Contract reference	C2-224
Site	Mon & Brec
Lab report No.	25083916
Material type	Sediment
EWC code	17 05 06
Assessor	Chris Ash

Date	7/10/25

Material Suitability for Use Assessment						
Sample reference	1-5	6-10	11-15	16-20	21-25	26-30
Hazardous by WM3	NH	NH	NH	NH	NH	NH
Land use assessment						
Residential land with plant uptake						
Residential use without plant uptake						
Commercial/Industrial						
Public open space - residential						
Public open space - Park						
Contaminant limit values						
Human health with plant uptake						
Land with access to grazing animals						

Suitability for landspreading
Sediment samples contain good amounts of N, P, K and Mg and are a source of organic matter (~15%)

Report Limitations

This report has been prepared based on the information and the site conditions during the period of investigation. No warranty is given as to the possibility of changes in site conditions since the time of investigation.

Furthermore, this report has relied on third party data. Whilst there is no reason to doubt their reliability, LAWS cannot accept any responsibility or liability for their accuracy.

Contents

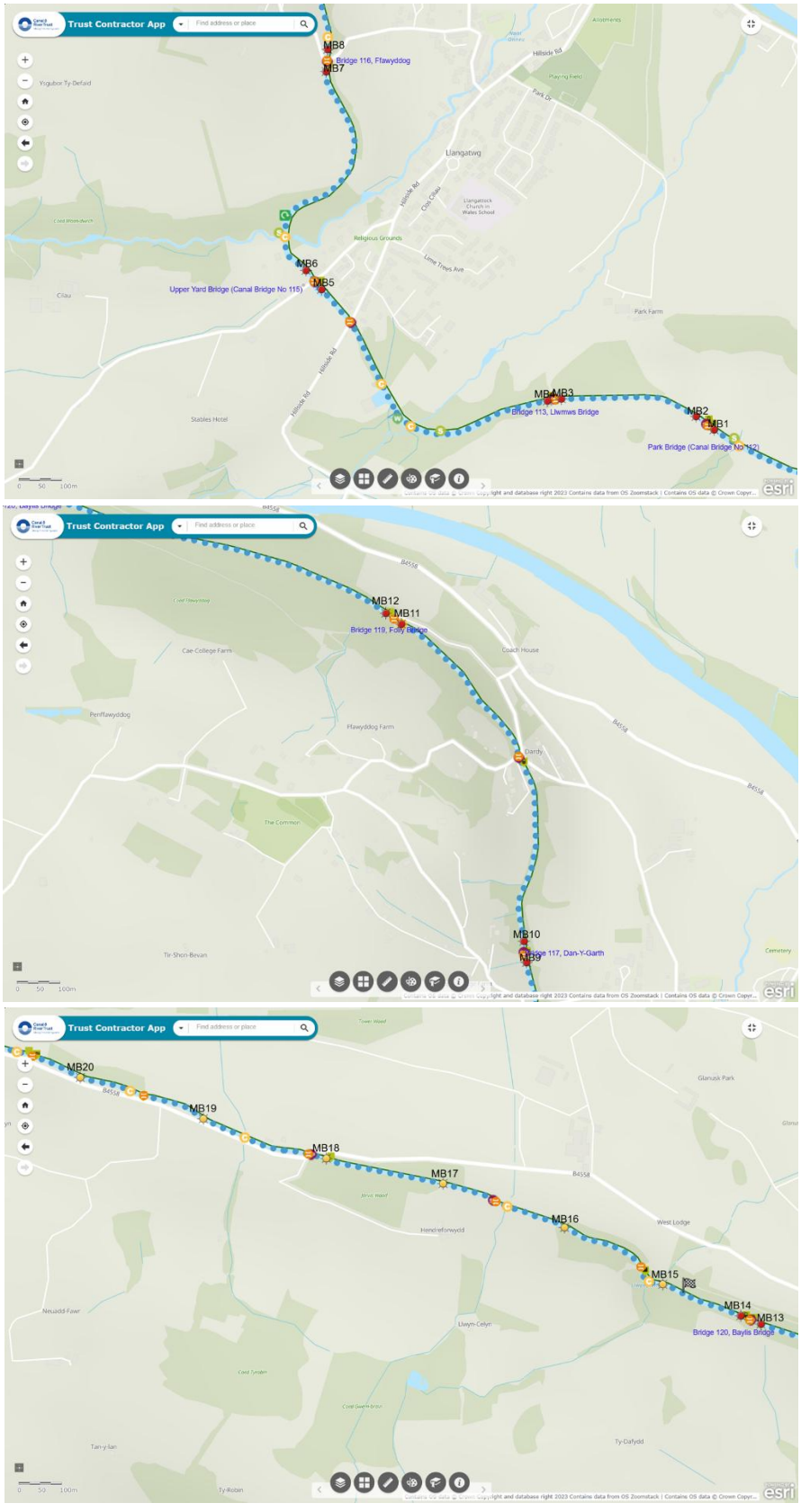
APPENDICES

INTRODUCTION

Sediment samples were collected from the Mon & Brec canal between Crickhowell and Llangynidr. The purpose of this report is to classify and assess the potential reuse and disposal options of dredging sediment at this location, including agricultural landspreading. The assessment was made according to laboratory analysis carried out by Socotec Testing services. This interpretive report presents the details of the assessment of the laboratory analysis results.

Sampling and sample analysis

Samples were collected using a bucket sampler from selected points (refer to site plans in APPENDIX 1). The sample location maps are provided in Appendix 1 and below. All samples are dated as taken 19/08/2025.


Trust Contractor App
MB8
Bridge 116, Ffawyddog
MB7
Llangattwg
MB6
MB5
Upper Yard Bridge (Canal Bridge No 115)
MB4 MB3
Bridge 113, Llwmws Bridge
MB2
MB1
Park Bridge (Canal Bridge No 112)
Trust Contractor App
MB12
MB11
Bridge 119, Foxy Bridge
MB10
MB9
Bridge 117, Dan-Y-Garth
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Bridge 120, Baylis Bridge

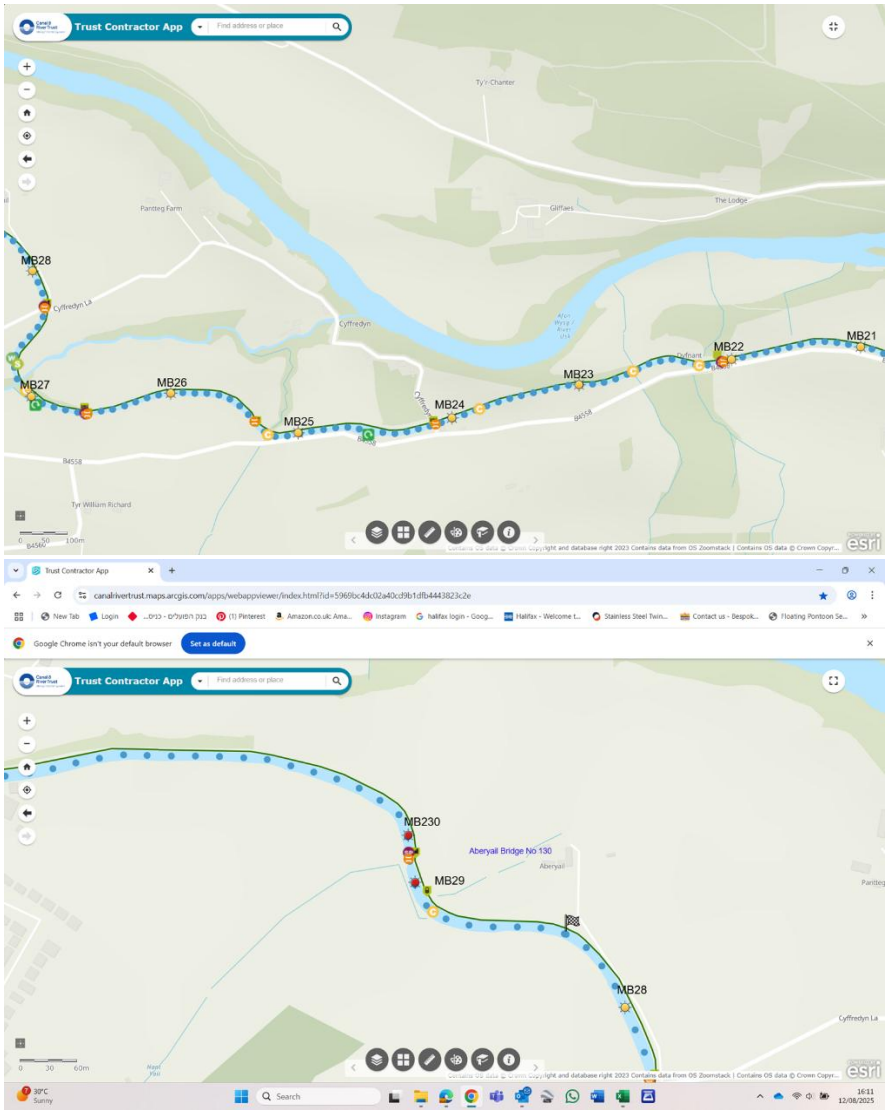

Figure 1. Sample Location Plan

Sediment samples were submitted to Socotec Laboratories for analysis. The full laboratory analysis report with raw data can be found in Appendix 2. A summary of the analysis results is provided in Table 2. Samples were tested for basic properties, potentially toxic elements (PTEs) total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), phenols and BTEX. Any results that measured below the determination limits of the analysis equipment do not form a part of the assessment as they are considered negligible.

Sediment sample assessment

The results of chemical testing of sediment samples are presented in the certificate of analysis (25083916, issue date: 23/09/2025).

The sample results have been classified and assessed according to the following:

- Hazardous waste assessment according to Guidance on the classification and assessment of waste (1st edition V1.2, 2021), Technical Guidance WM3, (EA, NIEA, SEPA, and NRW).
- The LQM/CIEH S4ULs for Human Health Risk Assessment, 2015, (Nathanail, C.P., McCaffrey, C., Gillett, A.G., Ogden, R. C. and Nathanail, J. F. Publication number: S4UL3382).
- Category 4 Screening Levels (C4SLs) for selected substances issued by the Department for Environment, Food and Rural Affairs (DEFRA) to determine if the land is 'contaminated under Part IIA' of the Environmental Protection Act 1990 (March 2014).
- Environment Agency screening values for PTEs in soil (Landspreading: how to manage soil health - GOV.UK (www.gov.uk))

Sediment sample analysis results

The raw analysis data are presented below in Table 2. Results are reported on a dry weight basis and have been moisture corrected to show the fresh weight measurements. Classification was made on a fresh weight basis for WM3 hazardous waste classification, other standards were assessed against using dry weight material results, according to the criteria listed above. Results of the classification and suitability for use assessment are presented in Appendix 3. Results that measured below the determination limit of the analytical equipment do not form a part of the assessment.

Table 1. Analysis results summary for samples

25083916	Sample Number:	1-5 mean	6-10 mean	11-15 mean	16-20 mean	21-25 mean	26-30 mean
Land & Water Services Ltd	Customer Reference:						
Mon & Brec 2025	Matrix:						
23/09/2025	Sampling Date:	19/08/2025	19/08/2025	19/08/2025	19/08/2025	19/08/2025	19/08/2025
Analyte	Units						
Total Moisture at 35°C	%	68.06	73.04	69.36	67.52	67.54	60.46
Major Constituents	-	SILT	SILT	SILT	SILT	SILT	SILT
Minor Constituents	-	None	None	None	None	None	None
Miscellaneous Constituents	-	Organic Matter	Organic Matter	Organic Matter	Organic Matter	Organic Matter	Organic Matter
Colour of Material	-	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
pH (2.5:1 extraction)^	pH units	7.2	7.04	7.02	7.08	7.18	7.12
Conductivity in 5:1 Water Extract^	µS/cm	135.2	146	142.6	129.4	119.8	120.8
Carbonate Content (%CaCO3)^	% m/m	2.5	1.52	1.92	2.64	1.68	3.5
Total Organic Carbon^	% m/m	8.6	8.0	7.6	7.0	7.8	7.2
Soil Organic Matter^	% m/m	14.7	13.8	13.1	12.1	13.4	12.4
Total Oxidised Nitrogen^	mg/kg	2.38	2.72	3.36	2.74	3.7	3.3
Kjeldahl Nitrogen as N^	mg/kg	5660	7020	5498	5540	5678	5220
Ammoniacal Nitrogen (Exchangeable) as N^	mg/kg	2.72	3.54	2.2	3.14	2.7	1.8
Extractable Phosphorus as P by Mass^	mg/kg	123.2	190.4	148.6	114.8	95.3	79.2
Fluoride as F^	mg/kg	0.3			0.2	0.2	0.4
Total Cyanide^	mg/kg						
Phenol Index^	mg/kg						
Sulphide as S^	mg/kg	5.12	5.4	4.82	4.88	4.18	5.14
Sulphur as S^	% m/m	0.075	0.10	0.10	0.08	0.08	0.09
Arsenic as As^	mg/kg	4.66	4.06	3.44	3.94	3.94	4.48
Barium as Ba^	mg/kg	208.02	228.8	176.2	163.6	175.6	166.4
Cadmium as Cd^	mg/kg	0.56	0.72	0.72	0.58	0.64	0.6
Total Chromium as Cr^	mg/kg	25.12	27.6	19.74	16.76	20.42	18.32
Chromium (VI) as Cr^	mg/kg	0.175	0.24	0.2	0.225	0.225	0.2
Copper as Cu^	mg/kg	23.94	29	23.18	18.98	21.46	17.56

Lead as Pb^	mg/kg	31.82	39.74	38.48	28.42	31.38	24.52
Mercury as Hg^	mg/kg						
Molybdenum as Mo^	mg/kg						
Nickel as Ni^	mg/kg	25.42	26.66	19.34	18.26	21.16	20.1
Selenium as Se^	mg/kg	1.1	1.34	1.22	0.8	0.92	0.7
Sodium as Na^	mg/kg	254.6	275.4	225.2	205.4	206.6	206.2
Zinc as Zn^	mg/kg	110.86	136.12	121.02	94.18	100.7	93.84
Boron as B^	mg/kg	1.12	0.86	0.65	0.7	0.85	0.8
Magnesium as Mg by Mass^	mg/kg	333.6	236.4	210.4	209.6	255.4	194.8
Potassium as K by Mass^	mg/kg	199.8	150.4	136.4	134.4	151	106.2
Benzene^	µg/kg						
Toluene^	µg/kg						
Ethylbenzene^	µg/kg						
m/p-Xylene^	µg/kg						
o-Xylene^	µg/kg						
>C6-C10^	mg/kg						
Total GRO C5-C10^	mg/kg						
C5-C6 Aliphatic^	mg/kg						
>C6-C8 Aliphatic^	mg/kg						
>C8-C10 Aliphatic^	mg/kg						
C5-C7 Aromatic^	mg/kg						
>C7-C8 Aromatic^	mg/kg						
>C8-C10 Aromatic^	mg/kg						
Total TPH >C8-C40 (Aliphatic)^	mg/kg	110	108.2	75	88.7	87.7	
>C10-C12 (Aliphatic)^	mg/kg						
>C12-C16 (Aliphatic)^	mg/kg						
>C16-C21 (Aliphatic)^	mg/kg					14.5	
>C21-C35 (Aliphatic)^	mg/kg	63.2	79.22	53	42.86	47.5	34.0
>C35-C44 (Aliphatic)^	mg/kg	26.85	25.1				
Total TPH >C8-C40 (Aromatic)^	mg/kg	174.38	235.4	152.28	266.4	202	186.66
>C10-C12 (Aromatic)^	mg/kg						
>C12-C16 (Aromatic)^	mg/kg		32.7			23.1	15.75
>C16-C21 (Aromatic)^	mg/kg	16.1	26.3	14.1	30.93	25.5	18.2

>C21-C35 (Aromatic)^	mg/kg	129.52	169.4	115.48	212.5	140.32	157.88
>C35-C44 (Aromatic)^	mg/kg	49.52	70.1	46.9	46.425	28.4	20.8
Total TPH >C8-C40 (SCU)^	mg/kg	215.98	304.4	217.4	259.2	235.58	256.8
>C10-C25 (SCU)^	mg/kg	64.9	103.04	82.34	82.6	47.4	45.2
>C25-C40 (SCU)^	mg/kg	150.78	200.8	134.4	186.2	192.88	210.08
Acenaphthene^	mg/kg						
Acenaphthylene^	mg/kg						
Anthracene^	mg/kg						
Benzo[a]anthracene^	mg/kg	0.48	0.5225	0.695	0.5525	0.5125	0.336
Benzo[a]pyrene^	mg/kg	0.62	0.606	0.735	0.5575	0.4625	0.343
Benzo[b]fluoranthene^	mg/kg	0.982	0.956	0.7	0.804	0.7775	0.49
Benzo[g,h,i]perylene^	mg/kg	0.4375	0.43	0.42	0.3425	0.3567	0.315
Benzo[k]fluoranthene^	mg/kg	0.355	0.415	0.52	0.295	0.3233	0.34
Chrysene^	mg/kg	0.478	0.505	0.605	0.475	0.4825	0.352
Dibenzo[a,h]anthracene^	mg/kg						
Fluoranthene^	mg/kg	0.774	0.766	0.592	0.75	0.815	0.45
Fluorene^	mg/kg						
Indeno[1,2,3-cd]pyrene^	mg/kg	0.468	0.4625	0.505	0.3975	0.38	0.29
Naphthalene^	mg/kg						
Phenanthrene^	mg/kg	0.355	0.475	0.54	0.355	0.44	0.38
Pyrene^	mg/kg	0.55	0.538	0.66	0.5725	0.585	0.4025
Total 8 Oil PAHs^	mg/kg	3.628	3.598	3.006	3.292	3.1575	2.192
Total PAH 16^	mg/kg	7.016	7.152	6.092	6.63	6.4925	4.556
Total Nitrogen as N	%	0.566	0.702	0.55	0.554	0.568	0.522

Samples have been reported on a dry matter basis. Organics assessed on a fresh weight basis and corrected for reporting as dry weight.

WM3 Assessment

The relevant inorganic and organic analysis results from sediment samples were assessed according to the WM3 guidance for hazardous materials. The assessment determined that all samples are **Non-hazardous** as defined by the WM3 criteria.

Table 2. WM3 hazardous waste assessment result

Source	Mon & Brec canal (Project REF. C2-224)
Purpose	Disposal as non-hazardous, place to bank/storage or agricultural landspreading
Sample ID	Sediment samples MB 1 - 30
Date of Sampling	19/08/2025
Lab Report Number/reference	25083916
Date of Result	23/09/2025
Pass/Further Action/Fail	All samples are Non-hazardous
Assessor	Chris Ash
Date	07/10/2025

Screening against S4ULs / C4SLs

The sediment samples were screened against the LQM/CIEH S4ULs criteria. The samples have also been screened against the category 4 screening level (residential with plant uptake for As, Cd, Cr and Pb). Dry weight results have been used for initial comparison to the screening values.

Mean analysis results that are considered in the S4UL/C4SL screening values for sediment samples were below the threshold values. Based on the samples received, the sediment can be considered safe for purpose, which includes bankside storage, placement on land with use which has been assessed in this report, landspreading or disposal as non-hazardous materials.

Bank Screening Values (BSV)

The sediment sample results were assessed against Bank Screening Values (BSV) for grazing animals and human health. The dry reported values were used for the comparison against BSV.

All samples are within the BSV limits for bank storage with grazing access for animals. The chemical properties of sediment samples are also below the BSV limits for human health at the respective SOM contents percentage.

Conclusion

1. The sediments are non-hazardous and carry the EWC code for 17 05 06. Disposal to non-hazardous landfill is an option.

2. Sediment analysis results are lower than the LQM/CIEH S4UL and C4SL guideline limit values for contaminated substances. The sediments therefore present no apparent risk to human health and can be stored on land with the respective use types as per the assessment.

3. Sediment analysis results are lower than the Bank Screening Values for both grazing animals and human health. The material can therefore be considered safe for storage along the water course.

4. Sediments were analysed for major nutrients and organic matter; subject to matching with appropriate soil analysis and assessment by a FACTS qualified advisor, the sediments are eligible for agricultural land spreading.

< END OF REPORT >