

Appendix 10.3

Groundwater Abstractions and Private Water Supplies

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1 Introduction

- 1.1.1 In support of **Chapter 10 (Volume 1)** of the Design Manual for Roads and Bridges (DMRB) Stage 3 Environmental Impact Assessment (EIA) report; this appendix presents the baseline detail of groundwater abstractions and private water supplies (PWS) that were identified within the study area for Project 7 – Glen Garry to Dalwhinnie of the A9 Dualling Programme (hereafter referred to as the Proposed Scheme) and records the consultation undertaken regarding them.
- 1.1.2 Potential impacts are assessed and mitigation measures identified (if required) in **Chapter 10 (Volume 1)**, while other surface water abstraction features are identified and assessed in **Chapter 11 (Volume 1)**. Natural springs and flushes present in the study area but not identified as existing PWS sources are considered in the groundwater dependent terrestrial ecosystem (GWDTE) assessment in **Chapter 10 (Volume 1)** and **Appendix 10.2 (Volume 2)**.

2 Approach and Methods

- 2.1.1 The assessment related to groundwater abstractions and PWS covered a study area extending to 850m from the temporary and permanent works boundaries of the Proposed Scheme, which was considered to correspond to the minimum study area applied for groundwater abstractions under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR).
- 2.1.2 In order to identify these features, consultation was undertaken with Perth and Kinross Council (P&KC), The Highland Council (THC), Scottish Environment Protection Agency (SEPA) and HighWater (Scotland) Ltd. Additional information regarding the source, location, type and use of abstractions or supplies was also obtained through private property/ landowner consultation questionnaires, public exhibitions and/ or site walkovers. Additional consultation regarding some supplies may be required during pre-construction activities as identified in **Chapter 10 (Volume 1)**.

3 Baseline Conditions

- 3.1.1 Based on consultations undertaken and questionnaire responses/ feedback received; five PWS source locations were identified in the study area, supplying properties at Drumochter Lodge, Balsporran Cottage and Dalnaspidal. One possible well was also recorded on historical and recent Ordnance Survey mapping and during site walkovers near Dalnaspidal.
- 3.1.2 The approximate locations of the PWS sources, supplied properties and possible historical well are illustrated in **Drawings 10.24 to 10.30 (Volume 3)** with photographs and questionnaire feedback (if received) from private properties/ landowners, summarised in **Annex 10.3.1**. The collective known details and status of each feature identified are summarised in **Table 1**.
- 3.1.3 The sensitivity of each feature has been assigned based on the criteria within **Table 10-4** in **Chapter 10 (Volume 1)** and the number of properties served. Where the status of an abstraction or PWS feature is unclear, it is considered to be of high sensitivity.

Table 1: Groundwater Abstractions and Private Water Supplies

Feature Ref.	Feature Type/ Source	Feature Location	Easting	Northing	Feature Details	Sensitivity
ABS 7.2	PWS Source – Spring	Balsporran Cottage, Drumochter Pass, Dalwhinnie, PH19 1AF	262427	779262	Information received from THC identified a PWS sourced from a spring, supplying Balsporran Cottage, an associated guesthouse and bed and breakfast. Resident consultation confirmed this, with the spring/ stream source located approximately 400m west of the existing A9 carriageway in the Pass of Drumochter beyond the Highland Main Line railway at ch. 6,800 and supplying the domestic property and four letting rooms within the bed and breakfast. The residents note that the spring water is collected via a valve and filter tank, which then feeds into a filtered holding tank and is conveyed to the properties via plastic pipework. The supply was stated to be of “very good” quality, with a “clear clean pure taste”, is constant in terms of quantity and has never fluctuated. It “runs pure and clear, but turns slightly brownish during heavy rain spells”. The water is treated through two in line filtering processes within the tanks and additional filtering and a UV light source at the property. Chemical testing of the supply was most recently undertaken in December 2016. The properties also have a private drainage system via septic tank, located adjacent to the east of these. The tank discharges into a reed bed here, then the River Truim and is emptied twice per year.	High
ABS 7.2 (Linked)	PWS Supplied Property	Balsporran Cottage, Drumochter Pass, Dalwhinnie, PH19 1AF	262695	779193		
ABS 7.3	PWS Source – Spring	North Drumochter Lodge, Dalwhinnie, PH19 1AF	263223	779227	Information received from THC identified an active PWS record supplying the properties/ buildings at Drumochter Lodge in the Pass of Drumochter for use within a deer larder and for domestic purposes. Landowner consultation identified that the supply is sourced from a spring, located approximately 320m to the east of the existing A9 at ch. 7,050. The spring tank capture system has been utilised to supply these properties for in the region of 100 years. The landowner noted that the spring water is collected in a 2,500 litre tank (located 225m east at ch. 7,100) and is then conveyed to the properties via a 50ml alkathene pipe. The supply was noted to be of “great” quality, described as “clear and sweet”, and is tested annually by THC. A site walkover was undertaken by CFJV in June 2017, and the location of the spring source, supply line and tank were confirmed. The properties also have a private drainage system via septic tank, located at the entrance to Drumochter Lodge, close to the existing A9 carriageway at ch. 7,500.	High
ABS 7.3 (Linked)	PWS Supplied Property	Drumochter Lodge, Dalwhinnie, PH19 1AF	263085	779617		
ABS 7.3 (Linked)	PWS Supplied Property	North Drumochter Cottage, Dalwhinnie, PH19 1AF	263164	779606		
ABS 7.3 (Linked)	PWS Supplied Property	North Drumochter Wing, Dalwhinnie, PH19 1AF	263164	779606		
ABS 7.4	PWS Source – Surface Water	Dalnaspidal Lodge, Dalnaspidal, PH18 5UJ	264646	773461	Information received from P&KC identified a PWS record supplying properties at and surrounding Dalnaspidal Lodge, located between 150 and 320m to the west of the existing A9 from ch. 200 to ch. 350. This was indicated to be sourced from the Allt Coire Mhic Sith watercourse adjacent to the east side of the existing A9 at ch. 400.	High
ABS 7.4 (Linked)	PWS Supplied Property	Dalnaspidal Lodge, Dalnaspidal, PH18 5UJ	264526	772942	Additional information on the location and use of this supply feature has been sought from the land and property owners via questionnaire. However, a response has not been received despite several attempts and no information has been received via Public Exhibitions or other consultation.	
ABS 7.5	PWS Source – Surface Water	The Old Schoolhouse/ Station Cottages, Dalnaspidal, PH18 5UJ	264652	773465	Information received from P&KC identified a PWS sourced from the Allt Coire Mhic Sith watercourse and supplying The Old Schoolhouse and Station Cottage properties at Dalnaspidal. Resident consultation and feedback confirmed this, identifying the supply to be sourced from the watercourse on the east side of the existing A9 at ch. 400 and that the water is utilised for domestic and consumption purposes.	High
ABS 7.5 (Linked)	PWS Supplied Property	The Old Schoolhouse, Dalnaspidal, PH18 5UJ	264590	773224	The questionnaire responses and feedback identified that the source of the supply is via an intake on the Allt Coire Mhic Sith, which then feeds two collection tanks located on the eastern side of the A9 carriageway near an existing telephone mast here. Water is then conveyed to the properties via a subsurface pipe network. The supply was noted to be of “very good” quality and described as “clear” in appearance, although the residents were not sure if chemical testing had ever been undertaken on the supply. A site walkover was undertaken by CFJV in June 2017, and the location of the intake off Allt Coire Mhic Sith, the collection chamber and approximate pipe route and access points were confirmed.	
ABS 7.5 (Linked)	PWS Supplied Property	Station Cottages, Dalnaspidal, PH18 5UJ	264408	773364	The properties also have a private drainage system via septic tank, located at the base of the local access roads into Dalnaspidal.	
ABS 7.6	PWS Source – Borehole	Dalnaspidal Lodge, Dalnaspidal, PH18 5UJ	264520	773195	Information received from P&KC and SEPA identified a PWS record supplying properties at and surrounding Dalnaspidal Lodge, located between 150 and 320m to the west of the existing A9 from ch. 200 to ch. 350. This was indicated to be sourced from a borehole located 370m west of the Highland Main Line railway at ch. 250. Additional information on the location and use of this supply feature has been sought from the land and property owners via questionnaire. However, a response has not been received despite several attempts and no information has been received via Public Exhibitions. Notwithstanding, consultation with HighWater (Scotland) Ltd provided additional information that the borehole is in fact located approximately 10m west of the Highland Main Line railway and that this feeds five properties at Dalnaspidal. The well is approximately 15m in depth and two submersible pumps within it deliver water to a storage tank via a treatment system (contained within a shed adjacent to Allt Coire Mhic Sith (264505, 773205)) for colour reduction and pH elevation. A booster pump set then delivers the treated water to the properties. No information was provided by HighWater (Scotland) Ltd in relation to the response zone of the borehole. However, based on the depth of the borehole and published geological/ hydrogeological mapping, this is likely to be screened in the alluvial/ weathered bedrock aquifer in the area.	High
ABS 7.6 (Linked)	PWS Supplied Property	Bothy, Dalnaspidal, PH18 5UJ	264525	773102		
ABS 7.6 (Linked)	PWS Supplied Property	Farmhouse, Dalnaspidal, PH18 5UJ	264537	773140		
ABS 7.6 (Linked)	PWS Supplied Property	Dalnaspidal Lodge, Dalnaspidal, PH18 5UJ	264525	772942		
ABS 7.6 (Linked)	PWS Supplied Property	Head Keeper’s Lodge, Dalnaspidal, PH18 5UJ	264642	772910		
ABS 7.6 (Linked)	PWS Supplied Property	Under Keeper’s Lodge, Dalnaspidal, PH18 5UJ	264594	772952		
ABS 7.7	Possible Well	Dalnaspidal, PH18 5UJ	264783	773088	Historical mapping dated between 1900 and 1974 indicated the presence of a well approximately 35m to the west of the existing A9 at ch. 100 near Dalnaspidal. Subsequent CFJV walkover surveys (August 2016 and June 2017) also identified a manhole cover corresponding to the approximate location of the well, but that was unable to be opened and inspected. Additional information on the nature, status and use, if any, of the feature has been sought from the landowner via questionnaire. However, a response has not been received despite several attempts and no previous feedback has been received from Public Exhibitions. CFJV discussions with a local resident in June 2017 indicated that this was a well formerly utilised as a supply to Dalnaspidal Lodge.	High

4 References

Scottish Government (2011). The Water Environment (Controlled Activities) (Scotland) Regulations 2011.

Annex 10.3.1

Consultation Information

Balsporran Cottage, Drumochter Pass, Dalwhinnie, PH19 1AF (ABS 7.2)

Questionnaire Response Received:	07 August 2017 (letter)
From:	Geoff Fisher
Address:	Balsporran Cottage, Drumochter Pass, Dalwhinnie, PH19 1AF
Abstraction/ PWS Address:	Balsporran Cottage, Drumochter Pass, Dalwhinnie, PH19 1AF

Q1. Is your water sourced from a private supply or abstraction, such as a well, a spring or a tank?

Small river/ stream/ spring running from mountain

Q2. Can you confirm the location of the supply, well, spring or tank and any associated pipework? If so, could you provide a plan and/ or photograph?

Yes – plan and photographs enclosed

Q3. (If it is a spring), do you know the exact location of the spring?

Yes

Q4. (If it is a well), how deep is the well?

-

Q5. (If it is a tank), do you know the details, storage capacity and dimensions of the tank?

Runs into one filter tank then into one holding tank – both plastic/ fibre glass

Q6. How old is the supply?

Unsure of age, but is reasonably new tank and plastic pipe. Also old brick tank is still used to feed pond approximately 3.00m from new tank.

Q7. How good is the quality of the water supply?

Very good – clear, clean, pure taste

Q8. Please give a general description of the water (i.e. is it clear, murky)

Runs pure and clear but turns slightly brownish during heavy rain spells

Q9. Have you ever noticed any unusual smells off the water/ coming from the supply? If so, please provide a brief description and time of year it occurred.

No, never

Q10. Has the water ever tasted funny (i.e. tasted off, tasted salty)? If so, please provide a brief description and time of year it occurred.

No, never

Q11. How good is the quantity of the water supply? Does the water run out in dry periods or fluctuate at certain times or seasons?

Constant supply, has never fluctuated

Q12. How is the water conveyed (carried) to your house/ field/ reservoir – do you know the location of the supply network (if relevant)?

Large filtered end on pipe from stream then into mesh filtering tank then into filtered holding tank

Q13. Does this supply only service your house or does it service other houses/ fields/ reservoirs?

Only our house (Balsporran Cottage)

Q14. Is this supply for domestic use and consumption? Or other purposes (please detail)?

Domestic dwelling and four letting rooms bed and breakfast

Q15. Is any treatment provided to the water prior to use?
 Yes, in house, two in line filters and one UV light source

Q16. Approximately what volume/ yield of water is consumer per day?
 Unsure

Q17. Has water chemical testing ever been undertaken and if so, how regularly, by who and for what parameters?
 Was carried out in December 2016

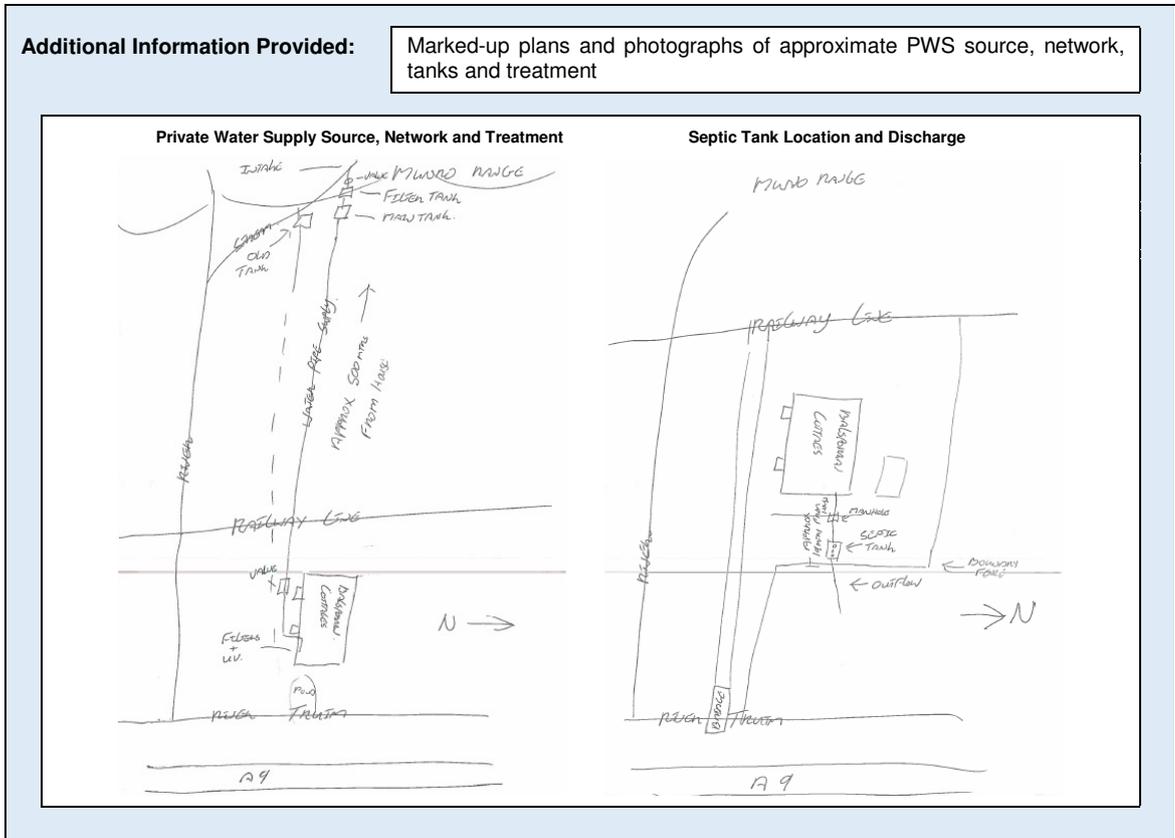
Q18. Can the results of chemical testing (above) undertaken on the supply or abstraction be made available?
 Yes, certificate available

Q19. Does your property have a private drainage system (i.e. septic tank)? If so, could you provide details on the location of the tank, discharge arrangement and how often it is emptied?
 Yes, septic tank into reed bed then River Truim, emptied twice per year

Q20. May we contact you for additional information if necessary?
 Yes

Q21. Is there any other information you wish to provide about your water supply?
 We have had many comments that it is the best water people have ever tasted

Other Notes:
 We have only occupied the property since December 2016. The information I have given is as accurate as far as I am aware. If you can provide me with any further information I would be grateful.
 The item shown on your map/ plan is situated in the car park adjacent to the A9. I have seen this but unsure what it is for. As far as I am aware, it does not affect our property?

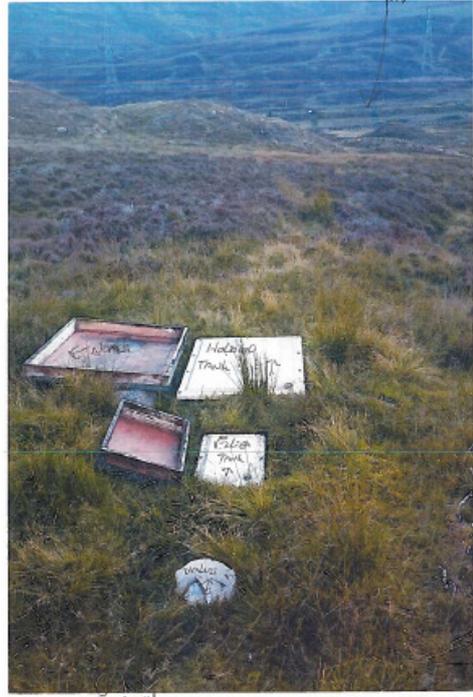


Photographs:

Geoff Fisher – PWS source, tanks and treatment, septic tank



Photograph 1: Septic tank inspection holes



Photograph 2: PWS filter tank and holding tank



Photograph 3: PWS spring/ stream source

Drumochter Lodge, Drumochter Pass, Dalwhinnie, PH19 1AF (ABS 7.3)

Questionnaire Response Received:	26 October 2016 (letter)
From:	Alasdair Findlay
Address:	Drumochter Lodge, Drumochter Pass, Dalwhinnie, PH19 1AF
Abstraction/ PWS Address:	Drumochter Lodge, North Drumochter Cottage and Game Larder, Dalwhinnie, PH19 1AF

Q1. Is your water sourced from a private supply or abstraction, such as a well, a spring or a tank?

Private water supply

Q2. Can you confirm the location of the supply, well, spring or tank and any associated pipework? If so, could you provide a plan and/ or photograph?

Not near where new works will proceed

Q3. (If it is a spring), do you know the exact location of the spring?

Yes

Q4. (If it is a well), how deep is the well?

-

Q5. (If it is a tank), do you know the details, storage capacity and dimensions of the tank?

2,500 litres

Q6. How old is the supply?

100 years

Q7. How good is the quality of the water supply?

Great

Q8. Please give a general description of the water (i.e. is it clear, murky)

Clear and sweet

Q9. Have you ever noticed any unusual smells off the water/ coming from the supply? If so, please provide a brief description and time of year it occurred.

No

Q10. Has the water ever tasted funny (i.e. tasted off, tasted salty)? If so, please provide a brief description and time of year it occurred.

No

Q11. How good is the quantity of the water supply? Does the water run out in dry periods or fluctuate at certain times or seasons?

No

Q12. How is the water conveyed (carried) to your house/ field/ reservoir – do you know the location of the supply network (if relevant)?

Yes by 50ml alkathene pipe

Q13. Does this supply only service your house or does it service other houses/ fields/ reservoirs?

Drumochter Lodge, Drumochter Cottage and deer larder

Q14. Is this supply for domestic use and consumption? Or other purposes (please detail)?

Domestic use and for deer larder

Q15. Is any treatment provided to the water prior to use?

Q16. Approximately what volume/ yield of water is consumer per day?

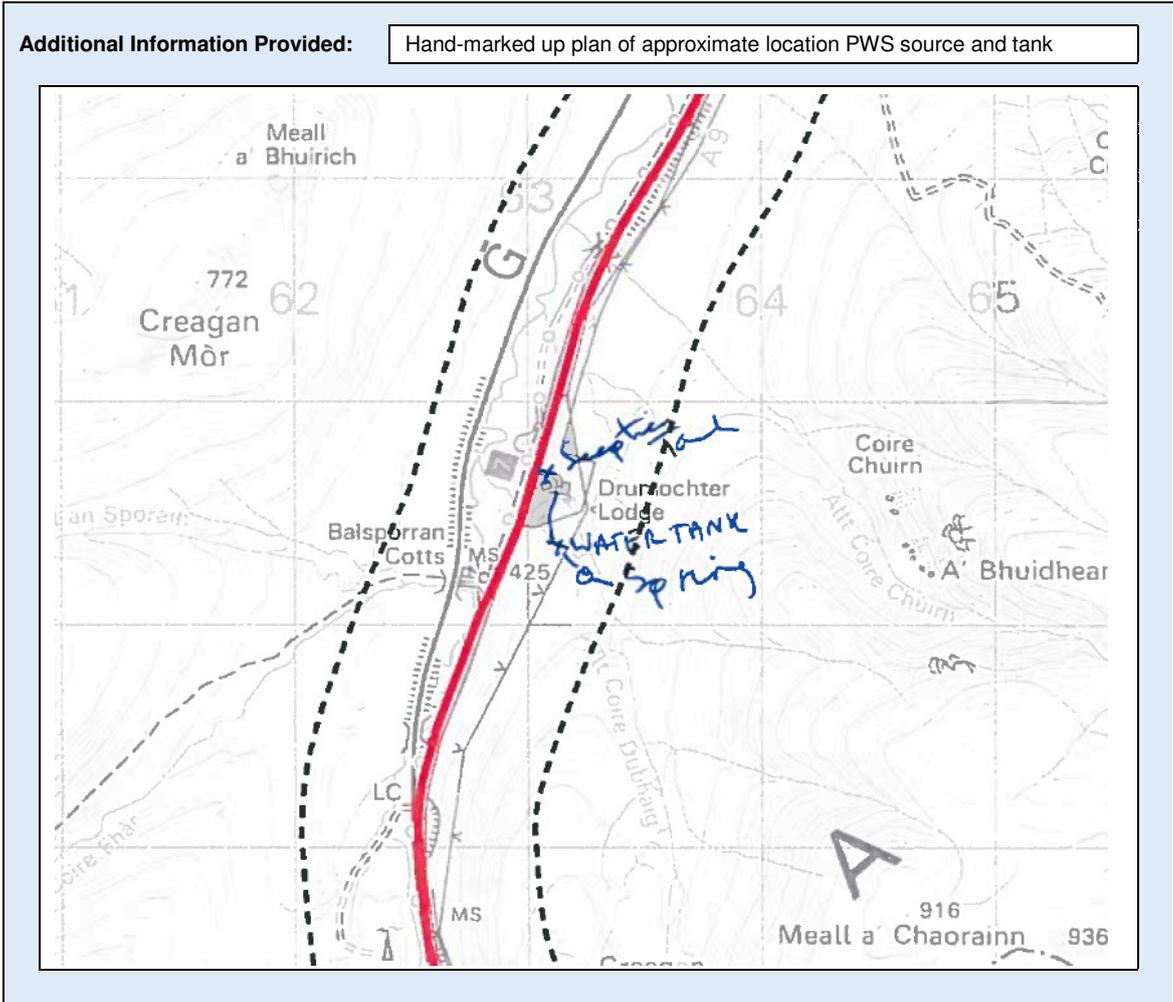
Q17. Has water chemical testing ever been undertaken and if so, how regularly, by who and for what parameters?

Q18. Can the results of chemical testing (above) undertaken on the supply or abstraction be made available?

Q19. Does your property have a private drainage system (i.e. septic tank)? If so, could you provide details on the location of the tank, discharge arrangement and how often it is emptied?

Q20. May we contact you for additional information if necessary?

Q21. Is there any other information you wish to provide about your water supply?



Photographs:

CFJV walkover (June 2017) – spring source, supply line and tank



Photograph 1: Spring source (263184, 779076)



Photograph 2: Spring source (263213, 779110)



Photograph 3: Spring source (263223, 779227)



Photograph 4: Tank (263197, 779306)



Photograph 5: Tank (263197, 779306)



Photograph 6: Pipe and covering (263215, 779294)

The Old Schoolhouse/ Station Cottages, Dalnaspidal, PH18 5UJ (ABS 7.5)

Questionnaire Response Received:	5 April 2017 (letter)
From:	John Kennedy
Address:	The Old School House, Dalnaspidal, Pitlochry, PH18 5UJ
Abstraction/ PWS Address:	Old Schoolhouse and Station Cottages

Q1. Is your water sourced from a private supply or abstraction, such as a well, a spring or a tank?

Water sourced from private supply

Q2. Can you confirm the location of the supply, well, spring or tank and any associated pipework? If so, could you provide a plan and/ or photograph?

I have confirmed the location on a separate sheet ([see additional information](#))

Q3. (If it is a spring), do you know the exact location of the spring?

N/A

Q4. (If it is a well), how deep is the well?

N/A

Q5. (If it is a tank), do you know the details, storage capacity and dimensions of the tank?

No

Q6. How old is the supply?

Do not know, probably altered when the existing A9 was built

Q7. How good is the quality of the water supply?

Very good

Q8. Please give a general description of the water (i.e. is it clear, murky)

Clear

Q9. Have you ever noticed any unusual smells off the water/ coming from the supply? If so, please provide a brief description and time of year it occurred.

No

Q10. Has the water ever tasted funny (i.e. tasted off, tasted salty)? If so, please provide a brief description and time of year it occurred.

No

Q11. How good is the quantity of the water supply? Does the water run out in dry periods or fluctuate at certain times or seasons?

No

Q12. How is the water conveyed (carried) to your house/ field/ reservoir – do you know the location of the supply network (if relevant)?

Piped from source in Corrie Mic Sith Burn ([Allt Coire Mhic Sith](#))

Q13. Does this supply only service your house or does it service other houses/ fields/ reservoirs?

It also supplies the Station Cottages at Dalnaspidal

Q14. Is this supply for domestic use and consumption? Or other purposes (please detail)?

Yes for domestic and consumption

Q15. Is any treatment provided to the water prior to use?

Q16. Approximately what volume/ yield of water is consumer per day?

Q17. Has water chemical testing ever been undertaken and if so, how regularly, by who and for what parameters?

Q18. Can the results of chemical testing (above) undertaken on the supply or abstraction be made available?

Q19. Does your property have a private drainage system (i.e. septic tank)? If so, could you provide details on the location of the tank, discharge arrangement and how often it is emptied?

Q20. May we contact you for additional information if necessary?

Q21. Is there any other information you wish to provide about your water supply?

Additional Information Provided:

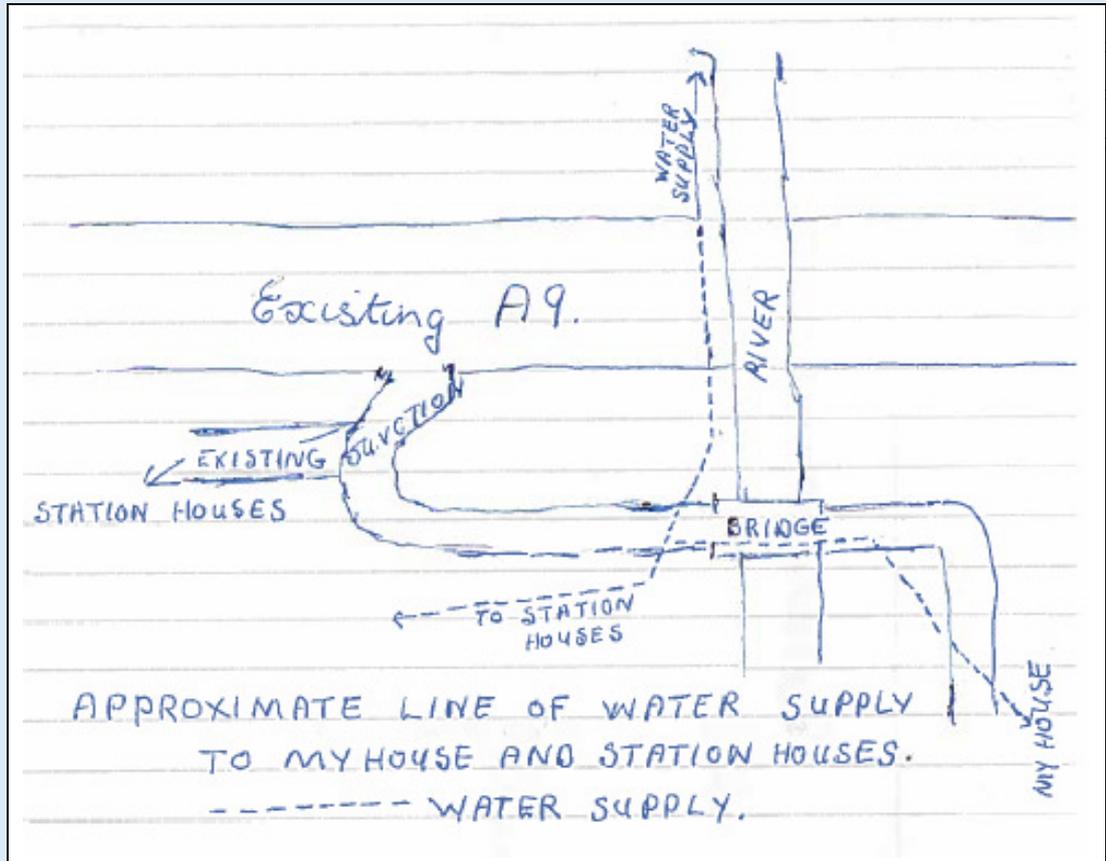
The sketch map shows a network of water supply infrastructure. At the top, a 'WATER PIPE TO STATION HOUSE' is connected to an 'APPROACH ROAD'. A 'WATER PIPE' runs horizontally across the middle. Below this, a 'BURN' flows from left to right, crossing the water pipe at a 'BRIDGE'. Further right, another 'BRIDGE' crosses the 'BURN'. A 'COLLECTOR PIPE' is shown on the right side. A 'ROAD' runs horizontally below the burn, labeled 'A9'. A 'BRIDGE' crosses the 'BURN' over the 'A9' road. A 'WATER PIPE' runs diagonally from the bottom left towards the center, crossing the 'A9' road. This pipe is labeled 'WATER PIPE' and 'APPROACH ROAD TO MY HOUSE'. A 'HOUSE' is indicated at the bottom left. The map is hand-drawn with blue ink on a light blue background.

In addition to the questionnaire responses received for the PWS located at The Old Schoolhouse and Station Cottages in Dalnaspidal, feedback was previously provided by the owner of The Old Schoolhouse property at a Public Exhibition on 15 June 2015. Similar information regarding the PWS, its source, the properties supplied and a hand-marked sketch were provided.

Feedback from residents of the Station Cottages also confirmed the PWS to be sourced from the Allt Coire Mhic Sith watercourse, with the intake being from a waterfall to the east of the existing A9 and feeding two tanks near an existing telephone mast here.

Previous Information Provided:

Public exhibition feedback form John Kennedy (14 June 2015)



Photographs

CFJV walkover (June 2017) – intake, collection chamber and pipe



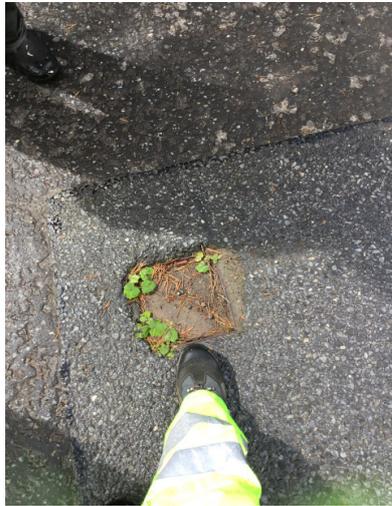
Photograph 1: Concrete chamber in shed from intake (264589, 773371)



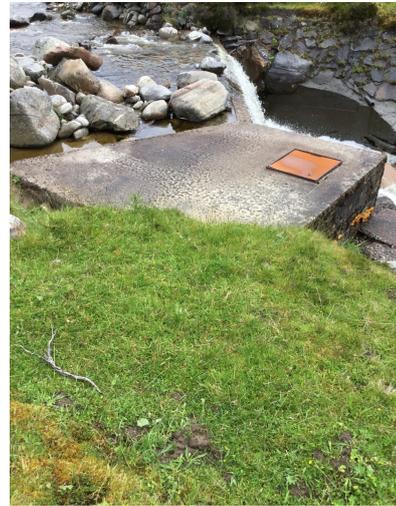
Photograph 2: Supply pipe in-situ (264592, 773277)

Photographs

CFJV walkover (June 2017) – intake and pipeline (ABS 7.5)



Photograph 3: Possible pipe access point (264574, 773296)



Photograph 4: Intake on Allt Coire Mhic Sith (264588, 773378)



Photograph 5: Concrete collection chamber within shed, fed by intake (264589, 773371)



Photograph 6: Septic tank location (264565, 773219)



Photograph 7: Possible pipe access point (264573, 773295)

Dalnaspidal Lodge, Dalnaspidal, PH18 5UJ (ABS 7.6)

HighWater (Scotland) Ltd were identified as a specialist company who manage the borehole water supply for Dalnaspidal Lodge. Responding to an information request from CFJV in July 2017, they identified the Bothy, Farmhouse, Dalnaspidal Lodge, Head Keeper’s Lodge and Under Keeper’s Lodge properties at Dalnaspidal to be fed from a central water supply.

The water to the properties is derived from a shallow well approximately 15m deep and two submersible pumps (float switch controlled) in the well deliver water to a large storage tank via a treatment system (contained in a shed) for colour reduction and pH elevation. A booster pump set then delivers the treated water to the properties.

The below map extract showing the properties and the location of the well was also provided.

