

Form WRD: Application for a new abstraction licence or a technical variation to an abstraction licence

Application type

Reference number (The number you generated in form WRA). Example:
WRNATURALRESOURCESWALES1101

WRDERWENTHYDRO1411

For hydropower abstractions, specify the capacity (in kilowatts) of your scheme.

>50 to 100kW

Are there any applications currently being assessed by us that are linked to this application?

No

Is the proposed abstraction going to be aggregated with another existing abstraction?

No

Are any applications, at the same site; being assessed by the Environment Agency?

No

Tell us when you want your abstraction licence to end: [DD/MM/YY]

31/3/2039

Abstraction details

Abstraction location name/reference

Point of Abstraction [A]

Abstraction point type

Single point

National Grid Reference

SJ 09885 42370

Do you have any further points of abstraction?

No

Means of abstraction

Provide full details of the equipment you propose to use to abstract water, such as maximum pump capacity and any relevant dimensions, e.g. pipe diameter. For groundwater abstractions, include details about the borehole (depth and diameter) and details of screening and lining.

No change from the existing license:

Quarter-height Coanda intake screen, 2.4m x 0.45m, with a bar-spacing of 2mm.

Revised intake drawing attached which adds the location of the temporary works to divert the stream; no other changes.

Revised powerhouse drawing attached to reflect the different location.

Please upload your drawings and calculations here. (Spreadsheet file formats need to be: .xls, .xlsx, or .ods)

- File: Bonwm DESIGN DRAWINGS (2).pdf - [Download](#)

Abstraction quantities

Abstraction location name/reference

Point of Abstraction [A]

What purpose will the water be used for?

HYDROPOWER

Period of abstraction Will it be all year?

Yes

Maximum quantities (cubic metres)

Annual 3652387

Daily 6653

Hourly 277

Peak abstraction rate (in litres per second)

77

Number of hours of abstraction per day

24

Add quantities for another location?

No

Calculations and supporting information

Use this section to show us how you have calculated the amount of water you require. This should include details of your operational regime (for example, number of hours and days you intend to abstract, number of units produced or area to be irrigated). We use this information to determine if the volumes you propose to abstract are appropriate for the purpose. Depending which industry you are in, you may need to provide additional information below. If your proposal involves the provision of a residual flow via a notch or orifice, provide information on how this is being calculated. This should include details of the equation being used.

Abstracted quantity based on Turbine Discharge x Time.

Maximum annual abstraction based on a wet year (50% more water than an average year).

Residual flow of Q95 + 30% agreed with NRW, to be provided by a single notch as detailed in the existing license

Industry-specific requirements

	% abstraction and zone applied for	Average gradient of depleted reach (%)	Catchment size above abstraction point (kilometres squared)	Net head between abstraction and discharge points (metres)
	Zone 3 – 70%	26%	2.7 km ²	175m

	Turbine efficiency (%)	System efficiency (%)	Maximum power output (kilowatts)	Annual capacity (kilowatt hours)
	81%	75%	100kW	310,000

State the length of depleted reach (in metres)

710m

Provide the flow data (in cubic metres per second) & ratios specified below:

Q95 0.009 m³/s

Q10 0.183 m³/s

Qmean 0.077 m³/s

What is the ratio of Q95:Qmean? 0.12

What is the ratio of Q10:Qmean? 2.38

What low flow protection (Low flow protection is the flow rate above which abstraction can begin and is separate to the abstraction % take) do you propose to maintain in the depleted reach when the hydropower scheme is operating (in m³/s)?

Q95 = 0.009 m³/s

Means of measurement

State how you intend to measure the quantity of water you abstract. You do not need to do this for a temporary or transfer licence.

Power Generated

Water efficiency

Provide details of what measures you provide or intend to implement, to ensure efficient use of water. This could include water storage, re-use or recirculation, monitoring and checking for leaks, undertaking water audits or other industry specific good practice.

Non-consumptive abstraction

Fish and eel considerations (surface water abstractions only)

Does your proposal include measures to safeguard fish and eels? Only provide details of outfall screening if abstracted water is to be discharged back into a watercourse. For further guidance on appropriate screening Intake screening for fish

	Intake	Outfall
Type of fish screen	Coanda screen	30mm mesh
Screen aperture size (mm)	2mm	30mm

Confirm the fish species present at your site. If you're not proposing any measures to protect fish and eels, you must justify this. For example, we may have confirmed in our pre-application response that the intake is inaccessible to fish or you undertook a fish survey to confirm.

The depleted reach is inaccessible to upstream fish movements. There may be small brown trout in some of the pools.

Maximum upstream salmon limit is at least 100m below the discharge location.

Discharge details

If you intend to return any of the abstracted water to the environment, provide details below. Details of discharge location(s) should correspond with any maps submitted. Do not include discharges to a public sewage system.

	Discharge location name / reference	National Grid Reference of discharge point (12 digit)	Total volume to be discharged (cubic metres)	Environmental Permit for Water Discharge Activity number (if applicable)
	Discharge 'B'	SJ 10205 42940	100% of abstraction	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

Provide a description of the structure and equipment involved in discharge.

The turbine discharge will be returned to the stream via a 450mm concrete or twinwall pipe, set at least 0.7m above typical stream water level so as to be inaccessible to fish. The pipe will have a 30mm exit mesh to prevent the ingress of small mammals. Boulders will be placed around the discharge point to prevent erosion.

Other abstractors / water users

Provide details of nearby abstractors or users of water who could be affected by your proposal. This should include deregulated users (exempt activities or abstractions < 20 cubic metres per day), anglers and canoeists. Your local authority's environmental health will hold details of exempt domestic abstractors.

None

Planning application

Have you sought advice on your planning application?

Yes

Submit a copy of the Planning Authority's response.

- File: Bonwm Planning1 ISSUED-min.pdf - [Download](#)

Declaration

By signing below, you are declaring that, to the best of your knowledge; the information given in this form, on any map and in any supporting or additional information; is true.

Signed Oliver Paish
Print name OLIVER PAISH
position Project Consultant

If an agent is to sign on behalf of the Licence Holder, a letter of authorisation from the Licence Holder is required.

- File: Letter of authority for Oliver Paish Sept-21.pdf - [Download](#)

Date

* 21/10/2021

Would you like a copy of your submission?

Yes

Your email address

oliver.paish@derwent-hydro.co.uk