

Our ref: PCS/159776  
Your ref: 18/02742/FUL

If telephoning ask for:  
Cerian Baldwin

17 July 2018

Susan Macmillan  
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By email only to: [epc@highland.gov.uk](mailto:epc@highland.gov.uk)

Dear Mrs Macmillan

**The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017**

**Planning application: 18/02742/FUL**

**Construction of run-of-river hydropower scheme including intake structure, penstock pipe and associated buildings, plant and access  
Dalness Estate, Glen Etive, Ballachulish**

Thank you for your consultation email which SEPA received on 20 June 2018.

**Advice for the planning authority**

The applicant kindly carried out pre-application discussions with us over the past few years. Unfortunately not all of our advice has been followed and therefore we have to **object** to this planning application on the grounds of lack of information and unless the Construction Method Statement (CMS) and site layouts are modified as detailed in Sections as detailed in Sections 2, 3, 4, 5 and 7 and the **conditions** detailed in Section 6 are applied. We will review this objection if the issues detailed below are adequately addressed.

In the event that the planning authority proposes to grant planning permission contrary to this advice on flood risk, the Town and Country Planning (Notification of Applications) (Scotland) Direction 2009 provides criteria for the referral to the Scottish Ministers of such cases. You may therefore wish to consider if this proposal falls within the scope of this Direction.

For the avoidance of doubt, our advice is based on the site layout shown in the location plan and supporting site plans. A number of other site layouts are shown on the supporting documents but we understand these are previous iterations of the scheme and are not proposed as part of this application.

**1. Consentability under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (As Amended) (CAR)**

1.1 As you're aware, this proposal will require a licence under CAR. We encourage applicant's

to twin track their planning and CAR applications for hydros so that we are able to advise on the likely consentability of the scheme and the site layout at the planning stage. We understand that the applicant intends to submit CAR applications shortly but until these are determined we are unable to advise on the likely consentability of the scheme.

- 1.2 We've reviewed the site layouts in terms of river morphology and have a number of concerns which will require further assessment and possible site layout modifications under CAR. We have included these technical comments in Appendix 1 so that the applicant can consider these before submitting their CAR applications as these may also require amendments to the layouts submitted under planning.
- 1.3 In addition, we understand from your email dated 16 July 2018, that discussions between the Scottish Canoe Association and the applicant have been taking place regarding the use of an 'on demand' button for the flow and that you are awaiting further details on which of the hydro schemes this would apply to. This is also something that we will consider under CAR and we will be able to apply conditions under CAR to control the flows in the river.
- 1.4 There also maybe other issues relating to fish passage, bryophytes and fresh water pearl mussels which will need to be considered as part of the CAR application.
- 1.5 As detailed in our *Development management guidance on SEPA regulated sites and processes*, we are required to carry out a derogation assessment on any CAR application where proposals would have a significant adverse impact on the water environment i.e. breach an environmental standard, or cause deterioration in status of a water body, or prevent the future achievement of an objective in the River Basin Management Plan.
- 1.6 This guidance requires us to advise that we consider that it would be inappropriate for a planning authority to approve a planning application prior to the derogation test being carried out by SEPA. This is because the planning authority is a Responsible Authority under the Water Environment and Water Services (Scotland) Act 2003. We therefore advise planning authorities to defer planning decisions on any development proposal where a CAR derogation will be required. As above, we understand that the applicant intends to submit the CAR application soon.

## **2. Watercourse crossings**

- 2.1 A number of fords and a new bridge over the River Etive are proposed yet there appears to be an existing access route which could be utilised. Works within the water environment need to be minimised and therefore we **object** unless the fords are removed from all the plans and supporting documents and that the Drawing C083.3 -111 is revised to state the old bridge over the River Etive will be removed and the banks restored once the new bridge is installed. Please note our flood risk and access track layout comments below.

## **3. Borrow pits**

- 3.1 It appears to be proposed to utilise one new borrow pit and one existing yet no peat depth survey or habitat surveys have been carried out for these locations. As detailed during our pre-application discussions, we need to understand the depth and width of excavations along with any impacts upon waterbodies, peat or Groundwater Dependant Terrestrial Ecosystems (GWDTE).
- 3.2 In the first instance, we **object** until the site plans are updated and photographs of each borrow pit are submitted which show the proposed depth and width of excavations. This will

enable us to ascertain whether we need further peat or habitat information. If the applicant happens to have habitat or peat information for these sites they should submit this too but if not, it maybe that the photos will suffice if they clearly show that peat would be shallow and that GWDTE are unlikely to be present.

#### **4. Access track layout**

- 4.1 We welcome the re-use of access tracks where possible but have some concerns regarding the widening of the existing track, the additional tracks and crossings around the intakes and also where the penstock and access track corridors diverge. Section 3.2 of the CMS also specifies a 10m buffer to watercourses.
- 4.2 It is important to maximise the space between construction works and waterbodies wherever possible and to minimise the areas of ground disturbed during construction. On this basis, we would expect the site plans to show existing tracks being widened away from the watercourses, for there to be a minimum 10m buffer between any new access tracks/the penstock and waterbodies, a single access track at the intake locations and for the new access roads to the intake to follow the route of the penstock minimising the need for ground disturbance. We **object** until the site plans are revised and submitted to show this.

#### **5. Groundwater dependant terrestrial ecosystems (GWDTE)**

- 5.1 We have been unable to fully assess the impact of the development on GWDTE due to the varied maps, none of which show the same penstock route and many do not show the route of the new access track. We **object** until the GWDTE habitat assessment needs to re-submitted within the finalised layout overlain subject to the above comments above. Examples of the current site layout inconsistencies maps is below.
- a) The peat survey show the penstock route plus an alternative route. No access track is marked.
  - b) The map indicating presence of GWDTEs (Fig 3.2 and Fig 3.1) shows another map of the penstock route but no track.
  - c) Fig 1 showing species target notes again has a different penstock route marked but no access track marked.
  - d) Fig 2 shows another two iterations of the penstock route.
  - e) The location plan shows a much reduced penstock route plus the access track marked.

#### **6. Flood risk**

- 6.1 We have reviewed the information supplied with this consultation and we note that parts of the application site lie within the medium likelihood (0.5% annual probability or 1 in 200 year) flood extent of the SEPA Flood Maps and may therefore be at medium to high risk of fluvial flooding. We hold no records of flooding at or near the site.
- 6.2 The proposed development of a hydroelectric power station could be classed as 'essential infrastructure' under our Flood Risk and Land Use Vulnerability Guidance as it has to be

located near the watercourse for operational reasons. It may therefore be acceptable as an exception to the risk framework outlined in Scottish Planning Policy. We note that the proposed development should be designed and constructed to remain operational during a 1 in 200 year (0.5% annual probability) flood event.

- 6.3 In the 'Flood Risk Review' (Technical Appendix 8.2) it states that a bund could be constructed between the powerhouse and the river in order to protect the development from fluvial flooding. In line with Scottish Planning Policy and SEPA's Standing Advice, no bund should be constructed and instead the power house should be designed to remain operational during floods, as is outlined in the Flood Risk Review mitigation measures. This is because the creation of the bund could reduce floodplain storage and conveyance, and therefore increase flood risk elsewhere. Whilst we can find no reference to a bund in the site plans, for the avoidance of doubt, we request that a **condition** is applied ensuring no flood bunds can be constructed on site.
- 6.4 The proposed development also includes the replacement of an existing bridge and the erection of new bridges. There is the 'River Etive Bridge Details' (drawing no. C083.3-111 Rev 0.1) which shows that a new bridge will be located upstream of the existing structure across the River Etive and a new pipe bridge and access track crossing. We request that a **condition** is applied requiring all these structures be designed to convey the 1 in 200 year flow without constriction of flow or increasing flood risk elsewhere and for the abutments to be set back minimising impact upon the watercourse. We also request that a **condition** is applied requiring the removal of the old structures across the River Etive once the new structure is complete to minimise to reduce the risk of blockage in the channel.
- 6.5 Part of the proposed development is to create a permanent access track. In line with SEPA's Standing Advice, tracks and roads should be designed in such a way to ensure that they do not result in an elevation of land within the functional floodplain. Scottish Planning Policy states that piecemeal reduction of the functional floodplain should be avoided given the cumulative effects of reducing storage capacity. Given the number of tracks that lie within the flood plain we request that a **condition** is applied ensuring that land raising does not occur to prevent the loss of functional flood plain.

## 7. Construction method statement (CMS)

- 7.1 We note the submitted CMS and generally welcome the principles therein. A couple of elements need to be revised to bring it in line with current practice and these are detailed below. We **object** until a revised CMS and site plans are submitted.
- a) Section 2.6.1 specifies the use of pipe culverts. As detailed above we have asked for the fords to be removed. In addition the CMS should be amended to specify the use of bottomless or arched culverts and bridges sized to accommodate 1 in 200 year flows. Please note the need for CAR authorisations as detailed in the Regulatory Advice section below.
  - b) The table in Section 3.2 specifies "Peat that is disturbed is to be re-used locally by forming raised banks..." Any peat re-use must tie into the surrounding ground levels to ensure it does not dry out. The CMS should be amended to state this and that peat should be kept wet during any temporary storage prior to reinstatement.
  - c) Subject to the comments above, we have specific requirements for the use of waterstops and ask that this is included in the table in Section 3.2 of the CMS. The number of cross drains or clay stoppers/bunds to be installed in trenches should be

proportionate to the gradient of the trench section and take into account the elevation differential to avoid excessive head on the clay plugs. The following table gives an indicative spacing which should limit the maximum head to approximately 4 m. The below figures are indicative only and the consultants are invited to forward alternative spacing corroborated by suitable justifications if needed. If wetlands with more discrete groundwater flows are intercepted (e.g. spring and flush habitats) a clay plug should be placed immediately either side of the spring or flush feature to maintain the original hydrological conditions within the wetland either side of the trench.

Trench gradient (%)	Bunds interval should not exceed (m)
20	20
15	30
10	40
8	50
6	70
4	100
<3	200 to none

- d) Section 8.8.1.3 of the EIAR specifies the use of treatment plants and septic tanks for waste water from welfare facilities during construction. The CMS does not mention this and this would not be standard practice. Instead the CMS should specify the use of sealed units with waste water removed by a licensed waste carrier to a licensed facility.

- 7.2 As detailed in the Regulatory Advice section below, as this site is greater than 4 ha it will require a Construction Site Licence under CAR. This will regulate the management of surface water run-off across the site including the protection of third party users of water downstream. Provided the site layout is amended as detailed above, then it is likely there will be enough space to accommodate surface water management and pollution prevention measures. Nevertheless, as this Construction Site Licence does not cover peat management or GWDTE mitigation it is likely we will seek the above CMS by planning condition but leave the detailed surface water drainage plans to CAR.

## **Regulatory advice for the applicant**

### **8. Regulatory requirements**

- 8.1 As you are aware, authorisation is required under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) to carry out engineering works in or in the vicinity of inland surface waters (other than groundwater) or wetlands. Inland water means all standing or flowing water on the surface of the land (e.g. rivers, lochs, canals, reservoirs).
- 8.2 Management of surplus peat or soils may require an exemption under The Waste Management Licensing (Scotland) Regulations 2011. Proposed crushing or screening will require a permit under The Pollution Prevention and Control (Scotland) Regulations 2012.
- 8.3 We note site area is greater than 4 hectares so a CAR construction site licence will be required for management of surface water run-off including access tracks, the penstock and

borrow pits. See SEPA's [Sector Specific Guidance: Construction Sites \(WAT-SG-75\)](#) for details. Site design may be affected by pollution prevention requirements and hence we strongly encourage the applicant to engage in pre-CAR application discussions with a member of the regulatory services team in your local SEPA office.

- 8.4 Details of regulatory requirements and good practice advice for the applicant can be found on the [Regulations section](#) of our website. If you are unable to find the advice you need for a specific regulatory matter, please contact a member of the regulatory team in your local SEPA office at Carr's Corner Industrial Estate, Lochybridge, Fort William PH33 6TL Tel: 01397 704426.

If you have any queries relating to this letter, please contact me by telephone on 01349 860415 or e-mail at [planning.dingwall@sepa.org.uk](mailto:planning.dingwall@sepa.org.uk).

Yours sincerely

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*Disclaimer*

*This advice is given without prejudice to any decision made on elements of the proposal regulated by us, as such a decision may take into account factors not considered at this time. We prefer all the technical information required for any SEPA consents to be submitted at the same time as the planning or similar application. However, we consider it to be at the applicant's commercial risk if any significant changes required during the regulatory stage necessitate a further planning application or similar application and/or neighbour notification or advertising. We have relied on the accuracy and completeness of the information supplied to us in providing the above advice and can take no responsibility for incorrect data or interpretation, or omissions, in such information. If we have not referred to a particular issue in our response, it should not be assumed that there is no impact associated with that issue. For planning applications, if you did not specifically request advice on flood risk, then advice will not have been provided on this issue. Further information on our consultation arrangements generally can be found on our [website planning pages](#).*

## **Appendix 1: Technical comments relating to river morphology**

The applicant should consider these comments prior to submitting their CAR applications as they may wish to amend their site layouts in light of further assessment.

### **General comments**

Our review of the supporting material demonstrates a number of cross cutting themes and so because they are being progressed by the same applicant we first give general comments that can be applied to all schemes:

- The current hydromorphological considerations in the environmental impact assessment (EIA) are very high level and given the apparent high sediment loads on all of the watercourses we will require more detailed assessment for CAR. This should particularly focus on the existing channel processes, as well as an assessment of the impact of the proposals on these processes (paying particular attention to sediment transport) and proposing appropriate mitigation (e.g. sediment management, siting structures away from active reaches). As it stands the impact assessment is very general (largely identical for each scheme) and does not provide the more site specific information required. For example, if the bed and banks around an intake are bedrock then the erosion risk is negligible compared to a higher risk scenario where the channel boundaries are uncohesive. This level of detail is essential and such an assessment should be carried out by an appropriately qualified and experienced fluvial geomorphologist.
- The intakes will likely impound flow for some distance in all cases (expected impounded lengths are detailed in the site specific assessments). Although only providing a temporary water storage this is likely to disrupt sediment transport and so could have a significant downstream impact on morphology, particularly given the high sediment loads. Sediment starvation will increase erosion and sediment transport. More assessment of this impact is needed alongside detailed proposals for mitigation. This should include provision for allowing coarse sediment transport over the weirs and/or an ongoing sediment management plan. We are not convinced that the inclusion of scour valves alone would be sufficient to allow continued sediment transport. For example, if the coarsest material is deposited at the top of the impounded reach and the finest at the weir, any scour valve would presumably only release the finer material from immediately behind the weir and it is not clear whether the full weir width could be cleared with this method. Fish passage mitigation suggests periodic removal of sediment from the impounded reach, but there are currently no detailed plans presented. It is imperative that this is rectified and it would need to detail the method of sediment extraction, its frequency, as well as details on where and how the extracted sediment will be reintroduced. Care will need to be taken to ensure the full range of material is removed and then reintroduced (e.g. also taking the coarsest material that may be deposited at the head of the pond) and that the material is appropriately placed to avoid excessive release of fines in a single flow (e.g. creating a bar with a coarse surface and finer subsurface).
- All intakes appear to include a compensation flow notch on the upstream weir face. Given the likely high coarse sediment load on these watercourses there is a significant risk of the notches blocking so that no or reduced compensation flow is released. A better solution would be to take the compensation flow after the intake screen, but before the penstock pipe ensuring flow variability is maintained.
- The intake designs include plunge pools downstream of the intake screen. However, given the weir height it seems unlikely that this will be deep enough to dissipate all energy associated with the fall. It would be better to deepen this plunge pool in order to fully dissipate energy. As it stands this excess energy will simply be deflected downstream where it will erode a scour

pool (if the channel boundaries are erodible) creating a higher step between the river surface and the plunge pool notch than planned. The inclusion of scour protection downstream of the plunge pool will simply deflect this energy further downstream, rather than dissipate it.

- The current outfall designs (where presented) suggest the use of hard protection along the banks and bed of the outfall. This will simply deflect energy downstream, generating bed and bank erosion. We would expect the design to minimise hard protection (utilising, softer, hydraulically rough techniques wherever possible) and to include a stilling basin to dissipate, rather than deflect energy.

Following these general comments that can applied to all schemes the remaining sections highlight site specific issues that should be rectified.

On the Allt a Chaoriann (WBID 10318) the proposals include:

- Two new intake structures ~3 m (main intake) and ~2.5 m (secondary intake) higher than the river bed level. These would have impoundment reach lengths of ~50 m<sup>1</sup> and ~25 m<sup>2</sup>, respectively (based on local gradient from NEXTmap DTM and an assumed simple river bed profile).
- A buried penstock pipe (with crossing that includes ATV provision) to a power house (on floodplain)
- An outfall toward the downstream end of the watercourse (no details provided).
- A new access track that crosses River Eive upstream of Allt A Chaorainn (WBID 10316) at the site of an existing bridge or just upstream from it.

Any CAR application received would undergo the environmental standards test for river morphology. For baseline waterbodies the first stage of this test is applied at the local (500 m) scale and these activities would use an additional 4% of capacity, but because there are no known pressures within the reach this would not result in a downgrade and so the environmental standards test is passed. However, because the waterbody classification is within 2.5% of a capacity limit the proposals are also tested at the waterbody scale where they would use an additional 0.5% of capacity. As the current waterbody status is at high with 5.3% of capacity (currently rounded down to 5%) this would result in a waterbody downgrade from high to good for morphology. However, this classification is based on remotely derived information and may have under or over represented existing morphological pressures. This could only be verified by further survey. As it stands the waterbody status would be at risk and so any proposals would have to undergo a good practice test and derogation assessment. As detailed below these structures do not currently follow good practice.

#### *Comments on proposal*

- Aerial imagery around the main tributary (Allt Coire a Chaolain) upstream from the intake and that on which the secondary intake is proposed show active gravel deposits suggesting a significant supply of sediment. This is further supported by the presence of an alluvial fan at the bottom of the watercourse and highlights the need to carefully assess and mitigate the disruption to sediment transport.

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<sup>1</sup> At a 1 in 17 gradient

<sup>2</sup> At a 1 in 10 gradient



- The intake drawings show the compensation flow notch (created by the plate) appears to be higher than the weir crest. This is presumed to be an error in the drawings because it would result in no flow through the notch in anything but the highest flows.
- There are discrepancies between the penstock routes as shown in different parts of the EIA. For example, that shown in the bryophyte report, GWDTE map, and NCV map includes three intakes that are much further upstream compared to that within the location plan. It is assumed that the route in the EIA report is the final one, with the alternatives being earlier plans that have since been revised. However, these discrepancies should be rectified or clarified to avoid confusion.
- The powerhouse is located atop the alluvial fan, but there is no evidence from historic maps or aerial imagery (2011 and 2015) of any significant recent lateral adjustment, but the SEPA's floodmaps suggest it is close to an area flooded by the 1 in 200 year event. As it is located on the lower part of an alluvial fan there is a risk of abrupt channel migration that could at least result in outfall into an abandoned channel. Siting the powerhouse and outfall further upstream at or above the fan apex would reduce this risk.
- There are not details of the outfall design presented.