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

WRHOCHTIEF(UK)CONSTRUCTION1403

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

Yes

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

No

Linked applications

Please confirm how this application is linked to the other application(s)

Example: this application could be one of multiple abstractions and/or impoundment licence applications at the same site. The proposal could involve water rights trading, or this application could be linked to another application for a previously exempt activity.

The proposed abstraction is related to the Snowdonia Visual Impact Provision project. This is for the removal of overhead power lines across the Dwyryd Estuary and burying electricity cables beneath the estuary. The tunnel will be constructed using a tunnel boring machine (TBM). Abstraction licenses are to be submitted for: Abstraction of water from the Afon Glaslyn to provide water to the TBM; Abstraction of process water (the water that is put into the process from the Glaslyn to operate the TBM) and dewatering of the tunnel shaft from the Garth construction compound; abstraction of water from the tunnel shaft at the Cilfor construction compound. Environmental permits are also being submitted for discharge of excess treated process water to a watercourse from the Garth and Cilfor construction compounds.

Linked application numbers

PAN-020743 - Cilfor Environmental Permit - Discharge of treated process water

PAN-020734 - Garth Environmental Permit - Discharge of treated process water

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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]
01/12/2026

If you require a shorter or longer duration licence, please provide details and your justification
The abstraction is required in support of the Snowdonia Visual Impact Provision (VIP) project. The project aims to reduce the visual impact of National Grid's overhead line across the Dwyryd Estuary from Penrhyndeudraeth to Llandecwyn near Porthmadog. The scheme will entail removing a section of overhead line and replacing it with electricity cables buried in a tunnel underground (beneath the Dwyryd Estuary. The scheme benefits from full planning permission. A tunnel boring machine (TBM) will be launched at the Garth Construction compound (near Penrhyndeudraeth) and will entail construction of a 15.4m deep launch shaft. The TBM will require up to 500m3 of water per day at peak times to operate. The abstraction from the Afon Glaslyn is required for the duration of construction, currently estimated to be completed in December 2026.

Abstraction details

Abstraction location name/reference
Afon Glaslyn

Abstraction point type
Single point

National Grid Reference
SH58914 38999

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.
It is proposed to abstract water from the Afon Glaslyn using a pump. The surface water abstraction from the Glaslyn will be up to 500m3 per day. The pipe diameter is expected to be up to 225mm with a screen (2mm aperture) at the intake. The maximum pump capacity is 40 l/s. No formal intake structure (no headwall) is proposed and the pipe will be ground mounted (to avoid floatation and movement in flood conditions).

Abstraction quantities

Abstraction location name/reference
Afon Glaslyn SH58914 38999

What purpose will the water be used for?
Facilitate the operation of a tunnel boring machine

Period of abstraction Will it be all year?
Yes

Maximum quantities (cubic metres)	
Annual	182,500
Daily	500
Hourly	144

Peak abstraction rate (in litres per second)
40

Number of hours of abstraction per day
4

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.

The tunnel boring machine (TBM) will operate 24 hours a day, 365 days a year. The TBM requires a maximum of 500m3 per day to operate. The water requirement will vary based on geology i.e. additional water will be required in clay geology, however will not exceed 500m3 per day. Typical usage is 100m3 per day. Ground investigations detailing the expected geology to be encountered supports this application.

Water abstracted from the Glaslyn used in the tunnelling process will be recycled. Water used in the tunnelling process will be abstracted and directed to a treatment facility in the construction compound which will entail dewatering and sediment removal. A separate abstraction license application will be submitted for water abstraction from the tunnel / shaft. The treated water will be stored within lagoons on site ready for re-use in the process. The water recycling system will reduce abstraction quantities from the Glaslyn. 500m3 per day is a maximum abstraction quantity and would only apply when the on site lagoons are empty / low, for example, at the early stages of the tunnel drive.
The pump rate of 40 l/s is derived from the 500m3 requirement and abstracting from the Glaslyn in low tide conditions for 4 hours per day, ensuring the saline content in the abstracted water is minimal.
The hourly abstraction rate of 144m3 is based on a continuous pump flow rate of 40 l/s over an hour.

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.

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Frequent inspection of the recirculation system will be undertaken and any leaks repaired.

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	Stainless Steel Perforated Sheet	Stainless Steel Perforated Sheet
Screen aperture size (mm)	2mm	2mm

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.

As per NRW feedback from pre-application PPN-00944, a 2mm screen is required to prevent harm to European Eels.
A Fish Habitat Assessment Report (reference C0233-ATM-GES-ZZ-RP-x-0005 - Atmos January 2023) has been prepared in support of this application and confirms that the Afon Glaslyn has a good quality for Fish Habitat. The proposed fish screen will safeguard fish and eels.

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)
	Afon Glaslyn	SH589389	500	PAN-020734
	-	-	-	-
	-	-	-	-
	-	-	-	-

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

An environmental permit for discharge has been submitted and is pending NRW review. The discharge pipe will be 225mm in diameter and also fitted with a stainless steel perforated screen with 2mm aperture size.

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.

An existing abstraction from the Afon Glaslyn for Breedon Minffordd Quarry is located at SH 59088 39154, approximately 220m north-east and upstream of the proposed abstraction point. No other nearby abstractors (from the Glaslyn) have been identified.

No nearby river gauging stations are available, however an NRW river gauging station on the Glaslyn is located near Beddgelert at SH591477 approximately 8.8km north of the proposed abstraction point. Mean river flows for the Afon Glaslyn at the Beddgelert gauging station (from 1961-2021) are 5.855m3/s with a recent annual maximum of 151m3/s recorded in 2020 (data sourced from National River Flow Archive, February 2023). Based on flows in the Glaslyn, the abstraction amount (500m3 per day maximum / 40 l/s pump rate) is considered to have negligible impact on the Glaslyn and consequently any deregulated users.

Planning application

Have you sought advice on your planning application?

Yes

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 Aled Williams

Print name Aled Williams

position Associate - Flood Risk and Drainage

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

- File: Declaration Consent Letter (002).pdf - Download

Date

* 14/03/2023

Would you like a copy of your submission?

Yes

Your email address
aled.williams@waterco.co.uk