

Technical Appendix 8.4: Private Water Supply Assessment

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1.1 Introduction

- 1.1.1. The purpose of this Technical Appendix is to identify the location of Private Water Supplies (PWS) relative to the Proposed Development, and to undertake an assessment of potential impacts on them.
- 1.1.2. Assessment in this Technical Appendix is provided in line with SEPA guidance for “Assessing the Impacts of Development on Groundwater Abstractions”¹.
- 1.1.3. A PWS is considered to be a small abstraction of less than 10m³ per day from a source such as a borehole, spring/ well or surface water body. The Scottish Environment Protection Agency (SEPA) typically requires that all groundwater abstractions be identified within 100 m of proposed roads, tracks, and trenches or within 250 m from borrow pits and foundations. In addition to screening for PWS within these buffers, this assessment also considers other supplies, within a 2 km study area, in potential hydrological connection to the Proposed Development.
- 1.1.4. PWS are categorised as Type A, or Regulated Supplies that serve 50 or more persons in total or which serve commercial properties (regulated under The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017), and Type B, or Exempt Supplies that serve only domestic properties (regulated under The Private Water Supplies (Scotland) Regulations 2006).

1.2 Identification of Private Water Supply Locations

- 1.2.1. PWS data has been obtained from the South Lanarkshire Council (SLC) and site observations of PWS sources. The locations of registered PWS sources obtained from SLC are shown in **Figure 8.2 (EIAR Volume 3a)**. **Table 8.3.1** identifies the SLC PWS source locations which are within the Site or which are within 250 m of the application boundary.

Table 8.3.1: Private Water Supply Locations						
PWS Name	SLC PWS Reference	Onsite Y/N	Grid Reference		Type	Closest Distance to Proposed Development, Direction from Development
			X	Y		
Lettershaws Farm CottageSupply	WN9*L1BIN/4	Y	289902	620502	Spring	75m north
Waterhead Source	RAM_PWS01	Y	288587	618347	Not known	295m east
North Shortcleugh Farm	WN9*L1NORT/1	Y	292700	617700	Spring	310m east
	RAM_PWS02	Y	292735	617823	Spring	260m east
Glencaple	WN9*L1ABIN/5	Y	292009	621192	Spring	400m south

- 1.2.2. **Figure 8.2 (EIAR Volume 2)** shows the location of PWSs to a 2 km buffer from the Site and there are no PWS that are recorded on the mapping, and not listed in **Table 8.3.1**, which are in potential hydrological or hydrogeological connection to the Proposed Development.

1.3 Site Specific Assessment

Lettershaws PWS (SLC ref.: WN9*L1BIN/4)

- 1.3.1. The Lettershaws PWS is situated adjacent to a minor drain that separates the PWS source from land on which a proposed access track to the Site from the B797 is located. This drain collects runoff from upslope areas to the north and west and directs them to a the SLC PWS location and a holding tank which was observed during a site walkover. From this location, supplies are assumed to be piped underground to the Lettershaws Farm Cottage (no piping or inlets associated with the holding tank were visible). It is additionally noted that two springs were identified in the Harryburn Wind Farm application² close to the SLC PWS source location (these areas were not assessed during the Ramboll site walkover and the landowner has not provided information to rule out the presence of springs). As the underlying aquifer is classified as being of Low productivity, it is considered likely that the Lettershaws PWS is supported by a combination of surface water runoff and shallow groundwater held in soils overlying the impermeable bedrock.



Lettershaws PWS (SLC Ref.: WN9*L1BIN/4)

- 1.3.2. Based on review of the hydrological and hydrogeological context of the Lettershaws PWS, the potential zone of contribution to the Lettershaws Farm Cottage PWS is to the north of this drain and no development is proposed within this area. It is noted that the proposed track crosses the drain described above at its northernmost extent; however, this area is in very close proximity to the B797 road and

flows are directly towards the road; therefore, this area is not in potential hydrological connection to the PWS.

- 1.3.3. A borrow pit is proposed 240 m upslope of the nearest spring location identified in the Harryburn Wind Farm application². Therefore, while hydrogeological effects are considered unlikely (on the basis of the low productivity of the underlying aquifer) care should be taken that sediment laden surface water runoff is not released from the borrow pit to downslope areas. In line with **Technical Appendix 2.2: Borrow Pit Assessment (EIA Volume 4)**, it is not anticipated that groundwater ingress to borrow pits would be significant. Water removed from the excavations would be passed through an appropriate sediment settling system to remove suspended sediment prior to discharge. The constructed drainage system and water pumped from the excavations would not be discharged directly to any natural watercourse. It is not anticipated that volumes of groundwater that would require management would be encountered by the opening of the borrow pits at the Site due to the high elevations and slope angles. However, the groundwater regime would need to be verified through further ground investigation prior to the commencement of construction.
- 1.3.4. Standard best practice measures would be implemented at the borrow pit, including:
- The installation of cut off ditches upslope of the proposed borrow pit and the diversion of clean water to downslope locations;
 - The installation of settlement ponds to ensure that sediment laden runoff is not released to downslope areas;
 - Suitable surfacing and vehicle washdown on the borrow pit area to ensure material is not deposited on the adjacent highway; and
 - A suitable buffer or barrier to prevent the release of sediment from the borrow pit to the adjacent highway.
 - The implementation of standard best practice measures would be set out in the CEMP and overseen by the Environmental Clerk of Works at borrow pit locations.
 - Further detail of the Lettershaws PWSs is shown in **Figure 8.2 (EIAR Volume 3a)**.

Waterhead Toll Cottage PWS (Ref.: RAM_PWS01)

- 1.3.5. The Waterhead Toll Cottage PWS is located approximately 15 m to the east of the application boundary, adjacent to the B797 road (PWS Reference: 21648). The PWS at this location is outside of the buffer at which hydrogeological impacts are considered and is not in hydrological connection to the Proposed Development. Through enquiries to the landowner, a PWS source (which is believed to be associated with the Waterhead property PWS) is situated approximately 315 m northwest of Waterhead Toll Cottage (PWS Reference: RAM_PWS01). PWS RAM01 is situated approximately 292 m east of the nearest area of the Proposed Development, comprising proposed fill works and the hardstanding footprint for Turbine 2. Therefore, no development is proposed within a 250 m buffer of these PWS locations.
- 1.3.6. Turbine 2, a Borrow Pit Search Area (approximately 370 m northwest of PWS RAM_PWS01) and the access track leading to the north and south of the Turbine 2 location are to the west of a watershed between Brown Dod and Waterhead and are therefore not within the potential zone of contribution to these PWS locations. Track to the north of PWS RAM_PWS01 is within the catchment of the Carle Gill and similarly not within the zone of contribution to these PWS locations. A very minor section of track encroaches to the east of this watershed and approximately 70 m of track is located to the east of the Glendorch Burn catchment, 390 m north of the RAM_PWS1 location.
- 1.3.7. Further detail of the Waterhead Toll Cottage PWS is shown in **Figure 8.2 (EIAR Volume 3a)**.

North Shortcleugh Farm (SLC Ref.:WN9*L1NORT/)1

- 1.3.8. This supply is recorded to the west of the Shortcleuch Burn on the south western slopes of Peat Hill. However, the position of the PWS was verified by Ramboll as being approximately 110 m north of the

recorded location at RAMPWS_02 (GR 292735, 617823). Surface water and groundwater flows are therefore assumed to be from the north and the PWS location is not within potential hydrological or hydrogeological connection to the Proposed Development. The nearest infrastructure to the PWS location is a proposed access track approximately 310 m to the west.



Verified Location: North Shortcleugh Farm (SLC Ref.: PWS WN9*L1NORT/)

Glencaple (SLC Ref.: WN9*L1ABIN/5)

- 1.3.9. This supply is situated close to the Glencaple property on the southern slopes of Craig Dod. Surface water and groundwater flows are therefore assumed to be from the south and the PWS location is not within potential hydrological or hydrogeological connection to the Proposed Development. The nearest infrastructure to the PWS location is a proposed access track approximately 410 m to the north.



Glencaple (SLC Ref.: WN9*L1ABIN/5)

1.4 Significance of Effects

1.4.1. According to SEPA’s Guidance on Assessing the Impacts of Development on Groundwater Abstractions, potential impacts to abstractions should be considered on the basis of the following matrix:

How Much is it Affected?					
		Substantially	Moderately	Slightly	Negligibly or not at all
How Important is it?	High/Important	Major	Major	Medium	Negligible/ no effect
	Moderately Important	Major	Medium	Low	Negligible/ no effect
	Low importance	Medium	Low	Low	Negligible/ no effect
	Unimportant	Unimportant effect	Unimportant effect	Unimportant effect	Negligible/ no effect

Scale of Proposed Works

- 1.4.2. In considering the potential magnitude of impacts due to construction at the PWS identified in **Table 8.3.1**, the following factors are noted:
- PWSs are located outside of a 250 m buffer from any proposed turbine locations or borrow pit search areas; therefore, construction activities are unlikely to require significant excavations or lead to localised alterations in groundwater levels.

- Proposed access tracks are within a 250 m buffer of the PWS for Lettershaws Farm. The access track works are not within the potential zone of contribution to the PWSs.
- While shallow excavations may be required for sub-surfacing of the upgraded track, it is considered unlikely that excavations would require dewatering activities.
- Standard mitigation to ensure no sediment laden surface water runoff occurs from a borrow pit upslope of the Lettershaws Farm Cottage PWS would ensure that the potential magnitude of impacts would be either Slight or Negligible.

Duration of the Proposed Construction Works

- 1.4.3. With regard to the duration for which impacts could occur to the identified PWS:
- Construction would be carried out within 250 m of the identified PWS while the limited extents of track infrastructure close to the abstraction sources were upgraded; and
 - Following the completion of works, there would be no permanent impact to groundwater resources as a result of the upgraded tracks.

Likelihood of Impacts to PWS

- 1.4.4. The likelihood of impact to the PWS is considered to be low on the basis of the site specific assessment above, which takes into account the hydrological and assumed hydrogeological conditions at the Site.
- 1.4.5. As the potential scale of effect ('How much is it affected?') is likely to be Negligible and no more than Slight, SEPA guidance states that "Private water abstractions for human consumption are likely to be of Moderate importance". Therefore, **the potential effect would be no more than 'Low' and not significant** according to the SEPA matrix for assessing the significance of potential impacts to abstractions.
- 1.4.6. SEPA guidance states that "If the potential impacts to groundwater abstractions are Low or Unimportant, then no further risk assessment is required. SEPA will not provide comment on this topic in our planning consultation response." Therefore, on the basis of the qualitative assessment set out above, **no further assessment is considered necessary**.
- 1.4.7. If further PWS were to be identified at the Site or in potential hydrological connection to the Proposed Development during the construction phase, further qualitative assessment would be carried out at each such location in line with the assessment provided above