

TA2.4 Private Water Supply Assessment



Technical Appendix 2.4:
Private Water Supply Assessment

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1 INTRODUCTION

The purpose of this report is to identify existing Private Water Supplies (PWS) that lie within the hydrological catchment of the proposed development, and assess whether they are at risk of any adverse impacts as a result of the proposed development. This assessment has been completed in accordance with SEPA's Land Use Planning System Guidance Note 31, guidance for assessing the impacts of windfarm development proposals on groundwater abstractions¹.

This report has been produced by MacArthur Green in accordance with SEPA guidelines. All staff contributing to this technical appendix have undergraduate and/or postgraduate degrees in relevant subjects, have deep professional experience, and hold professional membership of either the Chartered Institution of Water and Environmental Management (CIWEM) or Institution of Civil Engineers (ICE). The report has been reviewed and approved by David MacArthur of MacArthur Green and a copy of his CV is included in EIAR Volume 4: Technical Appendix 1.2.

1.1 Approach

SEPA's Land Use Planning System Guidance Note 31¹ requires a buffer to be placed around any groundwater abstractions to protect the quantity and quality of the supply. The buffer required is dependent on the depth of excavation as stated below:

- 100 m buffer is required from excavations less than 1 m in depth; and
- 250 m buffer is required from excavations greater than 1 m in depth.

Where the buffer is encroached upon, an assessment of the potential Zone of Contribution (ZoC) is required. This is to identify the potential risk to the source and identify mitigation, where required.

Data was requested from The Highland Council (THC) and the Scottish Environment Protection Agency (SEPA) to identify PWS within a 5 km radius of the proposed development. No information was supplied by SEPA in response to the original data request in 2017² though the data was re-requested in 2018 and a response received on the 3rd September 2018. The response identified that there was one licensed surface water abstraction located at Melgarve Sub-substation for the purpose of Industrial and Commercial process water; because the supply is not for drinking water purposes it has been scoped out of this PWS assessment. No groundwater abstractions were listed. Data was received from THC for the council area and has been clipped to a 5 km buffer from the site boundary. This assessment is based on the proposed development layout submitted in this EIAR as described in Volume 2, Chapter 2 and shown in Figure 2.4.1 to this report.

Applying a 5 km study area is a conservative approach and notably in excess of SEPA's buffer. PWS are often registered based on the location of the property, though the source of the supply may be some distance away. Taking this conservative approach identifies any properties in the study area, whose supply source could be closer to the proposed development than the registered property. The site also incorporates an existing shared access track via Stronelairg Wind Farm, to the north of the proposed development. However, as the access track exists and would require no additional works, it has not been included in the PWS study area.

The southern extent of the site boundary is a notable distance from any proposed infrastructure. Consequently, PWS and their associated properties located at the extreme edge of the 5 km study area (situated around Ardverikie Estate), would be located approximately 8 km from the nearest infrastructure. Furthermore, these PWS and their associated properties are located in a different

¹ SEPA Land Use Planning System SEPA Guidance Note 31, Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, SEPA, September 2017.

² A follow up request for information has been submitted to SEPA to request confirmation that they do not hold any records. The information related to this request is awaited.

catchment to the proposed development. At this notable distance, and across hydrological catchments, these PWS have been scoped out of further assessment.

In total, four sources of PWS were identified within or at the boundary of the 5 km study area, supplying nine properties (EIAR Volume 4: Technical Appendix 2.4: Figure 2.4.1). All of these sources and properties lie within the wider Spey catchment, though out-with the site. Following further review, these sources are all located a minimum of 5 km from all new infrastructure (Crathie PWS at 4.97 km), placing them significantly out-with SEPA's 100 m buffer (excavations less than 1 m in depth) and 250m buffer (excavations greater than 1 m in depth) from infrastructure.

The PWS were assessed during this review to ensure there are no wider connections to the proposed development. Details gathered of the PWS within the study area, are provided in Annex 1 for reference.

A further PWS source and two associated properties lie just out-with of the 5 km study area, within the Foyers Catchment. Due to its location downstream of the site boundary, it was included within the assessment during the design reiteration stage pending further investigation should the layout change. Following design freeze, the PWS has been confirmed to be out-with the 5 km study area, details of the supply have been retained in Annex 1 for reference purposes.

2 SUMMARY

As a conservative approach, data was requested within a 5 km study area from the site boundary. Five sources and eleven associated properties identified from THC's PWS register lie significantly (>4.5 km) beyond SEPA's required buffers (100 m from excavations less than 1 m in depth, and 250 m from excavations greater than 1 m in depth). This assessment found that all sources registered to THC, were 5 km (Crathie PWS at 4.97 km) or more from any new proposed infrastructure.

Further information gathered during this assessment indicated that some of the details registered to THC are out of date. However, this additional information (gathered as part of the survey work) indicates the PWS sources are even further from the proposed infrastructure. Therefore, the THC PWS records present a worst-case data set; with all five sources of the PWS >4.5 km from the proposed infrastructure.

Based on the distance and hydrological setting of the PWS stated in this report (see Annex 1), the proposed development is not assessed as having an adverse effect on any PWS.

Annex 1. PRIVATE WATER SUPPLY SEARCH DETAILS

Using data received from THC's PWS register and applying a conservative approach of using a 5 km study area from the proposed site boundary, this investigation into PWS identified four sources of PWS supplying nine properties. A further supply and its associated two properties are located out-with the study area, but located downstream of the proposed development, and were kept in the review should the design change. Following design freeze this supply is confirmed to be out-with the study area.

Details of all five PWS sources are provided in Table 2.4.1 below and in Figure 2.4.1. All sources provided by THC's PWS register lie a significant distance (>4.5 km) away from SEPA's required buffer of 100 m from excavations less than 1 m deep and 250 m from excavations greater than 1 m in depth. Based on this information they can be scoped out of the assessment and do not require further review in accordance with SEPA's Land Use Planning System Guidance Note 31³. As a conservative approach, information on the PWS around Glenshero Estate was confirmed during a site reconnaissance; available information also indicated the PWS at Coul Estate as being potentially out of date. All information was reviewed in the assessment. Details are provided below.

³ SEPA Land Use Planning System SEPA Guidance Note 31, Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, SEPA, September 2017

Table 2.4.1 Summary of Private Water Supplies

PWS ID	Properties Associated	Source Type	Source Location	Source Use	Distance from Nearest Infrastructure (km)
Glenshero PWS	Stalkers Cottage (Domestic), Sherramore Lodge (Commercial), Sherramore Cottage (Domestic), Glenshero Lodge Flat 1, 2 and 3 (Domestic)	THC Database: Stream Site information: Borehole	NN 55049 93300 (based on location indicated on site)	Type A Commercial	5.20
Sherrabeg PWS	Sherrabeg (not stated in THC database but confirmed with adjacent estate)	THC Database: Stream Site information from adjacent estate: Borehole	NN 56817 92982	Database states Type B Domestic <50 people, though the property has been noted online as a holiday let	6.26
Crathie PWS	Crathie Cottage	THC Database: Stream	THC Database NN 55885 93873 Information publicly available online (http://www.ballantynes.uk.com/property/700/?propInd=S) states that Crathie Lodge is part of the Coul Estate and both properties now have individual borehole supplies. These would be assumed to be close to the property for maintenance and supersede the spring supply though the location is unknown.	Type B Domestic <50 people	THC Database location of stream at 5.0 km (rounded from 4.97 km), though 6.3 km to property where borehole potentially located. Both locations have been considered.

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Coul Farmhouse PWS	Coul Farmhouse	<p>THC Database: Spring</p> <p>As per Crathie Lodge, information available states that Coul Farmhouse has an individual borehole water supply.</p>	NN 58851 94066	Type B Domestic <50 people	THC Database location is of spring (located at the property) 6.75
Killin PWS	Killin Lodge and Killin Cottage	Spring	NH 52648 09052	THC source is stated as Type B Domestic <50 people, though THC property is also stated as a Holiday Let.	6.1

2.1 Site Reconnaissance

Whilst undertaking a site reconnaissance on 27th June 2018, Glenshero Lodge was visited and the source types, locations and further information regarding the PWS within the estate were obtained. This is not required but was confirmed whilst in contact with Glenshero Estate.

The following information on the registered stream and spring supplies was gathered from discussions with the estate gamekeeper. Further information has been obtained from publicly available information.

PWS Source Information:

- Single source for all properties associated with the supply at Glenshero Estate (Glenshero Lodge Flats 1,2,3 and Stalkers Cottage, Sherramore Lodge and Sherramore Cottage), which is a borehole and not a stream supply (as registered to THC database). The borehole was indicated on site as being close to the old mapped Saw Mill (grid reference in Table 2.4.1).
- Sherrabeg was noted by the estate gamekeeper as being supplied by a borehole at the property and not a stream supply (as registered to THC database).
- Crathie and Coul Farmhouse were noted in information publicly available online (<http://www.ballantynes.uk.com/property/700/?propInd=S>) as being supplied by individual boreholes, the locations of which are unknown. This was not confirmed on-site though it is noted that both PWS sources (as registered to TCH database) are currently a minimum of 5 km from the proposed infrastructure. The properties are in excess of this distance.

The information provided above does not accord with information provided in THC database, though it is recognised that registered information has been supplied by the property owner.

2.2 Hydrological Setting

The borehole supplying Glenshero and Sherramore properties, in addition to the borehole supplying Sherrabeg are all located on the southern side of the River Spey within the sub-catchment of Loch Crunachdan. The proposed development is located on the northern upper tributaries of the River Spey catchment, and is therefore separated from the boreholes by the River Spey (upstream of the Spey Dam). The minimum distance to nearest infrastructure is 5.2 km, across the River Spey. All boreholes are therefore notably out-with the 250 m buffer for excavations greater than 1 m depth, in accordance with SEPA Guidance, and are located in the separate sub-catchment (Loch Crunachdan).

Crathie Cottage and Coul Farmhouse are registered to a watercourse abstraction and spring respectively. The registered locations are within the catchment of the River Spey, associated with sub-catchments of the northern tributaries of the river. The proposed development drains into the catchments of Allt Feith a Mhoraire, Allt Coire Iain Oig and Feith Talagain. The sub-catchments of both source locations are east of these receiving watercourses, and flow directly into the River Spey. There is no direct pathway between the proposed development and PWS as a receptor. As noted above, it is understood that both properties are now supplied by individual borehole supplies. It is assumed that the boreholes would be located close to the properties, which are 6.3 km and 6.7 km from the nearest infrastructure respectively, and within the separate catchment of Markie Burn. It is noted that the exact location is unknown.

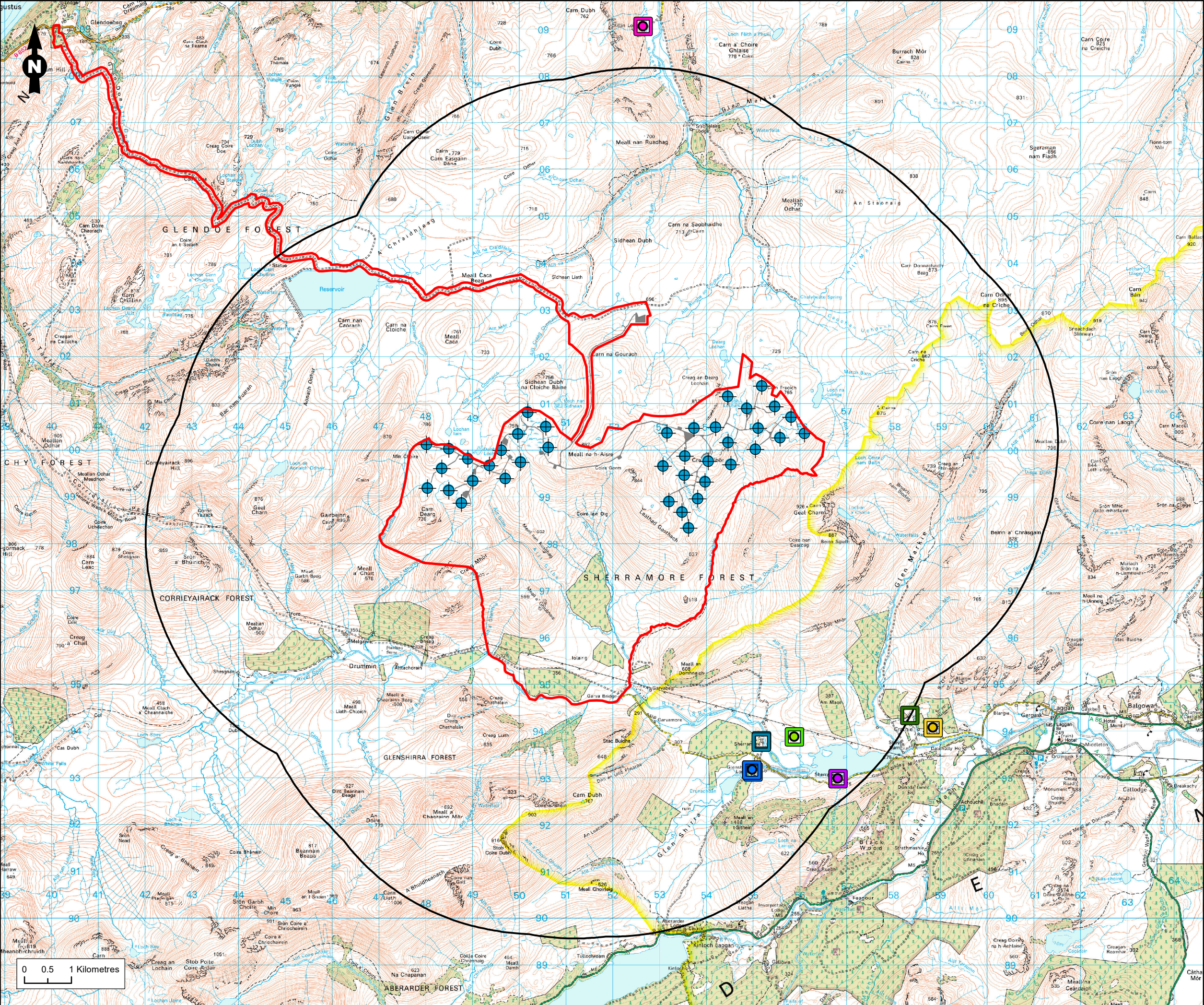
Killin PWS is registered 6.0 km from the nearest infrastructure. The source as registered to THC is located within a sub-catchment of the River Killin and is separated from the proposed development by the Allt Odhar tributary of the River Killin. Furthermore, the proposed borrow pit search area,

which comprises the infrastructure within the River Killin catchment, was confirmed on site to be at the location of an existing borrow pit associated with Stronelaig Wind Farm.

A review of 1:25,000 Ordnance Survey mapping does not indicate any further properties within 250 m of proposed new infrastructure at the site.

Annex 2. FIGURES

Figure 2.4.1 Private Water Supplies



Legend

- Site Boundary
- Turbine
- Infrastructure
- Study Area

Private Water Supply Source ID

- Coul Farm House
- Sherrabeg
- Crathie Cottage
- Killin
- Glenshero and Sherramore

Properties

- Coul Farm House
- Sherrabeg
- Crathie Cottage (The Highland Council Location)
- Crathie Cottage (OS Location)
- Killin Lodge
- Glenshero Lodge (Flat 1, 2 and 3) and Stalkers Cottage
- Sherramore Cottage and Sherramore Lodge

NB: Figure 2.4.1 to be read in conjunction with TA 2.4.

Figure Title
Private Water Supplies

Project Name
Glenshero Wind Farm
EIA Report

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