



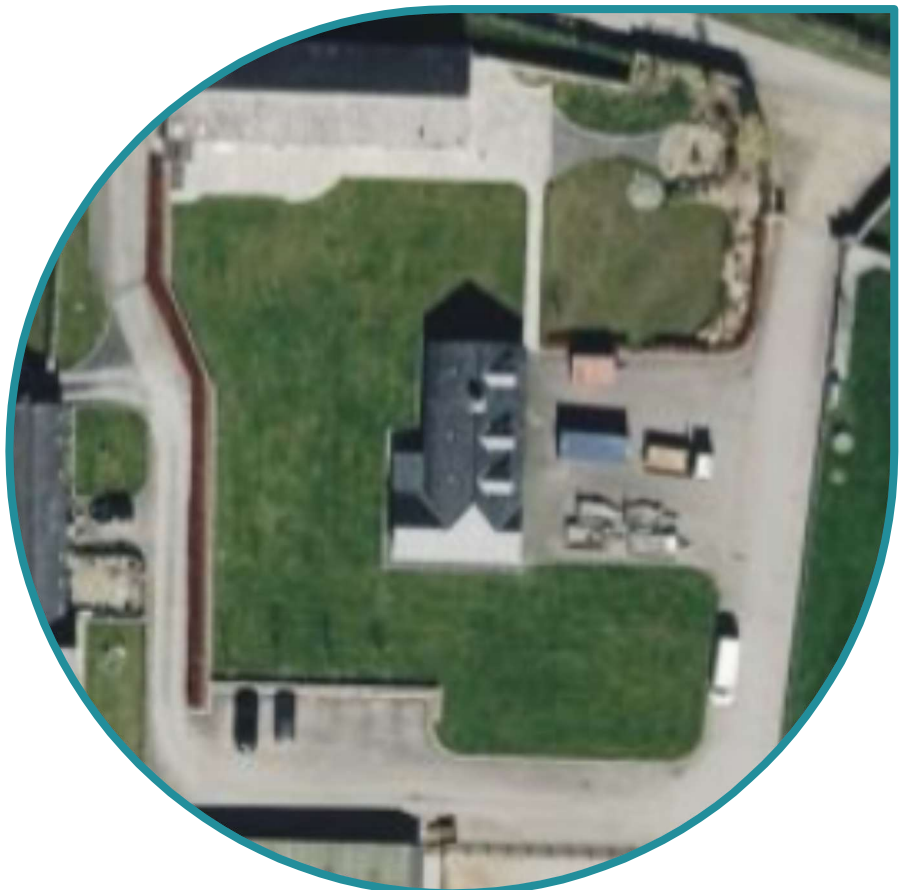
The Barn

Nutrient Neutrality Assessment and Mitigation Strategy

October 2025

Prepared for:

Mr & Mrs Wakefield



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1	26.09.25	Comment	KC	MN
2	01.10.25	Inclusion of Welsh Water asset maps	MN	MN

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1 INTRODUCTION

1.1 Appointment

WCI have been appointed by Mr & Mrs Wakefield (the 'Applicant') to prepare a nutrient neutrality assessment and mitigation strategy (NNAMS) to support a planning application at The Barn, Higher Berse Road, Broughton, Southsea, Wrexham, Wales, LL11 6PL.

1.2 Purpose

This assessment aims to establish the current and proposed nutrient levels of the site and present a strategy for achieving nutrient neutrality.

Nutrient neutrality is a requirement for planning permission for river catchment areas affected by high levels of nutrients as indicated in Cyfoeth Naturiol Cymru/Natural Resources Wales (NRW) 'Advice to planning authorities for planning applications affecting nutrient sensitive special areas of conservation'.¹

2 EXECUTIVE SUMMARY

This report presents the Nutrient Neutrality Assessment and Mitigation Strategy to support a planning application to convert an existing dwelling known as The Barn from one dwelling into two dwellings.

The site lies within the hydrological catchment of the River Dee. The River Dee is a key tributary of the River Dee and Bala Lake SAC which NRW has identified to have high levels of phosphorous and therefore subject to nutrient neutrality requirements.

The proposed development will generate a residual total phosphorus load of 0.19 kg.TP/yr without any mitigation in place

The residual total phosphorus load will be mitigated through the betterment provided in the improvement to private onsite sewage treatment which will provide a betterment of 0.83 kg.TP/yr, and therefore there would be a residual phosphorous load of -0.64 kg.TP/kg contributing to the River Dee and Bala Lake SAC.

The proposed development will reduce the TP load as a result of the proposed mitigation and therefore the proposal will be nutrient neutral.

3 SITE DESCRIPTION

3.1 Site location

The site is The Barn, Higher Berse Road, Broughton, Southsea, Wrexham, Wales, LL11 6PL and is centred on grid reference SJ 30535 51177.

3.2 Proposed development

The proposed development will convert the existing dwelling known as The Barn from one dwelling into two dwellings. Please refer to the planning statement prepared by Portman Surveyors Ltd for further details of the development.

¹ Cyfoeth Naturiol Cymru/Natural Resources Wales 'Advice to planning authorities for planning applications affecting nutrient sensitive special areas of conservation' – Version 5, published 6.08.25

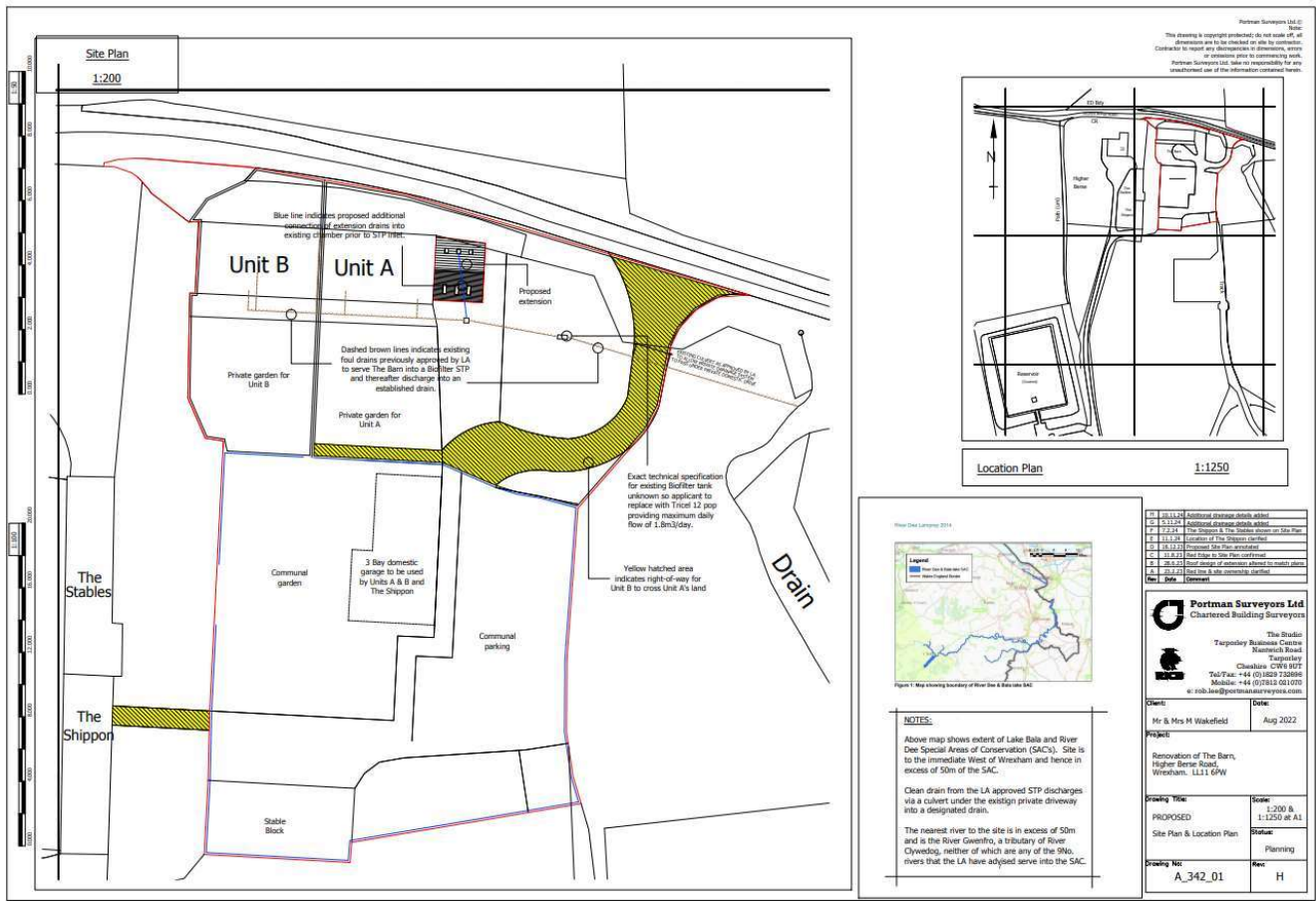


Figure 1 - Site location and block plan

3.3 Hydrological catchment

The site lies within the hydrological catchment of the River Dee. The River Dee is a key tributary of the River Dee and Bala Lake SAC which NRW has identified to have high levels of phosphorous and therefore subject to nutrient neutrality requirements.

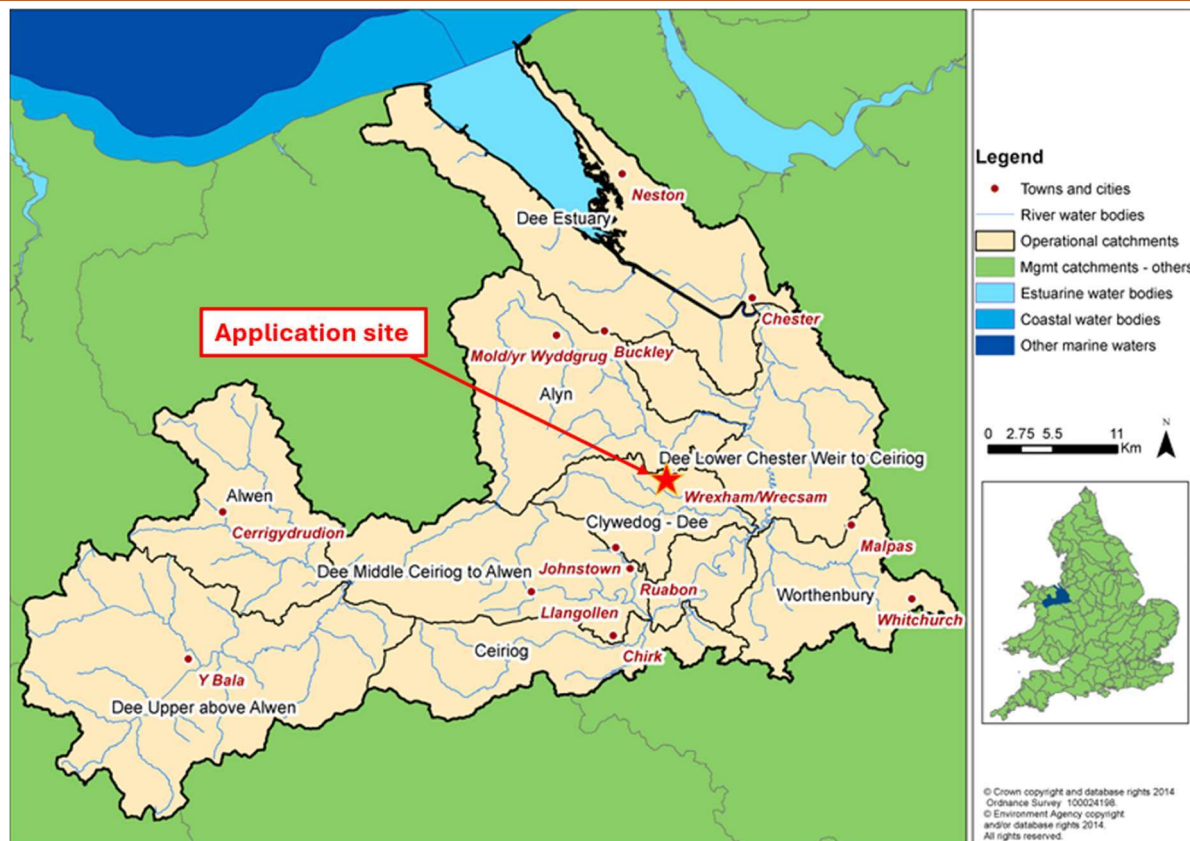


Figure 2 - River Dee - River Dee and Bala Lake SAC Hydrological Catchment

3.4 Existing drainage arrangements

The site lies within the Welsh Water area of operation. Welsh Water asset maps indicate that there are no public foul or combined drainage networks adjacent to the site. The closest foul sewer is approximately 100m to the north of the site which is a greater distance than the proportionate feasibility criteria set by the Environment Agency. See Appendix A – Welsh Water Asset Maps.

The existing dwelling that is to be subdivided currently discharges to a private Package Treatment Plant (PTP) which has a discharge point to a surface water drain to the east of the existing driveway.

3.5 Proposed drainage strategy

Sewerage from the proposed development will reuse the existing discharge point to the surface water drain via a new PTP that will ultimately replace the existing PTP supporting the current dwelling. The discharge to surface water will be in accordance with general binding rules and environmental permitting regulations (EPR). The PTP will be to BS EN 12566 with further information on its treatment performance provided as part of the nutrient neutrality assessment discussed further in this report.

4 NUTRIENT NEUTRALITY ASSESSMENT

4.1 Basis for assessment

This assessment of phosphate load and mitigation has been undertaken in accordance with the guidance available at the time of writing and may be subject to change as guidance evolves.

Where possible, the principles and data included in the Nutrient Budget Calculator (NBC) for SACs (July 2025) in Wales has been applied, including references to Arup/Ricardo 'Nutrient Budget Calculator Guidance', version 1.4.

It is noted from NRW that the River Dee and Bala Lakes SAC is only impacted by increased levels of phosphorous and therefore only an assessment of the phosphate balance has been undertaken.

A summary of the NBC can be found in Appendix B – Nutrient Budget Calculations.

4.2 Screening for likely significant effect

NRW provide guidance on 'what development proposal are unlikely to increase nutrient levels within a river SAC' to help determine whether a new development will have a likely significant effect (LSE) on the designated SAC. NRW provide a list of developments to be screened against to ascertain LSE and whether there is a requirement for an Appropriate Assessment (AA). These have been listed below:

- any development that does not increase the volume and concentration of nutrients in wastewater
- any development that improves existing water quality discharges by reducing the nutrient concentration of wastewater without increasing volume or by decreasing the volume of wastewater produced without increasing the concentration of nutrients
- developments intended to provide services, facilities, commercial sites, or places of employment (e.g., community buildings, schools etc.) for a local population already served by residential connections to existing public or private sewers discharging within the SAC river catchment.
- any development that reduces the frequency, or volume of irregular nutrient discharges within a SAC river catchment such as the erection of agricultural structures and drainage schemes to separate rainwater from manures and slurries by covering yards and existing manure/slurry stores. Note that any such development must not be linked to an increase in livestock numbers or the capacity for an increase in livestock numbers through provision of additional infrastructure. Further information on agricultural developments is provided in the next section.
- private sewage treatment systems discharging domestic wastewater to ground, built to the relevant British Standard (BS 6297:2007+A1:2008) having a maximum daily discharge rate of less than 2 cubic metres (m³) and where the drainage field is located more than 40m from any surface water feature such as a river, stream, ditch or drain and located more than 50m from a SAC boundary and at least 50m from any other known discharge to ground.

As the proposed site will not discharge to ground and is less than 40m from a surface water drain, the development cannot be screened out and will be subject to an AA.

4.3 Stage 1 – Phosphate load due to occupancy

The proposal development will increase occupation through the introduction of 1 new dwelling as part of the subdivision. This occupation is defined by the NBC as having an average occupancy of 2.33 people.

Sewage from the proposed development will be discharge to a surface water drain via a 12 PE Graf One2Clean PTP with phosphates treated to 1.6mg/l without the use of chemical dosing.

The resulting TP load due to occupancy will subsequently be 0.16 kg.TP/yr.

A PTP efficiency certificate has been provided in Appendix C – PIA Certificate.

A PTP management plan has been provided in Appendix D – PTP Operation and Maintenance Schedule.

The applicant's statement of intent for managing the PTP has been provided in Appendix E – Applicant Statement of Intent.

4.4 Stage 2 – Phosphate load due to pre-existing landcovers

The NBC presents phosphate loads according to different land use definitions. These land uses are defined according to the CORINE 2018 land use data.

Other defining land-use characteristics within the NBC are soil drainage type, annual average rainfall (AAR) and whether the site lies within a nitrate vulnerability zone (NVZ). These have been summarised below for the site:

Catchment characteristics	Result
Phosphate Catchment	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid
Soil drainage type	Freely draining
Annual Average Rainfall (AAR)	852 mm/yr

Table 1 - Catchment characteristics

The site covers an area of **0.45 ha** and is currently used as a single dwelling. The NBC categorises this use as 'Residential Land' which has a export coefficient of 1.71 kg.TP/yr/ha and therefore the current site generates a TP load of 0.77 kg.TP/yr.

4.5 Stage 3 –Phosphate load due to new landcovers

The proposed development will sub-divide the current dwelling and therefore will retain its current land use as 'Residential Land'. The proposed TP load will therefore remain as 0.77 kg.TP/yr.

As such there will be no increase in phosphate load.

4.6 Stage 4 – Final NBC summary

Description	Load (kg.TP/yr) ² (post 2025)
Change in TP due to Change in Occupation	0.16
TP from Current Land Use	0.77
TP from Proposed Land Use	0.77
Change in TP due to Change in Land Use	0.00
Net Change in TP due to Development	0.16
Precautionary Buffer (+20%)	0.03
TP produced by the development before mitigation	0.19

Table 2 - Phosphate summary

The proposed development will generate a residual total phosphorus load of 0.19 kg.TP/yr without any mitigation in place.

² All values rounded to be in accordance with NBC calculations which presents values rounded to 2 decimal places

5 MITIGATION STRATEGY

5.1 Proposed mitigation strategy

All mitigation schemes propose improvements to existing sources of phosphate to the SAC. While previous schemes consider improvements to phosphates generated from land use or from discharges from public waste treatment works, there are a significant number of existing dwellings within the SAC hydrological catchment not served by adopted sewers that discharge to the environment via septic tanks or package treatment plants.

Under the Environmental Permitting Regulations (England and Wales) 2015 and preceding regulations, such 'off-mains' discharges are not subject to any particular phosphate reduction performance.

The Arup/Ricardo NBC guidance recommended a baseline performance for septic tanks and package treatment plants of 11.6mg/L and 9.7 mg/L respectively. Improving on current performance through upgrades to existing septic tanks will therefore reduce current levels of phosphate to the SAC which offsets the phosphate load from the proposed development.

To achieve neutrality, the existing PTP serving the single Barn will be upgraded to a BS EN12566-3:2005-certified 12 PE Graf one2clean package sewage treatment plant.

The current PTP tank currently generates phosphate load of **0.99 kg.TP/yr** based on the recommended baseline performance of 9.7mg/L where the make, model and performance cannot be defined. Replacing this with a GRAF one2clean PTP with the specified phosphate output of 1.6 mg/L reduces the phosphate load to **0.16 kg.TP/yr**.

The upgrade generates a phosphate reduction of **-0.83 kg.TP/yr** which more than offsets the 0.19 kg.TP/yr phosphate load resulting from the proposed development.

See NBC mitigation calculations provided in Appendix F – Mitigation Nutrient Budget Calculations.

5.2 Mitigation site location

The mitigation site is located within the applicant's ownership, adjacent to the proposed barn conversion at The Barn, Higher Berse Road, Broughton, Southsea, Wrexham, Wales, LL11 6PL and is centred on grid reference SJ 30535 51177.

5.3 Hydrological catchment

The mitigation site lies within the hydrological catchment of the River Dee. The River Dee is a key tributary of the River Dee and Bala Lake SAC which NRW has identified to have high levels of phosphorous and therefore suitable as mitigation site for phosphate improvements

5.4 Existing drainage arrangements

The PTP currently support the single dwelling that is to be sub-divided. The outlet from the PTP currently discharges to a surface water drain where the PTP make, model and performance cannot be defined.

5.5 Upgrade strategy

The existing PTP supporting the current dwelling will be replaced with a BS EN 12566-3:2006 compliant GRAF One2Clean PTP that will be sized appropriately for 2 dwellings after the current property is sub-divided. The new PTP will then reconnect back into the existing culvert that ultimately discharges to the surface water drain to the east of the driveway, and therefore keeping the same outfall regime as the existing.

A proposed drainage layout has been provided in Appendix G – Proposed Drainage Layout

A PIA certificate for the proposed package treatment plant is included in Appendix C – PIA Certificate.

5.6 Operations and maintenance methodology

The operation of private sewage treatment works is governed by the Environmental Permitting Regulations (England and Wales) 2015 (EPR). The EPR introduced the General Binding Rules (GBR) which define the responsibility for the operation and discharge from the sewage treatment works. The GBR place the onus on the

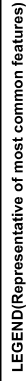
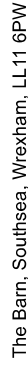
owner to either operate and maintain the system themselves or have written agreement with another person for them to be responsible for the operation and maintenance instead. We recommend that the owner appoints a qualified British Water accredited service engineer to maintain the PTP in accordance with the manufacturer's operation and maintenance manual.

See Appendix D – PTP Operation and Maintenance Schedule for recommended maintenance schedule.



APPENDIX A –WELSH WATER ASSET MAPS





- Notes:**

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

[illegible]

**EXACT LOCATIONS OF ALL APPARATUS
TO BE DETERMINED ON SITE.**

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Map Ref: 330513,351056
Map scale: 1:3000
Printed by: Jessica Formosa
Printed on: 26 Sep 2025

APPENDIX B – NUTRIENT BUDGET CALCULATIONS

Stage 1 - additional nutrient loading from wastewater	
This sheet contains 2 tables. The tables are separated by a heading, which describes the following table. The first table labelled 'Wastewater load input data' requires user inputs. Cells A8, A9, A13, A17 to A20, A22 to A23 are automatically generated and will state 'Not applicable' unless the required user inputs have been entered. You will need to fill in cells B6, B7, B10 to B12 and B14 to B23, unless the description states 'Not applicable'. Cells B8, B9, B13 are automatically generated and will state 'Not applicable' unless the user inputs have been entered. If the user does not enter a postcode in cell B7, cells A9 and B9 will state 'Not applicable', however this data can be selected in Cell B6 in Stage 2. Cells B24 and B25 are automatically generated and will state '0.00' unless the user inputs have been entered. The second table labelled 'Final calculation of nutrient load from wastewater' does not require any user inputs. Cells B28 to B31 are automatically generated and will state '0.00' unless the user inputs have been entered in the second table labelled 'Wastewater load calculation table'. How to fill in the table 'Wastewater load calculation table': Cell B6: Select the Special Area of Conservation (SAC) from the dropdown list. Cell B7: Enter the postcode, or the nearest postcode, for the proposed development site. This input is optional. Cell B10: Select the project type or development type from the dropdown list. Cell B11: Enter the number of additional units being created. Cell B12: Enter the Local Planning Authority the development is within, if a valid postcode has not been entered into cell B7. Cell B14: Select 'Yes' if the default occupancy rate is being used for the development if the project type is residential from the dropdown list. Select 'No' if the default occupancy rate does not apply to the residential development. Cell B15: Enter the average occupancy rate of the development if the default occupancy rate is not automatically generated in cell B13. Cell B16: Enter the water usage per resident or customer/user in litres per person per day. This value should be kept at 120 for residents unless other efficiency measures are used. Cell B17: Enter the percentage of customers/users coming from outside the catchment if the project type is not residential. The default value is set to 100%. Cell B18: Enter the number of employees per unit if the project type is not residential. Cell B19: Enter the water usage per resident or customer/user in litres per person per day. The default value is 120. Cell B20: Enter the percentage of employees coming from outside the catchment if the project type is not residential. The default value is set to 100%. Cell B21: Select the connecting wastewater treatment works (WwTW) from the dropdown list. Cell B22: Enter the certified value of total phosphorus (TP) if you select 'Package Treatment Plant user defined' or 'Septic Tank user defined' in cell B21. Otherwise the default values for these sewerage systems will be used in the calculation of the nutrient load associated with wastewater. Cell B23: Enter the certified value of total nitrogen (TN) if you select 'Package Treatment Plant user defined' or 'Septic Tank user defined' in cell B21. Otherwise the default values for these sewerage systems will be used in the calculation of the nutrient load associated with wastewater.	
Wastewater load input data	
Description of required information	Data entry column - user inputs required
Special Area of Conservation (SAC):	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid
Postcode:	LL11 6PW
Local Planning Authority (LPA):	Wrexham County Borough Council
Rainfall:	852
Project type:	Residential
Development proposal (number of additional units):	1
Not applicable	
Default occupancy rate:	2.33
Is this default value being used?	Yes
Not applicable	
Water usage per resident (litres/person/day):	120
Not applicable	
Not applicable	
Not applicable	
Not applicable	
Wastewater treatment works:	Package treatment plant (PTP) user defined
Enter the bespoke P permit (mg TP/l):	1.6
Enter the bespoke N permit (mg TN/l):	
Phosphorus permitted limit (mg TP/l):	1.60
Nitrogen permitted limit (mg TN/l):	
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Additional population:	2.33
Annual wastewater production (litres):	102123.90
Annual phosphorus load (kg TP/year):	0.16
Annual nitrogen load (kg TN/year):	0.00

Stage 2 - nutrient loading from pre-existing landcovers

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.

The first table labelled 'Physical characteristics' requires user inputs. You will need to fill in cells B5, B7 and B8 unless the description states 'Not applicable'. Cell B6 is automatically generated and will state 'Not applicable' unless a valid postcode has been entered into the previous worksheet. The second table labelled 'Pre-existing landcovers' requires user inputs. You will need to fill in cells A11 to B25. Cells B26 and C11 to D26 are automatically generated and will state '0.00' unless the required user inputs have been entered. Row 26 automatically calculates the 'Total' sum of cells B11 to B25 in cell B26, C11 to C25 in C26, and D11 to D25 in D26.

How to fill in the table 'Physical characteristics':

Cell B5: Select the appropriate soil drainage for the site from the dropdown list.

Cell B7: Select 'Yes' if the automatically populated rainfall value is correct for the site if a valid postcode has been entered into the worksheet titled 'Stage 1'. Select 'No' if the automatically populated rainfall value is incorrect if a valid postcode has been entered into the worksheet titled 'Stage 1'.

Cell B8: Select the annual average rainfall the development will receive from the dropdown list if a valid postcode has not been entered into the worksheet titled 'Stage 1'.

How to fill in the table 'Pre-existing landcovers':

Cells A11 to A25: Select the current (pre-development) land covers present within the redline boundary of the site.

Cells B11 to B25: Enter the area in hectares of each land cover.

Physical characteristics

Description of required information	Data entry column - user inputs required
Soil drainage:	Freely draining
Rainfall identified using postcode (mm/year):	852
Is this rainfall value correct?	Yes
Not applicable	

Pre-existing landcovers

Landcover	Area (hectares)	Phosphorus load (kg TP/year)
Residential land	0.45	0.77
Total:	0.45	0.77

Stage 3 - nutrient loading from new landcovers

This sheet contains one table. A heading describes the table.

The table is labelled 'New landcovers'. You will need to fill in cells A5 to B19. Cells B20, C5 to D19 are automatically generated and will state '0.00' unless the required user inputs have been entered. Cells E5 to E19 are automatically populated and will state 'Not applicable' unless the total area of the landcovers does not match the total area of the landcovers in the worksheet titled 'Stage 2'. Row 20 automatically calculates the 'Total' sum of cells B5 to B19 in cell B20, C5 to C19 in C20, and D5 to D19 in D20.

How to fill in the table 'New landcovers':

Cells A5 to A19: Choose the new (post-development) land covers present within the redline boundary of the site.

Cells B5 to B19: Enter the area in hectares of each land cover.

New landcovers

Landcover	Area (hectares)	Phosphorus load (kg TP/year)
Residential land	0.45	0.77
Total:	0.45	0.77

Stage 4 - final nutrient budget calculation

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table. The tables are automatically calculated using the outputs from the previous stages.

The first table labelled 'Total phosphorus budget' presents the calculations that underpin the final total phosphorus (TP) budget in cell B10. The second table labelled 'Total nitrogen generated' presents the calculations that underpin the final total nitrogen (TN) budget in cell B18.

You do not need to fill in any cells in the tables. Cells B5 to B10 and B13 to B18 are automatically calculated. Cells B5 to B9 and cells B13 to B17 will state '0.00' unless user inputs have been entered to all of the required stages. Cell B10 will state 'No TP mitigation needed' if the phosphorus budget is less than 0.00 kilograms TP per year. Cell B18 will state 'No additional TN generated' if the nitrogen budget is less than 0.00 kilograms TN per year.

Total phosphorus budget

Description of phosphorus values generated	Values generated
Stage 1 phosphorus load (kg TP/year):	0.16
Stage 2 phosphorus reduction (kg TP/year):	0.77
Stage 3 phosphorus load (kg TP/year):	0.77
Stage 3S phosphorus load removed through SuDS (kg TP/year):	0.00
Phosphorus budget ((Stage 1 - Stage 2) + (Stage 3 - Stage 3S)):	0.16
Phosphorus budget + 20% buffer	0.19 kg TP/year requires mitigation

APPENDIX C – PIA CERTIFICATE



**Prüfinstitut für
Abwassertechnik
GmbH**

PERFORMANCE RESULTS

Otto Graf GmbH
 Carl-Zeiss-Str. 2 - 6, 79331 Teningen, Germany
EN 12566-3
 Small wastewater treatment systems for up to 50 PT
Small wastewater treatment system one2clean
 SBR plant in one two-zone polypropylene tank
 Test report PIA2014-216B14.01.e

Nominal organic daily load*	0.27	kg/d	
Nominal hydraulic daily load	0.75	m³/d	
Material	polypropylene		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	94.2 %	43 mg/l
	BOD ₅	98.0 %	7 mg/l
	SS	96.3 %	14 mg/l
	NH ₄ -N**	98.3 %	0.5 mg/l
	N _{tot} **	87.0 %	7.9 mg/l
	P _{tot}	80.2 %	1.6 mg/l
Electrical consumption	0.63	kWh/d	

*at a test influent of ≥ 300 mg/l BOD₅ (mean)
 **determined for temperatures $\geq 12^{\circ}\text{C}$ in the bioreactor

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
 (PIA GmbH)
 Hergenrather Weg 30
 52074 Aachen, Germany

This document replaces neither the declaration of performance nor the CE marking.


 Notified Body
No.: 1739


 Certified according to
ISO 9001:2008


 ILAC-MRA


 Deutsche
Akkreditierungs-
Organisation
D-PL-17712-01-00


 -prüft - tested - testé-

Elmar Lancé November 2014

APPENDIX D – PTP OPERATION AND MAINTENANCE SCHEDULE

Operation and maintenance activity	Frequency	Responsibility
Check water levels, sludge must not enter the SBR chamber uncontrolled	Weekly	Owner
Check the supply and discharge routes for blockages (Visual)	Weekly	Owner
Read operating hours counter for air compressor (total operating hours), aeration (valve 2) and sludge return (valve 4) and if necessary any other units and note in operating log.	Weekly	Owner
Check function of lifters and aeration using the "Manual mode" setting.	Weekly	Owner
Visual Checks for any sludge leaks, clouding or discolouration in the discharge.	Monthly	Owner
Check the supply and discharge routes for blockages (visual)	Monthly	Owner
Read operating hours counter for air compressor (total operating hours), aeration (valve 2) and sludge return (valve 4) and if necessary any other units and note in operating log.	Monthly	Owner
Check air filter	Monthly	Owner. British Water accredited engineer where required
Empty Sludge	When required (Approx. yearly)	Owner. British Water accredited engineer where required
Inspection of the operating log to check for correct operation (nominal/actual comparison)	Yearly	British Water accredited engineer
Check the air filter of the air compressor and the supply/exhaust air openings on the control cabinet	Yearly	British Water accredited engineer
Air compressor maintenance according to details provided by manufacturers	Yearly	British Water accredited engineer
Function check on mechanical, electro-technical and other systems parts key to operation, such as aerator, lifts, control units, valves, alar equipment and battery in power cut detector	Yearly	British Water accredited engineer
Check level of sludge in the sludge reservoir. If necessary, the operator must arrange for the sludge to be removed	Yearly	British Water accredited engineer
Carry out general cleaning work, e.g. remove deposits	Yearly	British Water accredited engineer
Check sufficient aeration and ventilation	Yearly	British Water accredited engineer
Analysis of the aeration basin	Yearly	British Water accredited engineer
Sampling from discharge: - Temperature of wastewater - Substance that can settle - pH	Yearly	British Water accredited engineer

- odour - colour - depth of visibility - BOD₅ (every other maintenance) - COD value - Phosphorous		
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Table 3 - Treatment plant operation and maintenance schedule

APPENDIX E – APPLICANT STATEMENT OF INTENT

The applicant recognises the need for the proposed PTP to deliver the phosphate treatment specified (e.g. 1.6mg/l) to ensure that the new development is nutrient neutral as a result. To ensure the correct treatment levels are achieved, the correct operation and maintenance of the PTP is required. Therefore, the applicant acknowledges that they will need to ensure the following is complete:

- ☐ Take yearly sampling results to check PTP efficiency,
- ☐ Notify the LPA where there are 2 consecutive sample test fails when compared against the PTP's PIA certificate,
- ☐ If the PTP reaches the end of its operational life, it is to be replaced with a new PTP with at least the same level of efficiency, or an alternative form of phosphate mitigation is required.
- ☐ Highlighting that the responsibility for the operation and maintenance of the PTP is to be passed through the land in any land/property sales.

APPENDIX F – MITIGATION NUTRIENT BUDGET CALCULATIONS

Load generated by current PTP

Wastewater load input data	
Description of required information	Data entry column - user inputs required
Special Area of Conservation (SAC):	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid
Postcode:	LL11 6PW
Local Planning Authority (LPA):	Wrexham County Borough Council
Rainfall:	852
Project type:	Residential
Development proposal (number of additional units):	1
Not applicable	
Default occupancy rate:	2.33
Is this default value being used?	Yes
Not applicable	
Water usage per resident (litres/person/day):	120
Not applicable	
Not applicable	
Not applicable	
Not applicable	
Wastewater treatment works:	Package treatment plant (PTP) default
Not applicable	
Not applicable	
Phosphorus permitted limit (mg TP/l):	9.70
Nitrogen permitted limit (mg TN/l):	
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Additional population:	2.33
Annual wastewater production (litres):	102123.90
Annual phosphorus load (kg TP/year):	0.99

Load generated by new PTP

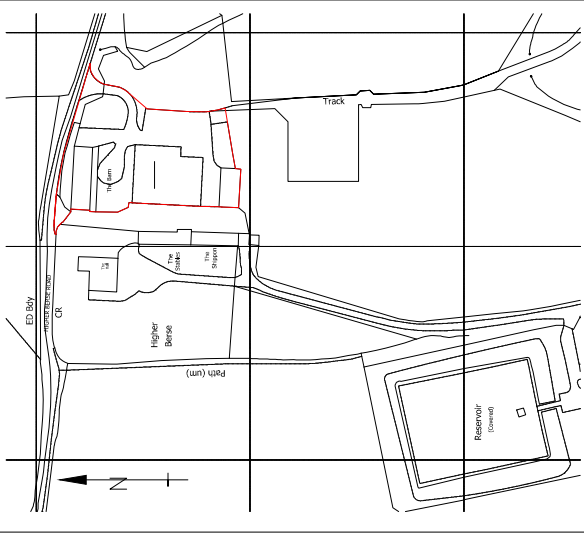
Wastewater load input data	
Description of required information	Data entry column - user inputs required
Special Area of Conservation (SAC):	River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid
Postcode:	LL11 6PW
Local Planning Authority (LPA):	Wrexham County Borough Council
Rainfall:	852
Project type:	Residential
Development proposal (number of additional units):	1
Not applicable	
Default occupancy rate:	2.33
Is this default value being used?	Yes
Not applicable	
Water usage per resident (litres/person/day):	120
Not applicable	
Not applicable	
Not applicable	
Not applicable	
Wastewater treatment works:	Package treatment plant (PTP) user defined
Enter the bespoke P permit (mg TP/l):	1.6
Enter the bespoke N permit (mg TN/l):	
Phosphorus permitted limit (mg TP/l):	1.60
Nitrogen permitted limit (mg TN/l):	
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Additional population:	2.33
Annual wastewater production (litres):	102123.90
Annual phosphorus load (kg TP/year):	0.16

Phosphate load betterment (difference)

- Proposed TP load – current TP load = TP difference
- 0.16 kg.TP/yr – 0.99 kg.TP/year = -0.83 kg.TP/yr
- The update produces a 0.83kg.TP/yr betterment to the current scenario

APPENDIX G – PROPOSED DRAINAGE LAYOUT





1:1250

H	10.11.24	Additional drainage details added
G	5.11.24	Additional drainage details added
F	7.2.24	The Shippon & The Stables shown on Site Plan
E	11.1.24	Location of The Shippon clarified
D	18.12.23	Proposed Site Plan annotated
C	11.8.23	Red Edge to Site Plan confirmed
B	28.6.23	Roof design of extension altered to match plans
A	23.2.23	Red line & site ownership clarified
	Date	Comment



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Mobile: +44 (0)7812 021070
e: rob.lee@portmansurveyors.com

Client:	Mr & Mrs M Wakefield
Date:	Aug 2022

Project: Renovation of The Barn,
Higher Berse Road,
Wrexham. LL11 6PW

Drawing Title:	Scale:
PROPOSED	1:200 & 1:1250 at A1
Site Plan & Location Plan	Status:

Site Plan & Location Map	Rev: H	Planning
Drawing No: A_342_01		

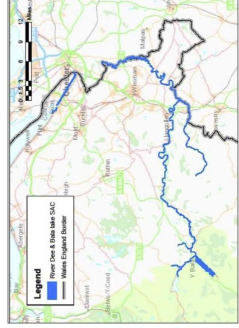


Figure 1: Map showing boundary of River Dee & Rale lake SAC

NOTES:

Above map shows extent of Lake Bala and River Dee Special Areas of Conservation (SAC's). Site is to the immediate West of Wrexham and hence in excess of 50m of the SAC.

Clean drain from the LA approved STP discharges via a culvert under the existign private driveway into a designated drain.

The nearest river to the site is in excess of 50m and is the River Gwenfro, a tributary of River Clywedog, neither of which are any of the 9No. rivers that the LA have advised serve into the SAC.

