentially Toxic Elements ⁽²⁾



(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by

Myles Nicholson

Date

17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 15

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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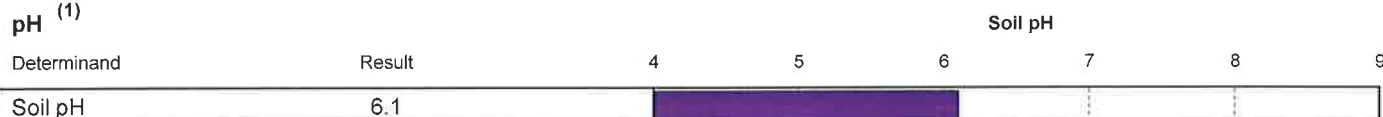
SOIL

Laboratory References

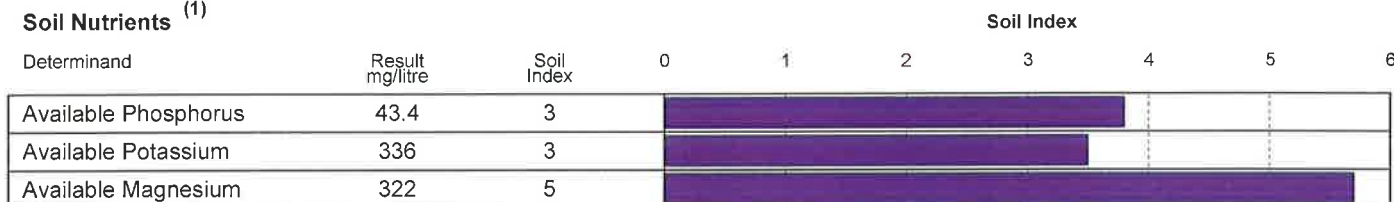
Report Number 51981
Sample Number 432214

ANALYTICAL RESULTS on 'dry matter' basis.

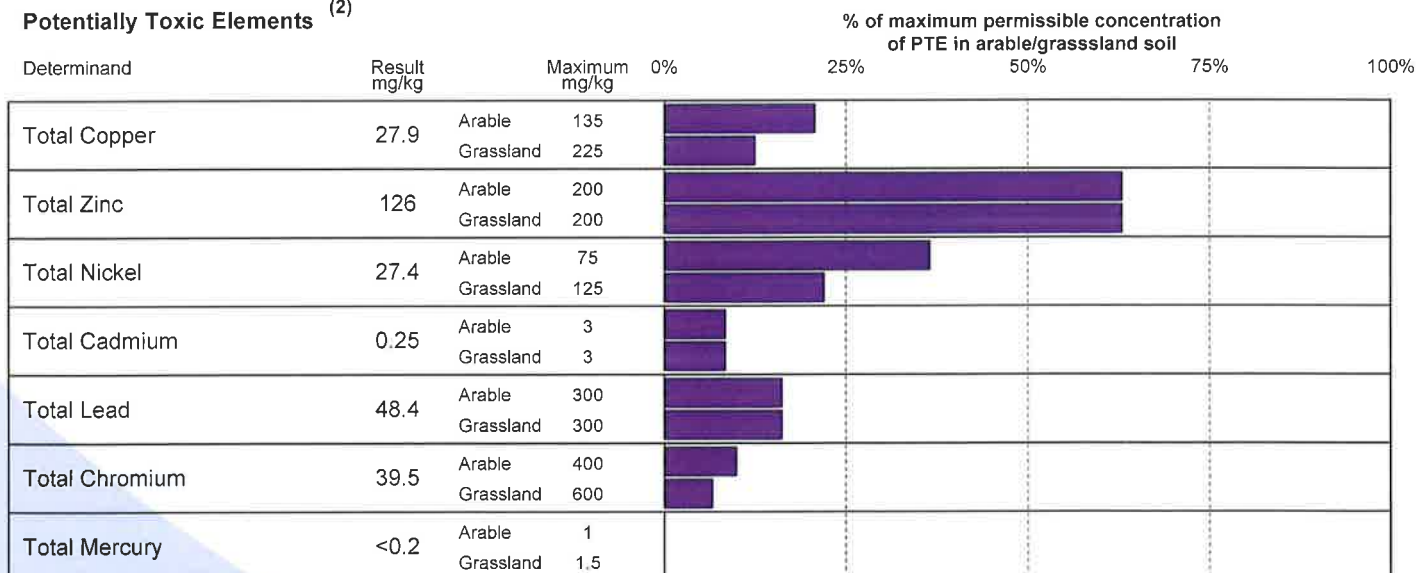
pH ⁽¹⁾



Soil Nutrients ⁽¹⁾



Potentially Toxic Elements ⁽²⁾



(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 16

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Date Received 12-APR-2019
Date Reported 17-APR-2019

Report Number 51981
Sample Number 432215

ANALYTICAL RESULTS on 'dry matter' basis.

pH ⁽¹⁾

Soil pH

Determinand	Result	4	5	6	7	8	9
Soil pH	6.0						

Soil Nutrients ⁽¹⁾

Soil Index

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	39.2	3							
Available Potassium	245	3							
Available Magnesium	295	5							

Potentially Toxic Elements ⁽²⁾

% of maximum permissible concentration of PTE in arable/grassland soil

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	25.7	Arable 100					
		Grassland 170					
Total Zinc	107	Arable 200					
		Grassland 200					
Total Nickel	32.4	Arable 60					
		Grassland 100					
Total Cadmium	0.19	Arable 3					
		Grassland 3					
Total Lead	37.4	Arable 300					
		Grassland 300					
Total Chromium	43.6	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by **Myles Nicholson**

Date **17/04/19**

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 17

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51981
Sample Number 432216

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Determinand	Result	Soil pH						
		4	5	6	7	8	9	
Soil pH	6.3							

Soil Nutrients ⁽¹⁾

Determinand	Result mg/litre	Soil Index	Soil Index						
			0	1	2	3	4	5	6
Available Phosphorus	53.4	4							
Available Potassium	359	3							
Available Magnesium	323	5							

Potentially Toxic Elements ⁽²⁾

Determinand	Result mg/kg	Maximum mg/kg	% of maximum permissible concentration of PTE in arable/grassland soil					
			0%	25%	50%	75%	100%	
Total Copper	25.2	Arable 135						
		Grassland 225						
Total Zinc	112	Arable 200						
		Grassland 200						
Total Nickel	27.0	Arable 75						
		Grassland 125						
Total Cadmium	0.24	Arable 3						
		Grassland 3						
Total Lead	43.4	Arable 300						
		Grassland 300						
Total Chromium	42.4	Arable 400						
		Grassland 600						
Total Mercury	<0.2	Arable 1						
		Grassland 1.5						

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

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17/04/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



SOIL CHEMICAL ANALYSIS REPORT FOR FIELD - 18

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

Date Received 12-APR-2019
Date Reported 17-APR-2019

G MANLEY
FIRS FARM

SOIL

Laboratory References

Report Number 51981
Sample Number 432217

ANALYTICAL RESULTS *on 'dry matter' basis.*

pH ⁽¹⁾

Determinand	Result	4	5	6	7	8	9
Soil pH	6.2						

Soil Nutrients ⁽¹⁾

Determinand	Result mg/litre	Soil Index	0	1	2	3	4	5	6
Available Phosphorus	57.8	4							
Available Potassium	299	3							
Available Magnesium	320	5							

Potentially Toxic Elements ⁽²⁾

Determinand	Result mg/kg	Maximum mg/kg	0%	25%	50%	75%	100%
Total Copper	29.2	Arable 135					
		Grassland 225					
Total Zinc	132	Arable 200					
		Grassland 200					
Total Nickel	29.1	Arable 75					
		Grassland 125					
Total Cadmium	0.33	Arable 3					
		Grassland 3					
Total Lead	42.9	Arable 300					
		Grassland 300					
Total Chromium	45.7	Arable 400					
		Grassland 600					
Total Mercury	<0.2	Arable 1					
		Grassland 1.5					

(1) Recommendations for liming and fertiliser should be obtained from Defra's Fertiliser Manual (RB209). The analytical methods used are as described in Defra's RB427.

(2) Concentration of Potentially Toxic Elements (PTE, commonly referred to as 'heavy metals') are in mg/kg dry soil. The maximum and the percentage of this maximum permissible concentration of PTE in soil are derived from the values in Defra's Code of Practice for Agricultural Use of Sewage Sludge (England & Wales) 1996. If applying organic manures to this soil it is important to ensure the soil is managed with a pH no less than 5.0, and that the PTE maximum values are not exceeded following the application. For soil where the pH value is less than 5.2, a FACTS Qualified Adviser should be consulted. Further details are provided in the Sludge Code.

Released by Myles Nicholson

Date 17/04/19

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ENGLISH PROVENDER

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	54987
Sample Number	82320

Date Received	10-MAY-2019
Date Reported	16-MAY-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		4.51			
Oven Dry Solids	%	12.9	129.00	32250	kg DM
Total Kjeldahl Nitrogen	% w/w	0.100	1.00	250	kg N
Ammonium Nitrogen	mg/kg	<50	< 0.01		kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	198	0.45	113.35	kg P2O5
Total Potassium (K)	mg/kg	82.5	0.10	24.75	kg K2O
Total Magnesium (Mg)	mg/kg	14.3	0.02	5.93	kg MgO
Total Sulphur (S)	mg/kg	115	0.29	71.88	kg SO3
Total Copper (Cu)	mg/kg	0.542	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	1.07	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	748	1.01	252.08	kg Na2O
Total Calcium (Ca)	mg/kg	107	0.11	26.75	kg Ca
Equivalent field application rate		—	1.00	250.00	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only.

Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by

Darren Whitbread

Date

16/05/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com



MR ROB PIGGOTT
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SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	54987
Sample Number	82320

Date Received	10-MAY-2019
---------------	-------------

Date Reported	16-MAY-2019
---------------	-------------

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	635
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.375
Total Chromium (Cr)	mg/kg	0.913
Water Soluble Magnesium	mg/kg	12.0
Water Soluble Phosphorus	mg/kg	12.3
Water Soluble Potassium	mg/kg	81.8

Released by Darren Whitbread

Date 16/05/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts	(% DM)	(Kg N/t)	(Kg P ₂ O ₅ /t)	(Kg K ₂ O/t)	(Kg SO ₃ /t)	(Kg MgO/t)
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'	(% DM)	(Kg N/m ³)	(Kg P ₂ O ₅ /m ³)	(Kg K ₂ O/m ³)	(Kg SO ₃ /m ³)	(Kg MgO/m ³)
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

CRODA WIDNES

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number 45669
Sample Number 79669

Date Received 27-FEB-2019
Date Reported 05-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.45			
Oven Dry Solids	%	0.710	7.10	4438	kg DM
Total Nitrogen	% w/w	0.040	0.40	250	kg N
Ammonium Nitrogen	mg/kg	<50	< 0.01		kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	56.6	0.13	81.01	kg P2O5
Total Potassium (K)	mg/kg	50.7	0.06	38.03	kg K2O
Total Magnesium (Mg)	mg/kg	98.0	0.16	101.68	kg MgO
Total Sulphur (S)	mg/kg	87.7	0.22	137.03	kg SO3
Total Copper (Cu)	mg/kg	0.219	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	0.741	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	561	0.76	472.64	kg Na2O
Total Calcium (Ca)	mg/kg	228	0.23	142.50	kg Ca
Equivalent field application rate		—	1.00	625.00	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren Whitbread

Date 05/03/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
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CRODA WIDNES

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	45669
Sample Number	79669

Date Received	27-FEB-2019
---------------	-------------

Date Reported	05-MAR-2019
---------------	-------------

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	656
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	<0.2
Total Chromium (Cr)	mg/kg	<0.2
Water Soluble Magnesium	mg/kg	74.0
Water Soluble Phosphorus	mg/kg	<0.01
Water Soluble Potassium	mg/kg	35.0

Released by

Darren Whitbread

Date

05/03/19

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How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



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 LLANYPWLL
 WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

ROB MORGAN

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	41692
Sample Number	78631

Date Received	31-JAN-2019
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Date Reported	06-FEB-2019
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		4.45			
Oven Dry Solids	%	7.30	73.00	15208	kg DM
Total Nitrogen	% w/w	0.120	1.20	250	kg N
Ammonium Nitrogen	mg/kg	118	0.12	24.58	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	17.6	0.04	8.40	kg P2O5
Total Potassium (K)	mg/kg	30.3	0.04	7.57	kg K2O
Total Magnesium (Mg)	mg/kg	<10			kg MgO
Total Sulphur (S)	mg/kg	3844	9.61	2002.05	kg SO3
Total Copper (Cu)	mg/kg	<0.2	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	<0.5	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	10791	14.55	% 3030.42	kg Na2O
Total Calcium (Ca)	mg/kg	10.5	0.01	2.19	kg Ca
Equivalent field application rate	—		1.00	208.33	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by

Darren Whitbread

Date

06/02/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
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ROB MORGAN

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Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	41692
Sample Number	78631

Date Received	31-JAN-2019
---------------	-------------

Date Reported	06-FEB-2019
---------------	-------------

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	<0.2
Total Chromium (Cr)	mg/kg	0.210

Released by

Darren Whitbread

Date

06/02/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



Purchase Order : 000344

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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ENCIRC

SLUDGE

SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number 21767
Sample Number 71789

Date Received 02-AUG-2018

Date Reported 07-AUG-2018

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.06			
Oven Dry Solids	%	0.640	6.40	2667	kg DM
Total Nitrogen	% w/w	0.060	0.60	250	kg N
Ammonium Nitrogen	mg/kg	114	0.11	47.50	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	104	0.24	99.23	kg P2O5
Total Potassium (K)	mg/kg	65.8	0.08	32.90	kg K2O
Total Magnesium (Mg)	mg/kg	22.0	0.04	15.22	kg MgO
Total Sulphur (S)	mg/kg	196	0.49	204.17	kg SO3
Total Copper (Cu)	mg/kg	0.579	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	9.43	0.01	3.93	kg Zn
Total Sodium (Na)	mg/kg	438	0.59	246.01	kg Na2O
Total Calcium (Ca)	mg/kg	69.7	0.07	29.04	kg Ca
Equivalent field application rate		—	1.00	416.67	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only.

Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *J Doyle*Date *07/08/18*

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com



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TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
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SLUDGE

SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	21767
Sample Number	71789

Date Received	02-AUG-2018
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Date Reported	07-AUG-2018
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	439
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.296
Total Chromium (Cr)	mg/kg	0.999
Water Soluble Magnesium	mg/kg	3.78
Water Soluble Phosphorus	mg/kg	49.1
Water Soluble Potassium	mg/kg	51.4

Released by

J Doyle

Date

07/08/18

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How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts	(% DM)	(Kg N/t)	(Kg P ₂ O ₅ /t)	(Kg K ₂ O/t)	(Kg SO ₃ /t)	(Kg MgO/t)
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'	(% DM)	(Kg N/m ³)	(Kg P ₂ O ₅ /m ³)	(Kg K ₂ O/m ³)	(Kg SO ₃ /m ³)	(Kg MgO/m ³)
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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KELLOGGS

LIQUID WASTE

LIQUID WASTE (Metric Units)

Sample Reference : KELLOGGS

Sample Matrix : LIQUID WASTE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	18178
Sample Number	70326

Date Received 02-JUL-2018

Date Reported 10-JUL-2018

ANALYTICAL RESULTS on 'as received' basis.

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.20			
Oven Dry Solids	%	1.11	11.10	3083	kg DM
Total Nitrogen	% w/w	0.090	0.90	250	kg N
Ammonium Nitrogen	mg/kg	175	0.17	48.61	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	121	0.28	76.97	kg P2O5
Total Potassium (K)	mg/kg	127	0.15	42.33	kg K2O
Total Magnesium (Mg)	mg/kg	22.3	0.04	10.28	kg MgO
Total Sulphur (S)	mg/kg	25.1	0.06	17.43	kg SO3
Total Copper (Cu)	mg/kg	0.392	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	1.37	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	106	0.14	39.69	kg Na2O
Total Calcium (Ca)	mg/kg	111	0.11	30.83	kg Ca
Equivalent field application rate		—	1.00	277.78	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only.

Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by

Darren Whitbread

Date

10/07/18

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

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Please quote above code for all enquiries

KELLOGGS

LIQUID WASTE

LIQUID WASTE (Metric Units)

Sample Reference : KELLOGGS

Sample Matrix : LIQUID WASTE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	18178
Sample Number	70326

Date Received	02-JUL-2018
Date Reported	10-JUL-2018

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	320
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	<0.2
Total Chromium (Cr)	mg/kg	<0.2
Water Soluble Magnesium	mg/kg	<0.01
Water Soluble Phosphorus	mg/kg	27.0
Water Soluble Potassium	mg/kg	42.0

Released by Darren Whitbread

Date 10/07/18

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How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts	(% DM)	(Kg N/t)	(Kg P ₂ O ₅ /t)	(Kg K ₂ O/t)	(Kg SO ₃ /t)	(Kg MgO/t)
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'	(% DM)	(Kg N/m ³)	(Kg P ₂ O ₅ /m ³)	(Kg K ₂ O/m ³)	(Kg SO ₃ /m ³)	(Kg MgO/m ³)
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

AUTHENTIC FOOD CO

SLUDGE

SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number 33299
Sample Number 75510

Date Received 06-NOV-2018

Date Reported 12-NOV-2018

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.16			
Oven Dry Solids	%	4.42	44.20	3453	kg DM
Total Nitrogen	% w/w	0.320	3.20	250	kg N
Ammonium Nitrogen	mg/kg	1362	1.36	106.41	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	756	1.73	135.26	kg P2O5
Total Potassium (K)	mg/kg	145	0.17	13.59	kg K2O
Total Magnesium (Mg)	mg/kg	379	0.63	49.15	kg MgO
Total Sulphur (S)	mg/kg	446	1.12	87.11	kg SO3
Total Copper (Cu)	mg/kg	3.11	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	16.0	0.02	1.25	kg Zn
Total Sodium (Na)	mg/kg	677	0.91	71.30	kg Na2O
Total Calcium (Ca)	mg/kg	1127	1.13	88.05	kg Ca
Equivalent field application rate		—	1.00	78.13	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only.

Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by *J Doyle*

Date *12/11/18*

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

AUTHENTIC FOOD CO

SLUDGE

SLURRY/SLUDGE ANALYSIS RESULTS (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLURRY/SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	33299
Sample Number	75510

Date Received	06-NOV-2018
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Date Reported	12-NOV-2018
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	2267
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.727
Total Chromium (Cr)	mg/kg	1.49
Water Soluble Magnesium	mg/kg	299
Water Soluble Phosphorus	mg/kg	<0.01
Water Soluble Potassium	mg/kg	131

Released by

J Doyle

Date

12/11/18

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumple						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



FORWARD ENVIRONMENTAL
WHITE PARK 1-3
STATION ROAD
SHEFFIELD
S20 3GS

T596

Please quote above code for all enquiries

FORWARD ENVIRONMENTAL

EFFLUENT

EFFLUENT (Metric Units)

Sample Reference : EFFLUENT BIO WASTE

Sample Matrix : EFFLUENT

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	42011
Sample Number	78656

Date Received	04-FEB-2019
Date Reported	08-FEB-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		6.99			
Oven Dry Solids	%	3.22	32.20	4025	kg DM
Total Nitrogen	% w/w	0.200	2.00	250	kg N
Ammonium Nitrogen	mg/kg	138	0.14	17.25	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	585	1.34	167.46	kg P2O5
Total Potassium (K)	mg/kg	181	0.22	27.15	kg K2O
Total Magnesium (Mg)	mg/kg	111	0.18	23.03	kg MgO
Total Sulphur (S)	mg/kg	1917	4.79	599.06	kg SO3
Total Copper (Cu)	mg/kg	0.682	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	14.9	0.01	1.86	kg Zn
Total Sodium (Na)	mg/kg	3335	4.50	561.95	kg Na2O
Total Calcium (Ca)	mg/kg	351	0.35	43.88	kg Ca
Equivalent field application rate		—	1.00	125.00	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by J Doyle

Date 08/02/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



FORWARD ENVIRONMENTAL
WHITE PARK 1-3
STATION ROAD
SHEFFIELD
S20 3GS

T596

Please quote above code for all enquiries

FORWARD ENVIRONMENTA

EFFLUENT

EFFLUENT (Metric Units)

Sample Reference : EFFLUENT BIO WASTE

Sample Matrix : EFFLUENT

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	42011
Sample Number	78656

Date Received	04-FEB-2019
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Date Reported	08-FEB-2019
---------------	-------------

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	2542
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.698
Total Chromium (Cr)	mg/kg	4.72

Released by J Doyle

Date 08/02/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www.nrm.uk.com**

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

SECANIM

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number 45668
Sample Number 79668

Date Received 27-FEB-2019
Date Reported 05-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.93			
Oven Dry Solids	%	1.43	14.30	3972	kg DM
Total Nitrogen	% w/w	0.090	0.90	250	kg N
Ammonium Nitrogen	mg/kg	<50	< 0.01		kg NH4-N
Nitrate Nitrogen	mg/kg	67.6	0.07	18.78	kg NO3-N
Total Phosphorus (P)	mg/kg	173	0.40	110.05	kg P2O5
Total Potassium (K)	mg/kg	204	0.24	68.00	kg K2O
Total Magnesium (Mg)	mg/kg	30.7	0.05	14.16	kg MgO
Total Sulphur (S)	mg/kg	379	0.95	263.20	kg SO3
Total Copper (Cu)	mg/kg	0.312	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	3.63	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	1094	1.47	409.65	kg Na2O
Total Calcium (Ca)	mg/kg	239	0.24	66.39	kg Ca
Equivalent field application rate		—	1.00	277.78	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only.

Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren Whitbread

Date 05/03/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

SECANIM

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	45668
Sample Number	79668

Date Received	27-FEB-2019
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Date Reported	05-MAR-2019
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	830
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.224
Total Chromium (Cr)	mg/kg	<0.2
Water Soluble Magnesium	mg/kg	9.75
Water Soluble Phosphorus	mg/kg	5.08
Water Soluble Potassium	mg/kg	146

Released by

Darren Whitbread

Date

05/03/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MAELOR FOOD

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	45666
Sample Number	79666

Date Received	27-FEB-2019
Date Reported	04-MAR-2019

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.52			
Oven Dry Solids	%	4.56	45.60	3353	kg DM
Total Nitrogen	% w/w	0.340	3.40	250	kg N
Ammonium Nitrogen	mg/kg	901	0.90	66.25	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	770	1.76	129.66	kg P2O5
Total Potassium (K)	mg/kg	190	0.23	16.76	kg K2O
Total Magnesium (Mg)	mg/kg	243	0.40	29.66	kg MgO
Total Sulphur (S)	mg/kg	762	1.90	140.07	kg SO3
Total Copper (Cu)	mg/kg	3.51	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	19.1	0.02	1.40	kg Zn
Total Sodium (Na)	mg/kg	674	0.91	66.81	kg Na2O
Total Calcium (Ca)	mg/kg	1047	1.05	76.99	kg Ca
Equivalent field application rate		—	1.00	73.53	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren Whitbread

Date 04/03/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

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MAELOR FOOD

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	45666
Sample Number	79666

Date Received	27-FEB-2019
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Date Reported	04-MAR-2019
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	1806
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	0.592
Total Chromium (Cr)	mg/kg	1.17
Water Soluble Magnesium	mg/kg	145
Water Soluble Phosphorus	mg/kg	0.136
Water Soluble Potassium	mg/kg	180

Released by Darren Whitbread

Date 04/03/19

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts	(% DM)	(Kg N/t)	(Kg P ₂ O ₅ /t)	(Kg K ₂ O/t)	(Kg SO ₃ /t)	(Kg MgO/t)
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'	(% DM)	(Kg N/m ³)	(Kg P ₂ O ₅ /m ³)	(Kg K ₂ O/m ³)	(Kg SO ₃ /m ³)	(Kg MgO/m ³)
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.



Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

F990

Please quote above code for all enquiries

MEADOW FOODS

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	18179
Sample Number	70327

Date Received 02-JUL-2018

Date Reported 11-JUL-2018

ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result	Amount per fresh tonne or m3	Amount applied at an equivalent total Nitrogen application of 250 kg N/ha	Units
pH 1:6 [Fresh]		7.11			
Oven Dry Solids	%	0.870	8.70	3107	kg DM
Total Nitrogen	% w/w	0.070	0.70	250	kg N
Ammonium Nitrogen	mg/kg	207	0.21	73.93	kg NH4-N
Nitrate Nitrogen	mg/kg	<10	< 0.01		kg NO3-N
Total Phosphorus (P)	mg/kg	111	0.25	90.78	kg P2O5
Total Potassium (K)	mg/kg	81.4	0.10	34.89	kg K2O
Total Magnesium (Mg)	mg/kg	17.9	0.03	10.61	kg MgO
Total Sulphur (S)	mg/kg	24.9	0.06	22.23	kg SO3
Total Copper (Cu)	mg/kg	0.460	< 0.01		kg Cu
Total Zinc (Zn)	mg/kg	1.79	< 0.01		kg Zn
Total Sodium (Na)	mg/kg	212	0.29	102.06	kg Na2O
Total Calcium (Ca)	mg/kg	114	0.11	40.71	kg Ca
Equivalent field application rate		—	1.00	357.14	tonnes or m3 / ha

The above equivalent field application rate for total nitrogen of 250 kg/ha has been provided purely for guidance purposes only. Organic manures should be used in accordance with the Defra Code of Good Agricultural Practice and where required within the specific regulatory guidance for the spreading of that material to land. To get the most benefit from your organic manures it is recommended that you follow the principles as set out in Defra's Fertiliser Manual (RB209) or as directed by a FACTS qualified adviser.

Released by Darren WhitbreadDate 11/07/18

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 Fax: +44 (0) 1344 890972 Email: enquiries@nrm.uk.com www.nrm.uk.com



Purchase Order : 000234

MR ROB PIGGOTT
TRADE EFFLUENT SERVICES
HUGMOOR HOUSE
HUGMOOR
LLANYPWLL
WREXHAM LL13 9YE

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MEADOW FOODS

SLUDGE

SLUDGE (Metric Units)

Sample Reference : SLUDGE

Sample Matrix : SLUDGE

The sample submitted was of adequate size to complete all analysis requested.

The sample will be kept under refrigeration for at least 3 weeks.

Laboratory References

Report Number	18179
Sample Number	70327

Date Received	02-JUL-2018
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Date Reported	11-JUL-2018
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ANALYTICAL RESULTS *on 'as received' basis.*

Determinand on a fresh weight basis	Units	Result
Conductivity 1:6	uS/cm	448
Total Lead (Pb)	mg/kg	<0.5
Total Cadmium (Cd)	mg/kg	<0.01
Total Mercury (Hg)	mg/kg	<0.05
Total Nickel (Ni)	mg/kg	<0.2
Total Chromium (Cr)	mg/kg	<0.2
Water Soluble Magnesium	mg/kg	0.628
Water Soluble Phosphorus	mg/kg	59.2
Water Soluble Potassium	mg/kg	79.6

Released by

Darren Whitbread

Date

11/07/18

NRM Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS
Tel: +44 (0) 1344 886338 **Fax:** +44 (0) 1344 890972 **Email:** enquiries@nrm.uk.com **www:** nrm.uk.com

How does your sample analysis compare with the 'standard' figures for organic manures?

Farmyard Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Cattle FYM	25	6.0	3.2	9.4	2.4	1.8
Pig FYM	25	7.0	6.0	8.0	3.4	1.8
Sheep FYM	25	7.0	3.2	8.0	4.0	2.8
Duck FYM	25	6.5	5.5	7.5	2.6	2.4
Horse FYM	25	5.0	5.0	6.0	1.6	1.5
Goat FYM	40	9.5	4.5	12.0	2.8	1.8

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Poultry Manure	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
	20	9.4	8.0	8.5	3.0	2.7
	40	19.0	12.0	15.0	5.6	4.3
	60	28.0	17.0	21.0	8.2	5.9
	80	37.0	21.0	27.0	11.0	7.5

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 60% & 90% respectively.

Cattle & Pig Slurries	Dry Matter (% DM)	Total Nitrogen (Kg N/m ³)	Total Phosphate (Kg P ₂ O ₅ /m ³)	Total Potash (Kg K ₂ O/m ³)	Total Sulphur (Kg SO ₃ /m ³)	Total Magnesium (Kg MgO/m ³)
Cattle slurry	6.0	2.6	1.2	2.5	0.7	0.6
Dirty water (from cattle)	0.5	0.5	0.1	1.0	0.1	0.1
Separated cattle slurries						
- strainer box liquid	1.5	1.5	0.3	1.5	ND	ND
- weeping wall liquid	3.0	2.0	0.5	2.3	ND	ND
- mechanically separated liquid	4.0	3.0	1.2	2.8	ND	ND
- solid portion after separation	20.0	4.0	2.0	3.3	ND	ND
Pig slurry	4.0	3.6	1.5	2.2	0.7	0.7
Separated pig slurry - liquid	3.0	3.6	1.1	2.0	ND	ND
Separated pig slurry - solid	20.0	5.0	3.7	2.0	ND	ND

Notes: ND = no data.

The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively (50% & 100% for dirty water).

Biosolids	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Digested cake	25	11.0	11.0	0.6	8.2	1.6
Thermally dried	95	40.0	55.0	2.0	23.0	6.0
Lime stabilised	25	8.5	7.0	0.8	7.4	2.4
Composted	40	11.0	10.0	3.0	6.1	2.0

Notes: The 'standard' phosphate & potash availability figures to the next crop grown from Defra's Fertiliser Manual are 50% & 90% respectively.

Other Organic Manures	Dry Matter (% DM)	Total Nitrogen (Kg N/t)	Total Phosphate (Kg P ₂ O ₅ /t)	Total Potash (Kg K ₂ O/t)	Total Sulphur (Kg SO ₃ /t)	Total Magnesium (Kg MgO/t)
Composts						
Green compost	60	7.5	3.0	6.8	3.4	3.4
Green/food compost	60	11.0	4.9	8.0	5.1	3.4
Mushroom compost	35	6.0	5.0	9.0	ND	ND
Digestates						
Food-based whole	4.1	4.8	1.1	2.4	0.7	0.2
Food-based separated liquor	3.8	4.5	1.0	2.8	1.0	0.2
Food-based separated fibre	27.0	8.9	10.2	3.0	4.0	2.2
Farm-sourced whole	5.5	3.6	1.7	4.0	0.8	0.6
Farm-sourced separated liquor	3.0	1.9	0.6	2.5	<0.1	0.4
Farm-sourced separated fibre	24.0	5.6	4.7	6.0	1.2	1.8
Paper Crumble						
Chemically / physically treated	40	2.0	0.4	0.2	0.6	1.4
Biologically treated	30	7.5	3.8	0.4	2.4	1.0
Water Treatment Cake						
Water treatment cake	25	2.4	3.4	0.4	5.5	0.8
Food industry 'wastes'						
Dairy waste	4	1.0	0.8	0.2	ND	ND
Soft drinks waste	4	0.3	0.2	Trace	ND	ND
Brewing waste	7	2.0	0.8	0.2	ND	ND
General food waste	5	1.6	0.7	0.2	ND	ND

Notes: ND = no data.

The 'standard' figures for the above organic manures have been taken from Defra's Fertiliser Manual 2017 (RB209) 9th edition and the corresponding PLANET version 3 software. Further information on fertiliser recommendations for organic manures can be obtained from the Fertiliser Manual or from a FACTS qualified adviser.