

Technical Appendix 10.6: Private Water Supply Assessment

TECHNICAL APPENDIX 10.6: PRIVATE WATER SUPPLY ASSESSMENT

10.1 Introduction

- 10.1.1 This Technical Appendix summarises the PWS that may be affected by the Proposed Development. It should be read in conjunction with **EIAR Volume 2** in particular **Chapter 2: Description of Proposed Development (EIAR Volume 2)** for details of the Proposed Development and **Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)**.
- 10.1.2 This Technical Appendix provides an overview of the Private Water Supplies (PWS) within the Study Area and identifies those that require further assessment and mitigation.

Legislation

- 10.1.3 A PWS is considered to be a small abstraction of less than 10 m³ per day from 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 foundations¹.
- 10.1.4 PWS are categorised as Type A, which are 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*²); and Type B, or Exempt Supplies that serve only domestic properties (regulated under *The Private Water Supplies (Scotland) Regulations 2006*³).

10.2 Methodology

- 10.2.1 A list of PWS was supplied by CnES. As noted in Section 10.1.2, SEPA guidance requires that all abstractions be identified within 100 m of proposed roads, tracks and trenches, or within 250 m of foundations be considered further in the EIA. ArcGIS Pro was therefore used to plot the location of the PWS in relation to watercourses and / or lochs and the Proposed Development to understand if the Proposed Development may have a potential effect on those supplies. In addition to those supplies within a 250 m of the Proposed Development, supplies downstream of the Proposed Development with the potential to be hydrologically connected to it have been considered in this assessment.
- 10.2.2 Analysis of the hydrological regime of the areas around the Proposed Development was carried out through the use of the ESRI ArcGIS Pro hydrological toolset. This tool provides methods for describing the physical components of a surface, allowing identification of sinks (areas where surface water could pond), determination of likely overland flow directions and routes where flow accumulation would be likely to occur, delineation of watersheds, and mapping of stream networks. This allowed flow paths towards a PWS, and therefore, the potential contributing catchments to be identified (**Figure 10.6.1 (Annex A)**).
- 10.2.3 The Applicant contacted a number of landowners and or residents identified as being within 250 m of the Site to gather further information on their PWS.
- 10.2.4 The location of PWS identified by CnES are shown in **Figure 10.9: Private Water Supplies (EIAR Volume 3a)**.

Limitations and Assumptions

- 10.2.5 CnES records may be incomplete in rural areas, and may only identify the property rather than the source and/or collection tank associated with the PWS. This assessment has relied on the locations provided by CnES.

¹ LUPS-GU31 SEPA 2017 Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf

² <https://www.legislation.gov.uk/ssi/2017/282/contents/made>

³ <https://www.legislation.gov.uk/ssi/2006/209/contents/made>

10.2.6 Where a distance from the PWS to infrastructure associated with the Site is measured, consideration is given only to proposed new infrastructure, not to existing tracks which are to be used for access. Where access is proposed to be across open ground, it is assumed that bog mats would be laid such that there would be negligible potential for impact on PWS. The Appointed Contractor would be responsible for conducting further pre-construction detailed surveys of PWS within 250 m of the Proposed Development.

10.3 Private Water Supply Assessment

10.3.1 The Study Area for the assessment of PWS has been defined as a 250 m buffer of the Site (**Figure 10.6.1 (Annex A)**), with additional consideration given to those supplies which may be outwith this buffer but hydrologically linked to the Site.

10.3.2 Based on the PWS dataset supply by CnES there are a total of eight supplies which are considered to have the potential to be impacted by the Proposed Development (**Figure 10.9: Private Water Supplies (EIAR Volume 3a)**). These are listed in **Table 10.6.1**.

Figure 10.9 Reference	CnES Reference	PWS Name	Source Type	Easting	Northing	Supply Type
1	EIS013	Iron Well Lews Castle	Well	141408	932233	B
2	EIS016	Loch Lathamul	Loch	138953	930708	B
3*	EIS018	Ardvourlie Burn	Watercourse / fed from Scottish Water reservoir at bend in the road.	118681	911474	B
4	EIS021	Scaladale River	Watercourse	119267	910032	B
5	EIS038	Leachkin Burn	Watercourse	113881	901270	B
6	EIS053	Kendibig Burn	Watercourse	114500	898200	B
7	EIS040	Horscleite River	Watercourse	114145	896412	B
8	EIS039	Loch Greosabhagh	Loch	113687	894167	Regulated

*PWS 3 is within the Bowglass Drinking Water Protection Area (DWPA)

10.3.3 An assessment of the above PWS are summarised in **Table 10.6.2** below.

Figure 10.9 Reference	PWS Name	Easting	Northing	Distance from Infrastructure*	Notes
1	Iron Well Lews Castle	141408	932233	1,247 m	This supply is located to the east of Stornoway substation and on the

Table 10.6.2: Assessment of PWS

					northern side of the Abhainn Ghrioda. Due to the distance from the Site, and that the source is indicated to be a well and therefore assumed to be linked to groundwater which would not be impacted by the works, this supply is not considered to be at risk from the Proposed Development. No mitigation required.
2	Loch Lathamul	138953	930708	380 m to nearest pole	The supply is to the south of the existing road which would not be upgraded as part of the Proposed Development. No construction would therefore take place within 250 m of the supply, however works will be within the assumed catchment area of the PWS. Mitigation will be required.
3	Ardvourlie Burn	118681	911474	202 m to nearest pole	This PWS is located within the Bowglass DWPA. The Scottish Water reservoir supplies the village and is located downstream of the Site. It is not known if the reservoir is surface water of groundwater fed but the Proposed Development would be within the catchment area of the reservoir / PWS. Mitigation will be required.
4	Scaladale River	119267	910032	450 m to nearest pole	The PWS is located northeast of the Site. Analysis of the flow paths indicate flow is from the southeast and the Proposed Development is not anticipated to fall within the catchment area of the PWS. No mitigation required.
5	Leachkin Burn	113881	901270	15 m to nearest pole	The Applicant provided information from the residents indicating this property is on a mains supply from Tarbert. However, this should be confirmed by the Appointed Contractor. The Site is downstream of the PWS but, due to proximity of the works to the PWS, mitigation may be required.
6	Kendibig Burn	114500	898200	145 m to nearest pole	The Site is located upstream of the supply and therefore within the PWS catchment area. Mitigation will be required.
7	Horscleite River	114145	896412	276 m to nearest pole	The Site is located upstream of the PWS and within the catchment area. Mitigation will be required.
8	Loch Greosabhagh	113687	894167	180 m to nearest pole	The Site is located to the west of the PWS and the Applicant has noted from landowner feedback the water supply comes from the east. This is inline with

Table 10.6.2: Assessment of PWS

					the flow path analysis. However, due to proximity to the works mitigation will be required.
*Distance to nearest new proposed infrastructure only					

10.3.4 From the table above it is considered the following PWS have the potential to be impacted by the Proposed Development in the absence of mitigation:

- Ref 2: Loch Lathamul;
- Ref 3: Ardvourlie Burn (also within the DWPA);
- Ref 5: Leachkin Burn;
- Ref 6: Kendibig Burn;
- Ref 7: Horscleite River; and
- Ref 8: Loch Greosabhagh.

10.4 Mitigation Measures and Recommendations

10.4.1 The PWS set out in section 10.3.4 are either within 250 m of the Site, or where works are within the likely catchment area (zone of contribution) of the supply. They are, therefore considered, potentially sensitive to alterations in the quantity and quality of surface water supply. In the absence of mitigation, those supplies have a potential to be impacted by the Proposed Development.

10.4.2 The following mitigation measures should be implemented to prevent significant impacts to these PWS.

Pre-Construction

10.4.3 Detailed pre-construction surveys of all PWS identified in Section 10.3.4 would be carried out by the Appointed Contractor to confirm:

- source, type and depth of water supply source (e.g. borehole, spring or surface water abstraction, reservoir or if the property is main supplied);
- PWS catchment area; and
- nature of proposed works (e.g. depth and extent of any proposed excavations, potential for pollution incidents/spillage etc.).

10.4.4 Should the results of this assessment indicate a risk to a PWS, then mitigation shall be developed for inclusion in a site specific PWS Protection Plan that will be discussed and agreed with the PWS owner/user.

10.4.5 In certain circumstances it may be appropriate to undertake water quality testing of the source or supply, to establish a baseline of current water levels and quality. This should be agreed as part of the PWS protection plan.

10.4.6 A contingency plan shall be prepared to deliver an alternative water supply (on a temporary or permanent basis) in the event of unforeseen problems with the existing supply.

Construction

10.4.7 Standard mitigation measures as discussed in further detail in **Chapter 10: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** would be in place to protect water quality and quantity as a result of for example, potential effects associated with sedimentation, chemical pollution and changes to surface water flows.

10.4.8 Mitigation would be implemented through the Construction Environmental Management Plan (CEMP). The Appointed Contractor would be responsible for developing the CEMP, Pollution Prevention Plans and detailed

drainage plans, including the use of SuDS. In addition, it is anticipated the Proposed Development would be subject to a CAR Construction Site Licence.

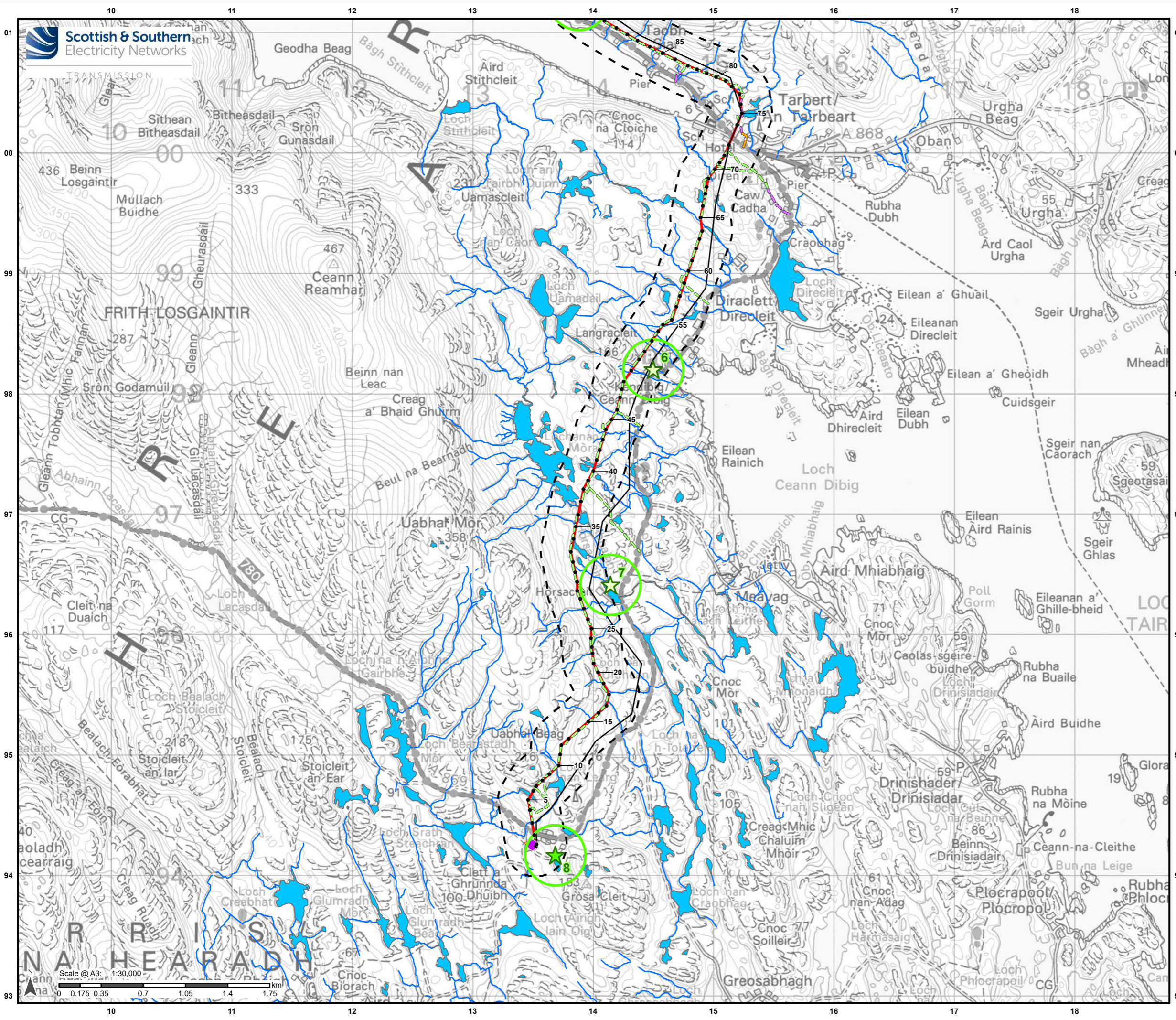
10.4.9 Over and above the standard mitigation to protect water quality and quantity, PWS requiring protection will have specific mitigation developed. Mitigation may include:

- Pre-construction water quality monitoring to establish baseline conditions;
- Fence off the PWS intake and/or storage tank (to avoid accidental damage) and identify relevant buffer distances;
- Avoid undertaking works within PWS catchments during wet weather or when wet weather is forecast as there will be increased surface water flows into the PWS which will be harder to control;
- Low impact access methodologies including the use of track panels where the access to proposed works crosses within the PWS catchment;
- Survey and peg out the route of the PWS flow path in the vicinity of the construction works and avoid/minimise activity within this area; and
- All site operatives working in the area should be made aware of the location of the PWS and of the sensitive catchment area through toolbox talks or similar, and should be reminded when works take place in this area.

10.4.10 During construction, water quality would be monitored. If the quality and/or quantity of water to the PWS is impacted by the Proposed Development, a temporary alternative source would be supplied until the remedial works are completed.

ANNEX A

Figure 10.6.1: Private Water Supply Study Area

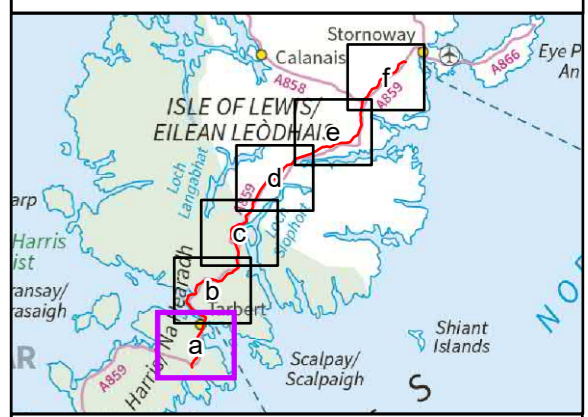


Legend

- Proposed Alignment
- Proposed Alignment Buffer (250 m)
- Indicative Pole Location
- Harris 132kV Grid Supply Point
- Access - Existing Road
- Access - Existing Track
- Access - Open Ground
- Existing 132kV OHL to be Dismantled
- PWS Buffer (250 m)
- Watercourse
- Waterbody

Private Water Supply Source Type

- ★ Surface - Watercourse
- ★ Surface - Loch



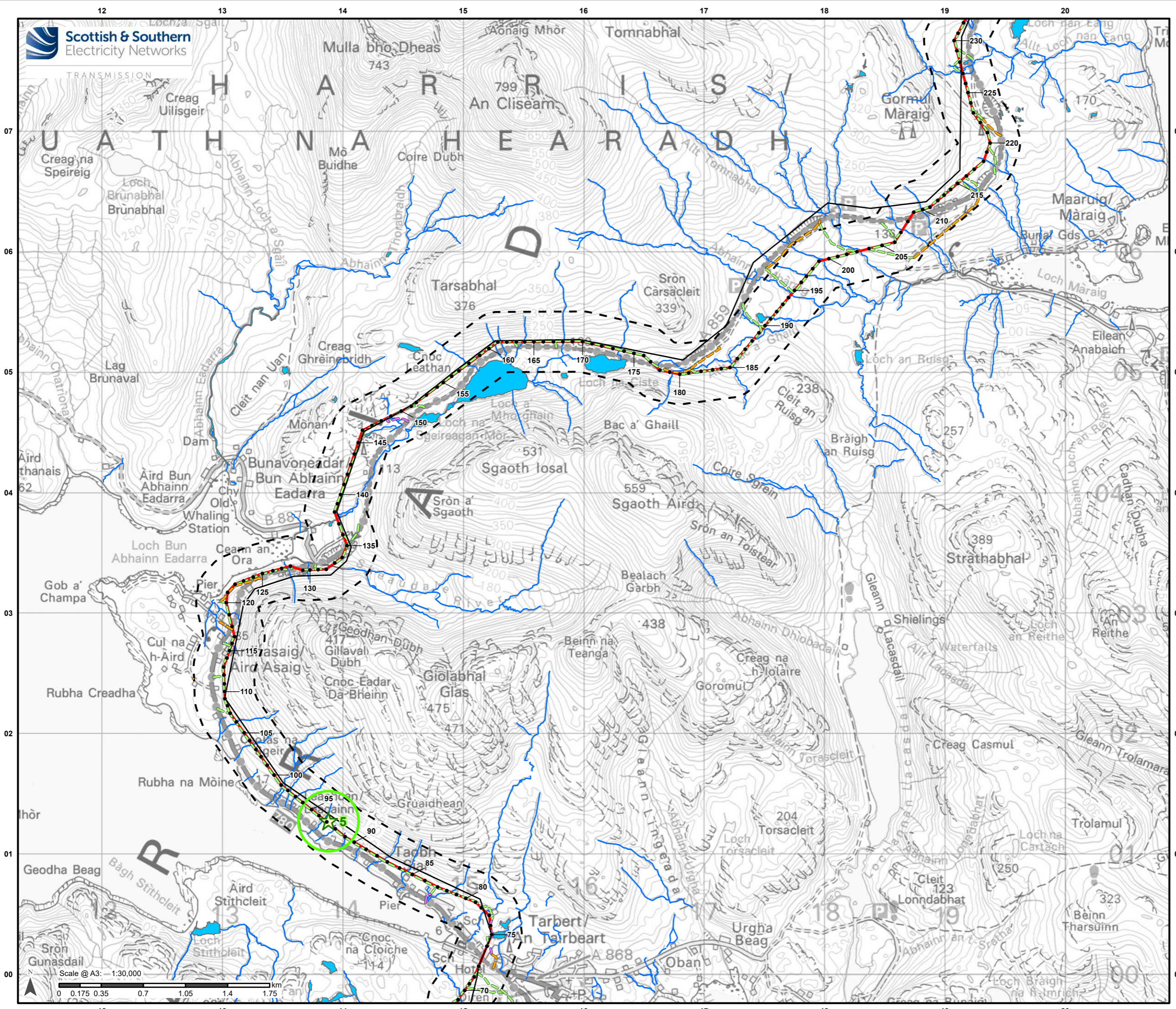
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Project No: LT0245
Project: Harris to Stornoway 132 kV OHL Replacement

Title: Figure 10.6.1a: Private Water Supply Study Area

Drawn by: AB Date: 07/09/2022

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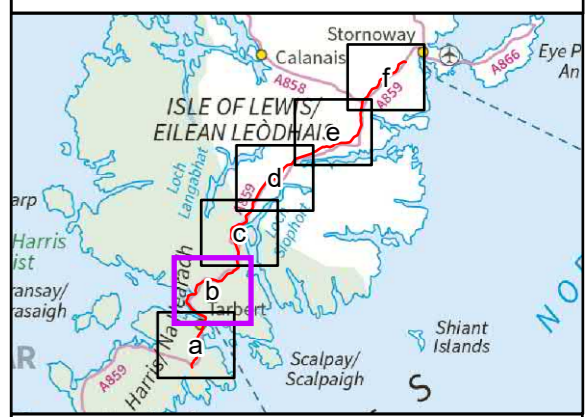


Legend

- Proposed Alignment
- Proposed Alignment Buffer (250 m)
- Indicative Pole Location
- Access - Existing Road
- Access - Existing Track
- Access - Open Ground
- Existing 132kV OHL to be Dismantled
- PWS Buffer (250 m)
- Watercourse
- Waterbody

Private Water Supply Source Type

- ★ Surface - Watercourse



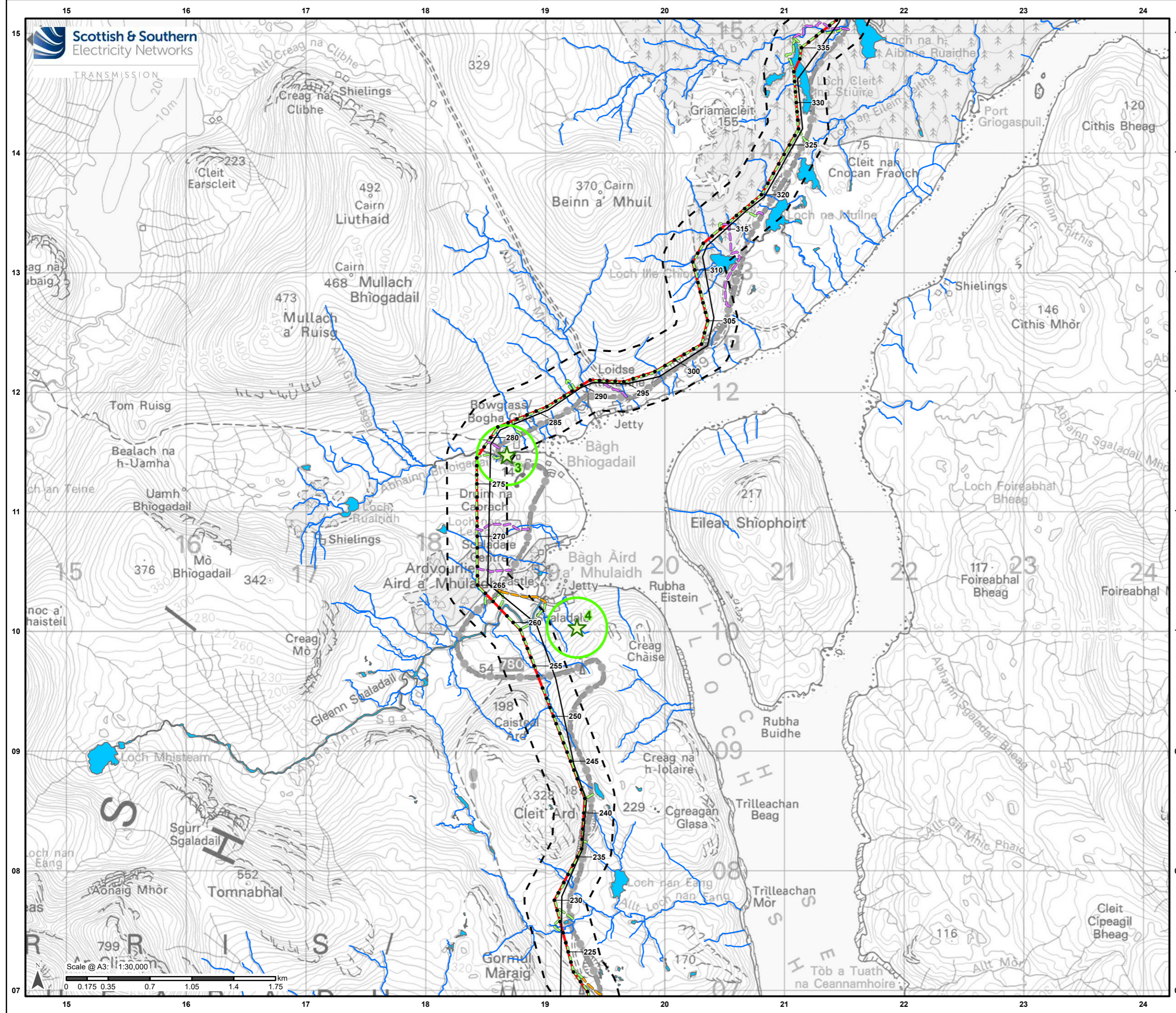
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Title: Figure 10.6.1b: Private Water Supply Study Area

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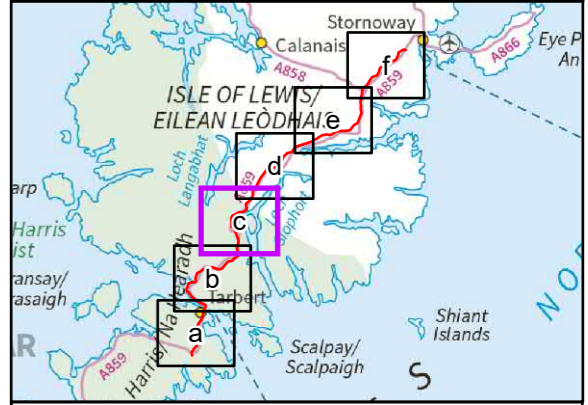


Legend

- Proposed Alignment
- Proposed Alignment Buffer (250 m)
- Indicative Pole Location
- Access - Existing Road
- Access - Existing Track
- Access - Open Ground
- Existing 132kV OHL to be Dismantled
- PWS Buffer (250 m)
- Watercourse
- Waterbody

Private Water Supply Source Type

- ★ Surface - Watercourse



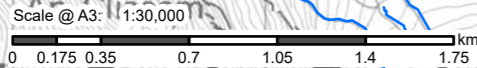
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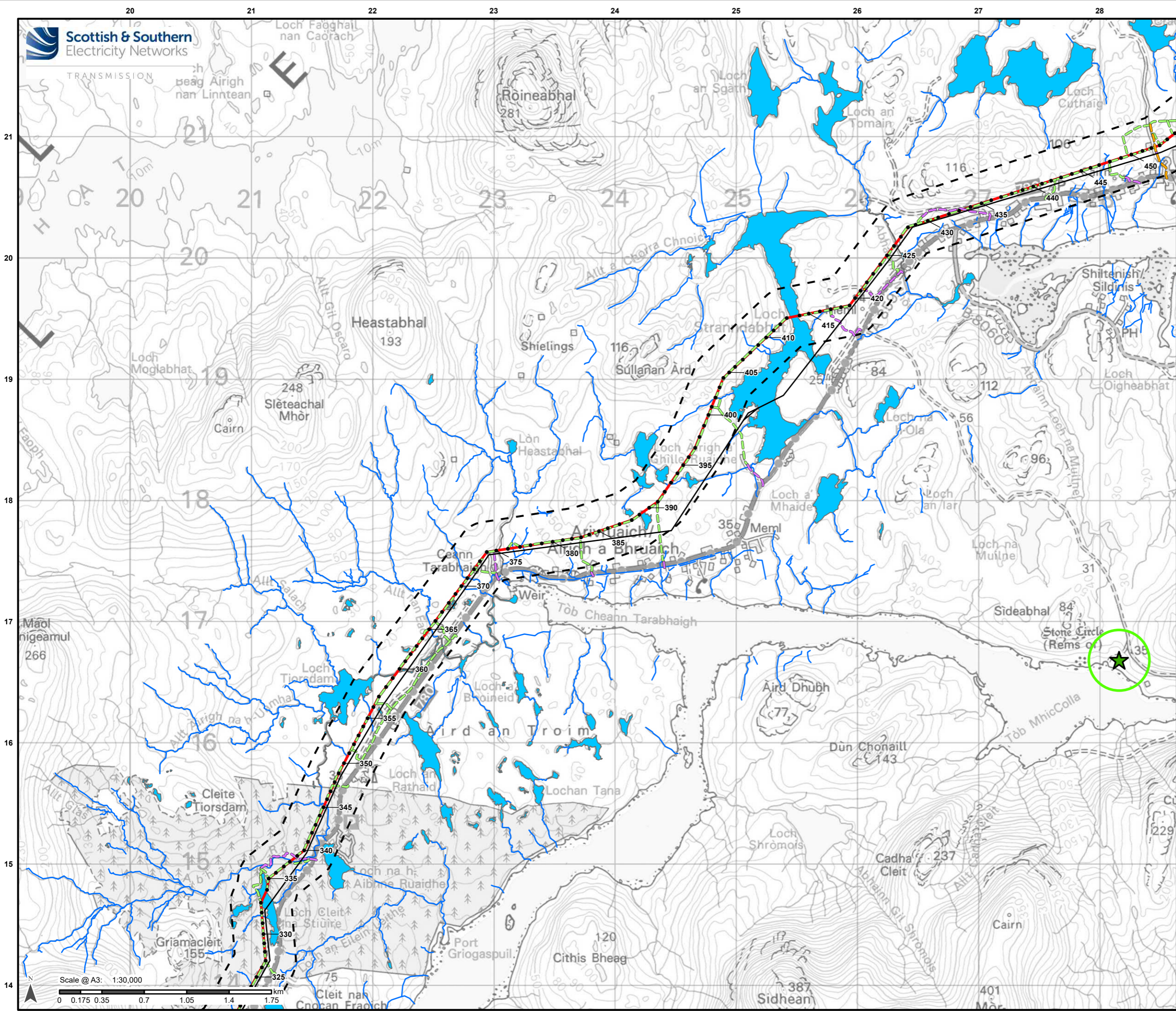
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Figure 10.6.1c:
Private Water Supply Study Area

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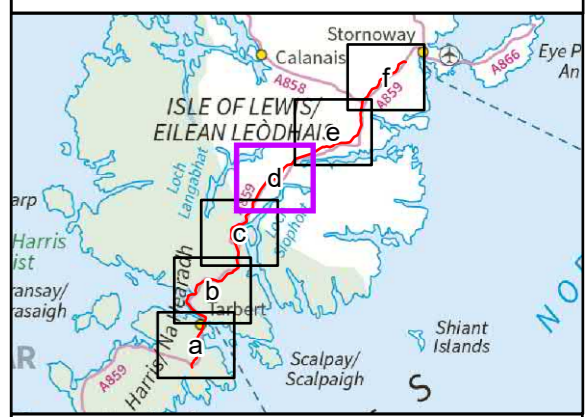
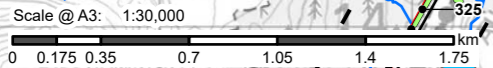
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Legend

- Proposed Alignment
 - Proposed Alignment Buffer (250 m)
 - Indicative Pole Location
 - Access - Existing Road
 - Access - Existing Track
 - Access - Open Ground
 - Existing 132kV OHL to be Dismantled
 - PWS Buffer (250 m)
 - Watercourse
 - Waterbody
- Private Water Supply Source Type**
- ★ Groundwater - Well



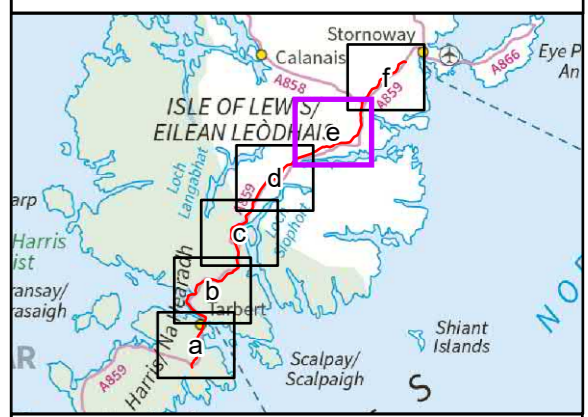
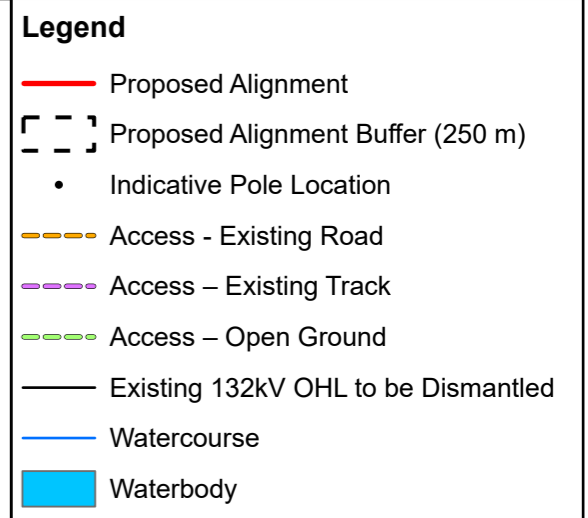
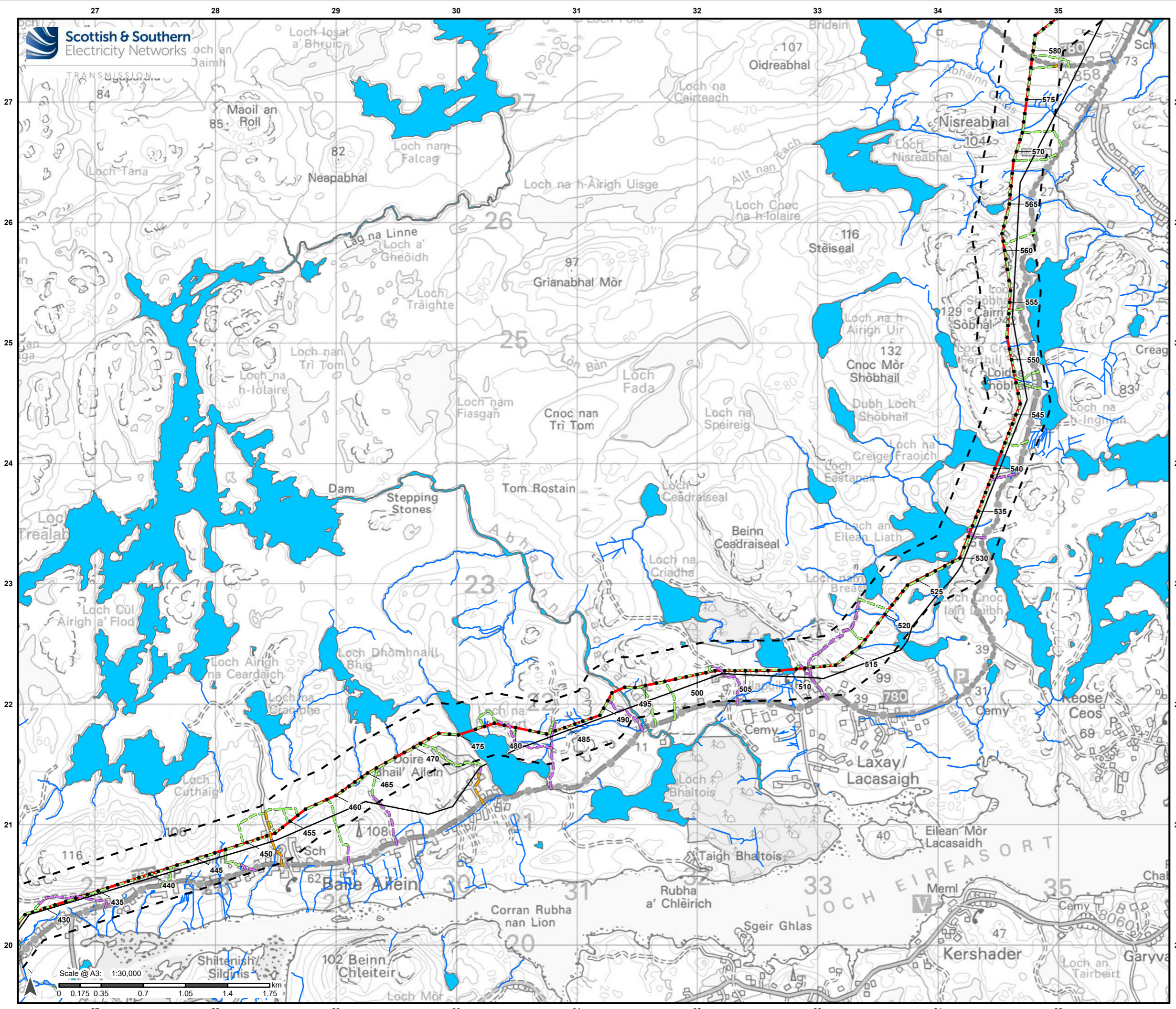
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Title: Figure 10.6.1d: Private Water Supply Study Area

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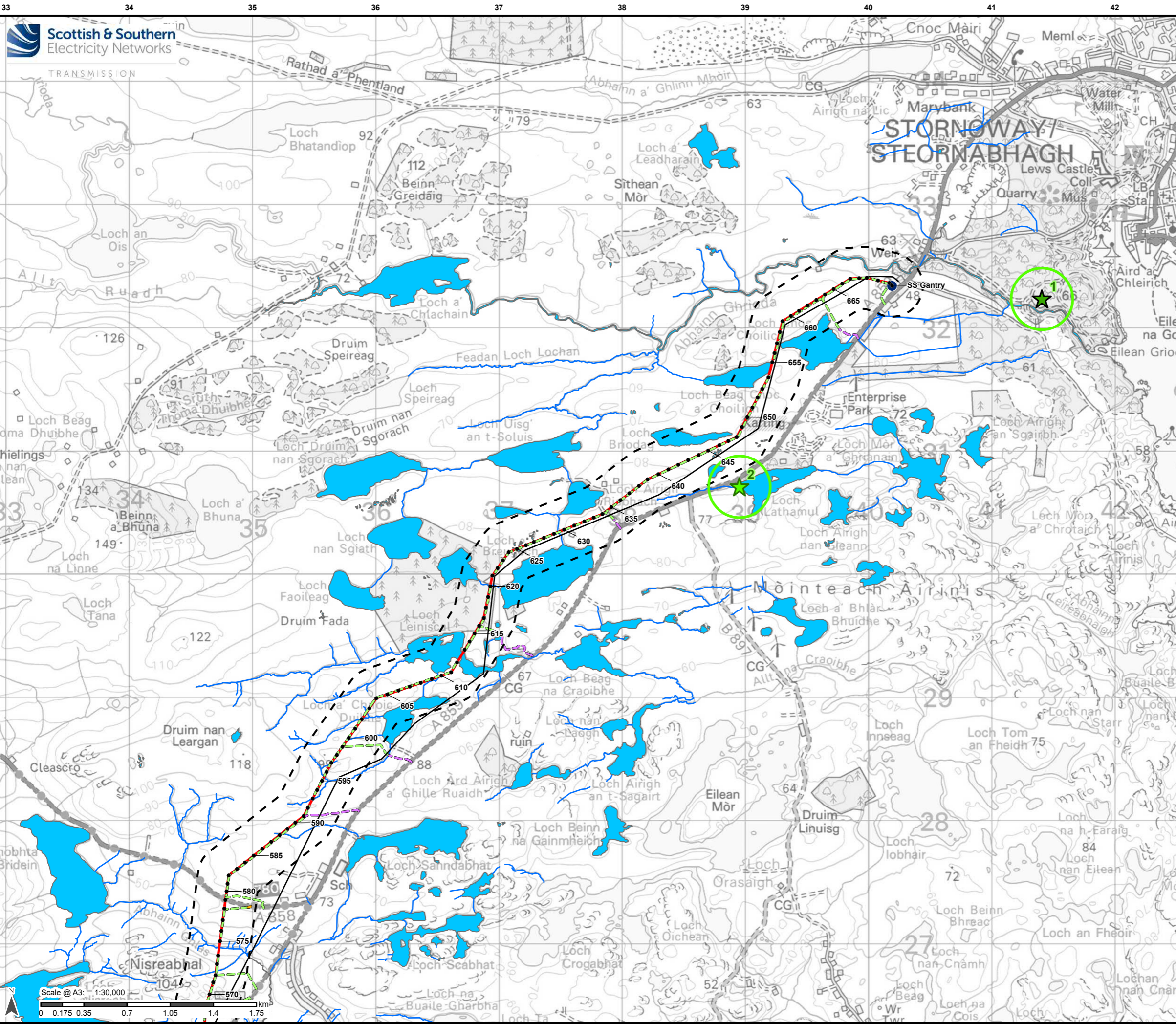
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Title:
Figure 10.6.1e:
Private Water Supply Study Area

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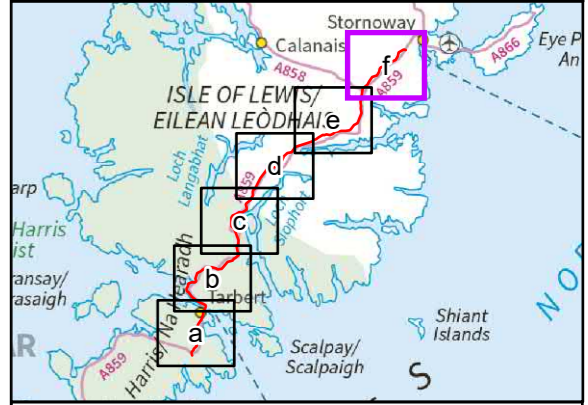


Legend

- Proposed Alignment
- Proposed Alignment Buffer (250 m)
- Indicative Pole Location
- Stornoway Substation
- Access - Existing Road
- Access - Existing Track
- Access - Open Ground
- Existing 132kV OHL to be Dismantled
- PWS Buffer (250 m)
- Watercourse
- Waterbody

Private Water Supply Source Type

- ★ Groundwater - Well
- ★ Surface - Loch



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