Blair Hill Wind Farm

Technical Appendix 10.2

Private Water Supply Risk Assessment

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Date	December 2024
Ref	6389

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Private Water Supply Risk Assessment

1 Introduction

1.1.1 ITPEnergised has been commissioned by Renewable Energy Systems Ltd ('the Applicant') to undertake a Private Water Supply Risk Assessment (PWSRA). This Appendix will assess the potential risk to Private Water Supply (PWS) from Blair Hill Wind Farm, the Proposed Development. The Proposed Development will consist of 14 turbines with associated infrastructure including new and upgraded access tracks.

2 Background

Scope of Report

2.1.1 The scope of the report is to identify PWS in the surrounding area and to determine whether they would be affected by the Proposed Development.

2.1.2 The desk study and assessment has comprised identification of PWS within the 2 km study area, as shown in Drawing 1, through consultation with Dumfries and Galloway Council (DGC) and residents, followed by assessment, risk rating, and identification of any additional mitigation required.

Private Water Supplies

2.1.3 PWS are private supplies which are not regulated by Scottish Water or by DGC and are operated and maintained by the resident. PWS can vary in scale from supplying one property to supplying several. They consist of a source, any interconnecting tanks and pipework which is distributed to a supply, as defined below.

- Source – where the water is abstracted or collected;
- Supply – the properties which are supplied by the source;
- Tank – where the water is stored prior to being used at the supply; and
- Pipework – the connecting pipework used to distribute water collected from source to supply.

2.1.4 PWS can source their water from surface water, groundwater or a combination of both. Source types can include springs, stream abstractions, boreholes and wells.

Study Area

2.1.5 A PWS Study Area of 2 km from the Site boundary was used to undertake council consultation, identify and assess PWS within the surrounding area. The study area of 2 km is based on professional judgement that there are unlikely to be effects to surface water or groundwater at distances greater than 2 km from infrastructure. This study area and methodology has been previously approved by SEPA as suitable for similar wind farm developments. As the Site boundary has reduced in size since the initial design iteration, there are PWS which were initially scoped in as being within 2 km PWS Study Area that are now outwith this area. These PWS have been scoped out and highlighted throughout this Appendix, with any consultation with residents included for clarity.

2.1.6 The Site and its surrounds are described as a moderately sloping upland area in Dumfries and Galloway, situated approximately 2.7 km north of Newton Stewart. The Site is located within the surface water catchments of the River Cree, Penkiln Burn and Palnure Burn. There are several smaller sub-catchments with named and unnamed tributaries located within the Site. The Site is largely used for coniferous plantation forestry and pastoral farmland. There are several existing forestry tracks present onsite, including 37 existing

watercourse crossings. An existing public road to the Site, crosses the Penkiln Burn by single span bridge, called Auchinleck Bridge.

2.1.7 The Site is underlain by sedimentary bedrock, largely of the Ordovician age Shinnel Formation and Portpatrick Formation. Moffat Shale Group and Gala Group are present in the south, underlying the track. In the north of the Site and along the track, several inferred thrust or reverse faults are present, resulting in displacements. The underlying bedrock is described to be low productivity with limited groundwater present. The underlying groundwater body is noted to have an overall status of 'Good' in 2022.

Legislation and Guidance

2.1.8 The following Scottish Government legislation has been reviewed to inform the assessment methodology of this PWSRA, to ensure comprehensive assessment and any protective measures required are implemented.

- Private Water Supplies (Scotland) Regulations 2006;
- The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017; and
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011.

2.1.9 To inform the assessment methodology of this PWSRA, the following guidance regarding PWS has been reviewed.

- Drinking Water Quality Regulator for Scotland (DWQR) Guidance for Local Authorities on The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017;
- Scottish Environment Protection Agency (SEPA) A Practical Guide to The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (Version 9.2) 2022; and
- SEPA Land Use Planning System Guidance Note 31 (SEPA LUPS GU31) Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems (Version 3) 2017.

2.1.10 The SEPA LUPS GU31 provides detailed guidance on assessing impacts to groundwater abstractions and therefore PWS which are fully or partly fed by groundwater. This includes detailed infrastructure buffers to be implemented, depending on excavation depths:

- Within 100 m radius of all excavations less than 1 m in depth; and
- Within 250 m radius of all excavations deeper than 1 m in depth.

2.1.11 The SEPA guidance also outlines the likely outcomes if maintaining these buffers between infrastructure and groundwater abstractions is unavoidable. In these cases, a detailed risk assessment and site-specific Conceptual Site Model (CSM) will be required, accompanied by mitigation and best practice, likely to include monitoring.

Assessment Methodology

2.1.12 The assessment methodology for finding the significant or not significant impacts to PWS is outlined in Section 10.5 of **Chapter 10**.

Approach to Scoping PWS for Further Assessment

2.1.13 Initial desk-based assessment identified registered PWS or water abstractions through consultation with the DGC Environmental Health Officer. A desk based spatial assessment of the surrounding area using AddressBase was then undertaken to identify properties within the 2 km study area.

2.1.14 Identified properties and registered PWS were then assessed and some scoped out with consideration to the following aspects:

- Bedrock and superficial geology;

- Hydrogeology;
- Surface water catchments;
- Topography and drainage pathways; and
- Distance from the Proposed Development (within 2 km study area).

2.1.15 Identified properties with potential to be PWS and hydrologically connected were then scoped into further assessment. Letters were initially issued to residents in December 2023. The letters were issued to confirm the presence of a PWS supplying the property and also comprise the following:

- A summary of the Proposed Development and what assessment would be undertaken as part of the PWSRA.
- A questionnaire to gather information on the source type, any pipework or treatment and supply points.
- A map of the property and the surrounding area for the resident to mark the location of the source.

2.1.16 PWS locations confirmed by residents, and located within 2 km of the Proposed Development were scoped into further assessment. The following resources were used to complete the desk-based assessment to determine potential hydrological connectivity to the site.

- Ordnance Survey (OS) 1:25k and 1:50k Map (Digital);
- Scottish Government Scotland's Environment Map;
- British Geological Survey (BGS) GeoIndex Onshore Map Viewer;
- BGS Geological Survey of Scotland 4E Wigtown 1981 Drift Map (1:50,000); and 8E Loch Doon 1980 Drift Map (1:50,000); and
- BGS Geological Survey of Scotland 4E Wigtown 1992 Solid Map (1:50,000), 8E Loch Doon 1994 Solid Map (1:50,000).

2.1.17 Site visits were then undertaken to PWS considered to be potentially connected following the desk-based assessment to confirm and ground-truth the residents information and provide further understanding. An outline of when PWS were scoped out or into further assessment is included within Table A.3 in **Annex 3**.

2.1.18 Where PWS were confirmed to have potential to be hydrologically connected to the Proposed Development, these were scoped into further assessment to provide a risk rating. Following implementation of embedded design and good practice mitigation measures, the residual effects to each PWS were assessed.

3 Baseline

Desk Based Assessment

Consultation with Council EHO

3.1.1 Consultation was undertaken with DGC to gather information on registered PWS within the 2 km study area. A response was received from DGC on 18 September 2023 providing ArcGIS shapefiles of the source names and locations of registered PWS, including their council reference and regulation type, where known. The list of registered PWS were assessed and scoped out if outwith the study area or not considered to have potential hydrological or hydrogeological connectivity to the Site. From this, 10 sources and 12 properties were scoped into assessment from the council register.

3.1.2 To identify any unregistered PWS within the study area, a desk based review of additional properties from AddressBase data and OS maps was undertaken. Properties which were considered to be remote, located away from main roads or in an area surrounded by other PWS were scoped in. From this search an additional six properties were identified.

Resident and Landowner Consultation

3.1.3 The first consultation letter to residents was initially issued to the 18 properties identified in December 2023. The letters included an accompanying questionnaire and map for the residents to fill in and return. A summary of responses to the letters issued are outlined in Annex 3. Additionally, a request for PWS information was included within the Applicants newsletter to residents in December 2023, with contact details for two of the properties received from the Applicant in January 2024. A second consultation letter was issued to Cordorcan, Glenmalloch Lodge and Glenshalloch in January 2024 as responses had not been received.

3.1.4 The responses received confirmed three properties to be supplied by mains, and 14 to be supplied by PWS. The remaining property, Cordorcan, did not receive a response. While a direct response was not received from six of the properties, these were confirmed to be present by landowners or residents with a shared source, and EHO records. Through consultation with residents, an additional property was identified, Garden Cottage, which is supplied by PWS Cumloden House. An additional source was also identified, which supplies the River Cree Hatchery.

3.1.5 ITPEnergised then undertook an assessment of the property locations and responses received to scope out any properties from further assessment. PWS were scoped out on the following considerations:

- If supplied by Scottish Water Mains;
- If located outwith 2 km study area;
- If supplied by surface water source and hydrologically disconnected by topography and drainage pathways; and
- If supplied by groundwater source and located greater than 500 m from the Site.

3.1.6 Where no further follow up consultation with residents was required, these PWS were scoped out of site-based assessment.

Site Based Assessment

3.1.7 Site visits were arranged with residents where responses to letter consultation had been received or contact could be established prior to the Site visit.

3.1.8 Site visits were undertaken in April 2024 and a summary of visits is provided in Table A.2 in Annex 3. The locations of sources were mapped during the Site assessment using ArcGIS Field Maps and are shown in Drawing 5.

3.1.9 Following the results from the Site visit and desk-based assessment, PWS that could be scoped out of further assessment due to being supplied by mains, or located in separate sub-catchments or outwith 100 m and 250 m infrastructure buffers as per guidance, are shown in Table 1 below. A summary of all consultation undertaken is outlined in Annex 3, with detailed assessment in Table A.3.

Table 1 PWS Scoped Out

Source	Source Type	Scoped Out
Auchenleck Lodge	Borehole	Located outwith 250 m infrastructure buffer.
Auchenleck – Newton Stewart	Spring	Located upslope of Site, located outwith 250 m infrastructure buffer.
Barclye	Spring	Located outwith updated 2 km study area, and therefore outwith 250 m infrastructure buffer.
Cordorcan	Borehole	Located outwith 250 m infrastructure buffer, located within the Pulhowan Burn catchment,

Source	Source Type	Scoped Out
		hydrologically disconnected by the Cordorcan Burn.
Dranandow Cottage	Mains	Supplied by mains.
Dranandow Farm	Mains	Supplied by mains.
Low Cordorcan	Mains	Supplied by mains.

4 Mitigation

Embedded Mitigation

4.1.1 Mitigation embedded into the design of the Proposed Development has been considered to prevent impacts to surface and groundwater across the Site, including those which PWS are hydrologically connected to.

4.1.2 Embedded mitigation specific to PWS, included:

- Locating infrastructure outwith 50 m watercourse buffers;
- Locating infrastructure outwith the source catchments of PWS; and
- Maintaining SEPA 100 m buffer for infrastructure with excavations shallower than 1 m, and 250 m buffer for infrastructure with excavations deeper than 1 m.

4.1.3 The design of the Proposed Development has been kept outwith source catchments of PWS, except Craigdistant and Dallash. The design of the proposed access has been heavily constrained, due to the design reusing an existing track. The corridor of land available is also narrow, due to the topography and surrounding plantation forestry. Due to this the upgraded track will be present within their respective catchments. Assessment of Craigdistant and Dallash, and consideration of committed and additional mitigation is outlined below.

4.1.4 All SEPA infrastructure buffers for PWS which abstract from groundwater have been maintained. While Glenshalloch is downslope of the upgraded track, it is located outwith the 100 m infrastructure buffer from excavations less than 1 m depth.

4.1.5 In a few locations due to the design being heavily constrained by slope, ecology constraints, and areas of peat, infrastructure has been sited within 50 m watercourse buffers. This includes infrastructure associated with T14 and T7, and temporary hardstands of T4. T9 also minorly infringes on the watercourse buffer by 3 m. Where this infrastructure is located upstream of PWS stream abstractions this will be assessed with potential mitigation considered, outlined below.

Committed Mitigation

4.1.6 Committed mitigation including best practice guidance will be implemented across the Site to prevent potential impacts to water quantity or quality. To prevent impacts to water quality, best practice mitigation may include:

- Implementation of silt management measures, including, but not limited to, silt traps, silt fencing and settlement lagoons to prevent and trap sedimentation within surface water run-off. This includes measures outlined within a Pollution Prevention Plan (PPP).
- Implementation of careful drainage design including, but not limited to, trackside ditches to direct flow of surface water and check dams will be used within the ditches to slow the flow of water, decreasing erosion and sedimentation. Regular cross drainage or culverting will be designed to ensure hydrological connectivity is

maintained upslope and downslope of hardstanding. This may include upgrades to drainage present on existing tracks.

- Implementation of watercourse crossings as outlined in the Watercourse Crossing Schedule (WCS) and following further detailed design. No in-stream works are anticipated for watercourse crossings. Any construction will only take place following and in line with any relevant CAR authorisations.
- Implementation of geotextiles and track design materials to create an impermeable layer lining the foundation of the new construction track, and prevent leaching.
- No fuel, chemicals, vehicles or plant will be stored within 10 m of watercourses. Implementation of an emergency response plan in the event of any fuel or chemical spills. This will be included within the CEMP and verified by the onsite ECoW. The emergency response plan will likely include confirmatory water quality or soil testing following clean-up of spills.
- Regular visual monitoring at watercourses downstream of the Proposed Development by the ECoW during construction. In addition to this a Water Quality Monitoring Plan (WQMP) will be enacted throughout construction to confirm this, as outlined in **Chapter 10.**

5 Assessment of PWSs

Claughrie Lodge

5.1.1 Following consultation with the resident, it was confirmed that the primary supply for the property is a borehole, with a stream abstraction as a backup supply.

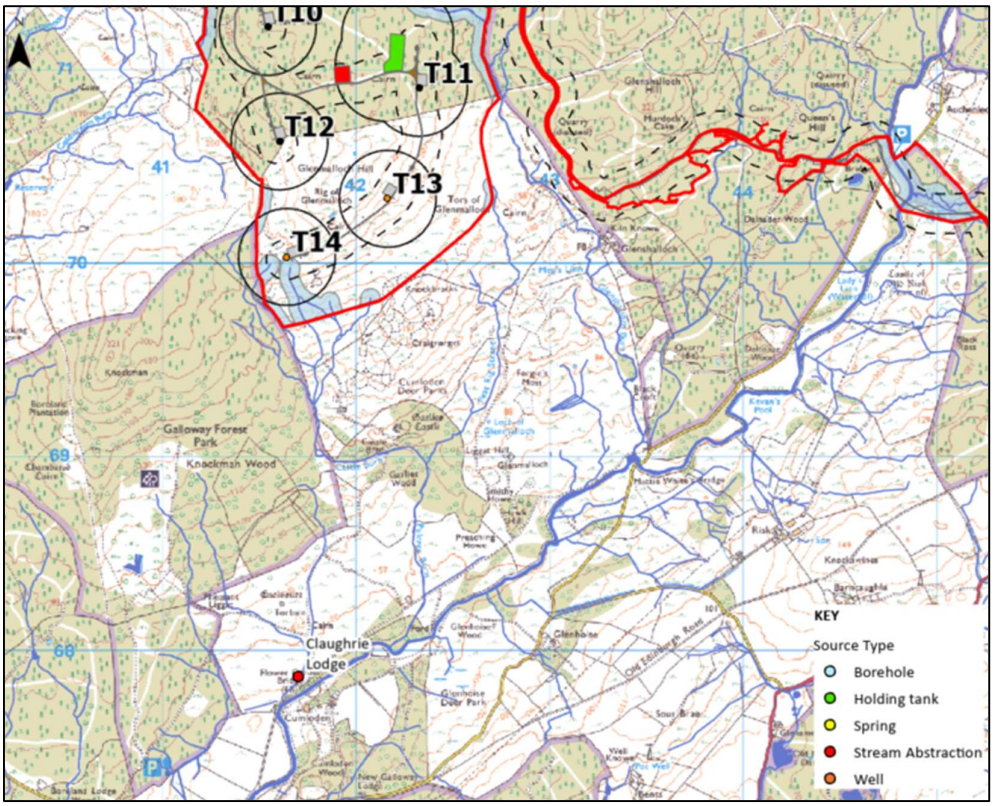
5.1.2 The borehole was confirmed to be located in the garden of Claughrie Lodge during the site visit, at approximately NGR 241543, 567707. It is approximately 50 m deep, is treated by UV and filters, and is used for domestic and drinking purposes. The borehole is located close to the boundary of two geological units; the Moffat Shale Group and the Shinnel Formation, separated by an inferred fault line. The underlying bedrock aquifer is low productivity with '*limited groundwater in the near surface weathered zone and secondary fractures*'. As there is a fault inferred 220 m south of the borehole it is considered that the borehole will likely be supplied by this. Claughrie Lodge borehole has been scoped out of further assessment due to being located 1.9 km from the Site and therefore being outwith SEPA groundwater 100 m and 250 m infrastructure buffers.

Claughrie Lodge Stream Abstraction

5.1.3 During the Site visit the resident was unable to confirm the stream abstraction location, however, following this the resident confirmed the location and provided photos of the stream abstraction and holding tank via email. It is located approximately 650 m north of Claughrie Lodge at approximately NGR 241704, 567863, abstracting from an unnamed tributary of the Penkiln Burn. The stream abstraction is untreated and used for horticultural purposes only. The stream abstraction has been assessed for effects in the event it is utilised as a drinking or domestic supply in the future.

5.1.4 The stream abstraction is located within a sub-catchment of the Penkiln Burn as shown in orange in Figure 1, which has been drawn through GIS watershed modelling and professional judgement. As the source is fed by an unnamed tributary of the Penkiln Burn, flowing to the south-west, it is located upslope of the main channel and will not be impacted by upgrades to the track, including the new Penkiln Burn crossing. The unnamed tributary feeding the source is hydrologically disconnected from the Site by topography and the Pulcree Burn sub-catchment, with the headwaters located approximately 1.1 km from the nearest infrastructure.

Figure 1 Claughrie Lodge Stream Abstraction Source Catchment



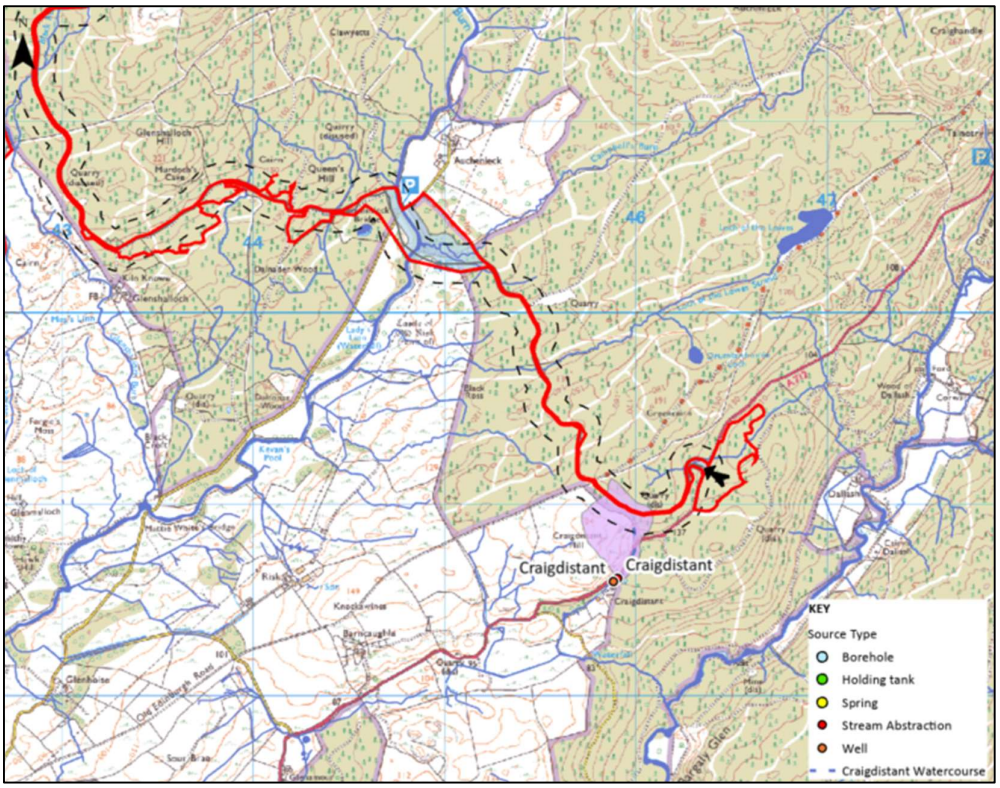
5.1.5 As the Proposed Development is outwith all required buffers for sensitive receptors and is not hydrologically connected to the Site, the Claughrie Lodge is assessed to be negligible magnitude of impact on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Minor** significance, which is **Not Significant in terms of the EIA Regulations**.

Craigdistant

5.1.6 Following consultation with residents, it was determined that Craigdistant is supplied by a surface water abstraction. The source abstracts from an unnamed tributary of the Palnure Burn. The PWS supplies Craigdistant for drinking and domestic use and is treated by UV and a filter. The resident confirmed that the watercourse level can drop significantly during periods of hot and dry weather. When undertaking the Site visit the resident also confirmed another potential source, a well approximately 2.5 m depth, located at NGR 245886, 568595, approximately 80 m from the property. The current resident confirmed that they had never used the well but may rely on it as a backup supply in the future. The well is located outwith 100 m and 250 m infrastructure buffers so is considered to have a negligible likelihood of impact.

5.1.7 The surface water source abstracts from an unnamed tributary that flows alongside the public road, within the Palnure Burn catchment. The source catchment of the unnamed tributary is shown in purple in Figure 2. When undertaking the Site visit, it was confirmed that the tributary crosses under the public road upstream of the abstraction and into the forestry area south of the access track at NGR 245998 568786. As this tributary is downslope of the Proposed Development within the Palnure Burn catchment, it has the potential to be hydrologically connected. As the source is located downslope it may be affected by changes in level, quantity and quality of the unnamed tributary of the Palnure Burn.

Figure 2 PWS Craigdistant Source Catchment



5.1.8 Craigdistant is located approximately 360 m downslope of the existing track, with the construction works proposed for this area being the upgrade of the existing track only. It is considered that Craigdistant is at increased potential risk during construction, for the temporary period during track upgrades, and any increased vehicle and plant traffic during construction. During operation, risk to the PWS will return to the existing baseline.

5.1.9 To limit potential impacts existing infrastructure has been utilised as far as practicable, including the existing track. Considering the poor condition of the track in this area, with erosion and surface water run-off from the track, upgrading this may reduce this potential impact to water quality in the long-term. As outlined in **Section 1.4**, committed mitigation including best practice measures will be utilised to mitigate for any potential impacts to water quality and quantity. This will include designated fuel storage areas, emergency response plans and design of trackside drainage.

5.1.10 Taking account of embedded and committed best practice mitigation measures, the magnitude of impact is assessed as low, on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Moderate** significance, which is considered to be **Significant in terms of the EIA Regulations**.

Cumloden House

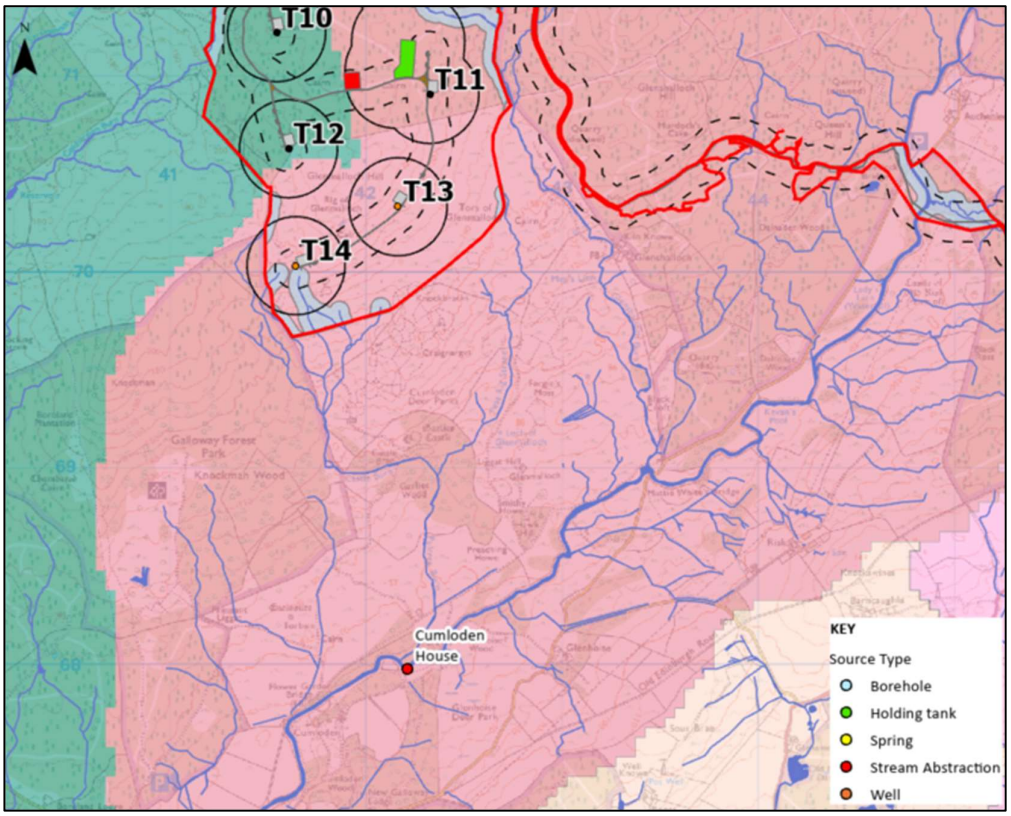
5.1.11 Following consultation with the resident via a letter response, it was confirmed that the properties on Cumloden Estate are supplied primarily by springs and a backup stream abstraction. Consultation confirmed that one spring supplies Cumloden House and Cumloden Stable Cottage, and another spring supplies Garden Cottage. All Cumloden Estate properties can be supplied by the secondary pumped stream abstraction when spring sources run dry. The spring sources are gravity fed and used for drinking water and livestock purposes, with UV and filter treatment

5.1.12 The primary spring source for Cumloden House, Cumloden Stable Cottage and Stables, is located outwith the 2 km study area. The spring which supplies Garden Cottage is also located outwith the 100 m and 250 m SEPA groundwater infrastructure buffers and so are therefore scoped out of further assessment.

Cumloden House Stream Abstraction

5.1.13 The stream abstraction is located within the Penkiln Burn catchment as shown in red in Figure 3. The back-up PWS source abstracts directly from the Penkiln Burn approximately 3.4 km from the nearest Proposed Development infrastructure.

Figure 3 PWS Cumloden House Stream Abstraction Surface Hydrology



5.1.14 The catchment of the Penkiln Burn does extend to within the Site boundary, and includes Proposed Development infrastructure T5, T6, T7, T8, T9, T11, T13, T14 and the track to be upgraded. As shown in **Figure 3**, the Penkiln Burn crossing for the Proposed Development will be located approximately 3.5 km upstream.

5.1.15 Due to the PWS being located downstream within the same catchment as proposed works, it is therefore hydrologically connected to the Proposed Development. Due to the distance from construction works, it is anticipated that while connected, any changes in level quantity and quality of water at the upstream tributaries would be minimal at the PWS abstraction location, due to the effects of attenuation downstream.

5.1.16 As outlined in **Section 1.4**, embedded mitigation will be implemented to prevent impacts as far as practicable through design of the Proposed Development. This has included siting infrastructure within the Penkiln Burn catchment outwith 50 m watercourse buffers, unless unavoidable due to other constraints. These buffers have been maintained excepting at T7, T9 and T14 where encroachment has been minimised as far as practicable. Where this has occurred, committed mitigation measures in line with best practice guidance and the CEMP will be employed to prevent impacts to water quality or quantity.

5.1.17 In addition, as outlined in **Chapter 10**, it is anticipated that a Water Quality Monitoring Plan (WQMP) will be required to monitor water quality through construction of the Proposed Development across connected surface water catchments. This will include tributaries of the Penkiln Burn, and a monitoring location will likely be sited upstream of Cumloden House stream abstraction.

5.1.18 Taking account of embedded and committed best practice mitigation measures, the magnitude of impact is assessed as negligible, on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Minor** significance, which is considered to be **Not Significant in terms of the EIA Regulations**.

Dallash

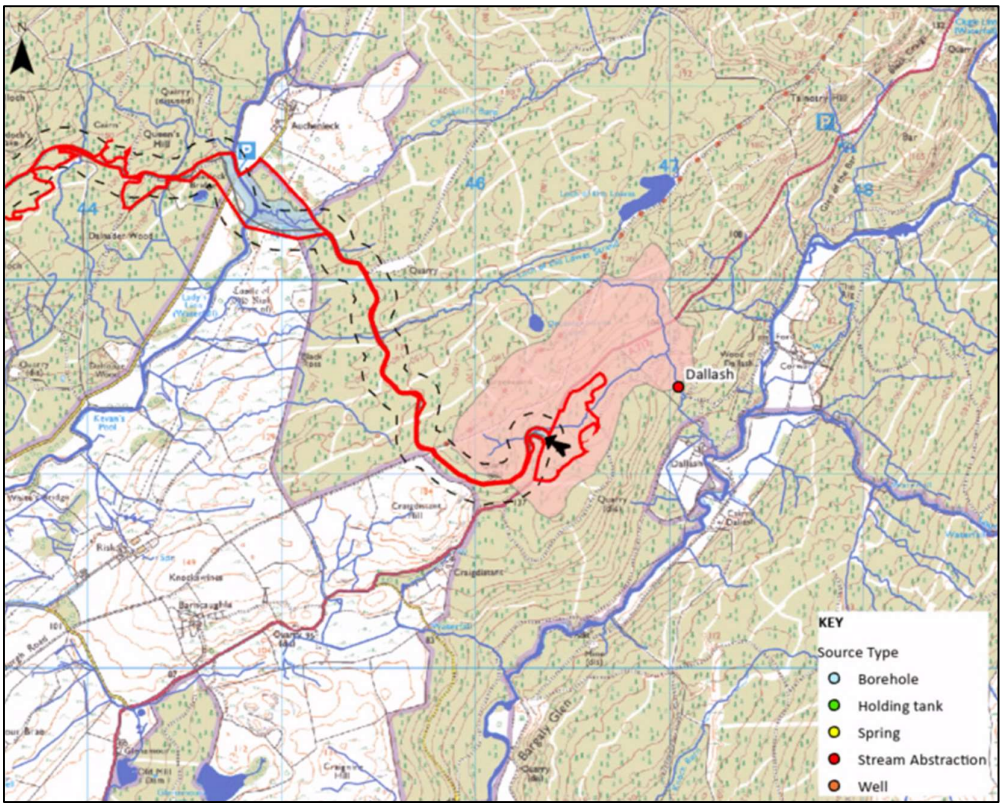
5.1.19 Following consultation with residents, it was determined that Dallash property is supplied by a surface water abstraction. The source abstracts from an unnamed tributary of the Palnure Burn. The PWS supplies Dallash and the Steadings on the property for drinking and domestic use, and is treated by a filter, with no issues with supply noted. Additionally, when undertaking the Site visit the resident highlighted that livestock drink directly from the unnamed tributary at approximately NGR 247092, 569120 south of the Dallash property. This is approximately 540 m south of the stream abstraction, there is no infrastructure or treatment in place.

5.1.20 The stream abstraction inlet and the holding tank location was confirmed onsite with the resident. The stream abstraction is located approximately 900 m downstream of the Site, at the inlet pipe there is a filter fitted to prevent debris blocking the pipe. The holding tank is located 140 m south of the inlet and has capacity for approximately 5,000 litres of water. The resident reported no flow or supply issues. When undertaking the Site visit the stream where the abstraction was being taken from was observed to be clear and fast flowing, as shown in **Plate 1**.

Plate 1 Photos of Dallash Stream Abstraction

5.1.21 The stream abstraction is located within a sub catchment of the Palnure Burn that is hydrologically connected to the Proposed Development as shown in red in **Figure 4**. It is fed by an unnamed tributary with headwaters that originate west of the track, it flows north-east to a confluence at NGR 247006, 569624, approximately 170 m north of the abstraction location. The land use of the stream abstraction sub catchment is primarily comprised of plantation forestry.

Figure 4 Dallash Surface Water Catchment



5.1.22 The source may be affected by changes in level, quantity and quality of the unnamed tributary of the Palnure Burn. Dallash is considered to be at potential increased risk during construction, for the short period during track upgrades and increased vehicle and plant traffic. There is also risk to acidification and nutrient loading within the Palnure Burn as a result of the felling required at the Site entrance.

5.1.23 To limit potential impacts existing infrastructure has been utilised as far as practicable, including the existing track. In this location the track was noted to be of poor condition, with turbid run-off also from the surrounding brash following existing felling. As outlined in **Section 1.4**, committed mitigation including best practice measures will be utilised to mitigate for any potential impacts to water quality and quantity. This will include designated fuel storage areas, emergency response plans and design of trackside drainage.

5.1.24 Taking account of embedded and committed best practice mitigation measures, the magnitude of impact is assessed as low, on a high sensitivity receptor. There is therefore potential for an indirect, temporary, short-term effect of **Moderate** significance, which is considered to be **Significant in terms of the EIA Regulations**.

Glenmalloch

5.1.25 Through consultation it was identified that Glenmalloch is owned by the Landmark Trust, and is rented out as guest accommodation. Details of the PWS were obtained directly from the Landmark Trust.

5.1.26 According to council records the abstraction is located on the Pulcree Burn, though through consultation with onsite surveyors of the Landmark Trust, the source is confirmed to be a stream abstraction from the Penkiln Burn. Due to failing water quality tests from the Penkiln Burn abstraction, the property is currently supplied by bottled water. As a result

of being unable to use the current abstraction, the Landmark Trust has begun investigating installing a borehole for long-term water supply to Glenmalloch.

5.1.27 As the Landmark Trust is considering a new PWS source, a borehole, this has also been assessed for potential impacts in the event of future installation. Due to the borehole requiring power for the pump to abstract groundwater, the Landmark Trust has confirmed that the borehole would be located in close proximity to the property. It has been assumed that the borehole would be within 100 m of Glenmalloch. As the property is located 1.5 km from the Site boundary, any borehole installed would be located outwith 100 m and 250 m groundwater infrastructure buffers, and is therefore at negligible risk from the Proposed Development.

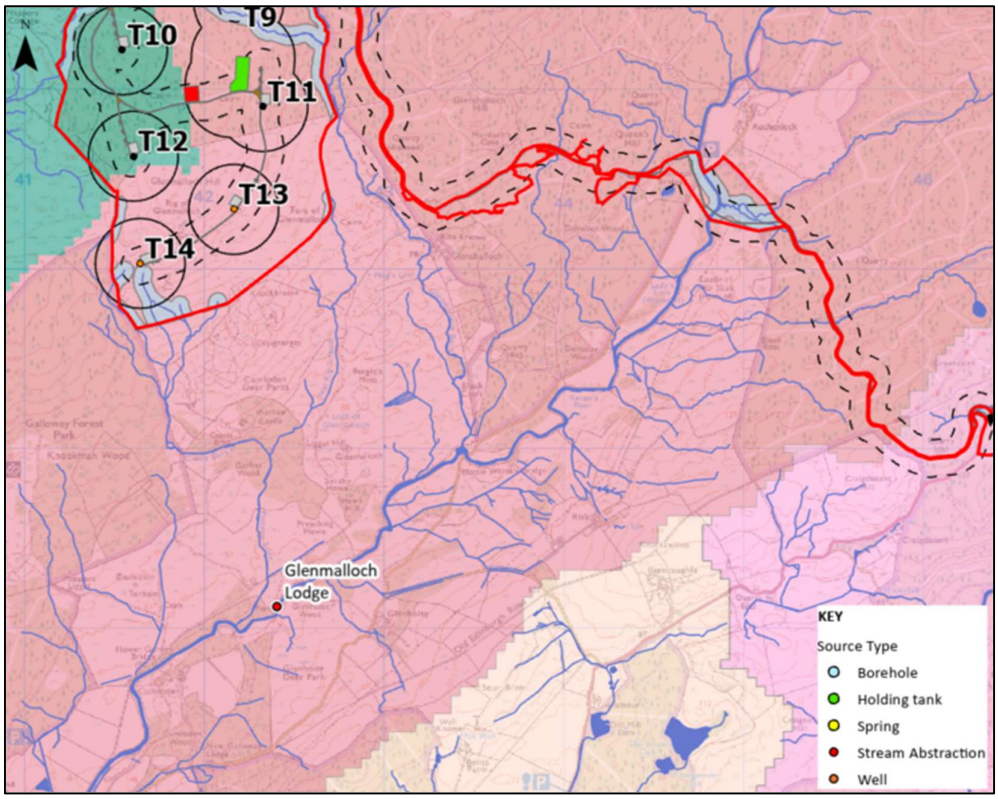
Glenmalloch Stream Abstraction

5.1.28 The Penkiln Burn during the Site walkover was noted to be wide with high flow and level at the time of visit. The watercourse was in spate due to high rainfall in the days prior and during the visit. A Site walkover was undertaken along Penkiln Burn, approximately 260 m downstream of the abstraction, while visiting Cumloden House. A visit to Glenmalloch source location was not undertaken due to Landmark Trust surveyors advising beforehand that it would be difficult to find and access. Additionally, from a health and safety aspect it was deemed unsafe to visit the source due to the river being in spate. The source abstraction is located in a shallow well with pipework collecting water from the level of the Penkiln Burn it is located immediately beside, as shown in Plate 2. The co-ordinates and photographs of the source were provided by a surveyor of the Landmark Trust. As described by the Landmark Trust, the supply is piped upslope to a holding tank at Glenmalloch.

Plate 2 Photos of Glenmalloch stream abstraction supplied by Landmark Trust

5.1.29 The catchment of the Penkiln Burn does extend to within the Site boundary, and underlies Proposed Development infrastructure. The PWS is located downstream of the confluence of Glenshalloch Burn with Penkiln Burn, but upstream of the confluence with Peat Rig Strand. Infrastructure located within these catchments include T5, T6, T7, T8, T9, T11, and borrow pit search areas, as shown in **Drawing 2**. As shown in **Figure 5,** the upgraded crossing for the Proposed Development will be located on Penkiln Burn and will be located approximately 3.3 km upstream of the PWS.

Figure 5 Glenmalloch Stream Abstraction Surface Hydrology



5.1.30 The Proposed Development is therefore hydrologically connected and it may be affected by changes in level, quantity and quality of the Penkiln Burn.

5.1.31 As outlined in **Section 1.4**, committed mitigation in line with best practice to prevent impacts to water quality and quantity will be employed. This will include design of watercourse crossings to maintain flow, in line with any relevant CAR authorisations. No in-stream works are anticipated for watercourse crossings, including the new Penkiln Burn crossing upstream.

5.1.32 In addition, as outlined in the CEMP, it is anticipated that a surface water quality monitoring will be undertaken through construction of the Proposed Development across connected surface water catchments. This will include tributaries of the Penkiln Burn, and a monitoring location will likely be sited upstream of Glenmalloch stream abstraction.

5.1.33 Taking account of embedded and committed best practice mitigation measures, the magnitude of impact is assessed as negligible, on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Minor** significance, which is considered to be **Not Significant** in terms of the EIA Regulations.

Glenshalloch

5.1.34 Following consultation with the resident at Glenshalloch, it was confirmed that the properties are supplied by a well. The well was confirmed to be located in close proximity to the properties at NGR 243463, 570163. The resident confirmed the well to be approximately 3.5 m depth. The well is bottom fed and is brick wall lined. This is then piped downhill and supplies the cottage, house and outbuildings present, approximately 140 m downslope.

5.1.35 The geology underlying the well is the low productivity bedrock aquifer of the Shinnel Formation. There are no faults or superficial deposits noted to be present on BGS GeoIndex

Onshore. There are no recorded borehole logs in the surrounding area. Groundwater within the bedrock aquifer is described to be limited with flow largely through fractures or in the near surface weathered zone.

5.1.36 During the site visit it was noted that the surrounding topography was moderately sloping, with an area of steeper gradient to the north and more moderately sloping to the north-east. An area of grassy vegetation which was wet underfoot was present to the north-east, which is a ride between areas of plantation forestry.

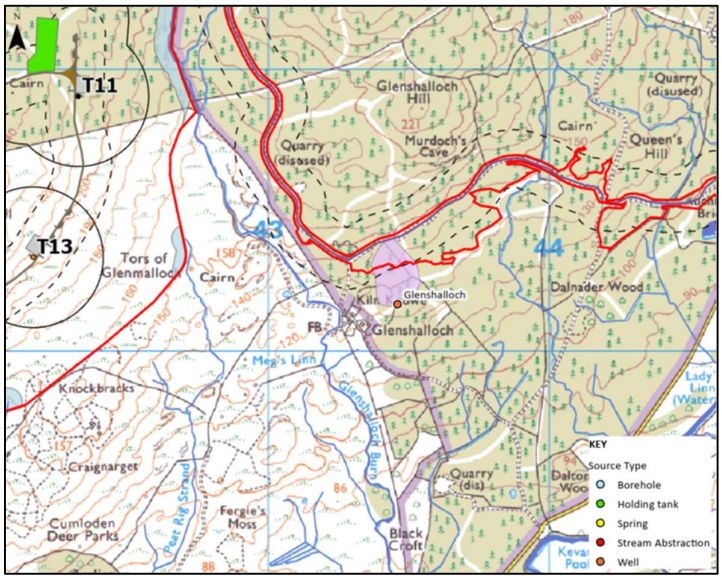
5.1.37 Due to its infrastructure and surrounding geology, it is likely to be predominantly supplied by near-surface groundwater that will largely follow topography, with minimal deeper groundwater influence.

5.1.38 As shown in **Drawing 5**, the well is located outwith 100 m buffer from the nearest infrastructure, which is the upgrade works to the track. Therefore, the Proposed Development design is in line with SEPA LUPS GU31 guidance and complies with requested infrastructure buffers.

5.1.39 Due to the source being considered to be near surface groundwater which largely follows topography and to be partly fed by surface water overland flow, potential impacts to surface water quality and quantity was considered. Based on slope, GIS modelling and professional judgement, the area of the source catchment is shown in purple in **Figure 6**. This source catchment includes approximately 35 m of existing track to be upgraded, and also an area proposed to be felled. Due to the proximity of the felling, with potential impacts from sedimentation and acidification, it is considered to increase the likelihood of significant effects to the PWS.

5.1.40 Taking account of embedded and committed best practice mitigation measures, the magnitude of impact is assessed as low, on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Moderate** significance, which is considered to be **Significant in terms of the EIA Regulations**.

Figure 6 PWS Glenshalloch Source Catchment



River Cree Hatchery

5.1.41 During consultation with Auchinleck Lodge, the resident notified that the River Cree Hatchery and Habitat Trust had an abstraction located on Penkiln Burn. As part of the Site visit to Auchinleck Lodge, with the resident who is secretary of the Trust, a walkover was undertaken of the River Cree Hatchery's source.

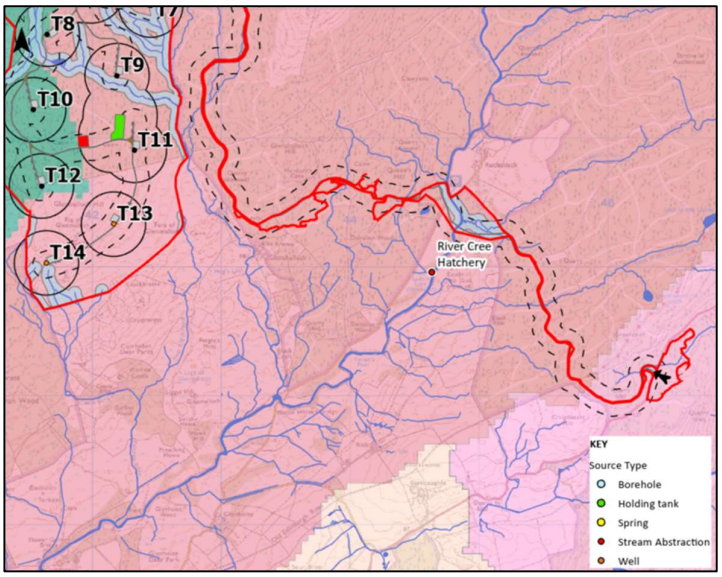
5.1.42 The source is confirmed to be a stream abstraction from the Penkiln Burn. There is a previous existing source located in close proximity to the River Cree Hatchery, which can still be used as a secondary source, however, the primary source utilised currently is located approximately 575 m upstream. This is then gravity fed to the supply through an inspection sump prior to being held for use within the header tank. The licence for this abstraction from the Penkiln Burn is held by the River Cree Hatchery and Habitat Trust (Ref: CAR/S/1088082).

5.1.43 At the primary source, the Penkiln Burn was noted to be wide with high flow and level at the time of visit. The watercourse was in spate following high rainfall in the days prior and during the visit. The source abstraction is located in a shallow well with pipework collecting water from the level of the Penkiln Burn it is located immediately beside, as shown in **Plate 3** (left to right, primary source, secondary source, Penkiln Burn in spate). As described by the Trust secretary, the pipework largely follows the Penkiln Burn south to the River Cree Hatchery supply.

Plate 3 Site Walkover Photographs of PWS River Cree Hatchery and Penkiln Burn

5.1.44 The catchment of the Penkiln Burn does extend to within the Site boundary, and underlies Proposed Development infrastructure. Upstream of the River Cree Hatchery source is the track to be upgraded and the new Penkiln Burn watercourse crossing. As shown in **Drawing 2**, the new Penkiln Burn watercourse crossing will be located approximately 75 m upstream of the primary source of the River Cree Hatchery.

Figure 7 River Cree Hatchery Surface Hydrology



5.1.45 Due to it being located within 75 m downstream of proposed works, the Proposed Development is hydrologically connected. As the source is located downslope it may be affected by changes in level, quantity and quality of the Penkiln Burn.

5.1.46 As outlined in Section 1.4, embedded primary mitigation has been utilised to prevent impacts as far as practicable through design of the Proposed Development. The track and watercourse crossing is located as far as practicable from River Cree Hatchery, while considering other factors including slope gradient, earthworks required and the width and type of crossing at this location, including potential impacts to the existing crossing.

5.1.47 As outlined in **Section 1.4**, best practice guidance will be utilised to mitigate for any potential impacts to water quality and quantity. This will include design of watercourse crossings to maintain flow, in line with any relevant CAR authorisations. No in-stream works are anticipated for watercourse crossings, including the new Penkiln Burn crossing upstream.

5.1.48 In addition, as outlined in **Chapter 10**, it is anticipated that a Water Quality Monitoring Plan (WQMP) will be required to monitor water quality through construction of the Proposed Development across connected surface water catchments. This will include tributaries of the Penkiln Burn, and a monitoring location will likely be sited upstream of River Cree Hatchery stream abstraction.

5.1.49 Taking account of embedded and committed best practice mitigation measures, but also considering its proximity to construction works, the magnitude of impact is assessed as low, on high sensitivity receptors. There is therefore potential for an indirect, temporary, short-term effect of **Moderate** significance, which is considered to be **Significant in terms of the EIA Regulations**.

Sensitivity of Receptors

Table 4: PWS Sensitivity

Source	Sensitivity	Justification
Claughrie Lodge	High	Primary source is borehole, fed by groundwater, with a secondary source used

Source	Sensitivity	Justification
		for horticulture, which abstracts from an unnamed tributary of the Penkiln Burn.
Craigdistant	High	A surface water abstraction, sourced from an unnamed burn within the Palnure Burn catchment, for domestic use.
Cumloden House	High	Primary source are two springs, with a secondary source, used as a back-up supply, which is a surface water abstraction, sourced from the Penkiln Burn, for domestic use.
Dallash	High	A surface water abstraction, sourced from an unnamed burn within the Palnure Burn catchment, for domestic use.
Glenmalloch	High	A surface water abstraction, sourced from the Penkiln Burn for domestic but currently not in use.
Glenshalloch	High	A well, fed by groundwater, for domestic use.
River Cree Hatchery	High	A surface water abstraction, sourced from the Penkiln Burn, used for aquaculture.

Magnitude of Impact

Table 5: Magnitude of Impact

Source	Sensitivity	Justification
Claughrie Lodge	Negligible	Spring located outwith SEPA groundwater abstraction infrastructure buffers. Surface water abstraction is hydrologically disconnected by the Pulcree Burn.
Craigdistant	Low	A section of track to be upgraded is located upslope of the unnamed burn. The well is located outwith infrastructure buffers.
Cumloden House	Negligible	The springs are located outwith infrastructure buffers. The stream abstraction is located approximately 2.1 km from the nearest infrastructure.
Dallash	Low	A section of track to be upgraded is located along the unnamed burn. It is located within 10 m of the existing track.
Glenmalloch	Negligible	The stream abstraction is located approximately 2.8 km from the nearest infrastructure within upstream sub-catchments of the Penkiln Burn.
Glenshalloch	Low	The well is located outwith the 100 m infrastructure buffers from upgrades to the track. A section of track to be upgraded and area of felling is located upslope.

Source	Sensitivity	Justification
River Cree Hatchery	Low	The stream abstraction is located approximately 75 m downstream from the new track and Penkiln Burn crossing.

Significance of Impact

Table 6: PWS Significance of Impact

Source	Impact	Mitigation Proposed
Claughrie Lodge	Minor – not significant	No additional mitigation required.
Craigdistant	Moderate – significant	Additional mitigation required.
Cumloden House	Minor – not significant	No additional mitigation required.
Dallash	Moderate – significant	Additional mitigation required.
Glenmalloch	Minor – not significant	No additional mitigation required.
Glenshalloch	Moderate – significant	Additional mitigation required.
River Cree Hatchery	Moderate - significant	Additional mitigation required.

6 Additional Mitigation

6.1.1 The potential impact to Craigdistant, Dallash, Glenshalloch and River Cree Hatchery is assessed to be of **Moderate** significance and therefore **Significant in terms of the EIA Regulations**. This is due to the moderate magnitude of impact as a result of the potential impact to source water quality and quantity from the Proposed Development.

6.1.2 The unnamed burn which Dallash is sourced from, is located in close proximity, within 10 m of the existing track. Based on the Site walkover, it is not anticipated that a watercourse crossing is required at this location. The unnamed burn which Craigdistant is sourced from is located approximately 75 m downslope of the existing track. To ensure continued water quantity and quality at the supply, during upgrades to these sections of the existing track, daily visual observations will be undertaken by the onsite ECoW. Advance notice of construction on this section of track would be provided to the PWS user. Any construction works required to upgrade this section of existing track will be undertaken as quickly as possible to ensure minimal disruption. A wet weather work policy would also be employed to limit construction activity during periods of poor weather conditions which may increase surface water run-off and sedimentation.

6.1.3 During any upgrade works to the existing track and felling within the source catchment of Glenshalloch, the source tributaries will be closely monitored with daily visual observations undertaken by the ECoW. Committed mitigation measures to prevent impacts to water quality will be implemented and construction works undertaken over as short a timescale as possible to ensure minimal disruption.

6.1.4 River Cree Hatchery is located downstream of the existing Auchinleck Bridge. The new Penkiln Burn watercourse crossing will be in closer proximity to the abstraction point. As per the Watercourse Crossing Schedule (WCS) Technical **Appendix 10.1**, it is anticipated that the watercourse crossing will be a single span bridge with no in stream supports. The existing river banks will be retained throughout construction with no works permitted in the streambed, and the freeboard will be designed to allow for flood water levels. These works will be closely monitored by the onsite ECoW.

7 Monitoring

7.1.1 To ensure the continued water quality at the supplies during upgrades to the existing track and construction of the Penkiln Burn watercourse crossing, baseline water quality monitoring will be undertaken for Craigdistant, Dallash, Glenshalloch, and River Cree Hatchery. A Water Quality Monitoring Plan (WQMP) will be prepared and agreed with DGC, in consultation with SEPA, prior to commencement of construction. The following sampling frequency is proposed and will be fully outlined within the WQMP:

- Monthly for 12 months prior to construction, following this a baseline monitoring report will be produced and maximum and minimum thresholds for parameters agreed with DGC and SEPA;
- Monthly throughout the construction phase; and
- Monthly for 12 months following construction.

7.1.2 The following water quality parameters are proposed to be monitored at a minimum:

- pH;
- Colour;
- Turbidity;
- Total Suspended Solids (TSS);
- Total Dissolved Solids (TDS);
- Lead, Iron, Manganese, and Aluminium;
- Total Petroleum Hydrocarbons (TPH); and
- E.coli, Enterococci and Total Coliforms.

7.1.3 The potential impact to Claughrie Lodge, Cumloden House and Glenmalloch is assessed to be of **Minor** significance and therefore **Not Significant in terms of the EIA Regulations**, and therefore additional mitigation measures are not required. Best practice guidance and standard mitigation measures will be employed to protect hydrological and hydrogeological receptors.

8 Summary of Residual Effects

8.1.1 As noted above, no significant potential environmental effects were identified for Claughrie Lodge, Cumloden House, and Glenmalloch when taking account of embedded and best practice mitigation as outlined in the CEMP.

8.1.2 Following the additional mitigation measures and monitoring with implementation of the WQMP, the residual effects to Craigdistant, Dallash, Glenshalloch and River Cree Hatchery are considered to be minor, and therefore are not significant.

8.1.3 No significant residual effects to PWS are therefore considered as a result of the Proposed Development.

9 References

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Annex 1 Figures

Annex 2 Example Consultation Questionnaire

Annex 3 PWS Screening

Table A.1: PWS Letter Consultation Responses

Property Ref	Property	PWS?	Source Type	Location Known?	Comments
1	Auchinleck Lodge	Yes	Borehole	Yes	Borehole is approximately 90 m deep and uses a pump. The source is used for drinking water and domestic purposes, it has UV, and filter treatment and is not shared with any other property.
2	Auchinleck – Newton Stewart	Yes	Spring	Yes	Source is gravity fed, has filter and UV treatment, is used for domestic, livestock and drinking purposes, and is not shared with other properties.
5	Barclye	Yes	Spring	Yes	Source is gravity fed, has filter and UV treatment, is used for domestic purposes, and is not shared with other properties. Noted to be good quality, with no flow problems.
6	Claughrie Lodge	Yes	Borehole Steam Abstraction	Yes	The stream abstraction is a backup source only used to supply the garden hose, the watercourse supplying it is not known. Borehole is approximately 50 m deep and uses a pump, has filter and UV treatment, is used for domestic, and drinking purposes, and is not shared with other properties.
8	Craigdistant	Yes	Stream Abstraction	Yes	Source is used for drinking, domestic and horticulture purposes, uses UV and filter treatment and is not shared with any other properties.
9	Cumloden House	Yes	Springs Steam Abstraction		Stream abstraction is from the Penkiln Burn, only used when well runs dry. Spring is gravity fed, used for drinking water and livestock purposes, it has UV and filter treatment and is shared with Cumloden Stable Cottage and Garden Cottage.
10	Dallash	Yes	Stream abstraction	Yes	There are two stream abstractions, one is used for livestock and one is used for domestic and drinking purposes, uses a filter treatment and does not share its source with any other properties.
11	Glenmalloch	Yes	Stream abstraction	Yes	Source is from the Penkiln Burn, uses a sump pump, used for domestic purposes, uses UV and filter treatment and it not shared with any other properties. Also noted that planned works to install a borehole in 2024 depending on consent.
12	Glenshalloch	Yes	Well	Yes	The source is a shallow brick lined well approximately 3.7 m depth. It is described as being bottom-fed and underlain by largely impermeable bedrock, with a suspected large source catchment.

Property Ref	Property	PWS?	Source Type	Location Known?	Comments
16	Dranandow Cottage	No	Supplied by mains	N/A	Confirmed to be supplied by mains
17	Dranandow Farm	No	Supplied by mains	N/A	Confirmed to be supplied by mains
18	Low Cordorcan	No	Supplied by mains	N/A	Confirmed to be supplied by mains

Table A.2: PWS Consultation Responses

Source Name	Property Ref	Property Name	Source Type	Consultation	Site Visit	Consultation Summary
Auchinleck Lodge	1	Auchinleck Lodge	Borehole	Responded to letter consultation and confirmed PWS.	Site visit undertaken 14 March 2024, this confirmed source location and details of borehole and holding tank.	Assessment is based on resident consultation when site visit was undertaken.
Auchinleck – Newton Stewart	2	Auchinleck	Spring	Responded to letter consultation and confirmed PWS located upslope of proposed development.	Not required.	Assessment based on resident letter consultation.
	3	The Cottage				
Barclye	4	Barclye	Spring	Responded to letter consultation and confirmed PWS.	Not required.	Assessment based on resident letter consultation.
	5	Barclye Cottage				
Claughrie Lodge	6	Claughrie Lodge	Borehole	Responded to letter consultation and confirmed PWS. Following the site visit the resident	Site visit undertaken 14 March 2024, accurate location of BH was confirmed. A location of the	Assessment based on letter, email and site visit
			Steam Abstraction			

Source Name	Property Ref	Property Name	Source Type	Consultation	Site Visit	Consultation Summary
				supplied an accurate location of the stream abstraction holding tank via email.	stream abstraction was unsuccessful during the site visit.	consultation undertaken with the resident.
Cordorcan	7	Cordorcan	Borehole	Details from DGC EHO, borehole is located outwith 250 m of proposed development	Not required.	Assessment based on DGC EHO consultation.
Craigdistant	8	Craigdistant	Stream Abstraction	Responded to letter consultation and confirmed PWS.	Site visit undertaken 15 March 2024 which confirmed the extent and location of watercourse being abstracted from.	Assessment based on resident consultation when site visit was undertaken
Cumloden House	9	Cumloden House	Spring Steam Abstraction	Cumloden House responded to letter consultation confirming PWS. Cumloden House resident also confirmed that Stable Cottage and Garden Cottage were tenants and confirmed PWS location.	Site visit undertaken 16 March 2024. Visit confirmed the location of the stream abstraction.	Assessment based on resident consultation from letter response and when the site visit was undertaken.
	13	Garden Cottage				
	14	Cumloden Stables				
	15	Cumloden Stables Cottage				
	20	New Galloway Lodge				
Dallash	10	Dallash	Stream Abstraction	Responded to letter consultation and confirmed PWS.	Site visit undertaken 15 March 2024. Visit confirmed one steam abstraction, the supply is shared with the steadings, and livestock drink straight from the watercourse with no treatment or infrastructure in place.	Assessment is based on resident consultation at Dallash when site visit was undertaken.

Source Name	Property Ref	Property Name	Source Type	Consultation	Site Visit	Consultation Summary
Glenmalloch	11	Glenmalloch Lodge	Stream Abstraction	Responded to letter consultation confirming PWS that isn't currently in use due to failing water quality tests. Provided a water risk assessment and photos of source.	Site visit was not undertaken as the photographs of the source and its location were provided by surveyors and recent engineering reports.	Assessment based on consultation with resident via email.
Glenshalloch	12	Glenshalloch House Glenshalloch Cottage Outbuildings	Spring	Responded to email consultation and confirmed PWS.	Site visit was undertaken on 3 April 2024 confirmed the location of the well, and properties that shared the source.	Assessment is based on resident consultation when site visit was undertaken.
River Cree Hatchery	19	River Cree Hatchery	Stream Abstraction	Consultation was undertaken with owner of Auchinleck Lodge via email prior to Site visit. The resident is the secretary of the River Cree Hatchery and Habitat Trust.	Site visit undertaken 14 March 2024 confirmed two stream abstractions from the Penkiln Burn. Source closer to the hatchery is a backup source.	Assessment is based on resident consultation with Auchinleck Lodge.

Table A.3: PWS Summary of PWS Assessment

Source Name	No. of Properties Supplied	Source Type	Approximately Source Location	PWS Scoped In/Out	Summary
Auchinleck Lodge	1	Borehole	243494, 569103	Scoped out following site visit. No monitoring required.	While the source is located within the same bedrock unit as the Site, the underlying hydrogeology is low productivity. The source is located outwith SEPA's groundwater abstraction 250 m buffers.

Source Name	No. of Properties Supplied	Source Type	Approximately Source Location	PWS Scoped In/Out	Summary
Auchinleck-Newton Stewart	2	Spring	245505, 570964	Scoped out following desk-based assessment.	While located within the same sub-catchment and bedrock unit as the Site, the source is located upslope of the Proposed Development. The source is also located outwith SEPA's groundwater abstraction 250 m buffers.
Barclye	2	Spring	238845, 569076	Scoped out following desk-based assessment.	While the source is located downslope of the Proposed Development it is hydrologically disconnected by sub-catchments of unnamed burns. The source is located outwith the 2 km study area and therefore outwith 250 m infrastructure buffers from the Proposed Development.
Clauchrie Lodge	1	Borehole	241543, 567707	Scoped in following site visit into further assessment. No monitoring required.	The primary supply (borehole) is located outwith the 250 m infrastructure buffers from the Proposed Development. The secondary stream abstraction is hydrologically disconnected by sub-catchments of the Pulcree Burn.
		Stream Abstraction (secondary supply)	241704, 567863		
Cordorcan	1	Borehole	238900, 572000	Scoped out following desk-based assessment.	While the location of the borehole is approximately, the source is located approximately 2.4 km from the Proposed Development infrastructure and is therefore located outwith SEPA's groundwater abstraction 250 m buffers. It is also hydrologically disconnected from the Site by the sub-catchment of the Pulhowan Burn.
Craigdistant	1	Stream abstraction	245909, 568609	Scoped in following site visit into further assessment. Additional mitigation and monitoring required.	The source abstracts from a minor stream within the Palnure Burn catchment. From aerial imagery it appears its headwaters are a flush at a field edge approximately 75 m downslope of the Proposed Development, outwith the 50 m watercourse buffer. The disused secondary supply of the well is located outwith the 250 m infrastructure buffers from the Proposed Development.
		Well (secondary supply)	245886, 568595		
Cumloden House	3	Spring	243138, 567383	Scoped in following site visit into further	The primary supplies (springs) are located outwith the 250 m infrastructure buffers from the Proposed Development. The secondary supply abstracts from the Penkiln Burn and is
		Stream Abstraction	242214, 567976		

Source Name	No. of Properties Supplied	Source Type	Approximately Source Location	PWS Scoped In/Out	Summary
		(secondary supply)		assessment. No monitoring required.	therefore hydrologically connected by its tributaries located onsite, and the Penkiln Burn crossing upstream.
		Spring (Garden Cottage)	242699, 567998		
Dallash	2	Stream abstraction	247046, 569446	Scoped in following site visit into further assessment. Additional mitigation and monitoring required.	The source abstracts from a minor unnamed burn within the Palnure Burn catchment. A tributary of the burn is located onsite and in close proximity, within 10 m of the track to be upgraded.
Glenmalloch	1	Stream abstraction	242406, 568122	Scoped into further assessment. No monitoring required.	The source is a stream abstraction from Penkiln Burn, however, it is no longer used by the property as a supply due to the poor water quality, with bottled water currently being used. The abstraction is hydrologically connected to the Proposed Development by the Penkiln Burn and its tributaries. The potential for a future borehole installation was assessed to be outwith groundwater abstraction infrastructure buffers, due to the property being located 1.5 km from the Site.
Glenshalloch	1	Well	243463, 570163	Scoped in following site visit into further assessment. Additional mitigation and monitoring required.	The source is a well, located downslope of the Proposed Development, however, it is located outwith 100 m infrastructure buffers from the track to be upgraded as part of construction works. It is located downslope of felling required as part of construction works.
Dranandow Cottage	1	Mains	N/A	Scoped out following desk-based assessment.	Property is supplied by mains, therefore scoped out of the assessment.
Dranandow Farm	1	Mains	N/A	Scoped out following desk-based assessment.	Property is supplied by mains, therefore scoped out of the assessment.
Low Cordorcan	1	Mains	N/A	Scoped out following desk-based assessment.	Property is supplied by mains, therefore scoped out of the assessment.

Source Name	No. of Properties Supplied	Source Type	Approximately Source Location	PWS Scoped In/Out	Summary
River Cree Hatchery	1	Stream abstraction	244281, 569544	Scoped in following site visit into further assessment. Additional mitigation and monitoring required.	The source for both abstractions for River Cree Hatchery is the Penkiln Burn. The primary abstraction is located in close proximity, approximately 75 m from the proposed new Penkiln Burn watercourse crossing.
		Stream abstraction (secondary supply)	244636, 569958		