Easan Dorcha Hydro Catchment Extension

Supporting information for planning application

Document Number C128.1-003

Revision 1.0

Version Record

Version	Date	Comment	Author	Checked
1.0	03/11/25	First issue	[redacted]	[redacted]

Contents

1 Introduction and scope

The owners of the Easan Dorcha hydro scheme are proposing the construction of three new intakes and a length of penstock to abstract water from three burns that form tributaries of the Easan Dorca in order to deliver additional water to the hydro scheme.

This document has been prepared to support a planning application for this project. A separate CAR/EASR licence variation application will be submitted in parallel with the planning application as a variation to the existing Easan Dorcha hydro scheme licence CAR/L/1104654.

1.1 Consultations and consents

A planning pre-application enquiry has been processed (24/04460/PREMAJ), and concluded that, with the mitigation that is proposed to be embedded in the project scope, planning permission should be granted. The most significant points that were made by consultees in response to the pre-application are summarised in Table 1 below along with actions taken by the Glen Hydro Consulting Ltd (GHC) on behalf of the developer. For the full pre-application enquiry response see supporting document [1].

The pre-application response also included a suite of recommended ecology surveys and assessments be undertaken to support the full planning application. GHC have engaged in follow up discussions with consultees to clarify the scope of these surveys and assessments before arranging the works. The summary of these discussions and the scope of surveys undertaken is also summarised in Table 1 below.

1.2 References

[1] Pre-Application Advice, 24/04460/PREMAJ, The Highland Council
[2] Hydro Scheme Construction Standards and Guidance, D000-001, Glen Hydro
[3] Easan Doracha Ecological Report, 250803, Diverse Ecology
[4] Easan Dorcha Hydroelectric scheme - Bryophyte Survey, Whytock Ecology Ltd
[5] Baseline Macroinvertebrate Sampling, 15472, EnviroCentre Limited
[6] Screening Options, 25/01396/SCRE, The Highland Council
[7] Design and Access Statement, C128.1-004-A, Glen Hydro
[8] Construction Management Plan, C128.1-005-A, Glen Hydro
[9] Landscape Maintenance Plan, C128.1-006-A, Glen Hydro
[10] Masterplan, C128.1-007-A, Glen Hydro
[11] Drainage Impact Assessment, C128.1-008-A, Glen Hydro

Table 1 - Pre-application Recommendations and Actions

Consultee / Heading	Pre-application Recommendation	Action taken by Applicant
Sustainability	**Climate and Ecological Emergency** Recognised that this project would increase the production of renewable energy, the benefit of this will be weighed against wider NPF4'S development policies, see Appendix A.	GHC have incorporated/referenced NPF4's development policies into the planning application, see section 2.
	Highland Council Decarbonisation Strategy Discuss opportunities this project many bring to Highland Council's decarbonisation strategy	The proposed development will increase the availability of renewable energy in the Highlands, see section 2.6. This supports the Highland Councils Net Zero Strategy target of reaching Net Zero by 2024 by adding an additional 647MWh per annum of renewable energy to the highland energy mix from autumn 2026 (expected date of project completion) onwards.
	Decommissioning Provisions should be made for decommissioning of the development either if the project is not progressed beyond initial works, is not completed, or if the project no longer is viable to operate.	GHC to have included a decommissioning plan within this document, see section 9.2.
Natural Heritage	**Impact on Landscape (NatureScot)** The scheme will include additional tracks to the new intakes which have the potential to affect the special qualities of the NSA and those of the WLA. Therefore, we advise that careful consideration is given to minimising the impacts from these tracks.	GHC have consulted with Nature Scot to confirm a Landscape and Visual Impact Assessment (LVIA) will not be required. Nature Scot have confirmed they are satisfied with the proposed measures to minimise any adverse landscape and visual impacts, see Appendix A.2. These measures are covered in section 10.1 below.
	Landscape Maintenance /Management Plan	GHC have prepared a Landscape Maintenance Plan [9], also summarised in section 9.1.3 of this document.
	Designated Sites (Nature Scot) Any application should consider potential impacts on the SSSI and detail any mitigation required to avoid impacts.	Potential impact to the SSSI was assessed in the Ecological Report [3], including pollution, siltation, and/or changes to local hydrology. The recommended measures to reduce these impacts to low have been incorporated into the Construction Management Plan [8].

	Impact on Peat (SEPA) The submission should include a series of layout drawings at a usable scale showing all permanent and temporary infrastructure, with extent of excavation required. See full response for details. Produce an Outline Peat Management Plan. See full response for details.	GHC have arranged peat survey of proposed penstock route. The penstock route has been adjusted to avoid areas of deep peat where possible. See section 4.4. Additionally, a peat management plan has been produced, see Ecological Report [3], and section 8.1.6 of this document.
	Environmental Enhancement NPF4 Policy 3 is still applicable and requires biodiversity enhancement of the site post-construction in addition to mitigation and compensation measures. In order to satisfy NPF4 Policy 3 the Highland Councils Biodiversity Enhancement Planning Guidance must be followed. Where peatland is present on site, NatureScot Advice on peatland, carbon-rich soils and priority peatland habitats in development management guidance must be followed.	The Ecological Report [3], section 11 highlights environmental enhancements including extending of native woodland and peatland management. The estate has planned a larger area of woodland creation and peatland management covered in the proposed environmental enhancements, see section 2.2 GHC have included appropriate measures to conserve, restore and enhance biodiversity on this site, see Ecological Report [3], section 11.
Design	**Design and Access Statement** The Design and Access Statement should outline the design principles and concepts that have been applied to the development and: i explain the policy or approach adopted as to design and how any policies relating to design in the development plan have been taken into account. ii describe the steps taken to appraise the context of the development and demonstrates how the design of the development takes that context into account in relation to its proposed use. iii state what, if any, consultation has been undertaken on issues relating to the design principles and concepts that have been applied to the development; and what account has been taken of the outcome of any such consultation.	GHC have produced a Design and Access Statement [7].

Amenity	**Environmental Health** Confirmation will be required that there are no private water supplies in the area that may be adversely affected by the development. If there are any such supplies, a risk assessment will require to be undertaken which identifies measures to be implemented to prevent any adverse impact.	GHC can confirm no private water supplies in the area will be adversity affected. There are no private water supply abstractions between the points of abstraction and the point of discharge of the proposed development
	Pollution Prevention The submission must include a schedule of mitigation, which includes reference to best practice pollution prevention and construction techniques (for example, limiting the maximum area to be stripped of soils and peat at any one time) and regulatory requirements. Refer to the Guidance for Pollution Prevention (GPPs) and water run-off from construction sites webpage. A detail drawing should be provided of the route of the penstock and related construction infrastructure where it is adjacent to the Allt nan Dearcag at Intake C. There needs to be a commitment to physically mark the eastern extent of works and include a suitable buffer between any construction works and the top of the banks of the watercourse.	GHC have produced a Construction Management Plan [8], which includes reference to best practice pollution prevention and is included in the planning application supporting information.
	Lighting Should there be a requirement for external lighting of the proposed development the effects from lighting should be fully considered given the predicted visibility of the proposal from the surrounding area and the high sensitivity of to the effects of lighting.	GHC can confirm that no external lighting will be required as part of the proposed development. See section 8.1.3.
	Contaminated Land No comment	No action required. GHC to reference pre-application response in planning application supporting information.
Transport and Wider Access	**Impacts on Public Access** Core Paths and Public Rights of Way must not be obstructed at any time and provision must be made for continued public use	GHC have included mitigation measures to ensure no core path or public footpath is obstructed during the works, see section 13.3

	of these core paths before, during and after the construction phase of this proposal.	
	Impact on the Local Road Network No comments from Highland Council's Transport Planning Team.	No action required. See pre-application response [1].
	Impact on the Trunk Road Network Transport Scotland is satisfied that there is limited scope for the construction to have any perceivable impact on the trunk road network, and no further information is required in this regard.	No action required. See pre-application response [1].
	Public Transport No comments	No action required. See pre-application response [1].
Water Environment	**Protection of the Water Environment** The intakes will require an authorisation from SEPA under CAR. It is likely that the CAR application will be subject to a derogation (exemption under the Water Framework Directive) assessment and third-party consultation which could result in amendments to the scheme. SEPA therefore strongly encourages applicants to twin-track applications for consent under planning and CAR to ensure that CAR requirements can be accommodated more easily when proposals are at their most fluid. SEPA is pleased to note that the developer has already started pre-application CAR discussion with our Water Permitting team.	GHC have held extensive discussions with SEPA and have submitted a CAR/ESAR variation application in parallel to the planning application.
	Ground Water Dependant Terrestrial Ecosystems Groundwater Dependent Terrestrial Ecosystems (GWDTE) are protected under the Water Framework Directive. Excavations and other construction works can disrupt groundwater flow and impact	GHC commissioned a NVC survey and assessment of GWDTE, the results of which can be seen in the ecological report [3]. Following the receipt of the ecological report GHC undertook additional consultation with SEPA (Aden McCorkell) regards GWDTE. Following his

	on GWDTE and existing groundwater abstractions. The layout and design of the development must avoid impacts on such areas. A National Vegetation Classification (NVC) survey should be submitted which includes the following information: • A set of drawings demonstrating all GWDTE and existing groundwater abstractions are outwith a 100m radius of all excavations shallower than 1m and outwith 250m of all excavations deeper than 1m and proposed groundwater abstractions. The survey needs to extend beyond the site boundary where the distances require it. • If the minimum buffers cannot be achieved, a detailed site specific qualitative and/or quantitative risk assessment will be required. Please refer to Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems for further advice and the minimum information SEPA require to be submitted.	advice, see appendix A.4, additional mitigations measures have been adopted.
	Drainage A Drainage Impact Assessment (DIA) is required. The DIA should include details relating to any existing field drains and the management of surface water drainage, which should be designed in line with general Sustainable Drainage Systems (SuDS) principles. The applicant should demonstrate, within the proposals submitted, any mitigation measures to manage the residual risk of overland flow/pluvial flooding. Natural flood management techniques should also be applied to reduce the rate of runoff where possible. Tracks should not act as preferential pathways for runoff and efforts should be made to retain the existing drainage network. Appropriate drainage is required to restrict runoff to pre-development rates and to minimise erosion to existing watercourses. The DIA should ensure that post	GHC have prepared a Drainage Impact Assessment [11].

	development runoff rate is no greater than pre-development runoff rate (i.e. greenfield runoff) for all return periods up to the 1 in 200 year event including an allowance for climate change. Runoff from all events up to and including the 1 in 200 years plus climate change event should be managed within the site boundary, with no flooding to critical roads or buildings, and evidence as to how this will be achieved should be included within the DIA.	
	Topic Water Flood Risk Assessment should be submitted to demonstrate that the development is not at risk from flooding and will not increase flood risk elsewhere. Small watercourse crossings should be oversized, and larger scale watercourse crossings should be demonstrated to be adequately designed to accommodate the 1 in 200 year flow (including an allowance for climate change and freeboard) to avoid increasing the risk of flooding. Further information must be provided to justify any smaller structures. A minimum buffer strip of 50m should be kept free from development from the top of bank(s) of any watercourse or waterbody. Storage of materials within this area during construction is not permitted.	Following further consultation with Highland Council it was confirmed that a flood risk assessment would not be required, see Appendix A.3 Temporary and permanent river crossings have been sized to accommodate a 1:200yr flood - see Construction Management Plan [8]. Further consultation regards the temporary and permanent river crossings has been conducted with SEPA, see appendix A.5. Following a successful planning application GHC will continue these discussions with the Water Permitting team and apply for temporary CAR authorisation to cover these works. The Construction Management Plan [8] has been updated to include refence to the 50m buffer strip near riverbanks, construction materials will not be stored within this buffer strip.
	Flood Risk The Flood Risk Management Team would not need to be consulted for this type of run-of-river hydro and so we have no specific advice for the applicant**.**	No action required. See pre-application response [1].
Built and Cultural Heritage	**Impact on the Historic Environment** From an initial appraisal, it appears that there are unlikely to be significant adverse impacts on the settings of assets within Historic Environment Scotland's remit.	No action required. See pre-application response [1].

	No comments have been received from Highland Council's Historic Environment Team.	

Other Comments	**Ecology** Given the current stage of the proposed development, the ecological information available is limited. Consequently, our ecology officer has provided a brief advice on the ecological aspects of the proposed development. A full assessment of the ecology of the site, intake areas, access tracks and penstocks, with an appropriate buffer around each element needs to be undertaken to determine if there are any ecological/environmental constraints associated with the proposed development. The assessment should follow CIEEM guidelines for Ecological Impact Assessment and include (but not be limited to): • Desk study records, from NatureScot Sitelink, the NBN atlas, and local biodiversity record groups. • Habitat surveys of the proposed elements, including NVC survey (where appropriate), identifying any Annex 1 or priority habitats. • Specific surveys of the site to identify any protected/notable/priority species. Given the location we would expect otter and water vole as a minimum. • Survey and assessment of aquatic ecology, including fish, fish habitats and macroinvertebrates • Assessment of the proposed development on any identified ecological receptors. • Cumulative impact assessment of any developments which may impact upon the same receptors, either constructed, in construction or in planning. • Relevant mitigation and compensation measures. • Outline Habitat Management Plan • Outline Construction Environmental Statement	GHC have commissioned the following Protected Species Surveys: NVC, Otters, water voles, aquatic ecology; fish, fish habitat, macroinvertebrates. An ecological report [3] has been complied that includes: 1. Outline Habitat Management Plan [3] 2. Ecological Impact Assessment [3] Additionally, an Outline Construction Management Plan has been prepared.

Pre-Application Procedures	**Proposal of Application Notice**	This has been confirmed as N/A, as the project is not deemed to be a major application. Following further consultation with the Highland Council, they have confirmed the development will be classed as a local scale development, see appendix A.6.
	Public Consultation	GHC are in consultation with the local Community Council.
	Environmental Impact Assessment Screening The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 requires that installations for hydroelectric energy production to produce more than 0.5MW must be screened to determine whether an Environmental Impact Assessment (EIA) is required to support a planning application. **This proposal is therefore required to be screened**. A formal request for a Screening Opinion/s should be made in writing to the Planning Authority.	The Highland Council have confirmed that an Environmental Impact Assessment will not be required, see screening option response [6]
	Community Councils In terms of the appropriate Community Councils to consult, the proposal is located within the Torridon Community Council area. A development of the nature proposed may affect a number of adjacent Community Councils, as such it is recommended that adjacent Community Councils are also consulted.	GHC are in consultation with the local Community Council. (Torridon & Lochcarron Community Council)
	Access It would be beneficial to at this stage consult with the local Disability Access Panel. The contact details for your local panel are: Ross & Cromarty Disability Access Group, PO Box 32, Muir of Ord, Ross-shire, IV6 7WE. Telephone: 01349 861956 For general advice in relation to the removal of barriers and the promotion of equal access for all people affected by disability for your development contact the Scottish Disability Equality Forum, 12 Enterprise House, Springkerse Business Park, Stirling, FK7 7UF. Telephone: (01786) 446456.	GHC have attempted to contact both the local disability access panel (Ross & Cromarty Disability Access Group), and the Scottish Disability Equality Forum but have been unable to make contact to discuss this application.

2 Policy statement

The planning pre-application response listed the policies under National Planning Framework 4 (NPF4) (2023) that are considered to be most relevant to this application. A brief statement on the features of this application relative to each policy intent is presented below. Further information and evidence is provided in the later chapters of this document.

2.1 Policy 01- Tackling the climate and nature crises

The policy intent is: *To encourage, promote and facilitate development that addresses the global climate emergency and nature crisis.*

The proposed development is a catchment extension to an existing hydroelectric energy generator that will provide additional flow to the turbine by increasing the catchment area of the scheme.

The existing hydro scheme has a catchment area of approximately 6km^2. The proposed development will increase this by approximately 2.55km^2 or 43%. This should lead to an annual increase in renewable energy generation of approximately 647MWh, which is the equivalent to approximately 240 households' annual electricity consumption[1].

This additional renewable energy generation would help further offset the estate's usage, but the vast majority will be exported to the electricity grid using the turbines existing grid connection (no new powerline required).

The development directly contributes to actions to address the climate crisis by displacing the estate's on-site energy demand and exporting more renewable energy to the electricity grid.

[1] https://www.ofgem.gov.uk/information-consumers/energy-advice-households/average-gas-and-electricity-use-explained

2.2 Policy 03- Biodiversity

The policy intent is *To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.*

The following measures are planned to enhance biodiversity on the estate:

1. Peatland restoration works are planned across the wider estate, the following areas' have been identified, see Figure 1.

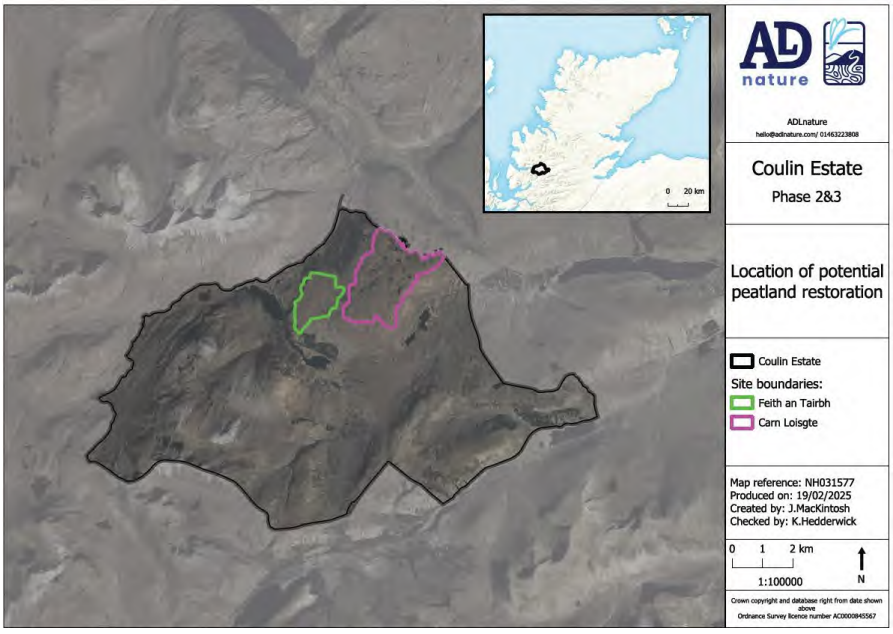


Figure 1 - Location of potential peatland restoration

2. Woodland creation is planned across the Coulin Estate, see Figure 2 for general plan.

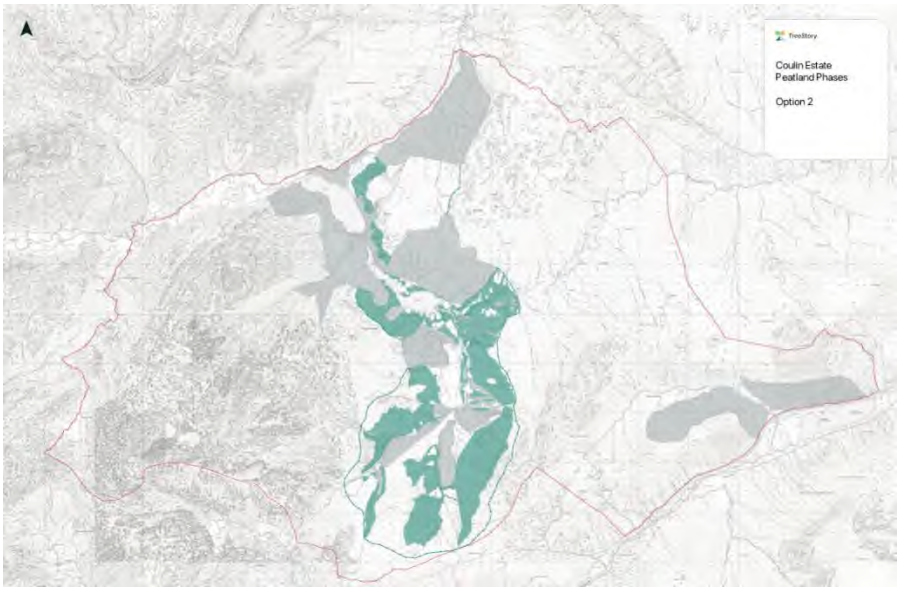


Figure 2 - Planned woodland creation across the Coulin Estate

There will be some short-term loss of biodiversity associated with construction activity. This will be kept to a minimum by the use of best practices to encourage the restoration of habitats that are affected by construction. Infrastructure has been sited to avoid sensitive habitats and to minimise the construction footprint.

In all the project is expected to lead to a net enhancement of biodiversity on the estate, primarily through the establishment of native woodland of much larger area than the relatively small amount of permanent habitat loss.

2.3 Policy 04- Natural places

The policy intent is: *To protect, restore and enhance natural assets making best use of nature-based solutions.*

The development will cause short term disturbance to habitats during the construction phase. The effects of this will be minimised by the use of best practice during construction [2] to ensure effective restoration. In the long term, the presence of new structures in the landscape has the potential to affect the qualities of the Wester Ross National Scenic Area, however the intake structures and access track have been design to have minimal visual impact from the Drochaid Coire Lair footpath which crosses the site running southwest from the Tea Hut and crossing the saddle between Beinn Liath Mhor & Carn Eite.

NatureScot have confirmed that they are satisfied that no Land Scape and Visual Impact Assessment will be required. See Appendix A.2.

The development lies upstream to a site of national importance for Pine Woodland (SSSI) with areas of upland alder and oakwood, all of which are of ancient origin and subject to national BAPs. The potential impacts to woodland are through pollution, siltation and/or changes to local hydrology, which should be managed through mitigation as directed in the Ecological report [3] and SEPA guidelines. Impacts to woodland may be reduced to **Low** significance if mitigation measures are followed.

Protected Mammals - there is a possibility of a limited number of individual otter, pine marten, amphibians, and/or invertebrates experiencing disturbance or being displaced from a small area of local habitat, but this is not considered likely to affect the conservation status of populations in a local, national or international context. Breeding birds will be displaced during the construction stage, but this will be a temporary issue. The impact to protected mammals and breeding birds will be short term and due to the findings, the impact would be considered **Low.** Mitigation measures [3] and pre-construction surveys are recommended. The design ensures that the presence of the infrastructure in the environment will not have an effect on protected species in the long term.

Part of the site, including the proposed intakes, penstock route, and access quad track fall within the area of wild land, designation: *26. Coulin & Ledgowan Forest*.

2.4 Policy 05- Soils

The policy intent is: *To protect carbon-rich soils, restore peatlands and minimise disturbance to soils from development.*

A peat depth survey has been conducted to assess the presence and location of peat at the site. The peat is either less than 0.5m, therefore not classed as peat, or less than 1m which is classed as shallow peat. Infrastructure has been located to minimise the disturbance of the areas of peat that have been identified. Where avoidance is not possible, or the impacts of avoiding peat are considered to be potentially significant, construction methods will ensure that the effects of construction on peat are minimised. Where it is necessary to disturb peat during construction it will be stored and re-used at the same location during restoration. A peat management plan has been included in the Ecological report [3]. This will be followed to prevent any long-term effects. The impact on the peatland would be considered **Low** due to the depth of peat and mitigation measures recommended.

2.5 Policy 06- Forestry, Woodland and trees

The policy intent is: *To protect and expand forests, woodland and trees.*

No trees will require felling as part of the development. There are no trees within the construction area, as such no fencing or protection measures will be required. The development lies upstream to a site of national importance for Pine Woodland (SSSI) with areas of upland alder and oakwood, all of which are of ancient origin and subject to national BAPs. The potential impacts to woodland are through pollution, siltation and/or changes to local hydrology, which should be managed through mitigation as directed In the Ecological report [3] and SEPA guidelines. Impacts to woodland may be reduced to **Low** significance if mitigation measures are followed.

The proposed biodiversity enhancements, see section 2.2, include woodland creation.

2.6 Policy 11- Energy

The policy intent is: *To encourage, promote and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies including hydrogen and carbon capture utilisation and storage (CCUS).*

The development will increase the availability of water to the existing Easan Dorca hydro scheme that has been generating since 2017. This should lead to an annual increase in renewable energy generation of approximately 647MWh, which is the equivalent to approximately 240 households' annual electricity consumption. The environmental effects of the scheme are benign:

- The project is several kilometres from the nearest community and will have no effect on this.
- The landscape and visual impacts have been reduced by considerate design and mitigation. NatureScot consider this sufficient and no Land Scape and Visual Impact Assessment will be required, see Appendix A.2.
- There is no effect on public access, aviation, defence or telecommunications.
- The traffic associated with construction is small relative to existing traffic levels and no abnormal loads are required. There is negligible traffic associated with operation.
- No archaeology in the working area has been identified.
- The effect on hydrology has been discussed with SEPA, is in line with current guidance and is assessed as part of the CAR/ESAR licence application.
- There is a net increase in biodiversity due to the planned woodland creation.

- There are no other projects that the developer is aware of that would lead to a cumulative impact.

2.7 Policy 22- Flood risk and water management

The policy intent is: *to avoid development in flood risk areas, as this is the most effective way to manage risk.*

Responses from the pre-application [1] state that there is no additional flood risks associated with the new intakes. Communication with the Highland Council confirmed that a flood risk assessment would not be required, see Appendix A.3.

The pre-application response pack [1] stated that a drainage impact assessment would be required. GHC have completed a Drainage Impact Assessment [7]. This references any existing onsite drainage measures, and drainage for the proposed development, namely the drainage associated with the proposed access track.

During construction water will be managed to minimise sediment run off, minimise disturbance to natural water courses and to allow the dewatering of working areas. This will include drainage and sediment management outlined in the Hydro Scheme Construction Standards [2].

2.8 Policy 25- Community Wealth Building

The policy intent *encourage, promote and facilitate a new strategic approach to economic development that also provides a practical model for building a wellbeing economy at local, regional and national levels.*

The pre-application response pack [1] recommended consulting with the local community councils, including Torridon Community Council and Loch Carron Community Council. This consultation started 27/06/2025 and is ongoing at the time of this planning submission.

3 Site description

The proposed catchment extension lies on Coulin Estate, land owned and managed by the client. The estate is situated on the west coast of Scotland near Kinlochewe. The area experiences significantly more rainfall than the east coast due to the prevailing westerly winds and the mountainous terrain. This made the location ideal for the development of hydropower on the estate in 2017 and makes the proposed catchment extension viable in 2025.

The estate offers accommodation and country sporting activities and is a popular destination for walking and cycling. Several well-maintained tracks on the north of the estate lead visitors around Loch Clair, Loch Coulin and the surrounding hills, which offer views of the Beinn Eighe mountain range.

Much of the land where the development is situated is classified as wet heathland, peatland and M6 acid flushes. There are no trees within the development area. The development lies upstream to a site of national importance for Pine Woodland (SSSI) with areas of upland alder and oakwood, all of which are of ancient origin and subject to national BAPs.

There are no scheduled monuments within the site and no archaeological features listed on the Canmore database.

There is vehicle access to the development area from the A896 southwest of Kinlochewe via the existing private road/4x4 track that runs through the Coulin Estate, terminating at the existing Easan Dorca intakes 1 & 2. The tracks are used by walkers & cyclists.

The Drochaid Coire Lair footpath crosses the site running southwest from the Tea Hut and crosses the saddle between Beinn Liath Mhor & Carn Eite.

3.1 Designations

There are a number of designations that the site falls within or is near to, including:

- Entire site within Wester Ross National Scenic Area (NSA)
- Nearby: Coulin Pinewoods Site of Special Scientific Interest (SSSI), PA code 411.
- Nearby: Ancient woodland inventory
- Nearby: Caledonian Pinewood inventory

3.2 Easan Dorca Hydro Scheme

The Easan Dorca hydro scheme is a 995kW run of river plant located near Kinlochewe in the Highlands. The scheme was consented under CAR (CAR/L/1104654) and planning (12/02435/FUL). Construction started in August 2017 and the plant was commissioned by October 2018.

The existing hydro scheme has a catchment area of approximately 6km^2, there is the potential to increase this by approximately 2.55km^2 or 43% using the proposed catchment extension. This should lead to an annual increase in renewable energy generation of approximately 647MWh, which is the equivalent to approximately 240 households' annual electricity consumption.

4 Proposed development

This proposal includes the construction of three intakes and a length of penstock to abstract water from three burns that form tributaries of the Easan Dorca and deliver it to the existing hydro scheme.

The development is split into the following main elements:

- Construction of a small weir and intake to abstract water from the Allt an Tigh Sealgach burn (Intake A - NG 99775 51643).
- Construction of a medium weir and intake on Allt Achadh Beinne Leithe burn (Intake B - NG 99644 51115).
- Construction of a medium weir and intake to abstract water from the Allt nan Dearcag burn (Intake C - NH 00573 50977)
- Construction of 3.3km of buried penstock to allow abstracted water from the three proposed intakes to be discharged into the existing intake structure on the Easan Geal burn at NH 00201 52695.

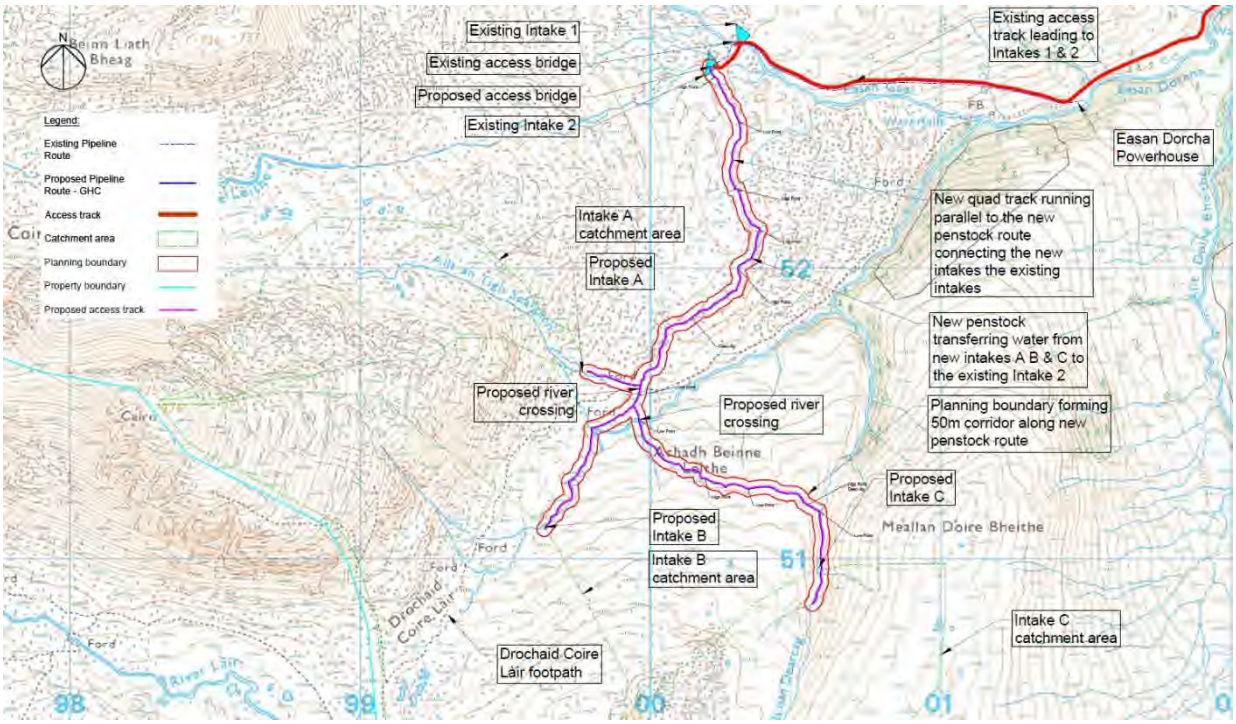


Figure 3 - Easan Dorca catchment extension layout.

The locations of the infrastructure, examples of similar structures, descriptions of the infrastructure, and outline design drawings are presented on the following pages.

4.1 Intake A – Allt an Tigh Sealgach

The intake on the Allt an Tigh Sealgach burn will be a small structure designed to fit within the existing channel. The structure will be formed from a small stainless steel prefabricated box with a 10mm bar screen and compensation flow orifice. The box itself will be powder coated dark grey to reduce reflection. It will be approximately 1m wide (to suit the channel width) by 0.5m long by 0.63m high and will be installed on a concrete base below the level of the existing bed. The box will be tied into the

banks using locally won rock embedded in concrete. The extent of this rock armour will be kept to a minimum and will be below the top of the existing banks.

Figure 4 - Proposed Intake A location: NG 99775 51643 (Left), example small powder coated intake box (right)

An outline design for proposed Intake A can be seen in Figure 3 below. Please note that on site dimensions related to the width of the structure required to form the seal may change depending on site conditions. However, this would not affect the overall concept of the design which is a low-profile intake with minimal visual impact.

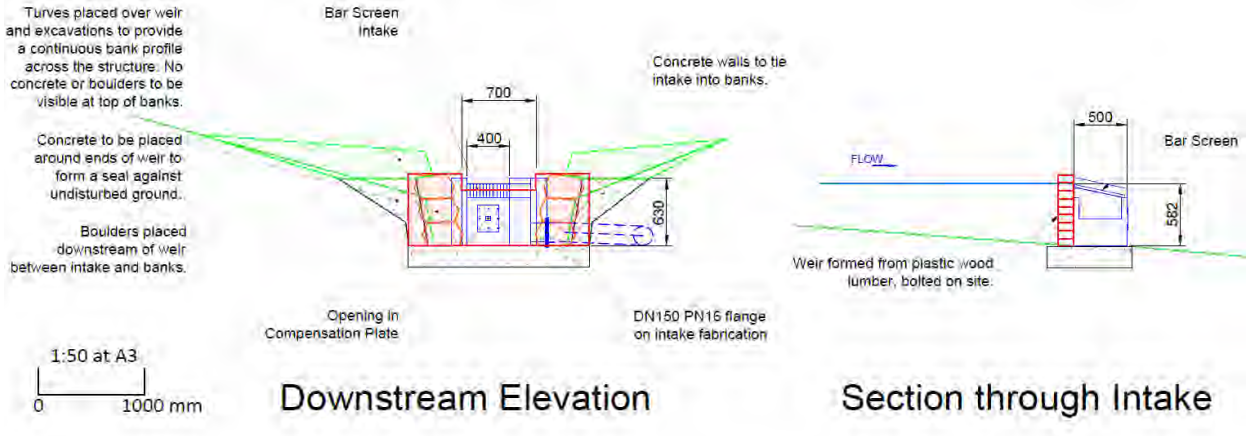


Figure 5 - Intake A outline design. Location: NG 99775 51643

In addition to the orifice plate to ensure the correct hands-off flow and compensation flow is delivered downstream of the intake, the intake will also be fitted with a control plate at the point of connection with the penstock, or similar, to ensure the max abstraction is not exceeded, see Section 8 for proposed abstraction regime.

4.2 Intake B – Allt Achadh Beinne Leithe

The intake on Allt Achadh Beinne Leithe burn will be a medium sized structure designed to fit within the existing channel. The structure will be formed from a small stainless steel prefabricated box with a 10mm bar screen and compensation flow orifice. The box itself will be powder coated dark grey to reduce reflection. It will be approximately 3m wide (to suit the channel width) by 0.5m long by 0.63m

high and will be installed on a concrete base below the level of the existing bed. The box will be tied into the banks using locally won rock embedded in concrete. The extent of this rock armour will be kept to a minimum and will be below the top of the existing banks.

Figure 6 - Intake B - Proposed location: NG 99644 51115 (left), example of medium intake – not powder coated (right)

An outline design for proposed Intake B can be seen in Figure 5. Please note that on site dimensions related to the width of the structure to form the seal may change depending on site conditions. However, this would not affect the overall concept of the design which is a low-profile intake with minimal visual impact.

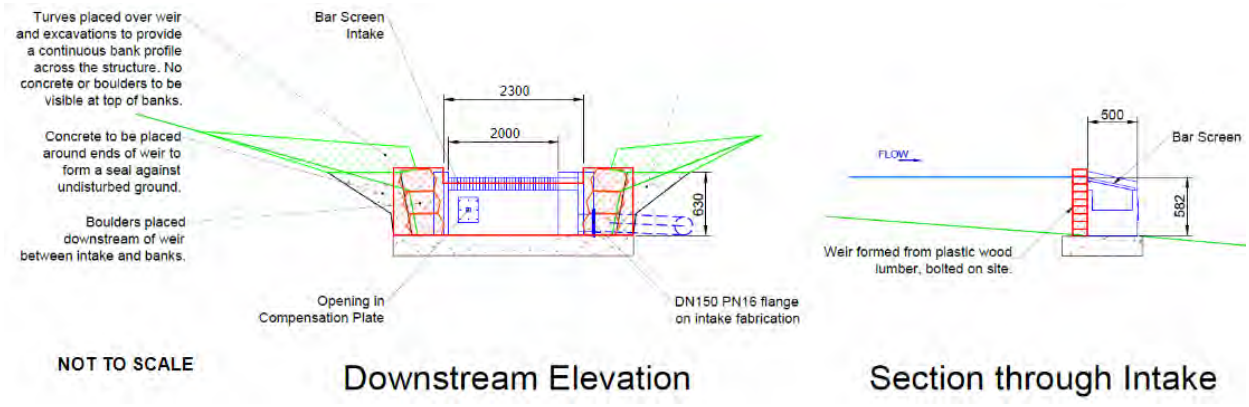


Figure 7 - Intake B outline design. Location: NG 99644 51115

In addition to the orifice plate to ensure the correct hands-off flow and compensation flow is delivered downstream of the intake, the intake will also be fitted with a control plate at the point of connection with the penstock or similar to ensure the max abstraction is not exceeded, see Section 8 for proposed abstraction regime.

4.3 Intake C – Allt nan Dearcag

The intake on Allt nan Dearcag will be a medium sized structure designed to fit within the existing channel. The structure will be formed from a small stainless steel prefabricated box with a 10mm bar screen and compensation flow orifice. The box itself will be powder coated dark grey to reduce reflection. It will be approximately 3m wide (to suit the channel width) by 0.5m long by 0.63m high and will be installed on a concrete base below the level of the existing bed. The box will be tied into the banks using locally won rock embedded in concrete. The extent of this rock armour will be kept to a minimum and will be below the top of the existing banks.

Figure 8 - Intake C - Proposed location: NH 00573 50977 (left), example of medium intake – not powder coated (right)

An outline design for proposed Intake C can be seen in Figure 7. Please note that onsite dimensions related to the width of the structure to form the seal may change depending on site conditions. However, this would not affect the overall concept of the design which is a low-profile intake with minimal visual impact.

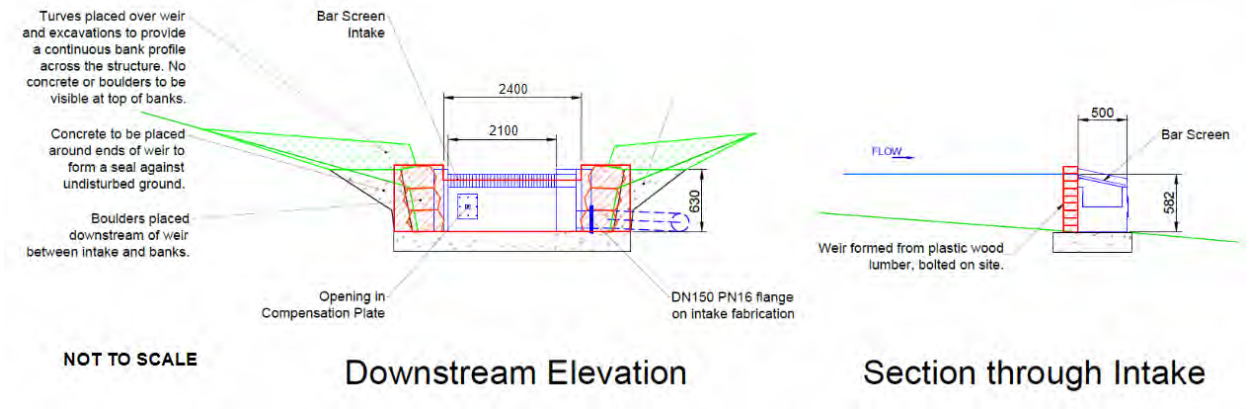


Figure 9 - Intake C outline design. Location: NH 00573 50977

In addition to the orifice plate to ensure the correct hands-off flow and compensation flow is delivered downstream of the intake, the intake will also be fitted with a control plate at the point of connection with the penstock to ensure the max abstraction is not exceeded, see Section 8 for proposed abstraction regime.

4.4 Penstock

In total 3.3km of penstock will be laid to connect the proposed intake A, B, & C and transport the water to the proposed discharge location to allow it to be utilised by the existing Easan Dorca hydropower scheme. The penstock will be installed following the Hydro Scheme Construction Standards and Guidance [2].

The proposed penstock route runs northeast from intake C to intake B, passing under the Drochaid Coire Lair footpath before connecting to intake A. The penstock then contours along a steep embankment before reaching the relatively level plateau that the final 1km of penstock will be laid across until connecting to the existing Easan Dorca Intake 2.

In response to the pre-planning application responses, this penstock route has already been re-designed to take into account the results of the peat survey. The route has been adjusted to avoid areas of deeper peat highlighted in the Ecological Report [3].

Figure 10 - Proposed penstock crossing Drochaid Coire Lair footpath location (left), example of penstock crossing footpath (right)

4.5 Penstock Point of Discharge

The abstracted water would be discharged upstream of the existing Easan Dorca intake 2. The discharge point will consist of a precast head wall set into the existing rock armour riverbank. The point of discharge will be screened to prevent any entry into the penstock. The discharged water will then be re-abstracted by the existing Easan Dorca 2 intake, to be used by the hydropower power scheme to generate renewable energy.

Figure 11 - Proposed discharge point (left), example of a discharge headwall (right)

4.6 Access Track

A temporary construction access track will be required from the existing Easan Dorca intake 2, along the proposed penstock route, passing the proposed intake A, crossing the Drochaid Coire Lair footpath, passing the proposed intake B, and terminating at proposed intake C.

This temporary track is required to facilitate the movement of plant, personnel and construction materials to the working areas.

During the reinstatement phase the full length of this track will be reduced in width to a narrow quad track. This will facilitate infrequent maintenance of the proposed intake structures by quad bike or similar from Easan Dorca intake 2. The width of the track can be reduced by re-shaping the edges of the track and placing stored turves or organic material over the track edges. The cost of reducing the width of access tracks is significant as it requires the use of specialist plant, highly experienced operators and takes a significant amount of time. However, the benefits in terms of reduced visual impact can be significant.

1. Additionally, a raised section will be left on the downhill side of the track. This will help to visually shield the track from this direction.

2. Any track or path will 'grass over' or vegetate naturally over time. The time taken will be affected by the altitude, climate, amount of use and composition of the track. The level of use in this instance will be very low and the track will be constructed with locally sourced mineral material.

3. In addition to the construction methods that are outlined above, the following approaches are employed to ensure that the immediate visual impact of the construction is minimised and that vegetation becomes re-established around the quad track as soon as possible.

    a. Minimise construction corridor width. The actual corridor width required is related to the ground conditions, pipeline material and access requirements and can therefore vary along the length of the route.

b. Minimise the length of pipe trench that is being worked at any one time. In most cases no more ground is stripped than can be reinstated within two weeks of the turves being broken.

c. Ensure that good practice is followed during excavation, particularly the management of surface water, the correct storage of turves and separate storage of peat and subsoil. These are then restored in the same layers as they were removed.

d. Where boulders are present on the surface, these are to be stored separately, along with turves and replaced on the surface in random positions, ideally the same way up as they were before removal.

Figure 12 - Proposed access track following penstock route.

5 Masterplan

The pre-application response pack recommended a Masterplan be assembled for the proposed catchment extension. The purpose of this Masterplan [10] is to provide a comprehensive plan that outlines the present and future plans for the Easan Dorca Hydro scheme and surrounding landscape in the context of the proposed catchment extension.

6 Catchment Extension operation

The operation of the proposed catchment extension is relatively simple. It is proposed that the water will be abstracted from each burn and transferred through a low-pressure penstock to the existing Easan Dorca intake 2, where it will be re-abstracted & used for the generation of hydro electric power. The water will then be discharged downstream of the turbine powerhouse through the turbine's existing outfall arrangement.

The intakes & penstock have been sized to abstract and transfer up to 1.5x Qmean (as per SEPA guidelines). There is no benefit to the hydro scheme to abstract above this combined flow as the scheme will already be at max power with water supplied from its current catchment. The intakes are designed with a compensation flow notch that will deliver a Q95 hands-off-flow, and a residual flow of Q80 when the upstream flow reaches Q30.

7 Renewable energy generation

The water abstracted from the new intakes will provide a small but meaning flow increase to the Easan Dorca hydro scheme when its current intakes are not providing sufficient flow for the turbine to reach max power. The ability to provide the additional flow will result in an overall increase in the production of renewable electricity from the hydro scheme, without the need to upgrade the mechanical or electrical systems, or grid connection.

Over the course of one year we expect the scheme to generate an additional 647MWh of renewable electricity. This is the equivalent to approximately 240 households' annual electricity consumption[2].

8 Construction arrangements

8.1.1 Construction programme

The construction programme is dependent upon a number of factors and at the time of writing there is significant uncertainty over the start date. It is expected that the earliest that construction would start is May 2026 with the main construction work conducted between August and October 2026.
The construction work is expected to take approximately 18 weeks to complete and will be scheduled to minimise the impact on breeding birds & fish and to avoid poor weather.

8.1.2 Access to site

Access to the site for construction will be from the A896 southwest of Kinlochewe, via the existing private road/4x4 track that runs through the Coulin Estate, terminating at the existing Easan Dorca intakes 1 & 2.

The contractors will access the working area via the existing private road / 4x4 track to reach the existing Easan Dorca intakes 1 & 2 and then use the proposed temporary access track to reach the working area.

8.1.3 Construction materials and methods

The intake structures will be formed from a reinformed concrete base & wingwalls, supporting a pre-fabricated stainless intake structure. River diversions will be put in place to enable in-river working and construction will be scheduled to take place during the summer months when flows are relatively low and outside the fish spawning season.

[2] https://www.ofgem.gov.uk/information-consumers/energy-advice-households/average-gas-and-electricity-use-explained

The pipeline material will be High Performance Polyethylene (HPPE). The penstock will be a relatively small diameter (ranging from approx. 300-560mm) and will be constructed from low pressure pipe along the majority of its length, making it easier and less cumbersome to install.

The construction track will be formed from locally-won aggregate. This is expected to be won from within the construction corridor from small short term excavations that will be reinstated as soon as sufficient aggregate has been won. Depending upon ground conditions it may be necessary to import aggregate. If this is required it will be sourced from a borrow pit close to the existing Easan Dorca Intake 2.

It is unlikely that the pipeline trench will require a significant amount of bedrock to be excavated. Any bedrock excavation is likely to be localised to short sections of penstock and breaking will be conduced using an excavator mounted breaker. A detailed description of the pipeline laying methodology is provided at [2].

Pipeline materials, building materials, and the pre-fabricated intakes will be brought to site by road.

It is not envisioned that any temporary or permanent site lighting will be required as part of the works.

8.1.4 Compounds and working areas

A construction compound will be established on existing hardstanding's at Easan Dorca intake 1 & 2. The construction compound will be small, comprising at most a storage container and small welfare unit. A portaloo and small shelter may be erected close to the working areas for the operatives to use during construction.

The existing hard standing at the Easan Dorca powerhouse and the existing estate storage area may be used for the offloading and short-term storage of materials whilst they are forwarded to the areas of the site where they will be used.

8.1.5 Tree felling and protection

There are no trees in the working areas. No trees will require felling as part of the works.

The development lies upstream to a site of National importance for Pine Woodland (SSSI) with areas of upland alder and oakwood, all of which are of ancient origin and subject to national BAPs. The potential impacts to woodland are through pollution, siltation and/or changes to local hydrology, which should be managed through mitigation as directed in the Ecological report [3] and SEPA guidelines. Impacts to woodland may be reduced to **Low** significance if mitigation measures are followed.

8.1.6 Peat disturbance / Meat Management Plan

The peat is either less than 0.5m therefore not classed as peat or less than 1m which is classed as shallow peat. There are a few deeper sections which have been avoided where possible by micro-siting the penstock route. Where areas of peat cannot be avoided, the peatland management plan should be followed to prevent any long-term adverse effects. The impact of the peatland would be considered **Low** due to the depth of peat and mitigation measures recommended in the Peat Management Plan, see Ecological report [3], section 5.7.

The Peat Management Plan has been prepared to minimise peat disturbance, ensure peat is handled & stored correctly and ensure the peat is reinstated in an appropriate manner. The Peat Management Plan is to be used in conjunction with The Hydro Scheme Construction Standards and Guidance [2].

8.1.7 Borrow pits

If required, a temporary borrow pit will be opened close to the existing Easan Dorca Intake 2 to provide materials to float the access track over sections of peat bog. Any excess material will be returned and the borrow pit reinstated once works are complete. No quarries are required.

No large borrow pits are proposed as part of the development. It is anticipated that material for construction of the track will be won from small excavations adjacent to the route of the track and that these will be open for short periods. Where short term pits are formed to produce aggregate these will be located at least 25m (preferably further) from watercourses and shall have drainage installed to divert surface water away from the excavation and to ensure that any water that does enter the excavation is routed to a settlement pond before discharge to the environment.

8.1.8 Schedule of Mitigation

Mitigation measures associated with the construction activities are included in the Construction Management Plan [8], mitigation measures associated with the habitat, peat management, protected mammals, fish, habitat loss, & GWDTE are covered in the Ecological Report [3]. The mitigation measures follow the requirements of the National Planning Policy 4, employing the mitigation hierarchy of avoidance, reduction, and compensation.

9 Operation and maintenance

9.1.1 Intakes

The intakes will require regular visits (approximately once per month) to check the condition of the screens and compensation flow arrangements and to remove any material that may be blocking them. On a less regular basis any sediment (typically gravel and cobbles) that has accumulated in the plunge pools below the intake screens will be flushed out to the burn below. The intakes will be accessed on foot from a vehicle parked alongside the quad track.

9.1.2 Penstock, Access Track, Air valves & scour valves

These items will be routinely inspected post construction. Where possible maintenance will be carried out by the estate team.

9.1.3 Landscape Maintenance/Management Plan

The pre-application response pack recommended that a Landscape Maintenance/Management Plan be assembled. GHC have completed this document [9] which includes a detailed list of the development's maintenance tasks and the party responsible for carrying them out.

9.2 Decommissioning

There is no specific limitation on the design life of the catchment extension scheme provided that it is appropriately maintained. If the decision was taken that it should be decommissioned, the likely process would be as follows:

1. Establish river diversions at the intake locations.
2. Demolish the intake structures to remove the impoundments.
3. Remove the river diversions.

The buried pipeline would be capped and left in situ.

10 Assessment of development against environmental designations

10.1 Wester Ross National Scenic Area (NSA)

The project is entirely sited within the Wester Ross NSA.

Following consultation with The Highland Council planning department and NatureScot post pre-application consultation, it was confirmed that a Landscape and Visual Impact Assessment (LVIA) would not be required, see Appendix A.2, and that the mitigation proposed in the pre-application supporting document would be sufficient, along with additional mitigation to mask culvert ends.

Proposed mitigation measures:

- Reinstatement measures to minimise adverse landscape and visual effects [2]
- Ends of new culverts suitable integrated into surrounding landform using local materials.
- Powder coating of stainless-steel intake boxes to reduce reflection.
- Reducing exposed concrete on intake structures where possible using rocks.
- Reducing construction access track width to quad track to minimise visual impact whilst maintaining access for maintenance.

10.2 Coulin Pinewoods Site of Special Scientific Interest (SSSI),

The site is upstream of the Coulin Pinewood, a designated SSSI (PA code 411). Although the working area is outside of the SSSI the Ecological report [3] noted that the site could be a receptor for pollution, siltation and/or changes to local hydrology. The potential negative impact will be managed through mitigation outline in the Ecological report [3].

These measures include:

- All vehicles will be adequately maintained.
- Wherever possible the use of polluting substances, toxins or substances which may change the base status of the ground water will be avoided.
- Generators and fuel stores will either be double bunded or sited on plant nappies.
- Toolbox talks will be given to all construction workers on the importance of pollution control.
- The rate of abstraction from each intake will follow SEPA guidance.

Impacts to woodland may be reduced to **Low** significance if mitigation measures are followed.

Natural Heritage Designations

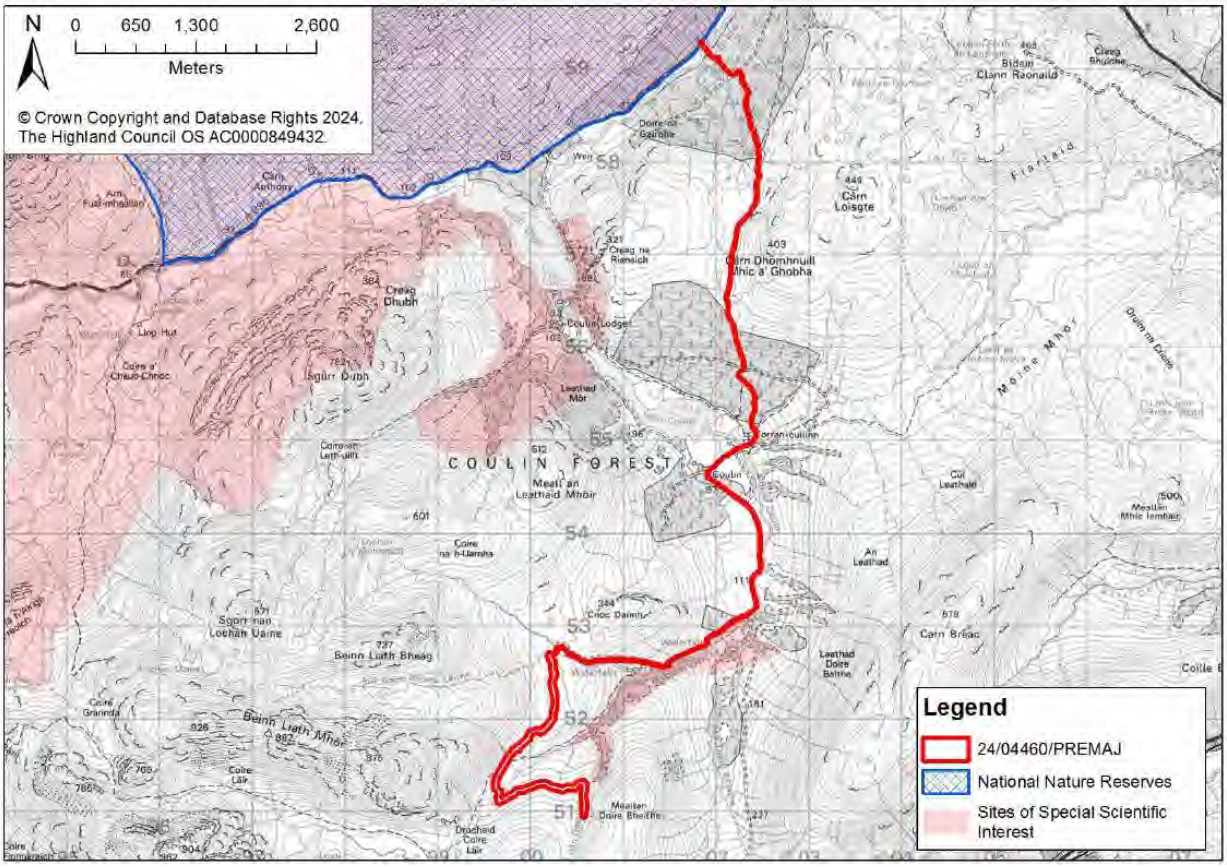


Figure 13 - Site of Special Scientific Interest & development red line boundary map

10.3 Ancient woodland & Caledonian Pinewood inventory

The site is upstream of the Coulin Pinewood, a designated SSSI (PA code 411). Although the working area is outside of the SSSI the Ecological report [3] noted that the site could be a receptor for pollution, siltation and/or changes to local hydrology. The potential negative impact will be managed through mitigation outline in the Ecological report [3].

These measures include:

- All vehicles will be adequately maintained.
- Wherever possible the use of polluting substances, toxins or substances which may change the base status of the ground water will be avoided.
- Generators and fuel stores will either be double bunded or sited on plant nappies.
-

Native Woodland Survey of Scotland (Highland)

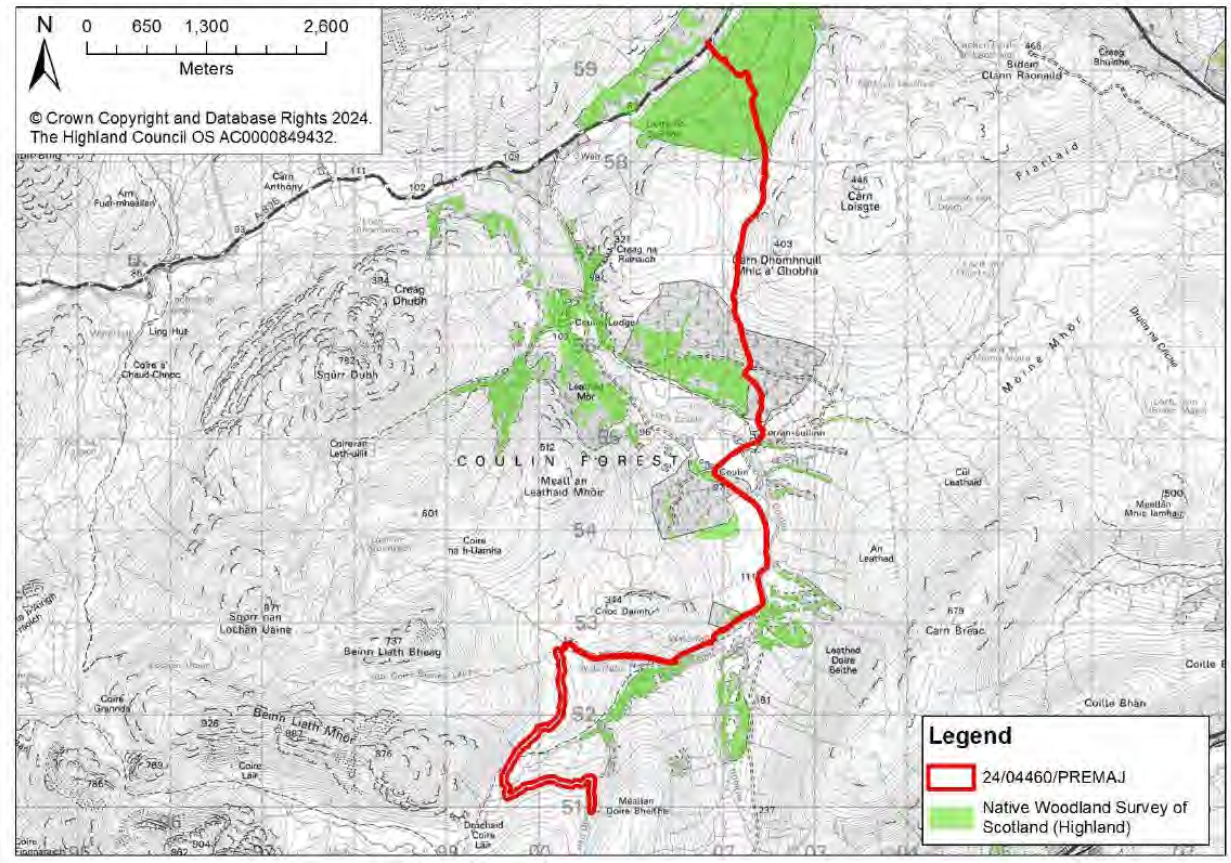


Figure 14 - Native woodland survey of Scotland Map & development red line boundary map

11 Water environment

11.1 Existing river flows

The hydrology of the proposed intakes has been calculated using Lowflows software, see summary tables 1, 2, & 3 below. For full Lowflows duration data see Appendices B.1, B.2, & B.3.

Table 2 - Intake A - Hydrology Summary (based on Lowflows data)

Intake Location (NGR)	NG 99775 51643
Catchment Area (km^2)	0.456
Qmean (m^3s^{-1})	0.038
Q30 (m^3s^{-1})	0.039
Q80 (m^3s^{-1})	0.007
Q90 (m^3s^{-1})	0.005
Q95 (m^3s^{-1})	0.004

Table 3 - Intake B - Hydrology Summary (based on Lowflows data)

Intake Location (NGR)	NG 99644 51115
Catchment Area (km^2)	0.99
Qmean (m^3s^{-1})	0.083
Q30 (m^3s^{-1})	0.082
Q80 (m^3s^{-1})	0.014
Q90 (m^3s^{-1})	0.009
Q95 (m^3s^{-1})	0.007

Table 4 - Intake C - Hydrology Summary (based on Lowflows data)

Intake Location (NGR)	NH 00573 50977
Catchment Area (km^2)	1.1053
Qmean (m^3s^{-1})	0.083
Q30 (m^3s^{-1})	0.086
Q80 (m^3s^{-1})	0.014
Q90 (m^3s^{-1})	0.009
Q95 (m^3s^{-1})	0.007

11.2 Abstraction regime

The proposed abstraction regime complies with the guidance for run of river hydropower schemes, specifically:

- Maximum abstraction = 1.5 x Q mean
- Hands off flow = Q95 downstream of intake when flow is Q95 upstream of the intake
- Residual flow = Q80 downstream of intake when flow is Q30 upstream of intake

Therefore, the relevant parameters for the abstraction licence are:

Table 5 - Intake A - Proposed Abstraction Regime (based on Lowflows data)

Max Abstraction - 1.5x Qmean (m^3s^{-1})	0.057
Residual Flow - Q80 @ Q30 (m^3s^{-1})	0.007
HOF – Q95 (m^3s^{-1})	0.004

Table 6 - Intake B - Proposed Abstraction Regime (based on Lowflows data)

Max Abstraction - 1.5x Qmean (m^3s^{-1})	0.126
Residual Flow - Q80 @ Q30 (m^3s^{-1})	0.014
HOF – Q95 (m^3s^{-1})	0.007

Table 7 - Intake C- Proposed Abstraction Regime (based on Lowflows data)

Max Abstraction - 1.5x Qmean (m^3s^{-1})	0.126
Residual Flow - Q80 @ Q30 (m^3s^{-1})	0.014
HOF – Q95 (m^3s^{-1})	0.007

The water abstracted from all intakes will be returned to the Easan Dorcha burn via the existing turbine outfall at NH 01506 52577.

11.3 Flooding

The intakes and outfall structures will be located within watercourses and will be designed to withstand flood events. The intakes will create small impoundments, but these will not extend more than 5m upstream of the structures. The flood levels will be increased immediately upstream of the intakes and for no further than 10m upstream. There are no other structures within the areas immediately upstream of the intakes. The outfall will not have an effect on flood risk at or upstream of the location given the relatively same volume of water abstracted and discharged.

Responses from the pre-application [1] state that there is no additional flood risks associated with the new intakes. Communication with the Highland Council confirmed that a flood risk assessment would not be required, see Appendix A.3.

There are two watercourse crossings on the pipeline route, both of these are below ground, with a vehicle access bridge forming the third crossing point over the Easan Geal at the point where the proposed access track joint the existing access track at Easan Dorca Intake 2:

- A pipe bridge will be constructed adjacent to the turbine house (see **Error! Reference source not found.** and **Error! Reference source not found.**) and
- Culverts will be installed to allow the pipe to cross two small watercourses near NG 99873 51433 & NG 99873 51433.
- A vehicle access bridge will connect the proposed access track to the existing access track near NH 00201 5269.

All of these watercourse crossing will be designed to convey a 1 in 200 year flood event plus allowance for climate change.

11.4 Morphology

Small pools will be created upstream of each impoundment. These pools will naturally fill with sediment and, once full, the sediment will pass over the intake structure and will continue downstream. Therefore, the intake will create a short-term interruption in sediment transport while the pools fill, but transport will continue unaffected once the pools have filled.

12 Ecology assessment

12.1 Bryophytes

The lower sections of the burns downstream of the development are populated by bryophytes **Error! Reference source not found.**. Pre-application SEPA guidance recommended a bryophyte survey be undertaken to assess the population and the impact of the proposed development.

Whytock Ecology Ltd (WEL) was commissioned in 2025 by GHC to carry out a bryophyte survey for the additional intakes. The purpose of the bryophyte survey is to assess whether the proposed changes in hydrology are likely to have an impact on rare or sensitive species (Demars and Britton, 2011).

All three watercourses were categorised as Category C. The proposed hydroelectric scheme extension of three additional intakes is unlikely to have any significant effects on bryophyte populations along watercourses where abstraction is proposed. In addition, no specific mitigation measures are required, though general mitigation measures to enhance bryophytes have been provided, specifically the planting of native riparian woodland communities along the upper reaches of each watercourse and not removing any cut trees.

No species of conservation concern were identified along the penstock route, therefore no specific mitigation is required for bryophytes along this route. For the full Bryophyte report see [4].

12.2 Macro Invertebrates

EnviroCentre were commissioned by Glen Hydro to undertake baseline macroinvertebrate sampling at Coulin Estate, Kinlochewe. This sampling was specified by The Highland Council.

Kick sampling was undertaken on 24th July at the confluence of the three reaches which are proposed for intakes as part of the Easan Dorcha Hydro Scheme extension. The baseline survey outlined a small number of taxa were recorded at the confluence location resulting in an overall moderate ecological quality, with a small number of species that are fairly sensitive to pollution recorded. Index results alongside visual observations note that the watercourse is composed of very coarse material and fast flowing, with limited sediment variation (*i.e.* no fine sediment). It is considered that the coarser sediment present has contributed to the moderate ecological quality at this location. In addition, it should be noted that the higher rainfall in days preceding the survey could have contributed to the lower number of taxa, with a potential that invertebrates could have been dislodged further downstream in the catchment. It is considered that these baseline survey results can be used once works commence to use as a comparison and measure of the impact of the work on invertebrates and subsequent water quality.

It is understood that The Highland Council have recommended a repeat macroinvertebrate sample is collected following construction of the intakes. It is recommended that this undertaken at a similar time of year in 2026 and under similar flow conditions where possible to allow for a representative comparison. For the full result of the 2025 baseline macro invertebrate survey [5].

12.3 Fish

A base line fish habitat survey was undertaken by Diverse Ecology in June 2025 [3] to assess the quantity and quality of habitat available to fish which would be affected by the proposed extension development of the run-of-river hydropower scheme.

The survey found that there are no migratory fish above the waterfall located below the powerhouse. The reaches surveyed are the watercourses that will be affected by the planned new intakes. There is

productive and parr/fry habitat within most of the reaches but not much suitable spawning habitat within the area.

Provided the stipulated compensation flows are maintained the proposed extension of the hydro scheme will have minimal impact on the river ecology, especially as there are numerous small tributaries which will not be tapped for the scheme. Spate flows will bypass the intake, and during low flow periods SEPA stipulate a minimum compensation flow of Q95 will be guaranteed. The environmental management plan stipulates the management of sediment to ensure the ecology of the river is not affected. Construction works around watercourses clearly have potential to impact stream habitats and fish populations through siltation or other forms of pollution. Construction impacts may be minimised by following standard good practice procedures and pollution prevention guidance (SEPA/Environment Agency. 2007).

As a consequence, no provision will be made for upstream fish passage as part of the impoundment design for any of the intakes. All intakes will be designed according to good practice for downstream fish passage (plunge pools, chamfered edges etc). All intakes will be screened, with Tyrolean-style bar screens with 10mm bar spacing.

12.4 Protected species

The baseline habitat survey of the overall site has shown that the surrounding area is suitable for pine marten, water vole and wildcats. No sign of any of these mammals was found during the walkover survey. Good practice and general mitigation procedures covered in the ecological report [3], section 10 will be followed during the construction period to ensure no mammals using the area will be affected by the construction works.

The habitat found within the river systems within the surveyed area and the heathland is predominantly suitable for otters. Otters tend to have large home ranges allowing them to roam and source food depending on the season and availability. There was only one spraint found within the area, this shows that otters are active in the area despite not being recorded on the NBN Gateway. There will be moving through the area utilising the foraging opportunities depending on the time of year. There was no evidence of breeding holts or resting places found within 30 m of the development areas and therefore it is considered that the proposed development will not have a significant impact on the local otter population. The extension of the run of river hydro scheme has little chance of affecting the otter population in the long term. A preconstruction survey should be carried out to ensure no resting areas or breeding holts are found prior to the start of works, appropriate mitigation measures (see ecological report [3], section 10) should be put in place during the construction period to safeguard any otters which are present in the surrounding area.

Due to the habitat any ground nesting birds would be affected by the construction work being undertaken. To comply with the Wildlife & Countryside Act 1981 dissuasion methods could be required in the spring, pre-early breeding season to ensure ground-nesting was prevented/displaced from along the working corridors prior to groundbreaking or to prevent any disturbance, clearing work could be started outwith the breeding bird season. A golden eagle survey will be required to rule out any disturbance to nesting. There should be no longer term effect of the works.

12.5 Habitats and peat

A Phase 1 Habitat survey was conducted by Diverse Ecology in 2025 and the results are presented at [3]. In terms of sensitive habitats that could be affected by construction activity, the majority of the site is classed as wet heathland, peatland and M6 acid flushes. The ecological report noted that the scheme

be considered as sensitive, and that particular care is taken to safeguard the sensitive habitats. A habitat and peat management plan plus mitigation measures are included in this report which will help reduce the impact level of the work.

It will not be possible to avoid the disturbance of wet heathland during construction. The main mitigation for this is to ensure that turves are stripped and stored separately to other soils prior to excavation of subsoils. This is in line with best practice measures described in more detail in construction standards guidance [2].

The peat is either less than 0.5m therefore not classed as peat or less than 1m which is classed as shallow peat. There are a few deeper sections which have been avoided by micro-siting the penstock route. Impacts to acid flushes (high GWDTE) may be reduced to **Low** significance if micro siting is able to avoid at least 75% of the ones marked on the figure below.

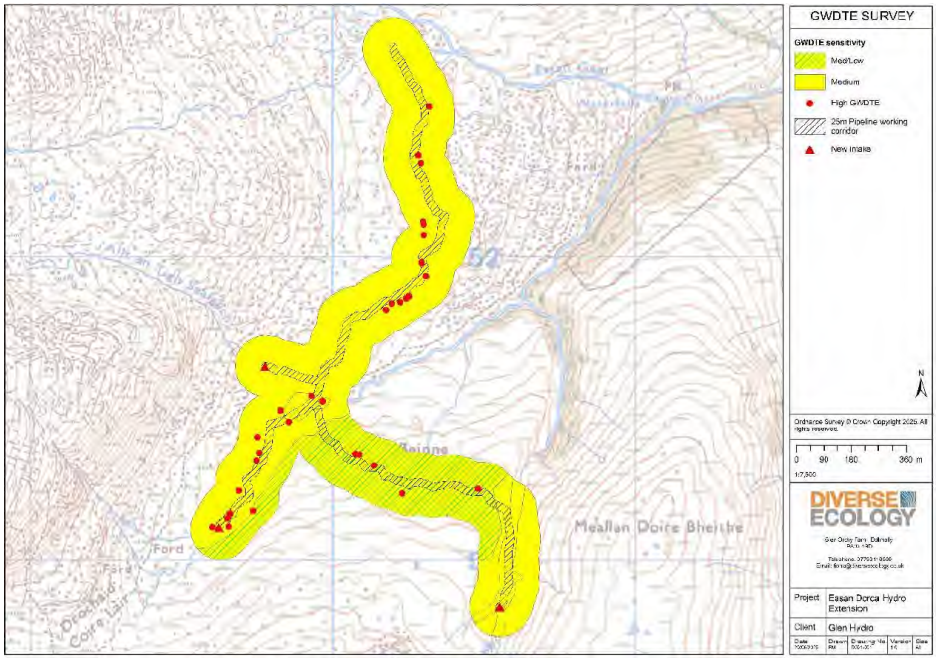


Figure 15 - GWDTE Habitats

The mitigation measures proposed in the ecological report [3] regards GTDTE have be updated following consultation with SEPA. Following these updates SEPA confirmed that they were satisfied with the proposed mitigation, see Appendix A.4.

12.6 Invasive non-native species (INNS)

Discussion has been held with SEPA in relation to waterborne INNS and the transfer of raw water from one catchment to another. The scheme is permissible under SEPA's policy on raw water transfer between unconnected catchments (WAT-PS-22, issued May 2022), as the proposed catchment of intakes A, B & C are directly connected to the existing intakes' catchments. As such we believe that no additional screening to prevent the transfer of invasive non-native species (INNS) will be required.

Initial feedback from SEPA was positive, suggesting the proposal was low risk, with no concerns in relation to INNS, see Appendix A.1. The ecological survey [3] did not identify and notifiable INNS on site.

12.7 Forestry, woodland and trees

No trees will require felling as part the proposed works, there are no trees within the construction area. Woodland creation was highlighted as on aspect of the biodiversity enhancement plan, see section 2.2.

12.8 Habitat Mitigation Plan

The habitat mitigation plan included in the ecological report [3], recommended the following measures should be undertaken to reduce negative impacts:

12.8.1 Direct land take

The route will be planned so the pipeline is sited to minimise the impact of area, avoiding flushes where possible and creating buffers around these features.

12.8.2 During Construction

Impact due to vehicular access across unprotected ground will be minimised by:

- The use of vehicles designed to spread their load by having wide tracks
- Wherever possible vehicles should be routed to avoid flushes/streams and soaks
- Plastic culverts designed to carry a high flow will be used
- Number of journeys across unprotected ground should be minimised

Pollution:

- All vehicles will be adequately maintained.
- Wherever possible the use of polluting substances, toxins or substances which may change the base status of the ground water will be avoided.
- Toolbox talks will be given to all construction workers on the importance of pollution control.

Peatland (M15, M17, M25)

- Drains will be avoided as far as possible but where necessary will be dug around the contour rather than downslope.
- When laying the pipeline turves will be cut and replaced as quickly as possible – preferably the same day.
- Turves will be stacked at a different location from the underlying peat and subsoil.
- To prevent the pipeline from channelling the water along it the peat within the trench should be returned to as natural structure as possible. As much material will be returned to the trench as possible and pressed down firmly to reduce air pockets.
- Vegetation turves should be cut in a irregular pattern to prevent surface lines which may channel flow
- All mineral soil should be returned to the bottom of the trench

Flushes (M6)

- Micro-siting of the penstock to avoid the M6 habitat where feasible Avoid interception of groundwater springs
- Excavation constrained to the smallest footprint practicable - Narrow bucket excavation
- Peat and turves carefully lifted, stored, and reinstated in situ as quickly as possible.
- No artificial drainage within or upslope of the flush.
- Clay plugs/stoppers in penstock trenches upslope of GWDTEs to prevent preferential drainage pathways
- Trench breakers (compacted clay, bentonite, or geotextile wrapped gravel) to slow water flow along backfilled trenches.
- Reinstatement of disturbed ground using original vegetation turves.
- Include method statements for working adjacent to GWDTEs within the CEMP.
- If permanent loss occurs, delivery of compensatory mire/flush enhancement within the local catchment.

To ensure appropriate mitigation is carried out an on-site Ecological Clerk of Works should be retained to provide advice and monitor progress during and after the construction phase.

13 Human environment assessment

13.1 Cultural heritage

There are some sites listed on the Historical Environment Record but none that are close to or would be affected by construction of the proposed catchment extension. The pre-application response pack did not recommend an archaeological site investigation [1].

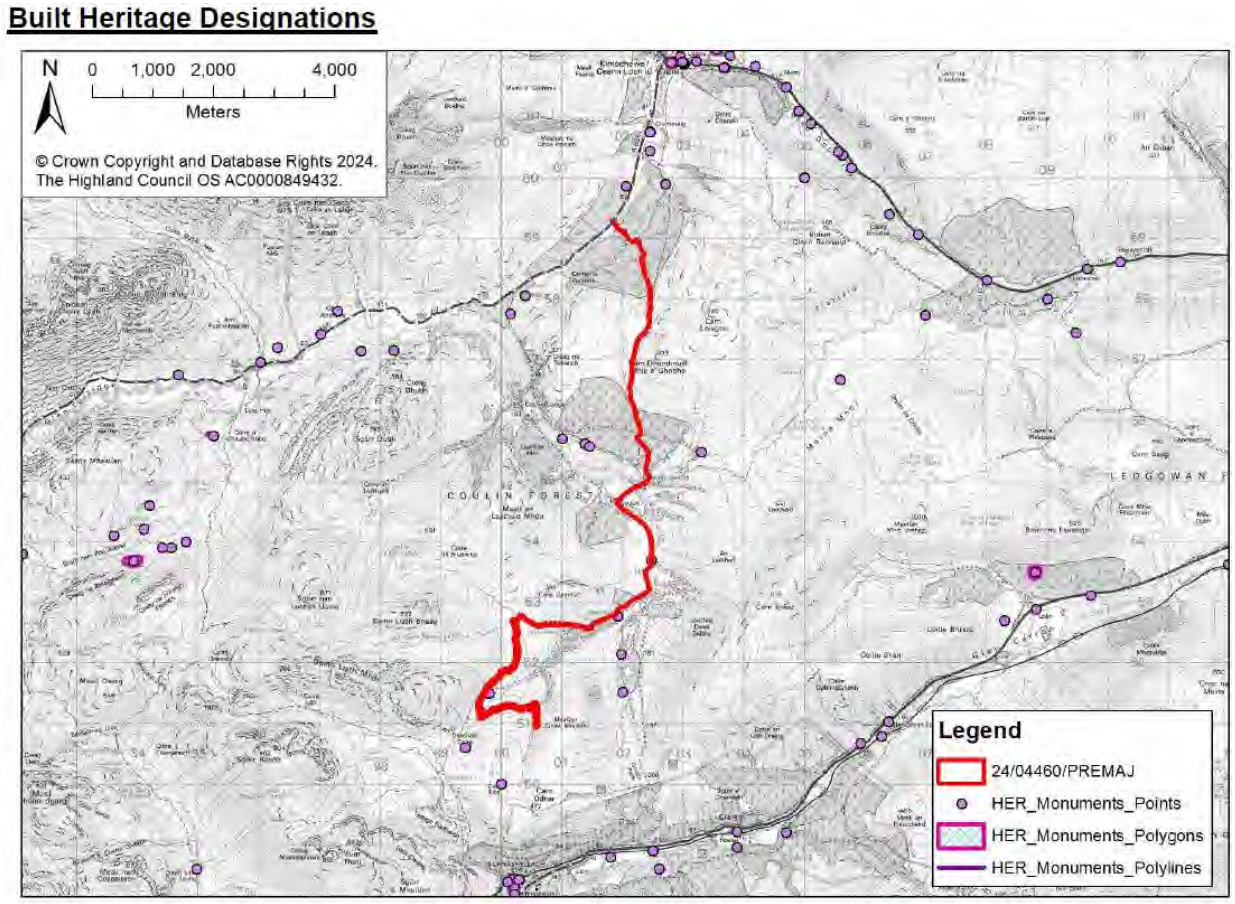


Figure 16 - Built Heritage designation and scheme red line boundary (red)

13.2 Landscape and visual

The pre-application response pack advised that a Landscape and Visual Impact Assessment be undertaken. However, after further consultation, NatureScot have confirmed that they are satisfied that no Land Scape and Visual Impact Assessment will be required. See Appendix A.2.

13.3 Recreation

The Drochaid Coire Lair footpath crosses the site running southwest from the Tea Hut and crosses the saddle between Beinn Liath Mhor & Carn Eite. During construction warning signs will be installed to alert users of both the estate tracks and public footpath that there is construction work & traffic ongoing in the area. Site traffic will be required to not exceed 15MPH when using the estate tracks. The construction works will not impede use of the estate tracks or public footpaths, except for when the penstock route crosses the public footpath (approx. location: NG 99860 51556). This will involve

digging a narrow trench across the path, laying a section of penstock, then backfilling the trench, and reinstating the footpath. These works are expected to take several hours. Provision for footpath users to traverse around the working area whilst the works are ongoing will be made. No footpath closures (temporary or permanent) will be required as part of the development.

The burns where the intakes will be located are generally unsuitable or relatively unattractive for common activities including angling, swimming or kayaking.

13.4 Transport and access

13.4.1 Pre-application consultation and design development

The Highland Council Transport Planning team provided no comment on the pre-application enquiry. No Transport Assessment or Transport Statement was requested. Transport Scotland commented that they are satisfied that there is limited scope for the construction to have any perceivable impact on the trunk road network, and no further information is required in this regard.

Glen Hydro Consulting has undertaken an internal traffic assessment of the current design which is presented below.

13.4.2 Routes and access to site during construction

There is vehicle access to the development area from the A896 southwest of Kinlochewe via the existing private road/4x4 track that runs through the Coulin Estate, terminating at the existing Easan Dorca intakes 1 & 2. The tracks are used by walkers & cyclists.

13.4.3 Traffic during construction

No abnormal loads will be required for construction. Most HGV movements will be 8 wheelers with articulated wagons required for delivery of construction plant and pipeline materials.

There will be traffic movements associated with the transport of construction plant and personnel. A maximum of two HGV movements will be required to deliver and uplift construction plant.

The pipeline material will be delivered by articulated vehicles with a total of between 30 and 40 deliveries required. The weight of these deliveries is relatively low, typically a net weight of approximately 10 tonnes per delivery. Pipeline deliveries will occur over the course of the project to suit construction progress. The maximum number of pipeline deliveries in one day is likely to be five.

A very small quantity of reinforced concrete will be required for the construction of the three intakes, this will be delivered to site as sand, cement, gravel and a small quantity of reinforcement bar. It is estimated that the delivery of these materials will require two HGV movements.

The intake structures will be fabricated and delivered to site. This will require one HGV movement.

With allowance for the delivery of building and other materials, the total number of HGV movements is expected to be between 35 and 45 (depending on the penstock delivery requirements) spread over the construction period. The maximum number of HGV movements in one day is expected to be five, this would be exceptional and would occur on only a few days during construction. Typically, there would be no more than one HGV movement per day.

13.4.4 Traffic during operation

There will be very little traffic during operation, this is likely to comprise one or two movements by quad bike or similar per month with associated with maintenance of the intake screens and compensation notches.

13.4.5 Recommended mitigation measures

Although the impact of construction traffic is not expected to be significant, the following mitigations are proposed:

- Traffic onsite limited to 15mph
- Warning signs along the estate access track notifying other users of the site traffic

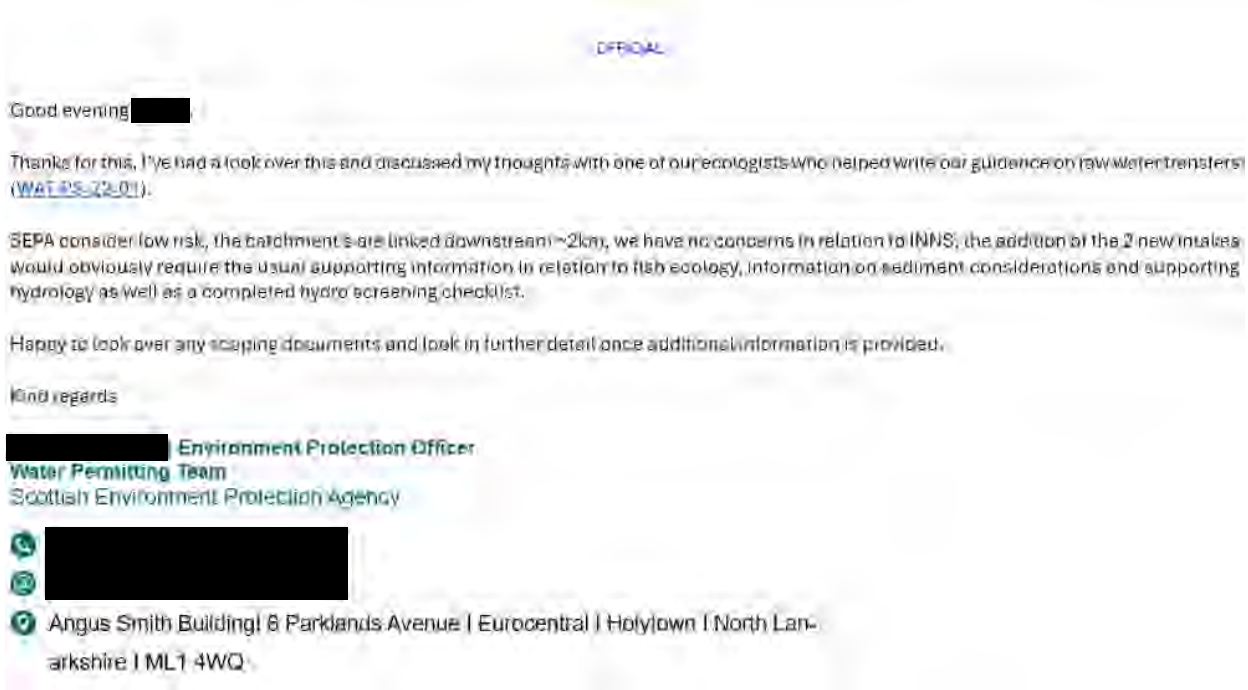
13.5 Drainage Impact Assessment

The preapplication response pack recommended a Drainage Impact Assessment be carried out. GHC undertook this assessment [11], and concluded that the proposed development will not contribute any water the sewage network. Hillside run off will be manged using topside ditching to prevent erosion to the proposed access track. Where there is no existing water course or low point to discharge water collected by the topside ditches, one will be creased, these will include natural silt traps to encourage infiltration and the devilment of aquatic habitat.

14 Appendix

Appendix A Email Correspondence

A.1 SEPA response to INNS concern



OFFICIAL

Good evening [redacted],

Thanks for this, I've had a look over this and discussed my thoughts with one of our ecologists who helped write our guidance on raw water transfers (WAT-RS-22-01).

SEPA consider low risk, the catchment's are linked downstream ~2km, we have no concerns in relation to INNS, the addition of the 2 new intakes would obviously require the usual supporting information in relation to fish ecology, information on sediment considerations and supporting hydrology as well as a completed hydro screening checklist.

Happy to look over any scoping documents and look in further detail once additional information is provided.

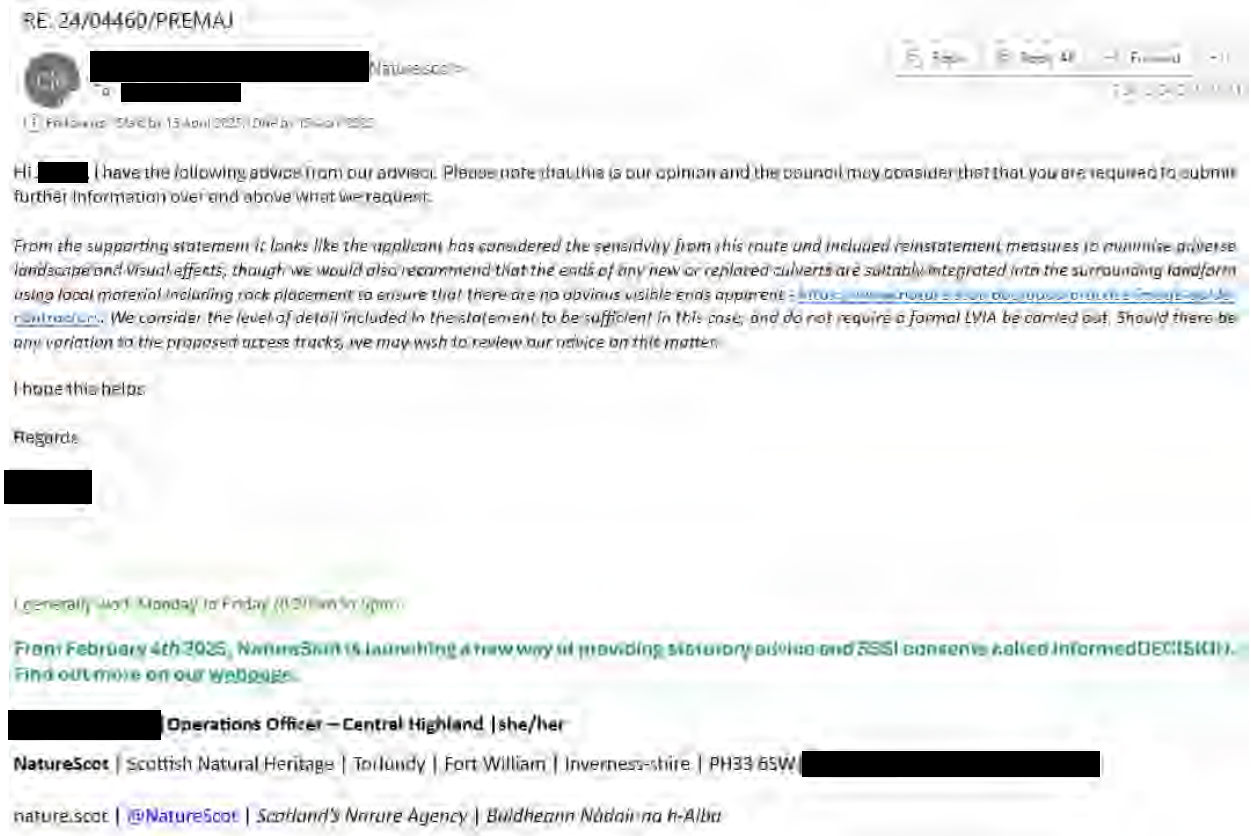
Kind regards

[redacted] Environment Protection Officer
Water Permitting Team
Scottish Environment Protection Agency

[redacted]

Angus Smith Building| 6 Parklands Avenue | Eurocentral | Holytown | North Lanarkshire | ML1 4WQ

A.2 Landscape and Visual Impact Assessment



RE: 24/04460/PREMAJ

[redacted] NatureScot

To [redacted]

Hi [redacted] I have the following advice from our advisor. Please note that this is our opinion and the council may consider that that you are required to submit further information over and above what we request.

From the supporting statement it looks like the applicant has considered the sensitivity from this route and included reinstatement measures to minimise adverse landscape and visual effects, though we would also recommend that the ends of any new or replaced culverts are suitably integrated into the surrounding landform using local material including rock placement to ensure that there are no obvious visible ends apparent - [redacted]. We consider the level of detail included in the statement to be sufficient in this case, and do not require a formal LVIA be carried out. Should there be any variation to the proposed access tracks, we may wish to review our advice on this matter.

I hope this helps

Regards

[redacted]

I generally work Monday to Friday [redacted]

From February 4th 2025, NatureScot is launching a new way of providing statutory advice and SSSI consents called InformedDECISION. Find out more on our webpages.

[redacted] Operations Officer – Central Highland |she/her

NatureScot | Scottish Natural Heritage | Torlundy | Fort William | Inverness-shire | PH33 6SW [redacted]

nature.scot | @NatureScot | *Scotland's Nature Agency | Buidheann Nàdair na h-Alba*

A.3 Flood Risk Assessment Discussion

RE: 24/04460/PREMAJ

[redacted] (Development F

To: [redacted]

Cc: [redacted] Planning (South); [redacted]

Follow up. Start by 11 April 2025. Due by 11 April 2025.

This message is part of a tracked conversation. Click here to find all related messages or to add this message.

Hi [redacted]

Good morning

1. Given that this proposal pertains to local-level development within the National Scenic Area, compliance with HwLPD Policy 29, you are required to produce a Design and Access Statement.
2. Our Flood Risk Management team and SEPA have not identified any concerns regarding flood risk. Therefore, a Flood Risk Assessment is not required.

If you have any further Questions Please do not hesitate to ask

Kind Regards

[redacted]

Graduate Planner

Strategic Project Team

Highland Council Headquarters IV3 5NX

Email: [redacted]

The views given herein are without prejudice to any decision by the Highland Council

A.4 GWDTE Mitigation Discussion

From: Planning North <Planning.north@sepa.org.uk>

Sent: 13 October 2025 14:47

To: [redacted]@glenhydro.co.uk>

Subject: RE: PCS-20006461 SEPA Response - RE: 25/01396/SCRE - Easan Dorcha Catchment Extension

OFFICIAL

Hi [redacted]

Apologies in the delay in getting back to you.

We welcome the more detailed maps and clarification that most GWDTE are avoided, and mitigation details now provided. We are therefore satisfied with these submissions and have no further concerns. We will therefore await consultation from the planning authority to provide a formal response.

Please do not hesitate to get in touch should you have any further questions.

Kind regards,

[redacted]

Senior Planning Officer

Scottish Environment Protection Agency

Buidheann Dion Àrainneachd na h-Alba

[redacted]

Graesser House | Fodderty Way | Dingwall | IV15 9XB

Postal address: Angus Smith Building | Unit 6, 4 Parklands Avenue | Holytown | Motherwell | ML1 4WQ

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A.5 Temporary & Permanent Crossing Discussion

To [redacted] Fri 24/10/2025 15:31

Follow up. Start by 24 October 2025. Due by 24 October 2025.
This message is part of a tracked conversation. Click here to find all related messages or to open the original flagged message.

OFFICIAL

Hi [redacted]

Thanks for your email.

We welcome the use of temporary culverts for crossings during construction to mitigate against impacts. A temporary CAR authorisation will be required for this, and I would direct you to contact [redacted] to discuss this further if you haven't already done so. As of November 1st CAR authorisations will be changing with the exception of Environmental Authorisations (Scotland) Regulations 2018. SEPA's Water Permitting team will be able to advise you further on what this may mean for your proposal.

As for informal ford crossings, provided the use of these is occasional and not used as a regular crossing, then we agree this is likely the best environmental outcome (ie. no culvert on the watercourse).

I trust this is clear but do let me know if you have any further questions.

Please note that I will be on leave starting on Tuesday 28th October for two weeks, so please contact [redacted] and another member of staff may be able to assist you while I am away.

Kind regards,

[redacted]

[redacted]
Senior Planning Officer
Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

[redacted]
Graesser House | Fodderty Way | Dingwall | IV15 9XB
Postal address: Angus Smith Building | Unit 6, 4 Parklands Avenue | Holytown | Motherwell | ML1 4WQ

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A.6 Scale of Development Discussion

RE: Easan Dorca - Major Pre Application Meeting - 24/04460/PREMAJ

Reply | Reply All | Forward

RD [redacted] (Planning (South)) [redacted]
To [redacted]
Cc

Tue 04/03/2025 09:45

Follow up. Start by 04 March 2025. Due by 04 March 2025.
You replied to this message on 05/03/2025 08:50.

Apologies [redacted]

I thought I had been in touch with you previously but clearly haven't been. Following the PREMAJ meeting I discussed the size of development with our Professional Support Officers who confirmed that this proposal will be a classed as a local scale development – as long as the generating capacity is under 20MW, as opposed to the 2ha site area, it is ok (see below).

Description of development	*Threshold or criteria*
4. Electricity Generation Construction of an electricity generating station.	The capacity of the generating station is or exceeds 20 megawatts.

25. This includes all types of electricity generating stations including fossil fuel power plants and all types of renewables generating stations, a definition of generating station is provided in the Electricity Supply Regulations 1983[5].

26. The following developments are part of a different consent regime under the 1989 Electricity Act[6] and are governed by those procedures:

offshore wind farms and generating stations wholly or mainly driven by water (such as hydroelectric, wave or tidal generating stations);	in excess of 1 megawatt MW
onshore wind farms and power stations that are not wholly or mainly driven by water (such as coal/gas fired or nuclear plant);	in excess of 50 megawatts (MW)

Sorry for the confusion at the meeting. That should give you leeway regarding your finalised site area - there should be scope within your red line boundary to allow for potential changes to the scheme and accommodate these within the boundary to avoid the need to resubmit an amended application.

I will be in touch next week with the PREMAJ response pack.

Regards

[redacted]

Appendix B Flow Duration Data

B.1 Intake A

Low-Flow Estimates from LowFlows
www.hydrosolutions.co.uk

Catchment Characteristics	
Region	Scotland: Highland Islands and Grampian Area
Area	(94) Loch Maree
Boundary source	Imported polygon
Catchment Area (km^2)	0.456
No significant lakes in catchment	
Grid-resolution used for derivation of catchment characteristics (m)	50
Runoff (mm)	2661
BFI	0.283

	Annual	January	February	March	April	May	June	July	August	September	October	November	December
Qmean	0.038	0.06	0.049	0.049	0.029	0.02	0.019	0.02	0.027	0.037	0.049	0.047	0.056
Q(0.1)	0.452	0.402	0.473	0.338	0.233	0.238	0.229	0.271	0.244	0.303	0.318	0.291	0.363
Q(1)	0.249	0.263	0.249	0.256	0.161	0.132	0.112	0.122	0.151	0.198	0.204	0.217	0.28
Q(2)	0.2	0.221	0.21	0.213	0.126	0.099	0.088	0.094	0.128	0.165	0.184	0.181	0.225
Q(3)	0.17	0.201	0.189	0.192	0.112	0.084	0.078	0.082	0.11	0.146	0.167	0.17	0.207
Q(4)	0.152	0.195	0.168	0.177	0.102	0.077	0.068	0.074	0.101	0.137	0.155	0.158	0.186
Q(5)	0.138	0.179	0.156	0.162	0.091	0.072	0.062	0.067	0.092	0.125	0.147	0.144	0.174
Q(6)	0.127	0.172	0.143	0.149	0.084	0.066	0.058	0.063	0.087	0.116	0.138	0.134	0.164
Q(7)	0.117	0.159	0.136	0.14	0.078	0.061	0.052	0.059	0.081	0.106	0.13	0.127	0.152
Q(8)	0.109	0.154	0.129	0.132	0.072	0.056	0.049	0.056	0.075	0.101	0.122	0.119	0.145
Q(9)	0.102	0.15	0.124	0.121	0.068	0.052	0.046	0.053	0.069	0.096	0.116	0.115	0.139
Q(10)	0.096	0.142	0.119	0.114	0.064	0.049	0.044	0.049	0.066	0.088	0.111	0.108	0.133
Q(11)	0.09	0.135	0.114	0.109	0.06	0.047	0.041	0.046	0.062	0.083	0.107	0.104	0.126
Q(12)	0.085	0.131	0.107	0.105	0.058	0.044	0.038	0.043	0.058	0.08	0.103	0.099	0.12
Q(13)	0.081	0.123	0.103	0.098	0.055	0.041	0.037	0.041	0.055	0.076	0.098	0.095	0.117
Q(14)	0.077	0.118	0.097	0.093	0.053	0.038	0.035	0.039	0.054	0.073	0.094	0.092	0.11
Q(15)	0.073	0.113	0.093	0.089	0.051	0.036	0.033	0.037	0.052	0.069	0.091	0.088	0.106
Q(16)	0.07	0.109	0.09	0.083	0.048	0.034	0.032	0.036	0.049	0.068	0.086	0.085	0.102
Q(17)	0.067	0.104	0.086	0.08	0.047	0.033	0.031	0.034	0.048	0.064	0.084	0.082	0.097
Q(18)	0.063	0.1	0.082	0.075	0.045	0.032	0.029	0.032	0.046	0.062	0.081	0.078	0.095
Q(19)	0.061	0.096	0.079	0.073	0.043	0.03	0.028	0.031	0.044	0.059	0.079	0.077	0.09
Q(20)	0.058	0.093	0.077	0.07	0.042	0.029	0.027	0.029	0.042	0.056	0.076	0.073	0.087
Q(21)	0.056	0.089	0.075	0.066	0.04	0.027	0.025	0.028	0.039	0.054	0.074	0.071	0.083
Q(22)	0.053	0.086	0.071	0.063	0.039	0.026	0.024	0.027	0.038	0.052	0.072	0.069	0.08
Q(23)	0.051	0.085	0.068	0.062	0.038	0.025	0.023	0.026	0.036	0.05	0.07	0.067	0.077
Q(24)	0.049	0.081	0.065	0.06	0.036	0.024	0.023	0.025	0.035	0.048	0.069	0.065	0.073
Q(25)	0.047	0.079	0.063	0.057	0.035	0.023	0.022	0.024	0.034	0.046	0.066	0.063	0.071
Q(26)	0.045	0.076	0.06	0.055	0.034	0.022	0.021	0.023	0.032	0.044	0.064	0.061	0.067
Q(27)	0.044	0.074	0.057	0.053	0.033	0.021	0.021	0.022	0.031	0.042	0.062	0.059	0.064
Q(28)	0.042	0.071	0.055	0.051	0.031	0.02	0.02	0.021	0.03	0.041	0.06	0.058	0.061

Q(29)	0.04	0.07	0.053	0.05	0.031	0.019	0.019	0.021	0.028	0.04	0.059	0.056	0.06
Q(30)	0.039	0.067	0.051	0.048	0.03	0.019	0.019	0.02	0.027	0.038	0.057	0.054	0.058
Q(31)	0.038	0.065	0.049	0.047	0.029	0.018	0.018	0.02	0.026	0.037	0.055	0.051	0.056
Q(32)	0.036	0.063	0.047	0.045	0.028	0.017	0.018	0.019	0.025	0.036	0.054	0.05	0.054
Q(33)	0.035	0.061	0.045	0.044	0.027	0.017	0.017	0.018	0.024	0.034	0.052	0.047	0.053
Q(34)	0.034	0.059	0.044	0.043	0.027	0.016	0.016	0.018	0.024	0.033	0.051	0.045	0.051
Q(35)	0.032	0.057	0.043	0.041	0.026	0.016	0.016	0.017	0.022	0.032	0.05	0.045	0.049
Q(36)	0.031	0.055	0.041	0.04	0.025	0.015	0.015	0.017	0.021	0.031	0.047	0.043	0.047
Q(37)	0.03	0.053	0.04	0.039	0.025	0.015	0.015	0.016	0.021	0.03	0.046	0.042	0.046
Q(38)	0.029	0.052	0.039	0.038	0.024	0.014	0.015	0.016	0.02	0.029	0.045	0.041	0.044
Q(39)	0.028	0.05	0.038	0.037	0.023	0.014	0.014	0.015	0.019	0.028	0.043	0.04	0.043
Q(40)	0.027	0.048	0.037	0.036	0.022	0.013	0.014	0.015	0.019	0.027	0.042	0.039	0.042
Q(41)	0.026	0.046	0.035	0.035	0.022	0.013	0.014	0.014	0.018	0.026	0.041	0.037	0.04
Q(42)	0.025	0.045	0.034	0.034	0.021	0.012	0.013	0.014	0.018	0.025	0.04	0.036	0.038
Q(43)	0.024	0.042	0.033	0.033	0.021	0.012	0.013	0.013	0.017	0.024	0.039	0.035	0.037
Q(44)	0.023	0.042	0.032	0.032	0.02	0.012	0.012	0.013	0.016	0.023	0.037	0.034	0.036
Q(45)	0.023	0.04	0.031	0.031	0.02	0.011	0.012	0.012	0.016	0.023	0.036	0.032	0.035
Q(46)	0.022	0.039	0.03	0.03	0.019	0.011	0.012	0.012	0.015	0.022	0.035	0.032	0.033
Q(47)	0.021	0.038	0.029	0.029	0.019	0.011	0.011	0.012	0.015	0.021	0.034	0.031	0.032
Q(48)	0.021	0.037	0.028	0.028	0.019	0.01	0.011	0.011	0.014	0.02	0.033	0.03	0.031
Q(49)	0.02	0.035	0.027	0.028	0.018	0.01	0.011	0.011	0.014	0.019	0.032	0.029	0.03
Q(50)	0.019	0.034	0.026	0.027	0.018	0.01	0.01	0.011	0.013	0.019	0.031	0.029	0.029
Q(51)	0.019	0.033	0.025	0.026	0.017	0.01	0.01	0.011	0.013	0.018	0.03	0.028	0.028
Q(52)	0.018	0.032	0.024	0.025	0.017	0.009	0.01	0.01	0.013	0.018	0.029	0.026	0.027
Q(53)	0.017	0.031	0.024	0.024	0.016	0.009	0.01	0.01	0.012	0.017	0.028	0.026	0.026
Q(54)	0.017	0.03	0.023	0.023	0.016	0.009	0.009	0.01	0.012	0.016	0.027	0.025	0.025
Q(55)	0.016	0.03	0.022	0.023	0.016	0.009	0.009	0.009	0.011	0.016	0.026	0.024	0.024
Q(56)	0.016	0.028	0.021	0.022	0.015	0.009	0.009	0.009	0.011	0.015	0.026	0.023	0.023
Q(57)	0.015	0.027	0.021	0.022	0.015	0.008	0.009	0.009	0.011	0.015	0.025	0.022	0.023
Q(58)	0.015	0.026	0.02	0.021	0.015	0.008	0.008	0.009	0.01	0.014	0.024	0.022	0.022
Q(59)	0.014	0.025	0.019	0.02	0.014	0.008	0.008	0.008	0.01	0.014	0.023	0.021	0.021
Q(60)	0.014	0.024	0.018	0.019	0.014	0.008	0.008	0.008	0.01	0.013	0.022	0.021	0.02
Q(61)	0.013	0.023	0.018	0.019	0.014	0.008	0.008	0.008	0.009	0.013	0.022	0.02	0.02
Q(62)	0.013	0.022	0.017	0.018	0.013	0.008	0.008	0.008	0.009	0.013	0.021	0.02	0.019
Q(63)	0.012	0.022	0.017	0.018	0.013	0.007	0.007	0.008	0.009	0.012	0.02	0.019	0.018
Q(64)	0.012	0.021	0.016	0.017	0.013	0.007	0.007	0.007	0.008	0.012	0.02	0.019	0.018
Q(65)	0.012	0.02	0.015	0.017	0.012	0.007	0.007	0.007	0.008	0.012	0.019	0.018	0.017
Q(66)	0.011	0.02	0.015	0.016	0.012	0.007	0.007	0.007	0.008	0.011	0.018	0.017	0.017
Q(67)	0.011	0.019	0.014	0.016	0.012	0.007	0.007	0.007	0.008	0.011	0.017	0.017	0.016
Q(68)	0.011	0.018	0.014	0.015	0.012	0.007	0.006	0.007	0.007	0.011	0.017	0.016	0.016
Q(69)	0.01	0.018	0.013	0.015	0.012	0.007	0.006	0.007	0.007	0.01	0.016	0.016	0.015
Q(70)	0.01	0.017	0.013	0.014	0.011	0.006	0.006	0.006	0.007	0.01	0.015	0.015	0.015
Q(71)	0.01	0.016	0.012	0.014	0.011	0.006	0.006	0.006	0.007	0.01	0.015	0.015	0.014
Q(72)	0.009	0.015	0.012	0.013	0.011	0.006	0.006	0.006	0.007	0.01	0.014	0.014	0.014
Q(73)	0.009	0.015	0.011	0.013	0.011	0.006	0.006	0.006	0.006	0.009	0.014	0.014	0.013
Q(74)	0.009	0.014	0.011	0.012	0.01	0.006	0.006	0.006	0.006	0.009	0.013	0.013	0.013
Q(75)	0.008	0.014	0.01	0.012	0.01	0.006	0.005	0.005	0.006	0.009	0.013	0.013	0.013
Q(76)	0.008	0.013	0.01	0.011	0.01	0.006	0.005	0.005	0.006	0.008	0.012	0.013	0.012
Q(77)	0.008	0.013	0.009	0.011	0.01	0.006	0.005	0.005	0.006	0.008	0.012	0.012	0.012
Q(78)	0.008	0.012	0.009	0.011	0.009	0.005	0.005	0.005	0.006	0.008	0.011	0.012	0.011
Q(79)	0.007	0.012	0.009	0.01	0.009	0.005	0.005	0.005	0.005	0.007	0.011	0.011	0.011

Q(80)	0.007	0.011	0.008	0.01	0.009	0.005	0.005	0.005	0.005	0.007	0.011	0.011	0.011
Q(81)	0.007	0.011	0.008	0.01	0.009	0.005	0.005	0.004	0.005	0.007	0.01	0.011	0.01
Q(82)	0.007	0.01	0.008	0.009	0.008	0.005	0.004	0.004	0.005	0.007	0.01	0.01	0.01
Q(83)	0.006	0.01	0.008	0.009	0.008	0.005	0.004	0.004	0.005	0.006	0.009	0.01	0.01
Q(84)	0.006	0.01	0.007	0.009	0.008	0.005	0.004	0.004	0.005	0.006	0.009	0.01	0.009
Q(85)	0.006	0.009	0.007	0.008	0.008	0.005	0.004	0.004	0.004	0.006	0.008	0.009	0.009
Q(86)	0.006	0.009	0.007	0.008	0.008	0.005	0.004	0.004	0.004	0.006	0.008	0.009	0.009
Q(87)	0.006	0.008	0.007	0.008	0.007	0.004	0.004	0.004	0.004	0.005	0.008	0.009	0.008
Q(88)	0.005	0.008	0.006	0.007	0.007	0.004	0.004	0.004	0.004	0.005	0.007	0.009	0.008
Q(89)	0.005	0.008	0.006	0.007	0.007	0.004	0.003	0.003	0.004	0.005	0.007	0.008	0.007
Q(90)	0.005	0.007	0.006	0.007	0.006	0.004	0.003	0.003	0.004	0.005	0.006	0.008	0.007
Q(91)	0.005	0.007	0.006	0.006	0.006	0.004	0.003	0.003	0.004	0.005	0.006	0.007	0.007
Q(92)	0.004	0.007	0.006	0.006	0.006	0.004	0.003	0.003	0.004	0.004	0.006	0.007	0.006
Q(93)	0.004	0.006	0.005	0.006	0.006	0.004	0.003	0.003	0.003	0.004	0.005	0.007	0.006
Q(94)	0.004	0.006	0.005	0.006	0.006	0.004	0.003	0.003	0.003	0.004	0.005	0.007	0.005
Q(95)	0.004	0.005	0.004	0.005	0.005	0.003	0.003	0.003	0.003	0.003	0.005	0.006	0.005
Q(96)	0.003	0.005	0.004	0.005	0.005	0.003	0.003	0.003	0.003	0.003	0.005	0.006	0.005
Q(97)	0.003	0.005	0.004	0.005	0.004	0.003	0.003	0.002	0.003	0.003	0.004	0.005	0.004
Q(98)	0.003	0.004	0.003	0.004	0.004	0.003	0.002	0.002	0.002	0.003	0.004	0.004	0.004
Q(99)	0.002	0.004	0.003	0.004	0.003	0.003	0.002	0.002	0.002	0.003	0.004	0.004	0.003
Q(99.9)	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003

B.2 Intake B

Low-Flow Estimates from LowFlows
www.hydrosolutions.co.uk

Catchment Characteristics	
Region	Scotland: Highland Islands and Grampian Area
Area	(94) Loch Maree
Boundary source	Imported polygon
Catchment Area (km^2)	0.99
No significant lakes in catchment	
Grid-resolution used for derivation of catchment characteristics (m)	50
Runoff (mm)	2634
BFI	0.305

	Annual	January	February	March	April	May	June	July	August	September	October	November	December
Qmean	0.083	0.13	0.113	0.104	0.05	0.035	0.034	0.041	0.055	0.085	0.106	0.114	0.126
Q(0.1)	1.145	0.998	0.889	0.817	0.482	0.45	0.522	0.634	0.561	0.688	0.722	0.764	1.206
Q(1)	0.574	0.613	0.594	0.576	0.287	0.238	0.213	0.25	0.329	0.465	0.457	0.534	0.659
Q(2)	0.448	0.511	0.5	0.491	0.224	0.177	0.164	0.192	0.271	0.378	0.404	0.436	0.547
Q(3)	0.377	0.443	0.429	0.41	0.199	0.147	0.147	0.169	0.229	0.341	0.358	0.399	0.473
Q(4)	0.333	0.416	0.383	0.374	0.177	0.136	0.129	0.153	0.208	0.315	0.335	0.37	0.422
Q(5)	0.301	0.393	0.355	0.344	0.159	0.127	0.118	0.137	0.193	0.285	0.313	0.348	0.388
Q(6)	0.275	0.366	0.326	0.31	0.146	0.115	0.111	0.131	0.18	0.26	0.291	0.323	0.362
Q(7)	0.253	0.351	0.305	0.298	0.137	0.106	0.099	0.122	0.165	0.242	0.275	0.301	0.338
Q(8)	0.235	0.332	0.294	0.273	0.126	0.099	0.093	0.114	0.154	0.234	0.262	0.283	0.321
Q(9)	0.22	0.318	0.281	0.255	0.12	0.092	0.086	0.109	0.144	0.221	0.248	0.269	0.308
Q(10)	0.206	0.303	0.267	0.24	0.114	0.087	0.081	0.102	0.135	0.203	0.235	0.258	0.296
Q(11)	0.193	0.289	0.256	0.225	0.107	0.082	0.076	0.094	0.129	0.19	0.227	0.247	0.277
Q(12)	0.182	0.279	0.245	0.215	0.101	0.078	0.071	0.088	0.122	0.182	0.22	0.237	0.263
Q(13)	0.172	0.265	0.23	0.205	0.096	0.074	0.068	0.084	0.117	0.173	0.212	0.226	0.253
Q(14)	0.164	0.251	0.216	0.195	0.093	0.068	0.065	0.08	0.113	0.167	0.201	0.217	0.244
Q(15)	0.156	0.241	0.207	0.186	0.089	0.064	0.061	0.077	0.109	0.16	0.194	0.211	0.231
Q(16)	0.148	0.233	0.2	0.172	0.085	0.061	0.059	0.073	0.104	0.155	0.185	0.202	0.222
Q(17)	0.142	0.219	0.191	0.163	0.082	0.058	0.056	0.07	0.101	0.148	0.179	0.196	0.214
Q(18)	0.135	0.21	0.183	0.157	0.079	0.056	0.053	0.066	0.096	0.142	0.173	0.187	0.206
Q(19)	0.13	0.204	0.176	0.15	0.076	0.053	0.052	0.063	0.092	0.135	0.168	0.183	0.198
Q(20)	0.124	0.197	0.171	0.143	0.073	0.05	0.049	0.06	0.087	0.13	0.162	0.174	0.188
Q(21)	0.118	0.189	0.166	0.14	0.071	0.048	0.047	0.058	0.082	0.125	0.158	0.17	0.181
Q(22)	0.114	0.184	0.159	0.134	0.067	0.046	0.045	0.056	0.078	0.12	0.153	0.164	0.175
Q(23)	0.109	0.178	0.152	0.132	0.065	0.044	0.043	0.054	0.075	0.115	0.15	0.16	0.168
Q(24)	0.104	0.171	0.146	0.126	0.063	0.042	0.042	0.051	0.072	0.111	0.145	0.155	0.161
Q(25)	0.1	0.166	0.14	0.119	0.061	0.041	0.04	0.049	0.069	0.107	0.142	0.151	0.156
Q(26)	0.096	0.162	0.134	0.117	0.06	0.039	0.039	0.047	0.065	0.103	0.138	0.144	0.149
Q(27)	0.092	0.157	0.129	0.112	0.057	0.038	0.038	0.045	0.063	0.099	0.133	0.141	0.143
Q(28)	0.088	0.152	0.124	0.108	0.055	0.036	0.037	0.044	0.061	0.095	0.13	0.138	0.136
Q(29)	0.085	0.149	0.121	0.105	0.053	0.035	0.035	0.042	0.059	0.092	0.127	0.134	0.132
Q(30)	0.082	0.141	0.118	0.102	0.052	0.033	0.034	0.041	0.056	0.089	0.123	0.128	0.128
Q(31)	0.079	0.139	0.111	0.098	0.05	0.032	0.033	0.039	0.054	0.086	0.119	0.123	0.124
Q(32)	0.076	0.133	0.105	0.095	0.048	0.031	0.032	0.038	0.052	0.083	0.116	0.118	0.121
Q(33)	0.073	0.131	0.103	0.093	0.047	0.03	0.031	0.037	0.05	0.079	0.112	0.114	0.116
Q(34)	0.07	0.125	0.1	0.09	0.046	0.029	0.03	0.036	0.049	0.076	0.11	0.11	0.113
Q(35)	0.067	0.122	0.097	0.087	0.045	0.028	0.029	0.035	0.046	0.073	0.107	0.106	0.109
Q(36)	0.065	0.116	0.093	0.086	0.043	0.027	0.028	0.033	0.044	0.071	0.101	0.104	0.105
Q(37)	0.063	0.112	0.09	0.083	0.042	0.026	0.027	0.033	0.042	0.068	0.098	0.1	0.102
Q(38)	0.06	0.108	0.088	0.081	0.041	0.025	0.027	0.031	0.041	0.066	0.096	0.097	0.098
Q(39)	0.058	0.104	0.085	0.078	0.04	0.024	0.026	0.03	0.04	0.064	0.091	0.094	0.095
Q(40)	0.056	0.1	0.083	0.076	0.039	0.023	0.025	0.029	0.038	0.062	0.089	0.091	0.091
Q(41)	0.054	0.097	0.08	0.074	0.038	0.023	0.024	0.028	0.037	0.06	0.086	0.089	0.087

Q(42)	0.052	0.094	0.077	0.072	0.037	0.022	0.024	0.027	0.036	0.057	0.084	0.085	0.084
Q(43)	0.05	0.09	0.074	0.069	0.036	0.021	0.023	0.026	0.035	0.055	0.082	0.083	0.081
Q(44)	0.048	0.088	0.072	0.067	0.035	0.02	0.022	0.026	0.033	0.054	0.08	0.08	0.079
Q(45)	0.046	0.085	0.069	0.065	0.034	0.02	0.022	0.025	0.032	0.052	0.077	0.078	0.075
Q(46)	0.045	0.081	0.066	0.063	0.034	0.019	0.021	0.024	0.031	0.049	0.075	0.075	0.072
Q(47)	0.043	0.079	0.064	0.062	0.033	0.019	0.021	0.023	0.03	0.047	0.073	0.074	0.07
Q(48)	0.042	0.077	0.062	0.06	0.032	0.018	0.02	0.023	0.029	0.046	0.07	0.071	0.068
Q(49)	0.04	0.075	0.059	0.058	0.031	0.018	0.02	0.022	0.028	0.044	0.068	0.069	0.067
Q(50)	0.039	0.071	0.058	0.057	0.031	0.017	0.019	0.022	0.027	0.043	0.066	0.067	0.065
Q(51)	0.038	0.07	0.056	0.055	0.03	0.017	0.018	0.021	0.026	0.042	0.064	0.065	0.063
Q(52)	0.036	0.067	0.054	0.052	0.029	0.017	0.018	0.021	0.025	0.04	0.061	0.062	0.06
Q(53)	0.035	0.066	0.051	0.05	0.028	0.016	0.017	0.02	0.025	0.039	0.059	0.06	0.058
Q(54)	0.034	0.064	0.05	0.048	0.028	0.016	0.017	0.02	0.024	0.038	0.057	0.058	0.055
Q(55)	0.033	0.062	0.048	0.047	0.027	0.016	0.016	0.019	0.023	0.036	0.055	0.056	0.053
Q(56)	0.031	0.059	0.046	0.046	0.026	0.015	0.016	0.018	0.023	0.035	0.054	0.054	0.051
Q(57)	0.03	0.057	0.044	0.045	0.026	0.015	0.015	0.018	0.022	0.034	0.052	0.053	0.05
Q(58)	0.029	0.055	0.043	0.043	0.025	0.015	0.015	0.017	0.021	0.032	0.051	0.051	0.048
Q(59)	0.028	0.052	0.041	0.042	0.025	0.014	0.015	0.017	0.021	0.031	0.048	0.049	0.047
Q(60)	0.027	0.051	0.039	0.04	0.024	0.014	0.014	0.017	0.02	0.03	0.047	0.048	0.045
Q(61)	0.027	0.049	0.038	0.039	0.023	0.014	0.014	0.016	0.019	0.029	0.045	0.046	0.043
Q(62)	0.026	0.046	0.036	0.038	0.023	0.013	0.014	0.016	0.019	0.029	0.044	0.045	0.042
Q(63)	0.025	0.044	0.035	0.037	0.022	0.013	0.013	0.015	0.018	0.028	0.042	0.044	0.04
Q(64)	0.024	0.043	0.034	0.037	0.022	0.013	0.013	0.015	0.018	0.027	0.041	0.043	0.04
Q(65)	0.023	0.041	0.032	0.035	0.021	0.013	0.013	0.015	0.017	0.026	0.039	0.041	0.038
Q(66)	0.023	0.04	0.031	0.034	0.021	0.012	0.012	0.014	0.017	0.025	0.037	0.04	0.036
Q(67)	0.022	0.038	0.029	0.033	0.02	0.012	0.012	0.014	0.016	0.025	0.036	0.039	0.035
Q(68)	0.021	0.037	0.028	0.031	0.02	0.012	0.012	0.013	0.016	0.024	0.035	0.037	0.034
Q(69)	0.021	0.036	0.027	0.03	0.02	0.012	0.011	0.013	0.015	0.023	0.033	0.036	0.033
Q(70)	0.02	0.034	0.026	0.03	0.019	0.011	0.011	0.013	0.015	0.023	0.032	0.034	0.032
Q(71)	0.019	0.033	0.025	0.029	0.019	0.011	0.011	0.012	0.014	0.022	0.031	0.033	0.03
Q(72)	0.019	0.031	0.024	0.028	0.018	0.011	0.011	0.012	0.014	0.021	0.03	0.032	0.03
Q(73)	0.018	0.03	0.023	0.027	0.018	0.011	0.01	0.012	0.014	0.021	0.028	0.031	0.029
Q(74)	0.017	0.029	0.022	0.026	0.018	0.011	0.01	0.011	0.013	0.02	0.027	0.03	0.028
Q(75)	0.017	0.027	0.021	0.025	0.017	0.01	0.01	0.011	0.013	0.019	0.026	0.029	0.027
Q(76)	0.016	0.026	0.02	0.024	0.017	0.01	0.01	0.011	0.013	0.019	0.025	0.028	0.026
Q(77)	0.016	0.025	0.019	0.023	0.016	0.01	0.009	0.01	0.012	0.018	0.024	0.027	0.025
Q(78)	0.015	0.024	0.019	0.022	0.016	0.01	0.009	0.01	0.012	0.017	0.023	0.026	0.024
Q(79)	0.015	0.024	0.018	0.022	0.016	0.009	0.009	0.01	0.012	0.017	0.022	0.025	0.023
Q(80)	0.014	0.023	0.017	0.021	0.015	0.009	0.009	0.009	0.011	0.016	0.022	0.024	0.022
Q(81)	0.014	0.022	0.016	0.02	0.015	0.009	0.008	0.009	0.011	0.015	0.021	0.024	0.022
Q(82)	0.013	0.021	0.016	0.019	0.015	0.009	0.008	0.009	0.011	0.015	0.02	0.023	0.021
Q(83)	0.013	0.02	0.015	0.018	0.014	0.009	0.008	0.009	0.01	0.014	0.02	0.022	0.02
Q(84)	0.012	0.019	0.015	0.018	0.014	0.008	0.008	0.008	0.01	0.014	0.019	0.021	0.019
Q(85)	0.012	0.018	0.014	0.017	0.013	0.008	0.007	0.008	0.01	0.013	0.018	0.021	0.019
Q(86)	0.011	0.018	0.014	0.016	0.013	0.008	0.007	0.008	0.009	0.012	0.017	0.02	0.018
Q(87)	0.011	0.017	0.013	0.016	0.012	0.008	0.007	0.007	0.009	0.012	0.016	0.019	0.017
Q(88)	0.01	0.016	0.013	0.015	0.012	0.008	0.007	0.007	0.009	0.011	0.015	0.019	0.016
Q(89)	0.01	0.015	0.012	0.014	0.011	0.007	0.007	0.007	0.008	0.011	0.014	0.018	0.015
Q(90)	0.009	0.015	0.012	0.014	0.011	0.007	0.006	0.007	0.008	0.01	0.013	0.017	0.014
Q(91)	0.009	0.014	0.012	0.013	0.011	0.007	0.006	0.006	0.008	0.01	0.013	0.017	0.013
Q(92)	0.009	0.013	0.011	0.013	0.01	0.007	0.006	0.006	0.008	0.009	0.012	0.016	0.013
Q(93)	0.008	0.012	0.01	0.012	0.01	0.007	0.006	0.006	0.007	0.008	0.012	0.015	0.012
Q(94)	0.008	0.011	0.01	0.012	0.009	0.006	0.006	0.006	0.007	0.008	0.011	0.014	0.011
Q(95)	0.007	0.01	0.009	0.011	0.009	0.006	0.005	0.006	0.006	0.008	0.011	0.013	0.01
Q(96)	0.007	0.01	0.009	0.01	0.008	0.006	0.005	0.005	0.006	0.007	0.01	0.012	0.009
Q(97)	0.006	0.009	0.008	0.01	0.008	0.005	0.005	0.005	0.006	0.007	0.009	0.011	0.008
Q(98)	0.005	0.008	0.007	0.009	0.007	0.005	0.005	0.005	0.005	0.006	0.008	0.01	0.007
Q(99)	0.005	0.007	0.007	0.008	0.005	0.005	0.004	0.005	0.005	0.006	0.008	0.009	0.007
Q(99.9)	0.004	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.005	0.005	0.006	0.007	0.005

B.3 Intake C

Low-Flow Estimates from LowFlows
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Catchment Characteristics	
Region	Scotland: Highland Islands and Grampian Area
Area	(94) Loch Maree
Boundary source	Imported polygon
Catchment Area (km^2)	1.102
No significant lakes in catchment	
Grid-resolution used for derivation of catchment characteristics (m)	50
Runoff (mm)	2385
BFI	0.312

	Annual	January	February	March	April	May	June	July	August	September	October	November	December
Qmean	0.083	0.123	0.107	0.1	0.055	0.039	0.043	0.05	0.062	0.089	0.107	0.107	
Q(0.1)	0.944	0.603	0.68	0.718	0.488	0.625	0.529	0.65	0.585	0.984	0.845	0.569	
Q(1)	0.54	0.518	0.497	0.472	0.32	0.265	0.33	0.383	0.419	0.507	0.541	0.464	
Q(2)	0.436	0.45	0.444	0.432	0.264	0.208	0.249	0.254	0.349	0.425	0.457	0.392	
Q(3)	0.372	0.413	0.408	0.397	0.235	0.173	0.201	0.218	0.297	0.378	0.387	0.355	
Q(4)	0.332	0.37	0.366	0.362	0.214	0.157	0.178	0.19	0.269	0.333	0.345	0.328	
Q(5)	0.302	0.352	0.342	0.336	0.193	0.142	0.154	0.17	0.236	0.306	0.325	0.315	
Q(6)	0.277	0.339	0.317	0.304	0.179	0.13	0.141	0.155	0.212	0.284	0.299	0.293	
Q(7)	0.255	0.313	0.308	0.279	0.163	0.117	0.129	0.144	0.189	0.258	0.286	0.28	
Q(8)	0.239	0.301	0.29	0.26	0.151	0.108	0.121	0.136	0.175	0.241	0.271	0.262	
Q(9)	0.224	0.288	0.273	0.243	0.143	0.101	0.112	0.126	0.161	0.23	0.248	0.251	
Q(10)	0.211	0.277	0.257	0.231	0.132	0.097	0.102	0.119	0.151	0.217	0.238	0.24	
Q(11)	0.199	0.267	0.247	0.22	0.121	0.092	0.096	0.112	0.142	0.202	0.227	0.228	
Q(12)	0.189	0.252	0.233	0.206	0.116	0.085	0.087	0.107	0.131	0.194	0.221	0.225	
Q(13)	0.179	0.245	0.222	0.197	0.11	0.079	0.083	0.1	0.125	0.185	0.211	0.213	
Q(14)	0.169	0.239	0.21	0.188	0.105	0.073	0.079	0.094	0.118	0.176	0.204	0.203	
Q(15)	0.161	0.229	0.205	0.181	0.099	0.068	0.075	0.091	0.114	0.168	0.196	0.196	
Q(16)	0.153	0.223	0.198	0.172	0.095	0.066	0.071	0.087	0.109	0.16	0.191	0.188	
Q(17)	0.146	0.216	0.192	0.165	0.089	0.064	0.068	0.082	0.104	0.152	0.182	0.186	
Q(18)	0.14	0.207	0.184	0.158	0.085	0.061	0.066	0.078	0.099	0.145	0.174	0.18	
Q(19)	0.134	0.2	0.177	0.149	0.081	0.058	0.062	0.074	0.094	0.138	0.167	0.171	
Q(20)	0.128	0.195	0.167	0.146	0.077	0.055	0.06	0.071	0.09	0.133	0.162	0.164	
Q(21)	0.123	0.187	0.163	0.141	0.073	0.051	0.057	0.067	0.084	0.126	0.156	0.159	
Q(22)	0.118	0.183	0.157	0.137	0.07	0.048	0.056	0.065	0.081	0.122	0.153	0.152	
Q(23)	0.113	0.174	0.149	0.132	0.067	0.046	0.053	0.062	0.077	0.117	0.147	0.148	
Q(24)	0.109	0.17	0.147	0.127	0.065	0.044	0.052	0.06	0.074	0.113	0.143	0.144	
Q(25)	0.104	0.166	0.139	0.123	0.063	0.041	0.049	0.057	0.071	0.108	0.138	0.139	
Q(26)	0.1	0.161	0.135	0.119	0.061	0.039	0.047	0.056	0.069	0.105	0.134	0.135	
Q(27)	0.096	0.155	0.131	0.116	0.058	0.038	0.045	0.054	0.065	0.102	0.13	0.134	
Q(28)	0.093	0.15	0.128	0.112	0.057	0.036	0.043	0.052	0.063	0.098	0.127	0.129	
Q(29)	0.089	0.148	0.123	0.108	0.055	0.034	0.042	0.049	0.06	0.094	0.124	0.125	
Q(30)	0.086	0.145	0.118	0.104	0.052	0.033	0.04	0.047	0.058	0.092	0.119	0.121	
Q(31)	0.082	0.14	0.115	0.102	0.051	0.032	0.038	0.046	0.055	0.088	0.115	0.117	
Q(32)	0.079	0.136	0.11	0.098	0.048	0.031	0.037	0.044	0.052	0.084	0.111	0.114	
Q(33)	0.076	0.134	0.107	0.095	0.047	0.03	0.036	0.042	0.05	0.081	0.107	0.11	
Q(34)	0.073	0.125	0.103	0.093	0.046	0.029	0.034	0.04	0.048	0.077	0.104	0.106	
Q(35)	0.07	0.122	0.1	0.09	0.044	0.028	0.033	0.038	0.046	0.075	0.099	0.103	
Q(36)	0.068	0.12	0.096	0.088	0.043	0.027	0.032	0.037	0.045	0.072	0.096	0.1	
Q(37)	0.065	0.115	0.092	0.085	0.041	0.026	0.031	0.036	0.043	0.069	0.094	0.097	
Q(38)	0.063	0.113	0.09	0.082	0.041	0.025	0.03	0.035	0.042	0.067	0.091	0.093	

Q(39)	0.061	0.111	0.086	0.08	0.039	0.024	0.029	0.033	0.04	0.064	0.089	0.091
Q(40)	0.059	0.106	0.083	0.078	0.038	0.024	0.028	0.032	0.039	0.062	0.087	0.089
Q(41)	0.057	0.103	0.081	0.076	0.037	0.023	0.027	0.032	0.038	0.06	0.083	0.086
Q(42)	0.055	0.101	0.077	0.073	0.036	0.022	0.026	0.031	0.036	0.059	0.08	0.084
Q(43)	0.053	0.097	0.075	0.071	0.035	0.021	0.025	0.03	0.035	0.056	0.079	0.082
Q(44)	0.051	0.093	0.072	0.069	0.034	0.02	0.025	0.029	0.034	0.054	0.076	0.079
Q(45)	0.049	0.09	0.069	0.067	0.033	0.02	0.023	0.028	0.033	0.051	0.073	0.078
Q(46)	0.048	0.088	0.067	0.065	0.032	0.019	0.023	0.027	0.031	0.05	0.07	0.076
Q(47)	0.046	0.086	0.064	0.063	0.031	0.018	0.022	0.026	0.031	0.048	0.068	0.074
Q(48)	0.044	0.083	0.062	0.06	0.03	0.018	0.021	0.026	0.03	0.046	0.066	0.072
Q(49)	0.043	0.08	0.06	0.058	0.029	0.017	0.021	0.025	0.028	0.044	0.065	0.069
Q(50)	0.041	0.079	0.059	0.057	0.028	0.017	0.02	0.024	0.027	0.043	0.063	0.068
Q(51)	0.04	0.076	0.057	0.055	0.027	0.016	0.02	0.023	0.026	0.041	0.061	0.066
Q(52)	0.038	0.075	0.055	0.054	0.027	0.016	0.019	0.022	0.025	0.04	0.059	0.064
Q(53)	0.037	0.072	0.053	0.053	0.026	0.015	0.018	0.022	0.024	0.039	0.057	0.063
Q(54)	0.036	0.07	0.051	0.051	0.025	0.015	0.018	0.021	0.023	0.037	0.055	0.061
Q(55)	0.034	0.068	0.049	0.05	0.025	0.015	0.017	0.021	0.023	0.036	0.053	0.059
Q(56)	0.033	0.066	0.047	0.049	0.025	0.014	0.017	0.02	0.022	0.035	0.052	0.058
Q(57)	0.032	0.064	0.045	0.047	0.024	0.014	0.016	0.019	0.021	0.034	0.05	0.056
Q(58)	0.031	0.062	0.044	0.046	0.023	0.013	0.016	0.019	0.02	0.032	0.049	0.054
Q(59)	0.03	0.061	0.043	0.044	0.023	0.013	0.015	0.018	0.019	0.031	0.047	0.053
Q(60)	0.029	0.059	0.041	0.043	0.022	0.013	0.015	0.017	0.019	0.03	0.045	0.052
Q(61)	0.028	0.058	0.04	0.042	0.022	0.012	0.014	0.017	0.018	0.029	0.043	0.05
Q(62)	0.027	0.056	0.039	0.04	0.021	0.012	0.014	0.016	0.018	0.029	0.042	0.049
Q(63)	0.026	0.054	0.037	0.04	0.02	0.012	0.014	0.016	0.017	0.027	0.041	0.048
Q(64)	0.025	0.052	0.036	0.038	0.02	0.011	0.013	0.015	0.017	0.026	0.039	0.046
Q(65)	0.024	0.05	0.034	0.037	0.019	0.011	0.013	0.015	0.016	0.026	0.038	0.045
Q(66)	0.023	0.048	0.033	0.036	0.019	0.011	0.013	0.015	0.016	0.024	0.037	0.044
Q(67)	0.022	0.047	0.032	0.035	0.019	0.011	0.012	0.014	0.015	0.024	0.035	0.042
Q(68)	0.022	0.045	0.031	0.033	0.018	0.01	0.012	0.014	0.014	0.023	0.034	0.041
Q(69)	0.021	0.043	0.029	0.032	0.018	0.01	0.011	0.013	0.014	0.022	0.033	0.039
Q(70)	0.02	0.042	0.028	0.031	0.017	0.01	0.011	0.013	0.013	0.021	0.032	0.038
Q(71)	0.019	0.04	0.027	0.03	0.017	0.01	0.011	0.013	0.013	0.02	0.031	0.037
Q(72)	0.019	0.038	0.026	0.029	0.017	0.009	0.01	0.012	0.013	0.02	0.029	0.036
Q(73)	0.018	0.037	0.025	0.028	0.016	0.009	0.01	0.012	0.012	0.019	0.028	0.035
Q(74)	0.017	0.035	0.024	0.027	0.016	0.009	0.01	0.011	0.012	0.018	0.027	0.034
Q(75)	0.017	0.034	0.023	0.026	0.015	0.009	0.01	0.011	0.011	0.018	0.026	0.033
Q(76)	0.016	0.033	0.022	0.025	0.015	0.009	0.01	0.011	0.011	0.017	0.025	0.032
Q(77)	0.016	0.032	0.021	0.024	0.014	0.009	0.009	0.01	0.011	0.016	0.024	0.031
Q(78)	0.015	0.03	0.02	0.024	0.014	0.008	0.009	0.01	0.01	0.016	0.023	0.03
Q(79)	0.014	0.028	0.02	0.022	0.014	0.008	0.009	0.01	0.01	0.015	0.022	0.029
Q(80)	0.014	0.027	0.019	0.022	0.013	0.008	0.008	0.01	0.01	0.015	0.022	0.028
Q(81)	0.013	0.026	0.018	0.021	0.013	0.008	0.008	0.009	0.009	0.014	0.021	0.027
Q(82)	0.013	0.024	0.018	0.02	0.012	0.008	0.008	0.009	0.009	0.014	0.02	0.026
Q(83)	0.012	0.023	0.017	0.019	0.012	0.007	0.008	0.009	0.009	0.013	0.019	0.025
Q(84)	0.012	0.022	0.016	0.018	0.012	0.007	0.007	0.008	0.008	0.012	0.018	0.024
Q(85)	0.011	0.021	0.016	0.018	0.011	0.007	0.007	0.008	0.008	0.012	0.017	0.023
Q(86)	0.011	0.02	0.015	0.017	0.011	0.007	0.007	0.008	0.008	0.011	0.016	0.022
Q(87)	0.01	0.02	0.014	0.016	0.01	0.007	0.007	0.007	0.008	0.011	0.015	0.021
Q(88)	0.01	0.019	0.014	0.016	0.01	0.006	0.006	0.007	0.007	0.01	0.015	0.021
Q(89)	0.009	0.018	0.013	0.015	0.01	0.006	0.006	0.007	0.007	0.01	0.014	0.019
Q(90)	0.009	0.017	0.013	0.015	0.009	0.006	0.006	0.007	0.007	0.009	0.013	0.019
Q(91)	0.008	0.016	0.012	0.014	0.009	0.006	0.006	0.007	0.006	0.009	0.013	0.018

Q(92)	0.008	0.014	0.012	0.013	0.009	0.006	0.005	0.006	0.006	0.008	0.012	0.017
Q(93)	0.008	0.013	0.011	0.012	0.008	0.005	0.005	0.006	0.006	0.007	0.011	0.016
Q(94)	0.007	0.012	0.011	0.012	0.008	0.005	0.005	0.006	0.006	0.007	0.011	0.015
Q(95)	0.007	0.012	0.011	0.011	0.007	0.005	0.005	0.006	0.005	0.006	0.01	0.014
Q(96)	0.006	0.011	0.01	0.01	0.007	0.005	0.004	0.005	0.005	0.006	0.009	0.013
Q(97)	0.005	0.01	0.01	0.009	0.006	0.005	0.004	0.005	0.005	0.005	0.009	0.012
Q(98)	0.005	0.009	0.009	0.008	0.006	0.004	0.004	0.005	0.004	0.005	0.008	0.011
Q(99)	0.004	0.008	0.008	0.008	0.005	0.004	0.004	0.004	0.004	0.004	0.007	0.009
Q(99.9)	0.003	0.007	0.006	0.006	0.004	0.004	0.003	0.004	0.004	0.004	0.005	0.007