



Title register for:

Picks Mill, Road Green, North Nibley, Dursley, GL11 6BA (Freehold)

Title number: GR434584

Accessed on 11 August 2022 at 10:40:08

This information can change if we receive an application. This service can not tell you if HM Land Registry are dealing with an application.



This is not an official copy. It does not take into account if there's a pending application with HM Land Registry. If you need to prove property ownership, for example, for a court case, you'll need to order an official copy of the register.

Register summary

Title number GR434584

Registered owners James Nicholas Mahoney
Picks Mill, Road Green, North Nibley, Dursley GL11 6BA
Caroline Elizabeth Jones
Picks Mill, Road Green, North Nibley, Dursley GL11 6BA

Last sold for £830,000 on 07 August 2019

This value covers more than just the land in this title

A: Property Register

This register describes the land and estates comprised in this title.

Entry number **Entry date**

1	2019-03-19	GLOUCESTERSHIRE : STROUD The Freehold land shown edged with red on the plan of the above title filed at the Registry and being Picks Mill, Road Green, North Nibley, Dursley (GL11 6BA).
2	2019-03-19	The Conveyance dated 20 May 1985 referred to in the Charges Register contains a provision as to light or air.
3	2019-04-03	A new title plan based on the latest revision of the Ordnance Survey Map with an amended extent has been prepared.

B: Proprietorship Register

This register specifies the class of title and identifies the owner. It contains any entries that affect the right of disposal.

Class of Title: Title absolute

Entry number	Entry date	
1	2019-08-28	PROPRIETOR: JAMES NICHOLAS MAHONEY and CAROLINE ELIZABETH JONES of Picks Mill, Road Green, North Nibley, Dursley GL11 6BA.
2	2019-08-28	The price stated to have been paid on 7 August 2019 for the land in this title and in GR128395 was £830,000.
3	2019-08-28	The Transfer to the proprietor contains a covenant to observe and perform the covenants referred to in the Charges Register and of indemnity in respect thereof.

C: Charges Register

This register contains any charges and other matters that affect the land.

Class of Title: Title absolute

Entry number	Entry date	
1	2019-03-19	A Conveyance of the land in this title dated 20 May 1985 made between (1) Margaret Murray-Gourlay and (2) Philip Hallam Jones and Philippa Susan Jones contains restrictive covenants. NOTE: Copy filed.
2	2019-03-19	The land is subject to the rights reserved by the Conveyance dated 20 May 1985 referred to above.
3	2019-08-28	REGISTERED CHARGE dated 7 August 2019 affecting also title GR128395.
4	2019-08-28	Proprietor: BANK OF SCOTLAND PLC (Scot. Co. Regn. No. SC327000) of Halifax Division, 1 Lovell Park Road, Leeds LS1 1NS.

Good practice guidelines for hydroelectric-power schemes

Environmental site audit checklist



Please read through these guidance notes carefully before you fill in the checklist.

This checklist will take you through the main environmental considerations relating to your hydroelectric-power scheme.

Fill in this checklist to help you understand what information you need to provide us (the Environment Agency) and how to get that information.

Send your filled-in checklist with your hydroelectric-power scheme pre-application form.

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- 6 Navigation

Feedback

Introduction

To develop a hydroelectric-power scheme, you must get certain approvals and permissions from us, your local planning authority and, in some cases, conservation organisations. These approvals and permissions may include:

- an abstraction licence (from us);
- an impoundment licence (from us);
- flood defence consent (from us);
- fish pass approval (from us); and
- planning permission (from the local planning authority).

To get these approvals and permissions you first need to fill in our **hydroelectric-power scheme pre-application form** and this **checklist**. Send them to us at:

Permitting Support Centre
Water Resources Team
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF.

Or you can email them to us at
PSC-WaterResources@environment-agency.gov.uk.

You can get the relevant forms and other guidance off our website at www.environment-agency.gov.uk/hydropower.

Filling in the pre-application form and checklist

The hydroelectric-power scheme pre-application form (WR315) is split into the following two sections.

- Part A for general information
- Part B for technical information

What you must do

You must fill in part A of the pre-application form. This does not ask for detailed technical information. If you can provide detailed technical information, also fill in part B.

You must also fill in this checklist and send it to us with your pre-application form.

There are six sections covering the following areas.

- 1 Water resources and hydromorphology (physical characteristics, such as size, shape and structure of a channel, its sediment, and the flow and quantity of water)
- 2 Conservation
- 3 Chemical and physico-chemical elements (relating to both physical and chemical characteristics)
- 4 Fisheries and biodiversity
- 5 Flood risk
- 6 Navigation

The sections will take you through the main environmental considerations for your scheme, the information you need to give us and how you can get that information. If you are just filling in the pre-application form to make initial enquiries, we would not expect you to have had any detailed investigations carried out. In these instances you should use the checklist to help you understand the information that we are likely to need as your application progresses.

If you tick a green box, you will not normally need to take any further action. If you tick a red box, the relevant note will give you guidance on the extra work you need to carry out.

What we will do

Once we receive your pre-application form and checklist we will assess your proposal. We may need to ask you for extra information to help us clearly understand your proposal.

Following our assessments we will tell you:

- what information you will need to provide in an environmental report to support your application;
- ask you to make a formal application (we will tell you how); or
- advise you against making a formal application (we will give our reasons for this).

Planning permission

Our pre-application form and this checklist do not specifically cover local authority planning issues or heritage issues relating to your scheme. We will give you advice on these issues if we can, but you are responsible for tackling these issues yourself. Your local planning authority (LPA) will need to be satisfied that the scheme is an acceptable use of the land and that any environmental risks or effects can be prevented or controlled,

either through our permissions or by conditions attached to the planning permission. Your local planning authority may ask for an environmental impact assessment (EIA) if this is required by law and your scheme is expected to have a significant effect on the environment. In that assessment we would expect you to deal with matters highlighted by the checklist. You can ask your local planning authority for a ‘screening opinion’ on whether you will need to do an EIA instead of the environmental report that we would otherwise need.

We will work with you and your local planning authority to make sure, as far as possible, that you provide all the necessary information in one environmental report or environmental impact assessment.

Fill in the checklist (all sections) and send it to us with your pre-application form and any supporting information asked for in the notes.

1 Water resources and hydromorphology

We realise that you may not have enough information to answer all questions in section 1 at the moment. In this case, the notes to the questions will give you an indication of the information you may need to provide as your application progresses.

	Yes	No
Is the scheme ‘high head’ – that is more than 4m head? (See note 1a for more information.)		
Will the scheme return all the water abstracted (removed) to the watercourse it was taken from? (See note 1b for more information.)		
Will the scheme use any existing weir, channel, leat or other structure? (See note 1c for more information.)		
Will the scheme raise the height of, or change the operation of, an existing weir in a way that increases the length of impoundment (water held back behind a weir or dam)? (See note 1d for more information.)		
Will the scheme create a new impoundment? (See note 1e for more information.)		
Have you made an assessment of the existing hydrology of the site, which includes analysing how your scheme would affect the volume of water flow or the water level in all existing and proposed rivers, channels and so on? (See note 1f and question 2 in the hydroelectric-power pre-application form for more information.)		
Will the turbine be placed in a channel (or pipe for some high-head schemes) which is separate from the main watercourse? (See note 1g for more information.)		
Will the scheme cause the flow in a river channel to become depleted (that is, will the flow in the river channel be reduced)? This is known as a depleted reach. (See note 1h for more information.)		
Will the scheme create an extended depleted reach? (See note 1i for more information.)		
Will the scheme cause the flow at a weir to become depleted (that is, will the flow over a weir be reduced)? (See note 1j for more information.)		
Are planned changes in the flow in depleted reaches likely to cause a significant change to the patterns and rates of sediment transfer? (See note 1k for more information.)		
Are the river conditions around the proposed site likely to make the water more turbid (cloudy with suspended matter) during the operation of the scheme? (See note 1l for more information.)		
Is the proposed scheme in a water body that is currently at good ecological status or good ecological potential under the Water Framework Directive? (See note 1m for more information.)		
Do you have a right of access to the abstraction locations of the scheme? (See note 1n for more information.)		

Notes

- 1a High head hydroelectric-power schemes are normally in upland streams and rivers, where there is a significant gradient but a lower volume of water. A high head (more than 4m head) means that less water is needed to generate power. There are important differences in the design of high-head and low-head (less than 4m head) hydroelectric-power schemes. For example, high-head schemes often divert water away from the stream and create much longer depleted reaches than low-head schemes. Extra environmental considerations may need to be given to high-head schemes.
- 1b If the abstracted water is returned to a different stream or river, you will need to consider the effects this might have on that stream or river. You will also need to consider the effects of reducing the flow in the stream or river the water has been taken from. We will probably ask you for an assessment of these effects.

- 1c If a new structure will be built, or existing structures changed, you will need a new impoundment licence or to change an existing licence. The details will depend on what exactly is going to be built. You may also need an environmental permit or flood defence consent for the proposed construction. You will probably need planning permission for the turbine, any structure enclosing it and any new access road. When you apply for planning permission, you may need to have an environmental statement or an environmental impact assessment to support your application. You may also need to provide a flood-risk assessment to support your applications for flood defence consent and planning permission.
- 1d Changing an existing impoundment may change the characteristics of the river, such as the pattern of erosion and how sediment is carried and deposited. You may need to provide a geomorphological assessment. In all cases, you will need to supply details of:
- the nature of the change (extra height of impoundment or change in operation and so on);
 - the length of impounded water (in metres) associated with the existing structure; and
 - the extra length of impounded water (in metres) that will be created as a result of the new scheme.
- 1e A new impoundment can have serious effects downstream. If you need to create a new impoundment, you may need to provide a detailed 'geomorphological' assessment to help us understand the effects on erosion and on how sediment is carried and deposited in the river.
- You will also need to consider:
- the cumulative effects from the new impoundment together with those from any existing impoundments; and
 - how the new impoundment will affect other bodies of water, both upstream and downstream.
- You should ask us for more details about geomorphological assessments and the appropriate techniques to use.
- 1f We will ask for this information at an early stage in the process. We will always try to make the information we ask for appropriate to the site and the proposed scheme. However, if the potential effects of the proposal mean that we need a more detailed assessment (for example, if the scheme lies within a national or European conservation site, there are significant fishery or biodiversity features or other interests on or around the river banks) you may need to provide extra information. This may mean that you need to carry out a comprehensive flow survey of the site, including measuring the current over a range of flows. We will try to let you know what we need as early as possible.
- We may be able to give you hydrometric information to help with your assessment. We manage a national network of river flow, river level and rainfall monitoring stations, and the information from these is available to the public. To find out what information we have available for your location, phone the National Customer Contact Centre on 08708 506 506 (8am to 6pm Monday to Friday) or send an email to enquiries@environment-agency.gov.uk. Or you can look for information on our website at www.environment-agency.gov.uk/hiflows/search.aspx.
- 1g If the turbine is in a channel (or pipe) separate from the main watercourse, you will probably need an abstraction licence as well as an impoundment licence or flood defence consent (or both).
- 1h If the water for the hydroelectric-power scheme is taken through a channel that is separate from the river or stream the water was abstracted from, there will be a depleted reach (where the flow is reduced) in the main river or stream. You will need to provide an assessment of the extent and effects of the reduced flow. This should include the effects on its hydrology, biodiversity, ecology, fisheries, hydromorphology and so on. We will need detailed drawings of the proposed hydroelectric-power scheme, including the abstraction and discharge point. The ecological value of the depleted reach is important in determining the proportion of flow that can be used for generating power. You should avoid schemes that cause a depleted reach as the measures needed to reduce the effects of this will limit the amount of power your scheme could generate.
- 1i If your scheme abstracts water from the river and releases it over 200 metres downstream, this will create an extended depleted reach (see section 7 and table 2 in the Good Practice Guidelines). We are likely to need information on the physical characteristics of the river in order to determine how it will be affected by the abstraction. Schemes that significantly reduce the wetted area at the side of a river (by reducing flow in rivers with shallow banks) at low flows are most sensitive. Ditches or channels with minimal gradients are considered to be less sensitive. This information will guide the flow conditions we may need to set in any licence we issue.
- 1j If the water is abstracted immediately before a weir and returned immediately after it, only the weir has a depleted flow, which may affect the appearance of the weir, the characteristics and ecology of the weirpool, and fish passage. We are likely to ask for an assessment of these effects.
- 1k If the water for the hydroelectric-power scheme is taken through a channel or pipe that is physically separate from the watercourse there will be a depleted reach in the main watercourse. We will need a geomorphological assessment of the extent of, and effects of, the reduction in flow in this channel. The focus of this assessment will be on changes to the amount of sediment that can be carried through the depleted reach across the full range of flows.
- 1l River beds with high percentages of silt or fine material are likely to become more turbid when the hydroelectric-power scheme is in operation. The design of the scheme is also likely to be important. For example, where the abstracted water is released will affect the extent to which it disturbs the river bed. We may ask for an assessment of any likely changes in how turbid the river will become based upon these factors. Also, we may have to set licence conditions that make sure the scheme keeps to relevant laws on suspended solids (such as the Water Framework Directive).
- 1m You will need to look up the current ecological quality using the 'What's in Your Backyard' facility on our website at: http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonl=y=off&lang=_e&topic=wfd_rivers. Put in the postcode or place name to zoom to the location of your proposed scheme.

1n You must have access to the locations where water is abstracted. So you must:

- have a right of access or a prospective right of access; or
- own or occupy the land.

Evidence of your right of access may include:

- a deed of grant or lease of rights;
- a conveyance, lease, tenancy agreement or personal rights; or
- a compulsory purchase order.

We will not accept a copy of a letter from the landholder as proof of a right of access. It must be something that creates or leads to a legal right or an interest in the land and is legally binding. You must be able to prove that your right of access continues for 12 months after any abstraction or impoundment licence is issued, unless you only need the licence for a period of less than 12 months.

2 Conservation

	Yes	No
Is the scheme within, or likely to affect, a Site of Special Scientific Interest (SSSI)? (See note 2a for more information.)		
Is the scheme within, or likely to affect, a Special Area of Conservation (SAC)? (See note 2b for more information.)		
Is the scheme within, or likely to affect, a Special Protected Area (SPA)? (See note 2c for more information.)		
Is the scheme within, or likely to affect, a national nature reserve? (See note 2d for more information.)		
Is the scheme within, or likely to affect, a local nature reserve? (See note 2d for more information.)		
Is the scheme within an Area of Outstanding Natural Beauty (AONB)? (See note 2e for more information.)		
Is the scheme within a national park? (See note 2f for more information.)		
Is the scheme likely to affect any waterfall, public footpath, heritage feature or conservation area? (See note 2g for more information.)		
Have formal ecological surveys been carried out on the site? (See note 2h for more information.)		
Does the scheme take account of protected species that may live at the site or nearby? (See note 2i and section 4 on page 6 for more information.)		

Under the 1999 EIA Regulations, an environmental impact assessment may be needed for any hydroelectric-power scheme in a sensitive area. Your local planning authority will tell you if you need to provide an environmental impact assessment.

Notes

2a You can get a map of the Welsh Sites of Special Scientific Interest (SSSI) from the Countryside Council for Wales website (www.ccw.gov.uk/landscape-wildlife/protecting-our-landscape/protected-sites-map.aspx). You can get a map of English Sites of Special Scientific Interest from Natural England’s website (www.natureonthemap.org.uk). Your scheme is likely to affect a site of special scientific interest if:

- it is in the site;
- the scheme alters the river flow through the site; or
- it is an obstacle to fish migration.

If your scheme is likely to affect a Site of Special Scientific Interest we will need to find out whether the proposal is likely to damage the site, considering why it was designated as a Site of Special Scientific Interest. The Countryside Council for Wales (CCW) or Natural England (NE) must be formally told about any work that may damage a Site of Special Scientific Interest.

2b You can get a map of the Welsh Special Areas of Conservation from the Countryside Council for Wales’ website (www.ccw.gov.uk/landscape-wildlife/protecting-our-landscape/protected-sites-map.aspx). You can get a map of English Special Areas of Conservation from Natural England’s website (www.natureonthemap.org.uk/map.aspx?m=int_sites). There is more information on all Special Areas of Conservation in the UK on the website at www.jncc.gov.uk/page-1458. Your scheme is likely to affect a Special Area of Conservation if it would remove or change the vulnerable natural habitats the site was designated for. If your scheme is likely to affect a Special Area of Conservation, we will formally consult Countryside Council for Wales (CCW) or Natural England (NE). We will need to make sure there will be no damaging effect on the Special Area of Conservation.

- 2c There is a list of all Special Protected Areas in the UK on the JNCC Full UK SPA site list (www.jncc.gov.uk/page-1400). Your scheme is likely to affect a Special Protected Area if it removes or changes natural habitats that are important to the rare and vulnerable birds the site was classified for. If your scheme is likely to affect a Special Protected Area, we will formally consult Countryside Council for Wales (CCW) or Natural England (NE). We will need to make sure that there will be no damaging effect on the Special Protected Area.
- 2d You can get a map of all national and local nature reserves from the Natural England website (www.natureonthemap.org.uk/map.aspx?map=nreserves) and the Countryside Council for Wales website (www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/protected-sites-map.aspx). The reserves are managed by different authorities, including local governments. Your scheme might affect a reserve if it is in one or it alters the river flow through one. We may contact the relevant authority, or Local Records Centre, to find out whether your scheme is likely to affect a reserve.
- 2e You can get a map of Welsh Areas of Outstanding Natural Beauty from the Countryside Council for Wales website (www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/protected-sites-map.aspx). You can get a map of English Areas of Outstanding Natural Beauty from the Natural England website (www.naturalengland.org.uk/ourwork/conservation/designatedareas/aonb/default.aspx). We may contact the relevant authority to find out whether your scheme is likely to affect an Area of Outstanding Natural Beauty. We will need to make sure that the scheme meets the objectives of the landscape protection.
- 2f You can get a map of national parks from the website at www.nationalparks.gov.uk/. Each national park has its own authority (which also acts as the planning authority). We may need approval from the national park authority. You may need to get advice from the authority to find out whether your scheme is likely to cause a problem.
- 2g We may ask for an assessment of any effect your scheme may have on popular features such as waterfalls, public footpaths and heritage features. We may need to consider these when making a decision on your application for a licence.
Listed buildings (including structures such as weirs) are designated by central government. Conservation areas are designated by local authorities and approved by the Government. You may need Listed Building Consent and Conservation Area Consent from your local planning authority. You will need to provide a Design and Access Statement with your planning application to explain design issues. Local circumstances may affect the design of the scheme and have a ‘knock-on’ effect on our permission. For example, some old weirs are listed structures that need Listed Building Consent as well as planning permission, and you may need to make changes to the design of your hydroelectric-power scheme to get permission from English Heritage and CCW in Wales.
- 2h We are likely to need ecological surveys on schemes in designated rivers or where designated species or habitats may be affected. The potential risks to those species and habitats will need to be considered. The exact requirements of any survey will depend on the specific site and the proposed scheme, the amount of existing information, and whether any vital information is missing. You are not expected to have carried out this work yet.
- 2i You can find information on protected species in Wales by visiting the website at www.ccw.gov.uk/landscape--wildlife/habitats-species/species-protection.aspx. You can get information on protected species in England by visiting the website at www.naturalengland.org.uk/ourwork/regulation/wildlife/species/europeanprotectedspecies.aspx. If a European protected species is likely to be affected by your scheme, you may need to get a protected species licence from Natural England or the Countryside Council for Wales before making your formal application. We will discuss this with you when we receive your pre-application.

3 Chemical and physico-chemical elements

We realise that you may not have enough information to answer all questions in section 3 at the moment. In this case, the notes to the questions will give you an indication of the information you may need to provide as your application progresses.

	Yes	No
Will the scheme discharge all of the abstracted flow back into the same watercourse? (See note 3a for more information.)		
Is there potential for pollutants to be discharged into the river while the scheme is being built or operated? (See note 3b for more information.)		
Are there existing licensed pollutant discharges into the depleted reach of the watercourse? (See note 3c for more information.)		
Will your scheme affect the thermal, oxygenation, salinity, acidification or nutrient conditions within the river? (See note 3d for more information.)		
Will the scheme reduce both the depth and the hydraulic residence time significantly in the depleted reach? (See note 3e for more information.)		

Notes

- 3a If flow is not returned to the watercourse it was abstracted from, the effect lower flows have on the physical and chemical water quality in that depleted reach of water will need to be assessed. We may need a copy of an assessment of any likely effects.
- 3b You must not use toxic chemicals for maintaining the scheme, and should prevent spillages. You must not discharge silt and other waste.

- 3c If you are not sure whether there are any existing discharges of pollutant in the depleted reach, we will help you to get this information once we have received your pre-application. It is important to find out whether there are any existing discharges as a reduction in dilution in the depleted reach is likely to have a negative effect on the water quality. In this case we may need the volume of water you are allowed to abstract to be reduced in order to protect the water quality in the depleted reach.
- 3d If your scheme reduces the river flow in a reach it is possible that some of the thermal, oxygenation, salinity, acidification or nutrient conditions in the river will change. This could happen in a number of situations, for example where the depleted reach of water receives an effluent discharge or other polluting input, with conditions changing as a result of reduced dilution of the effluent. In this situation we will need to find out whether this is acceptable within the parameters specified in the relevant law (Water Framework Directive). We may need you to carry out further surveys or provide extra information.
- 3e Use your hydrological assessment to help you find whether changing the depth and hydraulic residence time in the depleted reach will have an effect. Changes in the depth and how long it takes for water to flow through the depleted reach may lead to increased growth of algae. If this is likely, we may reduce the volume of water you are allowed to abstract in order to protect the ecological requirements under laws such as the Water Framework Directive. We may need you to carry out further surveys or provide extra information.

4 Fisheries and biodiversity

We realise that you may not have enough information to answer all questions in section 4 at the moment. In this case, the notes to the questions will give you an indication of the information you may need to provide as your application progresses.

	Yes	No
Are planned changes in the river flow likely to cause a significant change to the composition and abundance of any mosses and liverworts along the watercourse? (See note 4a for more information.)		
Are planned changes in the river flow likely to cause a significant change to the composition and abundance of other aquatic vegetation? (See note 4b for more information.)		
Are planned changes in river flow or water level likely to cause a significant change to the composition and abundance of macro-invertebrates living on or in the bed of the watercourse? (See note 4c for more information.)		
Are there migratory salmon or sea trout in the river? (See note 4d for more information.)		
Are there lamprey species, shad species or eels in the river? (See note 4d for more information.)		
Are there coarse fish or non-migratory salmon or sea trout in the river? (See note 4d for more information.)		
Is there an existing upstream fish pass? (See note 4d for more information.)		
Are the provisions for upstream fish passage satisfactory? (See note 4e for more information.)		
Are the provisions for screening fish and associated bywash satisfactory? (See note 4e for more information.)		
Will the scheme affect either the upstream or downstream passage of fish in the river? (See note 4e for more information.)		
Will the scheme affect any spawning or nursery areas? (See note 4f for more information.)		
Will the scheme affect any river stretch used for angling? (See note 4g for more information.)		
Are planned changes in river flow likely to cause a significant change to the composition and abundance of fish populations? (See note 4h for more information.)		

Notes

- 4a You may be able to get survey information on mosses and liverworts from your local Environment Agency office. We will discuss this with you once we have received your pre-application. If survey information is not available, you may need to carry out a survey to find out whether the scheme will reduce or prevent good ecological status (under the Water Framework Directive). Mosses and liverworts may also be protected in some areas such as Sites of Special Scientific Interest. Schemes that significantly reduce the wetted area at the side of a river (by reducing flow in rivers with shallow banks) are most likely to affect mosses and liverworts.

- 4b You may be able to get survey information on aquatic vegetation from your local Environment Agency office. We will discuss this with you once we have received your pre-application. If survey information is not available, you may need to carry out a survey to find out whether the scheme will reduce or prevent good ecological status (under the Water Framework Directive). Schemes must avoid significant changes in aquatic vegetation. Such changes could occur where schemes significantly alter the water level or speed of a river. This would be likely to change their habitats and so cause changes in species or composition. This may break the requirements of laws such as the Water Framework Directive, which would prevent you from getting permission for your scheme. We may ask you to provide an analysis which indicates how you will make the effects of those changes less severe in macrophyte and diatom communities (for example, by avoiding significant changes in water level, the speed of flow or other factors that could change habitats).
- 4c You may be able to get information on the macro-invertebrates present in the affected waterbody (stretch of river) from your local Environment Agency office. We will discuss this with you once we have received your pre-application. If information on these ecological elements is not available, you may have to carry out a survey to make sure that the ecological status waterbody will not be damaged as a result of the scheme. Schemes must avoid significant changes in macro-invertebrate communities. Such changes could arise where schemes significantly alter the water level, speed of flow, surface of the river bed substrate or turbidity (cloudiness) of a river. This would be likely to modify their habitats, and so cause changes in the types and range of species present. This may break the requirements of laws such as the Water Framework Directive, which would prevent you from getting permission for your scheme. We may ask you to provide an analysis which indicates how you will make the effects of any changes less severe on macro-invertebrate populations (for example, by avoiding significant changes in water level, the speed of flow or other factors that could change habitats).
- 4d You may be able to get information on species of fish present in the affected waterbody (stretch of river) from your local Environment Agency office. We will discuss this with you once we have received your pre-application. If Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta*) are present, or there is an aim to reintroduce them to the river, you will normally need an upstream fish pass under the Salmon and Freshwater Fisheries Act of 1975, Section 9. Screening (SAFFA, S14) must be put in place unless we agree otherwise. We can ask you to provide a fish pass around the structure in the future.
- To meet the requirements of the Water Framework Directive you need to consider passage not only for other major migratory species such as lamprey, eels and shad, but also for brown trout, grayling and coarse fish.
- Some species such as lampreys, shad and bullhead are protected by the European Habitats Directive.
- As a result of the European eel stock being below its conservation limit, there is a European management plan requiring specific improvements to obstructions to help the eels migrate. Eels are particularly vulnerable on their downstream migration and so you need to have adequate screens in place. Eel protection measures may be needed so that your scheme complies with Part 4 of the Eels Regulations (England and Wales) 2009.
- Conservation laws and regulations could change after these guidelines have been published. So you must check for up-to-date regulations.
- If Salmon Action Plans, River Basin Management Plans, Fisheries Action Plans or Eel Management Plans are available, you must consider them in your proposal for the hydroelectric-power scheme.
- 4e Fish passage and screening are dealt with in section 4 of the Good Practice Guidelines for Hydroelectric-power. The effectiveness and efficiency of any existing fish pass will need to be maintained or even improved for a scheme to get the necessary permissions.
- 4f The quality and extent of spawning and nursery areas are significant in providing future adult populations. If your scheme will affect these areas, you will need to consider the appropriate fisheries and environmental laws, such as the Water Framework Directive.
- 4g We have a legal duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries. Schemes should be designed so they do not affect associated fisheries.
- 4h You may be able to get information relating to fish in the affected waterbody (stretch of river) from your local Environment Agency office. We will discuss this with you once we have received your pre-application. If this information is not available, you may need to carry out a survey to make sure the ecological status of the waterbody will not be prevented from reaching good ecological status, or worsen as a result of the scheme. Your scheme must avoid significant changes in fish communities. Changes could arise where schemes significantly alter the water level, speed of flow, surface of the river bed or turbidity (cloudiness) of a river. This would be likely to change habitats, and so cause changes in the type and range of species present. This may break the requirements of laws such as the Water Framework Directive which would prevent you from getting permission for your scheme. We may ask you to provide an analysis which indicates how you will reduce the effect of changes in fish populations (for example, by avoiding significant changes in water level, speed of flow or other factors that could change habitats).

5 Managing the risk of flood

	Yes	No
Will the proposed scheme increase the potential of flood, either by reducing the cross section or by slowing flows? (See note 5a for more information.)		
Does your scheme propose any alterations to structures, or building new structures in the river (such as weirs, dams, culverts or outfalls), or affect existing flood defences (such as embankments or walls)? (See note 5a for more information.)		
Does the scheme create new channels or change the flow path in any way? (See note 5a for more information.)		
Does the scheme propose to deepen any existing channels? (See note 5a for more information.)		
Is the scheme in the floodplain as shown on the Environment Agency's flood map? (See notes 5a and 5b for more information.)		
Will the scheme change the available access to the river or neighbouring flood defences for maintenance (for example, by building fences or walls around new structures, or installing overhead cables)? (See note 5c for more information.)		
Does the scheme reduce the available floodplain area or block potential routes of floods over land? (See note 5c for more information.)		
Does the scheme create a new raised reservoir with the capacity of 25,000 cubic metres or more? (See note 5d for more information.)		
Could the cumulative effect of your proposal along with other proposals increase the risk of flood risk or have a negative effect on land drainage? (See note 5a for more information.)		

Notes

- 5a You are likely to need formal written consent (flood defence consent) from us for these activities. To make sure there is no increased risk of flooding in the area, you will probably need to carry out a flood-risk assessment to show that the effects of your proposal can be managed satisfactorily. Some construction activities may also need planning permission, and you should get the views of the local planning authority. Our booklet 'Living On The Edge' (available free from our customer contact centre, or on our website at <http://publications.environment-agency.gov.uk/pdf/GEHO0407BMFL-e-e.pdf>) provides more information.
- 5b You can find out where your scheme is on our flood map by visiting our website at www.environment-agency.gov.uk/homeandleisure/floods/31650.aspx.
- 5c Operating authorities (including us) on main rivers, Internal Drainage Boards, and local authorities, have responsibilities to maintain watercourses to reduce the risk of flood. This is particularly important at river-control structures which may need to be maintained and cleared of debris. For this reason, vehicles need to be able to get access to these structures, and people need to be able to work safely around them.
- 5d Structures of this size will qualify as statutory reservoirs, and need to be designed and inspected as such. See our website at www.environment-agency.gov.uk/business/sectors/64253.aspx for more information.

6 Navigation

	Yes	No
Is the proposed scheme in an inland waterway that is open to navigation (passage of boats) and is managed by a UK navigation authority? (See note 6a for more information.)		
Could the scheme affect water levels upstream or downstream of the structure? (See note 6b for more information.)		
Could the scheme affect access for any recreational users of the waterway (for example, canoeists, walkers, anglers)? (See note 6c for more information.)		
Could the scheme reduce how much water is available for boats passing through locks during low flows? (See note 6d for more information.)		
Could the scheme affect a waterway used for navigation in any other way? (See note 6e for more information.)		

Notes

- 6a Inland waterways are navigable channels, rivers and lakes, and all associated land (for example towpaths). There is a list of the main inland waterways in England and Wales, and their navigation authorities, on the Inland Waterways Association website at www.waterways.org.uk/waterways/canals_rivers/a_z_waterways.
- 6b Some waterways have water levels that are set in law or by service levels. You need to check with the navigation authority, as early as possible, to see if your scheme could affect water levels.
- 6c You need to check with the navigation authority to see if your scheme will affect recreational users of a waterway.
- 6d Some waterways have a public right of navigation, set by law. You need to check with the navigation authority, as early as possible, to see if your scheme could affect this.
- 6e You may need permission from the navigation authority if your scheme affects a waterway. For example, the location of your turbine could cause unacceptable cross-flow in the navigation channel. You need to check with the navigation authority as early as possible.

Thank you for filling in this checklist. Please give your name, the site name and the name of the watercourse below.

Title (Mr, Mrs, Miss and so on) _____

First name _____

Last name _____

Site name and name of watercourse

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form? _____

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please

No thank you



James Mahoney
Picks Mill
Road Green
Dursley
GL11 6BA

26th August 2022

Adrian Izzard
Renewables First
Brimscombe Hill
Brimscombe
Stroud
GL5 2QC

Dear Adrian

Picks Mill, Road Green, Dursley GL11 6BA
New Water Wheel

I write as the owner of the above property. I give you full authority to act on my behalf with respect to the submission of an application, to the Environment Agency, detailing the installation of a new water wheel.

Yours sincerely



James Mahoney

Picks Mill Hydroelectric Power Scheme

Environmental Report

Document Control

Version	Date of Issue	Author(s)
01	October 2022	Adrian Ezard

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Renewables First – Company

Renewables First is one of the UK's leading hydro and wind power specialists and has been delivering hydro and wind projects for over ten years. We provide all of the services from in-house resources to take a project from initial feasibility stage, through all of the consenting and engineering design stages and on to construction and commissioning. We use our experience of the installation and operational phases to provide feedback into the design stages of the next projects, ensuring that our customers benefit from our whole-project exposure.

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1 Introduction

This document accompanies the water resources abstraction licence application and hydroelectric power scheme application for the proposed hydroelectric power (HEP) scheme located at Picks Mill, Road Green, Dursley, Gloucestershire.

An overshot waterwheel system is proposed for installation just downstream of the weir on the site.

The maximum abstraction proposed for the scheme is 1.3 times Q_{mean} in line with Table B of 'Guidance for run-of-river hydropower development'. Key parameters that allow higher levels of abstraction and departure from table A are listed below with supporting information included in the subsequent sections of this report.

1. Not prevent Water Framework Directive objectives from being achieved (see the 'Water Framework Directive' section of 'Guidance for run-of-river hydropower development').
2. Maintain or improve fisheries, fish passage and fish migration (see the 'Fish passage and screening' section of 'Guidance for run-of-river hydropower development').
3. Not have unacceptable impacts (effects) on protected sites or species (see the 'Nature conservation and heritage' section of 'Guidance for run-of-river hydropower development').
4. Not have unacceptable impacts on the rights of other water users, including anglers.

A completed WR325 Environmental Site Audit Checklist is also attached for reference.

2 Site details

2.1 Site description

Figure 1 to Figure 7 shows the current layout around the installation location. There is an existing waterfall which discharges into a small pool. The base of the pool appears to be predominantly stone with some larger gravels. Flow velocities are normally fairly high, so there are minimal or no sediments present.



Figure 1: view looking downstream immediately above the waterfall close to the proposed intake location.



Figure 2: view upstream from the same location.



Figure 3: waterfall viewed from downstream.



Figure 4: the pool immediately below the waterfall to the left.



Figure 5: waterfall immediately to the right, corner of Picks Mill just visible top left.



Figure 6: view looking upstream, corner of terrace on the mill, waterfall immediately to the right.



*Figure 7: view looking upstream from possible exit point of the launder
(waterwheel to be cut partially into the bank on the right-hand side).*

2.2 Hydrological data

The difference in water levels from upstream of the fall to the level downstream has been measured as 2.6 metres.

The nearest EA gauging station is on the River Little Avon at Berkeley approximately 4 km to the west. However the geology of the catchment corresponds more closely with that at the EA gauge at Cambridge 6.5km to the North so this gauge was used to provide comparative flow rates. The flow rates were also checked against a catchment model input to LowFlows 2 software. The catchment area for the site is approximately 11.4 km².

Flow Exceedance %	Gross Flowrate m ³ /s
Q ₁₀	0.415
Q ₂₀	0.268
Q ₃₀	0.206
Q ₄₀	0.169
Q ₅₀	0.137
Q ₆₀	0.113
Q ₇₀	0.094
Q ₈₀	0.077
Q ₉₀	0.060
Q ₉₅	0.051
Q _{mean} (Q _{26.8})	0.224
Q ₉₅ /Q _{mean}	0.23

Table 1: Calculated flow exceedance for the site.

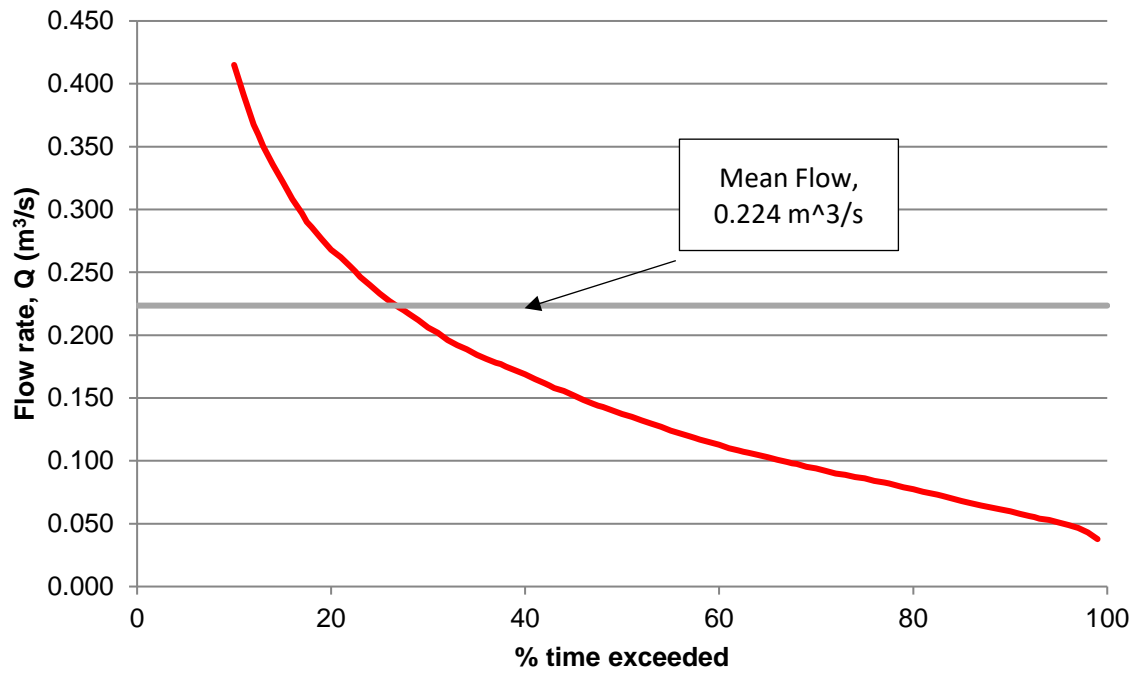


Figure 8: flow duration curve for the site.

3 Proposal

3.1 Proposal summary

The HEP system consists of a single overshoot waterwheel turbine installed just downstream of the waterfall. The intake will be on the channel above the waterfall, the outfall will be in the area downstream of the waterfall. The scheme is expected to generate a peak electrical power output of 4.0 kW.

3.2 Summary of hydrology information

It is proposed that the HEP scheme flow is 1.3 times Q_{mean} . The hands-off-flow down the waterfall is proposed to be $Q_{95} - 54 \text{ l/s}$. There will higher proportional flow down the waterfall during periods of high flow.

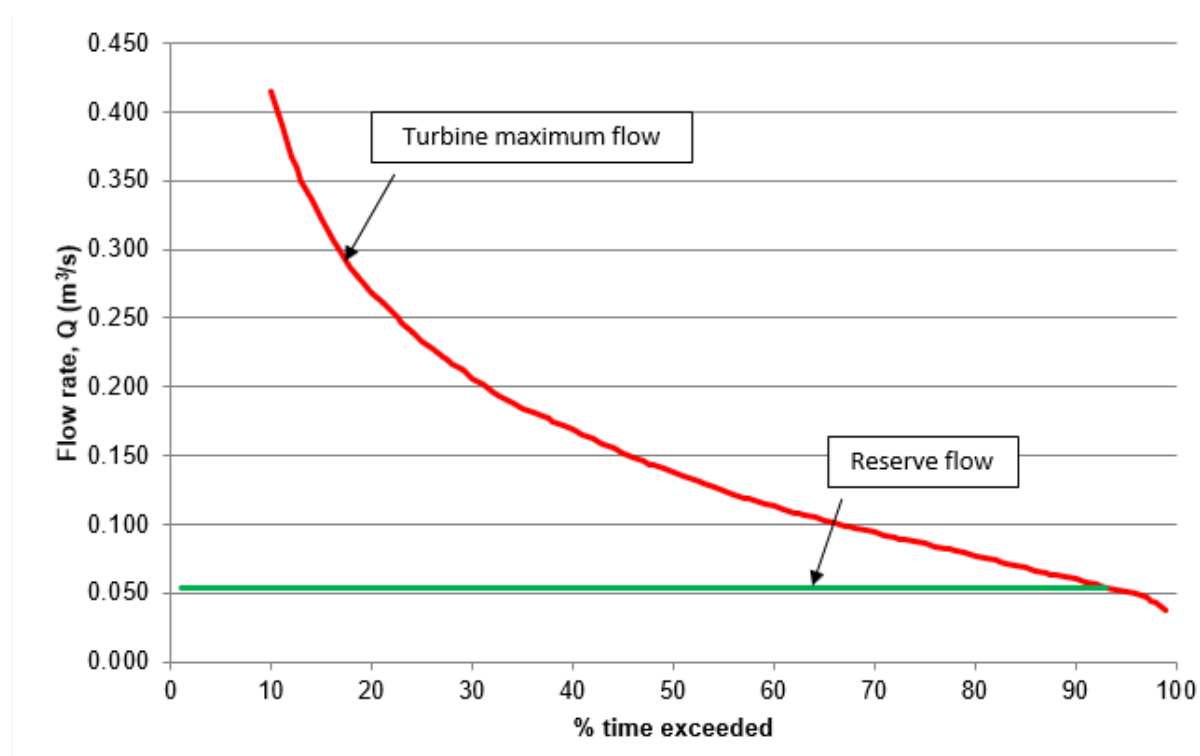


Figure 9: flow duration curve with turbine flow.

Table 2 outlines the key hydrological information for the proposed HEP system.

Turbine intake location	ST 72657 96945
Outfall location	ST 72648 96944
Depleted reach	9 m
Turbine type	1 no. overshot waterwheel
Waterwheel diameter	2.0 m
Waterwheel rated flow	0.290 m ³ /s
Hands-off-flow	0.054 m ³ /s
Rated system head	2.59 m
Maximum hourly abstraction	1,044 m ³
Maximum daily abstraction	25,056 m ³
Maximum annual abstraction	3,562,945 m ³

Table 2: key hydrological information for the HEP system.

3.3 Layout

Refer to site plan drawing (PICKS_P001) and general arrangement (PICKS_P002).

3.4 Operation

Flow will enter the headrace at the weir via a trash screen and travel along a channel to the waterwheel. At the end of headrace there is a sluice which controls the flow of water into the waterwheel. The flow is controlled to achieve an upstream water level in the head race. The flow is also limited by the maximum power generated by the waterwheel. Water is discharged at the bottom of the waterwheel downstream of the weir.

Although the headrace will be notched into the existing bank, this will not raise the upstream water levels, as any excess flow will be able to spill over the sides of the headrace during periods of high flow or when the waterwheel is not operational.

4 Ecology

4.1 Designations

A desktop review of ecology designations was undertaken using the MAGiC online database.

The site is not within a SSSI, SAC, RAMSAR, SPA, NNR, LNR, NP or AONB designation.

The only designation found was that the site is located within noted broad leaf species although these are not within the area of the proposed intake or turbine location. The mill is not a listed building which will make planning easier. The site is within 30km of the River Severn tidal limits and so would fall under EU eel regulations. These will most likely require the installation of an eel pass as part of the scheme.

4.2 Fish and aquatic habitats

An overshot waterwheel is to be used. This technology poses little risk to fish, so only a 100mm trash screen on the intake will be used.

The Environment Agency Ecology & Fish Data Explorer has been used to carry out a desk study of the fish species that could be impacted by the scheme. The only upstream site ID 7373 had 2 counts of Eels in 1994 and 2000. No other species were identified within the catchment upstream of Picks Mill. Downstream species identified by Damien Mason of the EA shown below:

Waterbody Name	Doverte Brook GB109054026630
WFD Element Name	Classification
Hydrological Regime (River flow compliance)	Does Not Support Good
A/HMWB designation	Not Designated A/HMWB
Ecological Potential	Moderate
Ecological Status	Moderate
Physico-Chemical Status	Moderate

Designation type	Name of site	Distance and direction
Special Areas of Conservation (SACs)	SEVERN ESTUARY (OID:120525)	6.66km d/s from '1'
Ramsar sites	SEVERN ESTUARY (OID:106237)	6.66km d/s from '1'
Special Protection Areas (SPAs)	SEVERN ESTUARY (OID:99422)	6.66km d/s from '1'

Protected species	European Eel migratory route (OID:2606004)	0.00km d/s from '1'
	European Eel (OID:2667054, 2667055, 2667060, 2667061, 2667363, 2667371, 2667376, 2695775, 2845108)	0.20km d/s from '1'
	Bullhead (OID:2658449, 2658450, 2658455, 2658456, 2658463, 2658782, 2695066)	0.81km d/s from '1'
	Brown/Sea Trout (OID:2650742, 2650743, 2651062, 2651063, 2651069, 2651073)	0.81km d/s from '1'
	Brook Lamprey (OID:2639539)	2.83km d/s from '1'
	River Lamprey migratory route (OID:2605897)	3.82km d/s from '1'
	European Water Vole (OID:2610161, 2699389)	4.31km d/s from '1'

Table 3: fish species observed in the Doverte Brook downstream of the site.

5 Geomorphology

When the HEP scheme is operating, it will reduce the flow over the waterfall. The pooling area below the waterfall will be maintained by the outfall from the turbine and the Hands-off-Flow.

The flows and sediment transfers within the Dovette Brook will otherwise be unchanged. The reduced flow through the waterfall will have little or no effect on the geomorphology of the site.

6 Water Framework Directive

The WFD objectives for the Dovern Brook (shown in Table 4 have been assessed)

<https://environment.data.gov.uk/catchment-planning/WaterBody/GB109054026630>

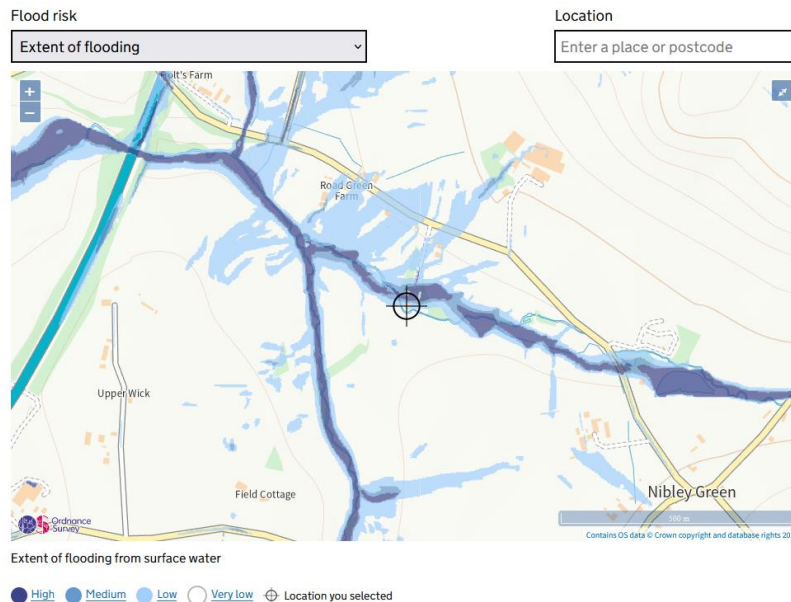
The proposed installation will have no or negligible effect on these objectives.

Classification Item	Status	Year
Ecological	Good	2027
Biological quality elements	Good	2027
Fish	Good	2027
Invertebrates	Good	2015
Physico-chemical quality elements	Good	2027
Ammonia (Phys-Chem)	Good	2015
Dissolved oxygen	Good	2015
Phosphate	Good	2027
Temperature	Good	2015
pH	Good	2015
Hydromorphological Supporting Elements	Supports good	2015
Hydrological Regime	Does not support good	2015
Supporting elements (Surface Water)	Not assessed	2015
Specific pollutants	Not assessed	2015
Chemical	Good	2015
Priority hazardous substances	Does not require assessment	2015
Priority substances	Does not require assessment	2015
Other Pollutants	Does not require assessment	2015

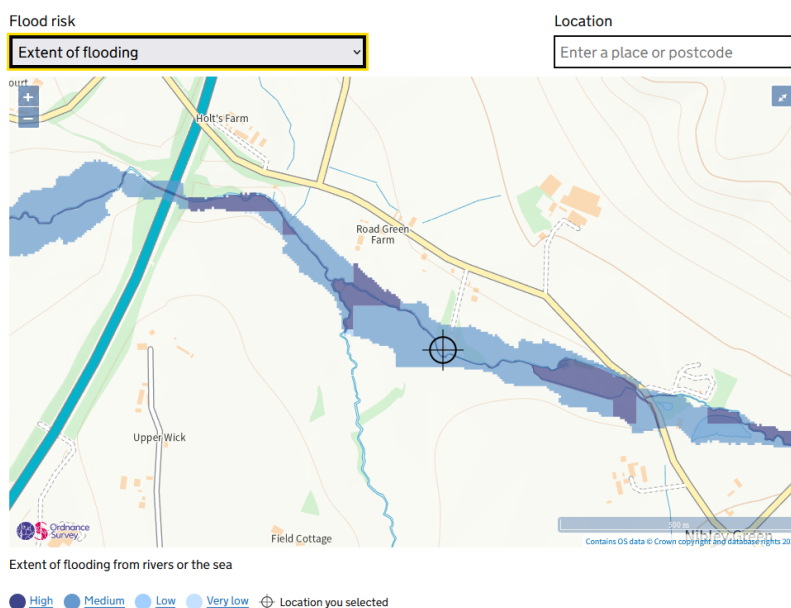
Table 4: WFD objectives for the Dovern Brook

7 Flood Risk

Flood risk from surface water runoff is medium. The EA flood map shows the main surface water risk to the north of the site.



Flood risk from the brook is medium.



#

All control equipment will be located in an existing building on site above relevant flood levels.

All of the equipment located within the river will be flood resilient with the exception of the generator. It is not practical to locate the generator above the 1% AEP with climate change allowance level of 85%. However, it is possible to locate it above the 1% AEP. If the flood level were to exceed this, the generator would be replaced as it is a low cost item.

8 Human impacts

8.1 Navigation

The watercourse is not used for navigation, so the scheme will have no impact.

8.2 Recreational use

The site is privately owned and any flows or water levels downstream or upstream will be unchanged. Angling will therefore be unaffected by the proposal.

8.3 Heritage

There are no scheduled monuments, world heritage sites or listed buildings that will be affected by the proposed scheme.

8.4 Landscape and visual

There is no proposal to landscape the area around the proposed installation as the majority of the installed equipment is within the river below the bank level.

9 Conclusions

This proposed HEP scheme meets the necessary requirements for an abstraction licence.

An assessment has been completed to show that there will be no significant adverse impact on ecology, geomorphology and human uses of the watercourse and any impacts can be mitigated effectively.

The scheme is not considered to impact on any Water Framework Directive objectives for the impacted water body.

Picks Mill

Mason, Damian <damian.mason@environment-agency.gov.uk>

Fri 03/12/2021 10:50

To: Adrian Ezard <Adrian.Ezard@renewablesfirst.co.uk>;

Hi Adrian

Good to meet you on Monday at Morden Mill. An interesting site. I've passed on my findings to Glenn who will no doubt be in contact soon.

Re Picks mill. Yes I agree it looks to be very low risk. I ran our screening tool and not much pops up; extracts below.

Eels as you mention and the Severn estuary designations d/s. Just check the Severn estuary designation features to make sure that nothing that they are listed for makes use of the Dovere Brook. Unlikely but good to check.

I would say that it needs a full abstraction licence based on the description and would be Table B (around weir) in our guidance. If you take the off-take further upstream you could stray into Table C.

You could apply for a further deviation from Table B re the maximum take (and maybe the HOF) subject to your supporting information justifying this approach. Look at what fish species you have in the brook and can they move u/s at the moment and what would be any change to this? Is the reach between the off-take and return good habitat for fish or invertebrates? Is there a 'weir' pool or plunge pool of any note? Etc.

That's about all I can think of for now. I'll look out for your application.

Hope that helps.

Damian

Waterbody Name	Dovere Brook GB109054026630
WFD Element Name	Classification
Hydrological Regime (River flow compliance)	Does Not Support Good
A/HMWB designation	Not Designated A/HMWB
Ecological Potential	Moderate
Ecological Status	Moderate
Physico-Chemical Status	Moderate

Designation type	Name of site	Distance and direction
Special Areas of Conservation (SACs)	SEVERN ESTUARY (OID:120525)	6.66km d/s from '1'
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	European Water Vole (OID:2610161, 2699389)	4.31km d/s from '1'

DAMIAN MASON BSc (Hons) FGS
Senior Permitting Officer – National Permitting Service - Hydropower Lead

My mobile number is 07721 430627

My landline number is 02030 352205

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