

APPENDIX 12.2: PRIVATE WATER SUPPLY SURVEY

1.1 Introduction

- 1.1.1 This appendix presents the findings of the Private Water Supply survey, which was undertaken to inform the assessment of effects for the Development as presented in Chapter 12: Surface Water and Appendix 12.2: Conceptual Site Model. This appendix should be read in conjunction with Chapter 12: Surface Water.

1.2 Survey Methodology and Findings

- 1.2.1 Records of private water supplies (PWS) with 2 km of the site were obtained from Argyll & Bute Council (e-mail correspondence from Argyll and Bute Environmental Health team, 8th February 2018), which provided information on the residences rather than the source locations. The records were initially screened using a distance of 1 km from the wind farm site boundary, and a preliminary questionnaire was sent out to sixty-two properties of initial interest, including additional properties with no recorded supply but which were unlikely to be on mains supply, based on neighbouring properties using private water supplies. Twenty residents responded and provided information about thirty-four properties. This information; supplemented by interviews with local residents which took place during the week commencing 12th March 2018; was used to inform the field survey of PWS sources and properties served. The survey work and data review, enabled identification of those PWS sources supplying more than one residence and those residences which are mains supplied. In total fourteen sources were identified supplying a total of thirty properties with water; including the source of supply for the existing operational Tangy Windfarm as detailed in Table A12.
- 1.2.2 Table A12 presents information relating to these PWS sources for properties within 1 km of the main wind farm boundary. Table A12 comprises a composite of site survey, resident interviews and questionnaire data. The sources are listed in the order in which they are located in the area surrounding the proposed development starting from the most north-western source and going in a clockwise direction around the windfarm. The location of each PWS source, or collector tank, was recorded during the field survey using a handheld global positioning system (GPS) device (accurate to 10m). The easting and northing co-ordinates (OSGB) are provided in Table A12.1.1. Table A12.1.1 also includes details recorded on the names of the respective properties served by each source and information on the source type, usage and quality/treatment where available.
- 1.2.3 PWS sources located over 1km from the site, or where there are hydrogeological features which render a material impact very unlikely, are not considered further.
- 1.2.4 Photographs of all sources are also provided beneath Table A12 and the properties and sources are illustrated in Figure 12.1 in the EIA Report, Volume 3.

Limitations and Assumptions

- 1.2.5 The assumptions made for the purpose of this survey are considered to be appropriate, based on previous experience of private water supplies in the vicinity of wind farms, and they are not considered to limit the validity of the assessment.
- 1.2.6 The data provided assumes that the information gathered from residents either by questionnaire or interview is factually correct.

Table 1.2.1: Private Water Supply Sources in the surrounding area

PWS Source ID	Properties Supplied	Source Type (V – Verified A – Anecdotal)	X Coords	Y Coords	Elevation (m)	Date Installed	Approximate Distance from Nearest Excavations (m)	Usage / Reliability	Quality and Treatment (where information available). Data Provided by Landowners / Property Owners.	GPS Ref.
1	Killocrow Farm(1A*) & Tighavullin Farm(1B)	Well (1,100m above farmhouse to the ESE and close to the windfarm) (V).	167071	630229	117	1997	592 m to Turbine 8	Domestic & livestock - reliable source.	Periodic check - very good (15' deep source protected from surface contamination by concrete rings).	138
2	Lagalgarve Farm (2A) & Tangytavil (2B*)	Collector tank located above farmhouse high up to the ENE and close to the windfarm (V). The source type is not confirmed beyond doubt but likely to be either a spring or shallow groundwater collector system. The source is believed to incorporate buried collector pipes, but their presence is not confirmed and, if present, their extent / layout is unknown (A).	166897	629383	173	>100 years ago	244 m from source collection point to borrow pit working area.	Domestic, livestock & commercial satisfactory for needs.	Checked 30 years ago then 15years ago.	120

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3	Am Fasgadh (3A)	Spring (just above house) (V).	165810	629023	16	Unknown	1134 to Borrow Pit C working area	Domestic - never run dry (recent landslide directly adjacent).	Council check periodically - tank storage - good quality.	123
4	Tighnamoile (4A) & Tangymoile Farm (4B*)	Spring (from tile drain above stream flowing west from windfarm) (V).	166339	628590	116	-	792 to Borrow Pit C working area.	Domestic & livestock - can dry up.	Filtration - quality reports varied, clear and good taste though water can be cloudy after extreme rainfall.	132
5	Killarow Cottage (5A*), Tangy Glen Cottages (5 properties) (5B*) & Maleen (5C)	Spring - (near to Killarow Farm spring and underground) (A). Collection tank position verified (V).	166536	628149	Approx. 114 (same as F)	-	779 to Turbine 1	Domestic - can dry up in summer months (see Killarow Farm).	Not known / buried source, separate tank storage (see Killarow Farm).	Near 118 (separate spring)
6	Killarow Farm (6A*) & Tigh-Na-Mara (6B)	Spring (approx. 350m east of farmhouse under field used by cattle) (V).	166536	628149	114	-	779 to Turbine 1	Domestic & livestock - can dry up in summer months (then water pumped from burn).	Not known / buried source, separate tank storage, water brown after heavy rainfall.	118
7	Tangy Mill (7A*)	Spring (next to Tangy Burn flowing from the east through the windfarm area above) (V).	166966	627691	90	-	576 to Turbine 1	Commercial – not known.	Not known / tank storage.	125

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8	High Balevain Farmhouse (8A)	Spring (under field on hillside NE of farmhouse) (V).	166906	626559	85	1965	1642 to Turbine 1	Domestic & dairy cattle - never run dry.	UV with pre-filter - buried source tested annually, tank storage, water brown after heavy rainfall.	127
9	Breakachy Farmhouse (9A*)	Borehole (in farmyard) (V).	167082	626805	125	Not known	1365 to Turbine 1	Domestic	Filtration - tank storage, poor quality, iron and other parameters a problem, water brown, checked January 2018.	130
10	Drumalea Farm (10A*) & Drumalea Farm Cottage (10B)	Dammed stream (flowing from forested area upstream to east of windfarm) (V).	167916	627384	124	2006	634 to Borrow Pit B working area	Domestic & livestock - good yield, use <2m ³ /day, CAR/R/1014147 permit up to 11m ³ /day	Filtration - holding tank, water sometimes discoloured due to peaty land source.	117
11	Breakachy Cottages (3 properties) (11A) & High Balevain Farm (8A)	Spring(s) (issuing from rock at top of fenced-off area to the northeast & below windfarm) (V).	167518	627459	104	2001	610 to Borrow Pit B working area	Domestic & livestock - recent frozen pipes.	Fenced-off area livestock free - untreated water - Council checked June 2016.	116
12	Tangy Windfarm (12A*)	Groundwater Collector (V).	168091	628348	169	2004	255 to Turbine 2	SSE employees	Tested annually, failed last 2 years for high Magnesium.	101
13	Tangy Farm (13A), Dalnaspidal (13B*) & TangyLea (13C)	Spring (next to windfarm track north of Tangy Farm house) (V).	168110	628340	168		254 to Turbine 4	Domestic, commercial & livestock - never run dry.	Last council check Aug 2017 - UV with pre-filter - good quality.	99

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14	Gobagrennan (14A)	Spring (on hillside north of house) (V).	170759	629799	157	1967	1603 to Turbine 11	Domestic & livestock - never run dry.	Tested 1967 & Nov 2017 - limey water, filtered to ionise - good quality.	140

Private Water Supply Sources in the Surrounding Area

PWS1: Killocrow Farmhouse & Tighavullin Farmhouse Well Source



Source concrete collar and cover

PWS2: Lagalgarve Farmhouse & Tangytavil Spring Source



General area where pipes were buried >100 years ago



Groundwater collection point tank under corrugated iron

PWS3: Am Fasgadh Spring Source



Black storage tank on hillside above hedge to right of house

PWS4: Tangymoil Farm & Tighnamoile Spring Source



Source above far river bank

PWS5: Killarow Cottage, Tangy Glen Cottages & Maleen Spring Source



Springwater storage tank located in field below source

PWS6: Killarow Farmhouse & Tighnamara Spring Source



Tile drain buried below ground at this location indicated by farmer

PWS7: Tangy Mill Independent Spring Source



PWS8: High Balevain Farm Spring Source



PWS9: Breakachy Farmhouse Borehole Source



Concrete Collar and cover seen left of shed

PWS10: Drumalea Farm & Drumalea Farm Cottage Stream Source



Stream below collection point visible on right

PWS11: 4, 5 & 6 Breakachy Cottages & High Balevain Spring Source



Source visible at bottom right

PWS12: Tangy Windfarm Groundwater Collector Source



Collector point below V-shaped collector system indicated by fence pole

PWS13: Tangy Farm, Dalnaspidal & Tangy Lea



Spring source indicated by arrow:



Spring source storage tank located on downslope side of the track:

PWS14: Gobagrennan Spring Source



Corrugated iron sheet covers source



Corrugated iron sheet removed



Spring source storage tank