Appendix 6.1: Sloy Pumped Hydro Storage Scheme: Scoping Report

SLOY PUMPED STORAGE SCHEME

Scoping Report

June 2023

sse Renewables

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Overview

The Scottish Ministers granted consent for a pumping station at the existing Sloy Hydroelectric Power Station in September 2010. Subsequent extensions to the consent were granted in 2013 and 2014, until 13 December 2018, however, due to a perceived lack of market, the scheme was never built.

In recent years there has been an increase in the development of flexible renewable schemes (principally wind farms) to assist the UK in attaining its commitment to increase the proportion of electricity generated using renewable resources. As a result, there is now a recognised, clear and urgent need for the development of pumped storage, to enable greater compliance with electricity supply matching the demand.

SSE Generation Limited (SSE), "the Applicant", believes that the existing Sloy Hydroelectric Power Station continues to be ideally placed for the extension and conversion of the hydroelectric scheme into a pumped storage scheme. This would enable water to be pumped through existing pipelines and tunnels from Loch Lomond to Loch Sloy during times of low electricity demand to store excess energy ready for use during periods of higher demand or less supply.

This scheme could therefore be used by the network operator to ensure that more energy from renewable developments, that do not have the ability to match supply with demand, can be accommodated on the transmission network.

An Environmental Impact Assessment (EIA), supported by appropriate surveys and specialist assessment, will be carried out to inform an EIA Report. This will form part of an application for Section 36 consent under the Electricity Act 1989 for permission to construct the Sloy Pumped Storage Scheme (hereafter referred to as 'the Proposed Development').

This Scoping Report forms part of the EIA process and is provided to the Energy Consents Unit (ECU) of the Scottish Government under Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) in support of a request for a Scoping Opinion to determine the information to be provided within the EIA Report.

Responses to this Scoping Report should be directed to ECU to ensure all responses are collated and included within the Scoping Opinion. When submitting your response to the ECU, the Applicant would be grateful to receive a copy of the response. Responses should be directed to:

Energy Consents Unit
4th Floor, 5 Atlantic Quay
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1. Introduction

1.1. BACKGROUND INFORMATION

The Scottish Ministers granted consent for a pumping station at the existing Sloy Hydroelectric Power Station in September 2010. Subsequent extensions to the Section 36 consent were granted in 2013 and 2014, until 13 December 2018, however, due to a perceived lack of market, the scheme was never built.

In recent years there has been an increase in the development of flexible renewable schemes (principally wind farms) to assist the UK attain its commitment to increase the proportion of electricity generated using renewable resources. As a result, there is now a recognised, clear and urgent need for the development of pumped storage, to enable greater compliance with electricity supply matching the demand.

SSE Generation Limited (SSE), "the Applicant", has reviewed their operational assets and believes the existing Sloy Hydroelectric Power Station continues to be ideally placed for an extension and conversion into a pumped storage scheme.

The proposed pumped storage scheme would be located within the grounds of the Sloy Hydroelectric Power Station opposite the Inveruglas visitor centre on the A82 within the Loch Lomond and The Trossachs National Park, as illustrated on **Figure 1**. The pumped storage scheme would enable water to be pumped through existing pipelines and tunnels from Loch Lomond to Loch Sloy during times of low electricity demand to store excess energy ready for use during periods of higher demand or less supply. This scheme could be used by the network operator to ensure that more energy from renewable developments, that do not have the ability to match supply with demand, can be accommodated on the transmission network.

The proposal for which consent under the Electricity Act 1989 will be sought by the Applicant, is referred to in this report as 'the Proposed Development'.

1.2. REGULATIONS

The Applicant intends to submit a new application for Section 36 consent under the Electricity Act 1989 given the current consent has now lapsed.

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017[1], hereafter referred to as the 'EIA Regulations', contains two schedules. Schedule 1 lists projects where EIA is mandatory. Schedule 2 lists projects where EIA may be required 'where proposed development is considered likely to give rise to significant effects on the environment by virtue of factors such as its nature, size or location'. The Proposed Development is categorised as 'Schedule 2' development under the EIA Regulations.

Given the size of the Proposed Development (up to 120 MW) and similarities to the previous consented scheme, the Applicant has taken the decision to produce an Environmental Impact Assessment (EIA) Report to accompany an application for consent, without requesting a further EIA Screening Opinion from the Scottish Ministers. This EIA Scoping Report looks to identify the aspects to be considered in the EIA (as discussed further in Section 1.3).

[1] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, No. 101.

1.3. PURPOSE OF THIS REPORT

This Scoping Report forms part of the EIA process and is provided to ECU under Regulation 12 of the EIA Regulations in support of a request for a Scoping Opinion.

The purpose of this EIA Scoping Report is to ensure that the subsequent EIA is focused on the key impacts likely to give rise to significant effects. As well as identifying aspects to be considered in the EIA, this document also identifies those aspects that are not considered necessary to assess further.

In accordance with the EIA Regulations, this Scoping Report contains:

- A plan sufficient to identify the location of the Proposed Development;
- A brief description of the nature and purpose of the Proposed Development and its possible effects on the environment; and
- Information and representations from the Applicant on the aspects of the Proposed Development or environment that are not considered necessary to assess further in this EIA Report.

This Scoping Report allows statutory consultees and other consultees to comment on the Proposed Development, the scope of the EIA and the proposed assessment methodologies. It also provides an opportunity for consultees to raise any issues that they consider to be relevant to the EIA process.

The aims of this document are to:

- Set out the overall approach to the EIA;
- Summarise key baseline information;
- Describe the proposed assessment methodology;
- Identify key potential effects at all stages of development;
- Identify topics not requiring further assessment that can be scoped out; and
- Describe the proposed content and structure of the EIA Report.

The document is divided into seven sections:

- Section 1: introduces the Proposed Development and provides a context for the Scoping Report;
- Section 2: describes the Proposed Development;
- Section 3: outlines the planning policy context;
- Section 4: provides information on the approach to EIA and the structure of the EIA Report;
- Section 5: details the environmental features to be assessed as part of the EIA;
- Section 6: describes those environmental features that are proposed to be scoped out of the EIA; and
- Section 7: provides a list of references.

1.4. THE NEED FOR THE PROJECT

There is an increasingly consistent recognition across various tiers of government that climate change is a significant issue. The UN Secretary General has described climate change as a “Crisis Multiplier” that has profound implications for international peace and stability. The Scottish Government declared a ‘climate emergency’ in April 2019.

Following the declaration, the Climate Change (Scotland) Act 2009 was amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, increasing the ambition of Scotland’s emissions reduction targets to net zero by 2045 and revising interim and annual emissions reduction targets. The Scottish Government’s Climate Change Plan update demonstrates a pathway to meeting Scotland’s emissions reduction targets over the period to 2032.

In June 2019, the UK government committed to ambitious new targets of eradicating its net contribution to climate change by 2050. This commitment will amend the Climate Change Act 2008 and will mean the UK is on track to become the first G7 country to legislate for long term climate targets. The European Union's (EU) current commitment is for a reduction of 80-95% of 1990 levels by 2050 (European Commission, 2011).

The Scottish Government's Energy Strategy (Scottish Government 2017) sets out the target of achieving the "equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption… from renewable sources" by 2030. To meet this and wider renewable energy targets to be achieved by 2030, approximately 17GW of installed generation capacity will be required.

In March 2021, the Scottish Government published Scotland's Energy Strategy Position Statement which provides an overview of policies in relation to energy, reinforcing the 2017 Energy Strategy commitment by supporting the energy sector in reaching net zero whilst ensuring a green, fair, and resilient recovery for the Scottish economy following the Covid-19 pandemic.

Overall, to reduce greenhouse gas emissions, urgent action is required if we are to avert the worst consequences of climate change. Sourcing an increased proportion of our energy from renewable sources and using fewer fossil fuels have a key role to play in achieving this objective.

However, most of the renewable energy generating potential in Scotland is a long way from the end users and is not necessarily available when demand is high. This can lead to difficulties in matching supply with demand on the transmission system. Pumped storage facilities are an extremely useful tool in help the grid operators to match supply with demand.

Over a decade ago, the Applicant carried out a review of potential new pumped storage schemes and reviewed existing operational assets where an upgrade to pumped storage would be possible, taking into account current environmental, planning and construction practice. At the time, several of the potential new "greenfield" schemes were discarded due to the lengthy delay and cost of obtaining a connection to the transmission system. Work therefore concentrated on the potential upgrading of existing assets to pumped storage as the infrastructure for these sites, including connections to the grid, is already in place.

Sloy (the largest conventional hydro station in the UK) was identified as an excellent site, as the existing power station has the lowest load factor of SSE's hydro plants, and has large upper and lower reservoirs. It is ideal for converting into pumped storage. SSE continue to view Sloy as an ideal location to upgrade to a pumped storage scheme. While it is acknowledged that the scheme is located within a very sensitive area, if designed sympathetically and to a high standard, it is considered that significant adverse effects can be avoided, as was demonstrated by the previously consented scheme.

2. The Proposed Development

2.1. INTRODUCTION

This section of the Report provides a short description of the existing Sloy Hydroelectric Scheme and an outline of the proposed pumped storage scheme. At this stage, the detailed design of the Proposed Development has not been fully developed and a level of refinement of the scheme is expected prior to submission of a section 36 application.

2.2. DESCRIPTION OF THE EXISTING SLOY HYDRO SCHEME

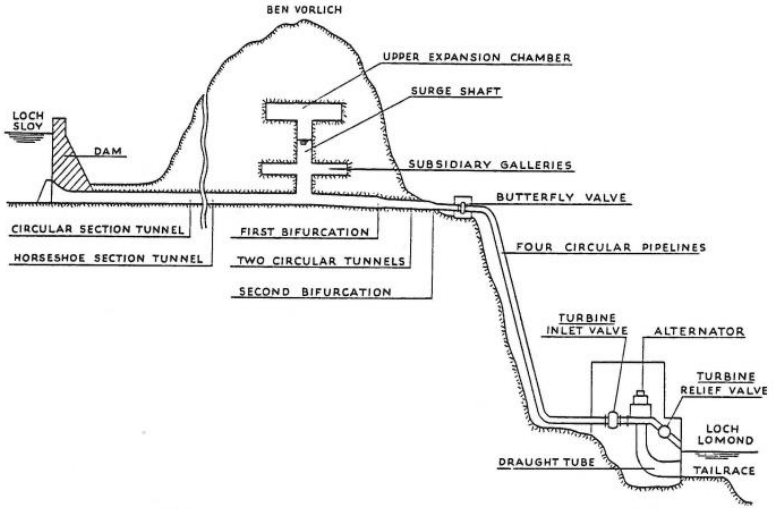
The Sloy Hydroelectric Scheme came into operation in 1950. It was a hugely ambitious engineering project at the time and construction activities extended over a wide area. The operational scheme has been recognised for its engineering and architectural importance for many years and is Category A Listed. Now over 70 years since construction was completed, the above ground elements of the development have largely been absorbed into the surrounding landscape, and the main features of the lower works, including the power station building, the tailrace and the four high pressure steel pipelines, appear as distinctive structures within a woodland setting.

The scheme makes use of the waters of Loch Sloy, the surface of which, since 1950, lie at 285 m above sea level and the steep slope down to the shores of Loch Lomond, lying at less than 10 m above sea level but only 4 km away from Sloy Dam. Such a difference in height within a small horizontal distance offered ideal conditions for the development of the scheme.

The Sloy dam (56 m high and 357 m long), raised the surface level of the loch by about 47 m and doubled its length. A system of aqueducts and tunnels was built to divert water into Loch Sloy from areas well to the north and south, increasing the catchment from 43.5 km^2 to 205 km^2. The average annual rainfall within the mountainous catchment area of Loch Sloy is over 3000 mm and each 25 mm of rainfall has the capacity to generate about 1 million units of electricity on the scheme.

From Loch Sloy the water is carried over 3 km by a tunnel through Ben Vorlich, which towers almost 940 m above Loch Lomond. The water then falls down the side of the mountain in 4 large high pressure steel pipelines to Sloy power station at Inveruglas bay on Loch Lomond. A surge shaft and surge chamber, built into the tunnel system near its outlet, copes with sudden variations in pressure during the operation of the turbines (**see Plate 1**).

Plate 1: Cross Section of Existing Sloy Hydroelectric Scheme



Inside the power station, four Francis turbines drive four vertical shaft generating sets. Currently, three of these sets are rated 40 MW and the fourth is rated 32.5 MW. Energy is exported to the grid via 132 kV overhead lines connected to the nearby Sloy substation. With an installed capacity of 152.5 MW Sloy is the UK's largest conventional hydroelectric power station.

Sloy currently generates around 130 million units of electricity in a year of average rainfall. With a rated capacity of 152.5 MW this gives a load factor of 10% as Sloy is generally run only at times of peak demand.

Figure 1 illustrates the location of the existing Sloy hydroelectric station.

2.3. DESCRIPTION OF THE PROPOSED PUMPED STORAGE SCHEME

It is proposed to convert the existing hydro scheme at Sloy into a pumped storage scheme, by the introduction of new pumps, located in the grounds of the existing hydroelectric scheme, immediately north of the power station, opposite the Inveruglas Visitor Centre.

The new pumps would enable water to be pumped through two or three of the existing four high pressure pipelines and tunnels from Loch Lomond to Loch Sloy during times of low demand (typically overnight) or oversupply (when there is too much renewable energy being generated from wind farms, run-of-river hydro schemes, marine devices etc).

Not only would the Proposed Development enable the load factor at Sloy to increase from 10% to (up to) 20%, but it would also minimise the likelihood of renewable energy from other sources being constrained off the grid during times of low demand.

It should be noted that no new works would be required at Loch Sloy to enable the Proposed Development.

The principal permanent components of the Proposed Development are as follows:

- One surface building to house electrical switchgear, pump infrastructure and gantry crane.
- Vertical shaft, multi-stage pumps.
- A below ground pump hall located with the pump excavations, extending to a depth of approximately 20 m below existing ground level.

- Intake structure, including fish screens and a screen cleaning gantry, connecting the pumps to the extended existing tailrace.
- Removal and replacement of the existing spray reduction structure.
- New buried pipelines to take the water from the pumps to connect into two or three of the 2.4 m diameter high pressure above ground pipelines.
- Reconfiguration of power station internal road for vehicular access.
- Reinstatement of areas affected by construction of the scheme with new profile, earthworks and planting.
- Dismantling (to improve construction access) and reinstatement of the power station listed northern entrance gates and gate pillars.

In addition, there will be a requirement for a temporary construction compound and site establishment area and an area allocated for the temporary storage of excavated rock, as well as the reuse of rock spoil resulting from the pump excavations.

Details of the elements as they are currently envisaged are set out in more detail below.

2.3.1. BUILDING

A new surface building would be required. The Applicant has commissioned the services of Page \ Park Architects to undertake the design concepts of the proposed above ground elements, for inclusion in the planning stages of the project.

It is anticipated that a high-quality contemporary building will be proposed (as was the case for the consented scheme), rather than mimicking the existing Category A Listed buildings. The building is likely to be positioned parallel and separate to the existing power station. It would comprise a main hall with vehicular access and laydown areas. The internal area would house an overhead traveling crane. To accommodate the crane, the size of the building is likely to be in line with the height of the existing administration building. At the rear of the building there would be space to house electrical switchgear and control systems.

2.3.2. UNDERGROUND PUMP HALL

A new underground pump hall would be required to house the pumps. This would link to the intake structure and would be approximately 20 m deep below existing ground level. The pump hall would have a reinforced concrete roof slab, located at existing ground level with covered openings to enable removal of critical components for maintenance, using the overhead crane located in the surface building.

2.3.3. PUMPS

The pumping plant would comprise two vertical shaft, multistage pumps installed below ground level adjacent to the northern tailrace wall. The power demand of each pump would be 40-50 MW. Power supply for the pumps would be taken from the existing grid point of connection to the rear of the main building.

Water would be abstracted from the existing tailrace, which would be extended, via an intake structure with fish screens. The discharge from the pumps would be delivered via buried pipelines which would connect into two or three of the existing 2.4 m diameter high pressure pipelines, approximately 40 m from the power station.

2.3.4. INTAKE STRUCTURE AND TAILRACE

The purpose of the intake structure is to provide a water passage from Loch Lomond to the new pumps. The intake structure would connect into the side of the existing tailrace on the north side of the power station. The existing tailrace would need to be extended and as a result, the existing spray reduction structure (which was constructed in the early 2000s and is not listed) would need to be removed and replaced. Permanently installed trash and fish screening, with an automated cleaning system, designed in accordance with the Scottish Environment Protection Agency (SEPA) guidance, would be required across the pump intake structure. The basis of design for these screens is currently under discussion with SEPA.

2.3.5. BURIED PIPELINE

New buried pipelines would be required to take water from the pumps to connect into two or three of the existing 2.4 m diameter high pressure pipelines. A small section of random rubble walling that surrounds the existing surface pipelines would need to be removed and replaced in order to connect the new pipeline with the existing pipeline. There may also be a valve chamber on each pipeline near to the connection to the penstocks.

2.3.6. EXCAVATED MATERIALS

The proposed construction activities below ground would result in rock excavations. The preferred area for the storage of excavated rock identified for the consented scheme, was located immediately adjacent and to the north of the existing power station in an area that was cleared and used as a site establishment area for the construction of the existing power station (see **Figure 7b**). Woodland, (heavily infested with rhododendron) has re-established in this area since the 1950s. The consented scheme proposed the partial clearance of the wooded area prior to commencement of construction activities, to enable construction access to occur directly via the adjacent existing power station site, to minimise the requirement to access the public road. A screening buffer of trees was proposed to be retained around the perimeter of the area to retain as many trees as possible and to provide a visual buffer. Upon completion of the works, the area was proposed to be landscaped and revegetated.

In response to the adoption of NPF4 in February 2023, at an early stage in the EIA process for the Proposed Development, the potential use of the area to the north of the existing power station site will be revisited, and an alternatives exercise will take place by the EIA team, in consultation with the Applicant, LLTNPA and other consultees, to consider the most appropriate areas for site establishment and storage and reuse of excavated materials, as well as compensation for any habitat loss and any suitable enhancement works.

2.3.7. TEMPORARY CONSTRUCTION COMPOUND

It is anticipated that a temporary construction compound and vehicle holding area would be required in close proximity to the proposed works for the duration of the construction activities. Following completion of the construction works, the construction compound and the holding area would be removed, and the sites reinstated.

2.4. SITE ACCESS

There are two existing bellmouth junctions to access the existing power station off the A82. The southern junction is used for the day to day operation of the existing scheme. The northern junction acts as a secondary access and the gates are currently locked. As was the case for the consented scheme, it is anticipated that the northern junction, would be used during the construction of the Proposed Development.

This would allow construction traffic to be kept separate from traffic to the existing operational power station, while utilising an existing access route.

The power station internal road alignment would require to be realigned to accommodate the footprint of the new development.

To facilitate construction of the Proposed Development, the existing northern gates, gate posts and a short section of walling (which are all part of the category A listed Power Station schedule) would need to be carefully dismantled prior to construction of the Proposed Development to enable sufficient junction width for the maximum swept path of anticipated delivery vehicles. The junction would be fully reinstated, upon completion of construction. This work would require Listed Building Consent, (as it was for the previously consented scheme) and would be subject to further discussion with LLTNPA and Historic Environment Scotland (HES).

Consultation has begun with Transport Scotland regarding the temporary use of the northern junction onto the A82, and this will continue through the EIA process.

2.5. PROJECT CONSTRUCTION

It is anticipated that construction of the project would take place over an approximately 24 month period, following the granting of consents. Detailed programming works would be the responsibility of the Principal Contractor in agreement with the Applicant.

The Applicant will engage with Scottish and Southern Electricity Networks regarding their construction programme for the replacement transformers project, which is proposed in the vicinity of the Proposed Development, to avoid any conflict resulting from an overlap between the two construction projects.

2.6. DECOMMISSIONING

The existing hydroelectric station was opened in 1950 and there are no plans for decommissioning in the future. It is anticipated that decommissioning be scoped out of assessment.

3. Planning Policy Context

3.1. INTRODUCTION

This section provides an overview of the planning policy context for the Proposed Development. A more detailed discussion and evaluation of relevant policies will be included within the Planning Statement that will be provided as a supporting document with the application submission, as discussed further in Section 5.4: Supporting Documents. An up-to-date list of relevant planning policies will be contained within the EIA Report.

3.2. NATIONAL PLANNING POLICY

3.2.1. NATIONAL PLANNING FRMAEWORK 4

NPF4 was adopted by Scottish Ministers on 13 February 2023 and now comprises the national element of the statutory Development Plan. NPF4 sets out the long-term vision for development and investment across Scotland and has replaced Scottish Planning Policy (SPP) and National Planning Framework 3 (NPF3), neither of which formed part of the statutory Development Plan. NPF4 sets out a list of national planning policies to assess applications. It sets out how planning and development will help Scotland to achieve a 'net zero, sustainable Scotland by 2045'. It confirms the necessary shift required to achieve net zero emissions by 2045. It will also 'play a critical role in supporting nature restoration and recovery' and will be followed by a Scottish biodiversity strategy which will set targets for 2030.

National Development 2 'Pumped Storage Hydro' confirms that this class of development 'will play a significant role in balancing and optimising electricity generation and maintaining the operability of the electricity system as part of our transition to net zero'. NPF4 confirms that a variety of developments providing new and/or expanded pumped hydro storage facilities (e.g. holding reservoirs, generating plant structures or buildings, pump plant structures etc) are designated national developments where they would otherwise have been classed as a 'major' development under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009. The Proposed Development falls within this category.

3.3. LOCAL DEVELOPMENT PLAN

The site lies entirely within the jurisdiction of the Loch Lomond and the Trossachs National Park Authority (LLTNPA). Under the Planning etc (Scotland) Act 2006 (as amended), Councils are required to prepare and keep up to date a statutory Development Plan which would provide the land use planning policy framework for their administrative areas.

3.3.1. THE LOCH LOMOND AND THE TROSSACHS NATIONAL PARK LOCAL DEVELOPMENT PLAN, 2017-2021

The Loch Lomond and the Trossachs National Park LDP was adopted in 2017 and while the Plan is due to be updated, the LLTNPA have revised timescales to align with new planning legislation, and they have confirmed that the current Plan will remain in place until 2024.The EIA Report would summarise and give due consideration to the Overarching, Natural Environment and Historic Environment policies of the LDP.

Sitting alongside the LDP is Renewable Energy Supplementary Guidance (SG). This SG contains a section relating to hydro energy, which incorporate pumped storage. The SG will be considered in the Planning Statement, as relevant to the Proposed Development.

3.4. OTHER PLANNING POLICY AND GUIDANCE

The EIA Report would include a thorough assessment of the Proposed Development with respect to the Aims of the National Park as set out in the National Parks (Scotland) Act 2000.

3.5. ENERGY POLICY AND LEGISLATION

The Planning Statement will also consider relevant UK and Scottish Government energy policies and legislation and will consider the Proposed Development in the context of the Scottish Government's legally binding target to achieve net-zero greenhouse gas emissions by 2045. A variety of policy documents will be considered, depending upon their status at the time of application submission including, for example, the Scottish Government's Energy Strategy and Just Transition Plan, noting that at the time of writing this document is in draft format and may be subject to change by the time of application submission.

4. Consultation

4.1. EIA CONSULTATION

The previous consented development was the subject of rigorous consultation with ECU, LLTNPA, SEPA, and other statutory and non-statutory bodies and the local community, during the design and consenting process. This dialogue was an important aspect of the successful outcome of the consented development and will continue throughout the EIA process for the Proposed Development.

4.2. SCOPING CONSULTATION

The Scoping Report will be issued to the statutory consultees listed below:

- LLTNPA
- SEPA
- NatureScot
- Historic Environment Scotland

In addition to the statutory consultees above, the Scoping Report will be issued to the following consultees:

- Argyll District Salmon Fisheries Board
- British Telecom (BT)
- Cruise Loch Lomond
- Defence Estates
- Fisheries Management Scotland
- Joint Radio Company
- John Muir Trust
- Loch Lomond Fisheries Trust
- Marine Scotland
- Mountaineering Council of Scotland
- Network Rail
- RSPB Scotland
- Scottish Forestry
- Scottish Rights of Way and Access Society (ScotWays)
- Scottish Water
- Scottish Wildlife Trust
- Transport Scotland
- Visit Scotland
- West of Scotland Archaeological Service
- Woodland Trust

The Scoping Report will also be issued to Arrochar, Tarbet and Ardlui Community Council.

The scoping and consultation process completed for the Proposed Development will be reported in a chapter in the EIA Report.

4.3. PUBLIC EXHIBITIONS

Public exhibitions will be held to seek views from local residents and other interested parties about the Proposed Development. The exhibitions will provide information regarding the need for new pumped storage and specific details of the Proposed Development and will provide an opportunity for members of the public to ask questions about the Proposed Development. Representatives will be present to answer any questions.

The first public exhibition will be held at post-scoping stage on 25th July 2023 at the Three Villages Hall in Arrochar. We envisage a further exhibition will be held at pre-application stage at the same venue.

5. Proposed Approach to EIA

5.1. THE OVERALL APPROACH TO THE EIA

The EIA process enables the likely significant effects of the Proposed Development on the environment to be fully understood and taken into account during consideration of the application. The process is also used to develop mitigation measures to avoid, reduce or offset any adverse effects of the Proposed Development.

The Applicant has appointed a team of independent competent experts to advise on the environmental issues associated with the Proposed Development. These specialists will work with the Applicant during the design process, carry out environmental impact assessment work, and will prepare chapters for inclusion in the EIA Report.

The EIA Report will be based on the Scoping Opinion and would be prepared in accordance with the EIA Regulations. Consideration will also be given to advice contained in Planning Advice Note 1/2013 and Planning Circular 1/2017 (Environmental Impact Assessment), where relevant.

The EIA work will comprise a series of specialist environmental studies which will be targeted to assess any potential significant effects which the Proposed Development may have on the environment. Each topic included within the EIA process will be incorporated as a separate chapter in the main body of the EIA Report.

Throughout the EIA Report, where an issue raised in the Scoping Opinion is addressed, this will be clearly referenced in the relevant chapter. A scoping matrix will also be included in the EIA Report which will detail all consultation responses received during the scoping and EIA process, with a reference to where these responses have been addressed in the EIA Report. A schedule of mitigation measures will also be included as an appendix and cross-referenced in the relevant assessment work.

5.1.1. CUMULATIVE EFFECTS

Other developments of a similar nature within the local area, where there is potential for cumulative effects with the Proposed Development, will be identified and agreed through discussions with the LLTNPA. Developments suggested by LLTNPA will be considered as part of the cumulative assessment in the EIA Report.

It is considered that the EIA will include a cumulative assessment of the proposed removal of existing transformers at Sloy Power Station with replacement transformers being relocated within a new substation compound in close proximity to the Site. A request for a Screening and Scoping Opinion has been issued by Scottish and Southern Energy Networks to LLTNPA for the transformer replacement works[2].

5.2. STRUCTURE OF THE EIA REPORT

It is anticipated that the EIA Report will be produced as four volumes:

- Volume 1: Non-Technical Summary;
- Volume 2: Written Statement;
- Volume 3: Figures; and
- Volume 4: Technical Appendices.

[2] Sloy Power Station Transformer Replacement Works. Screening and Scoping Opinion Request. LLTNPA Planning Portal Reference: PSC/2022/0006

Volume 2 will include introductory chapters that describe the background and needs case for the Proposed Development, provide the relevant energy and national policy context and provide information with regard to the construction and operation and decommissioning of the proposed pumping station.

For each of the environmental features assessed in Volume 2, the following information will be included in the respective chapters:

- a summary;
- an introduction to the environmental feature;
- scoping and consultation responses;
- assessment scope, methodology and study area;
- baseline conditions;
- impact assessment and proposed mitigation; and
- references.

Volume 2 will conclude with a summary chapter outlining the main committed mitigation measures and an overall summary of significance in the context of the EIA Regulations.

Where required, a confidential appendix will be prepared containing any sensitive, confidential information to be provided to THC and relevant statutory consultees.

5.3. EIA REPORT FORMAT

The EIA Report will be made available via the ECU's application search portal. Hard copies of the EIA Report will be made available at publicly accessible deposit locations, the exact details of which would be agreed with ECU and the LLTNPA. Where requested, hard copies and electronic copies will be made available to consultation bodies and consultees.

5.4. SUPPORTING DOCUMENTS

A Planning Statement will be prepared in support of the submission, however, as it is not a requirement under the EIA Regulations, it will not form part of the EIA Report. The Planning Statement will discuss the relevant energy and environment policies relating to pumped storage development and the Development Plan context for the Proposed Development.

A Design and Sustainability Statement will be prepared, setting out the design principles that have influenced and shaped the design of the Proposed Development, with an integrated section on Sustainable Design.

An Outline Construction Environment Management Plan (CEMP) will be provided as an appendix within the EIA Report and will contain general and best practice information applicable to the construction phase of the Proposed Development on the following subject-matters:

- Site Induction and Training;
- Pollution Prevention;
- Site Waste Management;
- Drainage Management;
- Water Quality Monitoring;
- Watercourse Crossings;
- Concrete works and washout;
- Excavation Materials and Reinstatement;
- Ecological (Habitats and Species) Protection;

- Archaeological Protection;
- Land Use and Public Access; and
- Environmental Incident and Emergency Response.

6. Environmental Features

6.1. INTRODUCTION

The EIA Report will provide an assessment of effects during the construction, operation and decommissioning of the Proposed Development for the environmental features described in this section.

This section provides a brief overview of the baseline conditions, the potential effects associated with the Proposed Development and the assessment methodology for each environmental feature to be considered in the EIA Report.

The site of the Proposed Development has been subject to a number of surveys and assessments that were completed on behalf of the Applicant to support the submission for the Sloy Pumping Station (2009). The intention is to draw, where possible, on information that has already been collected for the site and surrounding area to inform the EIA for the Proposed Development, although it is noted that there is potential for change in the intervening years.

6.2. WATER MANAGEMENT AND HYDROLOGICAL CONSIDERATIONS

The Proposed Development broadly comprises a system to transfer water between Loch Lomond (lower reservoir) and Loch Sloy (upper reservoir). During times of generation, water is currently transferred from Loch Sloy to the tailrace at Loch Lomond via any or all of the four existing pipelines (penstocks). When required by National Grid, to balance load on the electricity network, water would be pumped from Loch Lomond into the reservoir at Loch Sloy using the proposed pumping station development and the existing hydraulic infrastructure. The maximum and minimum level limits of Loch Lomond will remain within the current limits.

The present maximum and minimum water levels of Loch Sloy and Loch Lomond would not change as a result of the Proposed Development, although variation in the level of Loch Lomond and Loch Sloy would be expected to be more frequent than they are at present during operation of the Proposed Development.

6.2.1. BASELINE FINDINGS

Loch Lomond is the largest area of freshwater in Great Britain with a surface area of approximately 71 million m^2. It has a stored volume of 2,628 million m^3 which is exceeded only by Loch Ness. The loch and its catchment waters have many existing uses from recreation and water supply to the existing hydro power generation at Sloy.

The water level in Loch Lomond is controlled by the barrage across the River Leven just downstream of the loch. The primary role of the barrage is to ensure the loch remains high enough for water supply abstraction. The main abstraction point from Loch Lomond is at Ross Priory.

The loch has a direct catchment area of 764 km^2 and a catchment average annual rainfall of around 2060 mm per annum.

Loch Sloy at its top water level of 284.99 m AOD has a capacity of 36 million m^3. The loch has a direct catchment of 43.5 km^2. A system of aqueducts and tunnels were built to divert water into Loch Sloy

increasing the catchment from 43.5 km^2 to 205 km^2. The average annual rainfall within the mountainous catchment area of Loch Sloy is over 3,000 mm.

6.2.2. POTENTIAL EFFECTS

Scottish Water have an abstraction from Loch Sloy and the Applicant will revisit previous discussions with the water company to ensure that the blended Sloy / Lomond water arising from pumping remains within the necessary quality envelope.

6.2.3. PROPOSED SCOPE OF ASSESSMENT

It is proposed to carry out hydrological modelling to explore and assess the potential effects of the Proposed Development on water management within the Loch Lomond catchment. The results of the assessment would inform other aspects of the EIA as required.

6.3. TERRESTRIAL ECOLOGY

6.3.1. BASELINE FINDINGS

6.3.1.1. Statutory Ecological Designations

The site falls within the Loch Lomond and the Trossachs National Park (NP) and Loch Lomond National Scenic Area (NSA). An additional six ecological designated sites are present within 5 km radius of the Proposed Development area, as set out in **Table 5.1** below and on **Figure 2**.

Table 5.1: Statutory Designated Sites

Site Name	Designation	Distance and Orientation	Designated Features
Loch Lomond and The Trossachs National Park	NP / NSA	On-site	Special qualities include Argyll Forest, Loch Lomond, Breadalbane and the Trossachs.
Pollochro Woods	SSSI	860 m east	Bryophyte assemblage Lichen assemblage Wet woodland Wood pasture and parkland
Loch Lomond Woods	SAC	860 m east and 3 km southwest	Otter Western acidic oak woodland
The Great Trossachs Forest	NNR	860 m east	Woodland restoration project
Ben Vorlich	SSSI	1.4 km west	Alpine flush Subalpine wet heath Tall herb lodge
Craig Royston Woods	SSSI	2.1 km southwest	Moth assemblage Upland oak woodland

Glen Loin	SSSI	3 km southwest	Upland mixed ash woodland Upland oak woodland
Rowardennan Woodlands	SSSI	4.5 km southeast	Upland oak woodland
Ben Lomond	SSSI	4.7 km southeast	Upland habitats Vascular plants Invertebrates

*Sites of Special Scientific Interest (SSSI); Special Area of Conservation (SAC); National Nature Reserves (NNR)

6.3.1.2. Non-Statutory Ecological Designations

There are no non-statutory ecological designated sites present within the Proposed Development area. The Inversnaid Royal Society for the Protection of Birds (RSPB) reserve is located on the eastern shore of Loch Lomond, approximately 1 km east of the site (see **Figure 2**). It overlaps with Pollochro Woods SSSI and is considered an internationally important example of rare Atlantic oak woodland.

6.3.1.3. Ancient and Native Woodland

No ancient woodland is present within the Proposed Development area. There is an area of ancient woodland (of semi-natural origin) (ASNO) to the south-west of the site and within 2 km of the site, there are ten areas of ASNO, two long established Woodland (of plantation origin) (LEPO) and two areas of other type of ancient woodland.

The woodland to the north of the existing power station, is listed in the Native Woodland Survey of Scotland as ‘Wet Woodland’. This woodland may be partially affected, should this be identified as the preferred location for a site establishment area, storage and reuse of excavated rock spoil, as was considered for the consented scheme.

6.3.1.4. Habitats

As part of the 2009 ES for the consented scheme, a full suite of terrestrial ecology surveys were undertaken which included a habitat survey, as well as surveys for animals (including otters, water voles, badgers, bats, and signs of other mammals including and red squirrel).

In September 2022, an updated Phase 1 Habitat Survey was undertaken, according to the standard Joint Nature Conservation Committee (JNCC) method and was used to determine the potential presence of any Annex I and / or priority habitats in all areas potentially affected by development.

Twelve broad habitats were identified, as described below and illustrated on **Figure 3,** plus Scottish Biodiversity List (SBL) Priority Habitats wet woodland and lowland mixed deciduous woodland (semi-natural broadleaved woodland).

The area surrounding the existing power station building comprises hard surfaced roadways and *Amenity Woodland*; an area of regularly mown amenity grassland. The species composition is dominated by creeping red fescue and sweet vernal grass with white clover, dandelion and springy turf moss being abundant.

Scattered broadleaved trees are present across the amenity grassland including semi-mature sycamore, ash, Norway maple and sweet chestnut.

Habitats in the adjacent woodland to the north, comprises *semi-natural broadleaved*, and includes dominant birch with frequent rowan, hawthorn and Scot's pine; occasional ash, willow and hazel; as well as rarely found holly and sycamore. Following the recent removal of densely spread rhododendron throughout the woodland, the understorey vegetation is lacking, however various native plant species were observed recolonizing the ground. There is a *flush / spring* present within the broadleaved woodland creating an area of saturated ground as well as an area of *valley mire,* fed by water from the valley sides and comprises surface water with very little flow. There are two areas of *conifer plantation woodland* situated within the semi-natural broadleaved woodland habitat, dominated by semi-mature Sitka spruce and larch.

Other habitats recorded during the surveys include *mixed plantation woodland*, *marshy grassland*, *open standing water*, *wall, building* and *bare ground,* as identified on **Figure 3**.

It should be noted that the whole of the Proposed Development area formed part of the construction site for the existing Sloy power station completed in 1950 (see **Figure 7**), so all vegetation that may be affected by the Proposed Development, has development since that time.

6.3.1.5. Groundwater Dependent Terrestrial Ecosystems

Wetland areas which could represent potential groundwater dependent terrestrial ecosystems (GWDTE) were identified during the 2022 survey, including wet woodland, marshy grassland, valley mire and flush/spring. Further targeted NVC surveys will be conducted of these habitats in accordance with the relevant guidance, to determine GWDTE status.

6.3.1.6. Invasive Non-Native Species

Invasive non-native species (INNS) Japanese knotweed (*Reynoutria japonica*), Rhododendron ponticum and White butterbur (*Petasites albus*) were recorded during the 2022 survey. The Site is under current management to eradicate invasive non-native plants. Prior to ground works, the extent of all invasive plants on site will be mapped and a plan to avoid spread of plants off-site will be published for review by NatureScot.

6.3.1.7. Protected Species

Bats

The existing power station building is a two-storey concrete building with a flat concrete roof. No obvious gaps or potential roost features (PRFs) were identified during the 2022 survey. Additionally, the noise and vibration from the penstocks that are connected to the building turbines, when working, are likely to deter roosting bats.

Within the eastern extent of the broadleaved woodland adjacent to the existing power station to the north, a single dead tree is considered to have moderate suitability for roosting bats due to the presence of PRFs including woodpecker holes in the main stem which provide cavities.

Otter

Two otter field signs were identified in 2002 (returned from the desk study via GMBRC) in Inveruglas Water 500 m south of the existing power station and Arklet Water burn 2 km east of the site, but no evidence of otter was identified during the 2022 survey.

Red Squirrel

Fifteen records of red squirrel were returned from the desk study from SSRS and five potential red squirrel dreys were identified during the 2022 survey within the adjacent woodland to the north, which provides suitable habitat for foraging and commuting as well as opportunities for drey creation. The wider landscape also hosts grey squirrel and as such the populations of the two species may be dynamic in this location.

Pine Marten

No records of pine marten were returned from the desk study nor were identified during the 2022 survey. The habitat is deemed suitable to host pine marten and although not recorded on Site, they are considered present in the wider Trossachs landscape.

Badger

A record of badger was returned from the desk study via GMBRC within 2 km of the Site but no evidence of badger was recorded during the 2022 survey, although there is opportunity for sett creation and foraging resource within the woodland within the Site.

Reptiles

No records of reptiles were returned from the desk study. The Site and surrounding habitats offer suitable foraging and commuting habitat for reptiles including wooded areas, forest edges and bracken. Basking opportunities are also available via embankments of roads, railways and rock surfaces. Overall, the Site is thought to have moderate suitability for reptiles.

Amphibians

No records of amphibians were returned from the desk study. There are no ponds present within the Site however terrestrial habitats including woodland and grassland within the Site can provide resting and foraging opportunities, and features such as stone walls and boulders may act as refugia for hibernating amphibians. Wetland features may provide some opportunity for amphibians to be present on Site.

6.3.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

Without avoidance and mitigation strategies in place, the potential impacts of the Proposed Development include:

- Loss of Scottish Biodiversity List (SBL) Priority habitats if wet woodland, lowland mixed deciduous woodland and lowland fens are affected by the works.
- Degradation, impacting source or loss of potential GWDTE.
- Spread of invasive species.
- Loss of features with the opportunity to be used by mammals for shelter (drey, roost, burrows, den sites).

6.3.3. PROPOSED SCOPE OF ASSESSMENT

Further surveys will be undertaken, as set out below, in accordance with relevant guidance:

- National Vegetation Classification (NVC) study of the two wetland features to ascertain the presence of notable botanical indicators which would suggest (GWDTE).
- Survey the Site habitats for their bat activity via deployment of static recording devices and walked transect surveys with stopping points for recording and observation.
- Continued monitoring of the site for red squirrel activity or new drey features, mammal burrows, and previously unrecorded invasive species during all site visits in summer 2023.
- An invasive species management plan to specify eradication of nearby Japanese Knotweed and the continued reduction in Rhododendron ponticum (and any other terrestrial invasive plants) from surrounding habitats.

The results of these surveys will be used to inform an Ecological Impact Assessment (EcIA) of the Proposed Development in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (2018).

6.4. AQUATIC ECOLOGY

6.4.1. BASELINE FINDINGS

For the previous consented scheme, it was agreed with statutory consultees, that the assessment of the aquatic ecology of the area should be focused on Loch Sloy and the Inveruglas Bay area of Loch Lomond. Aquatic surveys were conducted in 2008 within these water bodies The 2009 assessment focused on the risk of fish transfer (Ruffe *Gymnocephalus cernua*), fish mortality, changing water fluctuations in Loch Sloy, mixing of Loch Lomond and Sloy waters in Loch Sloy and Inveruglas Bay, and introduction of non-native species to Loch Sloy. The assessment resulted in recommendations for design solutions to avoid the highlighted risks.

6.4.1.1. Fish

Atlantic salmon are present in Loch Lomond and are a qualifying feature of the River Endrick SAC, located in the south-west of the loch. The River Falloch, also known to host a run of Atlantic salmon is located in the north of the loch. Salmonids may spawn in several tributaries draining into the loch. Within the design of the project, screening arrangements are specifically designed to avoid impacting salmon smolts.

Fish species were surveyed in 2008-09 in Inveruglas Bay which recorded brown trout, European eel, perch, roach, pike and ruffe. The original fish population of Loch Sloy, when it was a small hill loch, included brown trout only with perhaps some eels. When the loch was dammed in 1945 for the Sloy Hydro Electric Scheme, the scheme excluded eels from the loch, however, they could still enter Loch Sloy from other catchments. Powan is a rare freshwater fish, and between 1988-90, powan from Loch Lomond were introduced into Loch Sloy as a conservation refuge population, as the powan in Loch Lomond were one of only two indigenous populations in Scotland, at the time, and were considered to be under threat.

One of the key issues identified for the consented scheme was the possible introduction of ruffe, a non-native species present in Loch Lomond, to Loch Sloy via the new pumps, during operation. The 2009 assessment concluded that ruffe eggs would likely be pumped into Loch Sloy resulting in likely damage to the safeguard powan population. It was anticipated that ruffe could potentially populate Loch Sloy and

predate the powan eggs. In order to counter the possible loss of the Loch Sloy powan, the Applicant offered other reservoirs as potential safeguard sites for powan. An extensive survey and assessment concluded that Lochan Shira should be the primary site for an introduction of Loch Lomond powan, and that Allt na Lairige could be used as a secondary site if sufficient eggs were available. Both sites were taken forward for use, and monitored, in addition to Loch Tarsan Reservoir and Loch Glashan Reservoir receiving powan from a population at Loch Eck. The monitoring results found that the translocations were successful overall. Further monitoring surveys are planned for summer 2023.

6.4.1.2. Invasive Species

During the 2008 surveys, a non-native invasive species *Epilobium brunnescens* was found in Loch Sloy however data suggests this plant is distributed throughout Scotland's hills and may be ubiquitous in the Loch Lomond catchment. A non-native invasive species, Canadian Pondweed (*Elodea canadensis*) was found in the trashline at Inveruglas Bay in Loch Lomond.

6.4.1.3. Invertebrates and Amphibians

As set out in the 2009 EIA for the consented scheme, the nearest SEPA sampling point for macroinvertebrates on Loch Lomond is at Tarbet Isle, some 4 km south of Inveruglas Bay. The dataset showed a diverse array of aquatic macroinvertebrates, and likely a good food source for fish. Macroinvertebrate communities were sampled in Loch Sloy in 2008 and the species recorded were mainly common and widespread with no rarities.

6.4.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

Without mitigation measures in place, the potential aquatic effects associated with the construction of the Proposed Development could include:

- Construction noise, vibration and dust from increased traffic and rock excavation could potentially negatively impact species or pollute habitats of Loch Lomond and Loch Sloy.
- Spread of invasive species.
- Construction lighting may disrupt the normal cycles of aquatic species should waterbodies be illuminated.

Without mitigation measures in place, the potential aquatic effects associated with the operation of the Proposed Development could include:

- Spread of invasive species between Loch Lomond to Loch Sloy.
- Introduction of non-native ruffe to Loch Sloy which could damage the populations of powan within Loch Sloy.
- Mortality of fish in the filtration of debris at the intake.
- Mixing of Loch Lomond and Sloy waters in Loch Sloy and Inveruglas Bay.

6.4.3. PROPOSED SCOPE OF ASSESSMENT

A review of all previous aquatic ecology studies shall be undertaken.

6.4.3.1. Fish

The 2009 assessment for the consented scheme concluded that there would be no significant effects to the risk of fish entrainment from fish populations in Inveruglas Bay, into the pumps once operational, should the application of screening of 12 mm clear spaced vertical bars be applied at the intake and not exceeding safe velocities. In addition, it was recommended that a diversion wall and settlement lagoon be in place to mitigate any sediment or pollution release during construction works, and control noise generated during construction works in accordance with British Standards.

Despite the appropriate prevention measures (12 mm screens), the previous assessment concluded that the risk of transferring invasive non-native ruffe eggs from Loch Lomond to Loch Sloy, could not be eliminated and there continues to be the potential for the Proposed Development to impact the population of powan in Loch Sloy. However, as discussed in paragraph 6.4.1.1 above, and as set out in the 2009 EIA for the previous consented scheme, the Applicant committed to, and has successfully completed, a translocation programme to establish conservation refuge populations of powan in other local waterbodies at Allt na Lairige Reservoir and Lochan Shira Reservoir (from a population at Loch Lomond), plus Loch Tarsan Reservoir and Loch Glashan Reservoir (from a population at Loch Eck).

Preventative and protective measures would continue to be recommended in the EIA, however, given the successful translocation programme of powan, it is proposed to scope out further assessment of fish in the EIA. Detailed monitoring of the powan and ruffe populations in Loch Sloy would continue to be proposed.

6.4.3.2. Invasive Non-native Species

Recent consultation with SEPA suggests that the Proposed Development will need to consider the risk of spreading Nuttall's Pondweed (*Elodea nuttalli*), a non-native invasive species from Loch Lomond to Loch Sloy.

An assessment was carried in the 2009 EIA to understand the potential for the invasive, non-native species Canadian Pondweed (*E. canadensis)* to be introduced from Loch Lomond into Loch Sloy. The assessment concluded that the conditions in Loch Sloy are not suited to this species, which prefers mesotrophic to eutrophic waters (whereas Loch Sloy is oligotrophic) and in addition, the boulder substratum and drawdown regime in Loch Sloy would likely to prohibit growth even more. It concluded that there would be no significant effects on site integrity or the conservation status of habitats and species in Loch Sloy from the introduction of *E. canadensis.*

The EIA shall apply the assumption that *E. nuttalii and E. canadensis* are present in the Loch Lomond catchment. As no biotic or abiotic control is expected to be effective in avoiding spread of these species in particular, the assessment will account for the design and management procedure to control the risk of spreading invasive plants.

Where appropriate, measures would be recommended within the EIA to reduce the risk of spread as far as is practicable and a proposal to rapidly remedy any adverse effects would also be incorporated within the assessment. An assessment of residual effects would then be undertaken and reported within the EIA.

6.4.3.3. Changing Water Level Fluctuations in Loch Sloy

The present maximum and minimum loch levels of Loch Sloy would not change as a result of the Proposed Development, although variation in the level of Loch Lomond and Loch Sloy would be expected to be more frequent than they are at present during operation of the Proposed Development.

As noted in the 2009 EIA, the only ecological receptor in Loch Sloy likely to be impacted by a change in water level fluctuation would be powan, as they spawn in shallow inshore areas in winter and adults move inshore at night to feed in the shallows throughout the year. During pumping at night, the water level would rise which may affect feeding powan. However, powan already cope with the drawdown in Loch Sloy and the invertebrate fauna is naturally impoverished, therefore it was concluded that any significant effects are unlikely. Based on these conclusions, it is proposed to scope out further assessment in the EIA, however, detailed monitoring of powan population in Loch Sloy would be proposed to be carried out (as set out in section 6.4.3.1).

6.4.3.4. Water Mixing

The 2009 assessment for the consented scheme concluded that there would be no significant effects from the mixing of waters from the two lochs in Loch Sloy. It noted that the increased algal concentration in the mixed water in Loch Sloy may result in increased zooplankton populations, which feed on these algae and will have a positive effect on powan from an increased food supply. It is proposed to scope out further assessment in the EIA.

6.5. ORNITHOLOGY

6.5.1. BASELINE FINDINGS

6.5.1.1. Statutory and Non-Statutory Site Designations

The Proposed Development is not situated within any areas designated for ornithological features. The nearest non-statutory designated site for birds is the Inversnaid RSPB reserve, located 1 km east of the Site.

6.5.1.2. Important Ornithological Features

Breeding Bird Surveys were undertaken in 2008 to inform the 2009 ES for the consented scheme. These surveys are being updated in 2023, with three surveys being undertaken between April and June. A modified common bird census method is used following British Trust for Ornithology (BTO) guidelines and endorsed by NatureScot.

Between the surveys undertaken in 2008 and the updated survey in 2023 so far, a total of 42 species have been recorded within the survey area. Of these, none recorded are Schedule 1 species under the Wildlife and Countryside Act.

Nine species are listed on the Scottish Biodiversity List (SBL). These are:

- Cuckoo (*Cuculus canorus*);
- Dunnock (*Prunella modularis*);
- Hooded Crow (*Corvus cornix*);
- Reed Bunting (*Emberiza schoeniclus*);
- Siskin (*Carduelis spinus*);
- Song Thrush (*Turdus philomelos*);
- Swift (*Apus apus*);

- Tree Pipit (*Anthus trivialis*); and
- Wood Warbler (*Phylloscopus sibilatrix*).

Three of the species recorded are Red Listed Birds of Conservation Concern (BoCC). These are:

- Cuckoo;
- Tree Pipit; and
- Wood Warbler.

Fifteen of the species recorded are Amber Listed BoCC. These are:

- Common Gull (*Larus canus*);
- Common Sandpiper (*Actitis hypoleucos*);
- Dipper (*Cinclus cinclus*);
- Dunnock;
- Grey Wagtail (*Motacilla cinerea*);
- Oystercatcher (*Haematopus ostralegus*)
- Pied Flycatcher (*Ficedula hypoleuca*);
- Red-breasted Merganser (*Mergus serrator*);
- Redstart (*Phoenicurus phoenicurus*);
- Reed Bunting;
- Song Thrush;
- Sparrowhawk (*Accipiter nisus*);
- Willow Warbler (*Phylloscopus trochilus*);
- Woodpigeon (*Columba palumbus*); and
- Wren (*Troglodytes troglodytes*).

6.5.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

Without mitigation measures in place, the potential ornithology effects associated with the construction and operation of the Proposed Development could include:

- Habitat Loss for breeding and foraging birds; and
- Disturbance to and displacement of breeding birds (both visual and noise).

6.5.3. PROPOSED SCOPE OF ASSESSMENT

The 2023 survey results, along with desk study data, will be incorporated into an Ornithological Technical Report which will be used to inform an Ornithological Chapter within the EIA Report, carried out in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for

Ecological Impact Assessment (2018), and with due consideration of any other relevant legislation, policy or guidance.

Where appropriate, mitigation measures would be recommended within the Chapter to remedy any adverse effects, and measures for enhancement would also be incorporated within the assessment. An assessment of residual effects would then be undertaken and reported within the Chapter.

6.6. LANDSCAPE CHARACTER AND VISUAL AMENITY

6.6.1. BASELINE FINDINGS

6.6.1.1. Landscape and Visual Context

The Proposed Development would affect areas within the existing grounds of the Sloy Power Station and may affect woodland to the north, if this is identified as the preferred location for site establishment and storage of excavated rock spoil. This is set within a highly valued landscape area, occupying a narrow, developed strip between the shore of Loch Lomond and steeply rising rugged mountains to the rear. This strip provides a linear transport corridor for the A82 trunk road and railway line, situated to the front and rear of the existing power station respectively, and is characterised by native and non-native woodland growth, occasional, scattered buildings, and tourism developments, including the Inveruglas Visitor Centre and car park around 50 m to the north-east of the Proposed Development, and the Loch Lomond Holiday Park, just over 500 m to the south. The existing Sloy Power Station and associated above ground high pressure pipes create a striking focal point within this landscape setting, particularly in passing views from the road.

6.6.1.2. Designations

The Proposed Development would be located within the Loch Lomond and the Trossachs National Park (LLTNP) and Loch Lomond National Scenic Area (NSA), both designated at the national level (see **Figure 4**). The Special Landscape Qualities (SLQs) of the LLTNP, which are considered to also encompass those of the NSA have been identified by NatureScot in the document '*The Special Landscape Qualities of the Loch Lomond and The Trossachs National Park'*[3]. General Qualities, and those specific to the Loch Lomond are listed as follows:

- General Qualities
  - A world-renowned landscape famed for its rural beauty;
  - Wild and rugged highlands contrasting with pastoral lowlands;
  - Water in its many forms;
  - The rich variety of woodlands;
  - Settlements nestled within a vast natural backdrop;
  - Famous through-routes;
  - Tranquillity; and
  - The easily accessible landscape splendour.

- Loch Lomond
  - Immensity of loch and landscape;
  - Two lochs in one;

[3] Scottish Natural Heritage and Loch Lomond and the Trossachs National Park Authority (2010) Commissioned Report No. 376 'The Special Qualities of the Loch Lomond and the Trossachs National Park'

- A multitude of beautiful islands;
- Distinctive mountain groups;
- Ben Lomond, widely known, popularly frequented;
- Banks of broadleaved woodland; and
- Peaceful side glens.

Although not a formal designation, the south-western tip of the Ben More – Ben Ledi Wild Land Area (WLA 7) lies approximately 1 km to the east of the Proposed Development, on the east side of Loch Lomond. However, given the setting of the Proposed Development on the west side of the loch, where other development including the existing Sloy Power Station is already present, the likelihood of any notable effect on the wild land qualities of WLA 7 is considered very low, and it is therefore proposed to be scoped out of the LVIA.

6.6.1.3. Landscape Character Types

NatureScot has undertaken detailed review and classification of the various landscape types of Scotland (SNH, 2019 [online]). Within this context, the Proposed Development would be located within Landscape Character Type (LCT) 254: Straths and Glens with Lochs which covers the whole area around northern Loch Lomond. The LCTs 251: Highland Summits, and 252: Upland Glens – Loch Lomond and the Trossachs also fall within 1 km of the Proposed Development with potential for intervisibility of the Proposed Development.

6.6.1.4. Visual Amenity

Potential visual receptors who may gain views of the Proposed Development include residents, travellers and recreational users present in and around nearby buildings and using roads and recreational resources, as indicated on **Figure 4**.

Residential and other building-based receptors may include occupants of properties on the western side of Loch Lomond, including a number of properties set close to the A82 to the south of the existing Sloy Power Station and the Inveruglas Visitor Centre / Café close by, to the north-east. There may also be views from a number of properties on the eastern side of Loch Lomond at Inversnaid including a large hotel.

Travellers and recreational receptors are likely to include passing users of the A82 and railway line, visitors to Inveruglas, including the pyramid viewpoint and boat users crossing from Inversnaid Hotel, and walkers and cyclists accessing the nearby mountains, particularly those walking or riding along the sign-posted route past the front of the existing power station which is part of the Loch Lomond and Cowal Way and Three Lochs Way and also a Core Path. There would also be potential views across the loch from the West Highland Way, which follows the eastern shore of Loch Lomond, and minor road to Inversnaid, both of which are also Core Paths, and views obtained by recreational boat users on the loch.

The Loch Lomond and Cowal Way, Three Lochs Way and West Highland Way are recognised as three of Scotland's Great Trails.

6.6.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

The potential for significant effects to the landscape and visual resource would depend upon the final design of the proposed building and associated outdoor areas. The sensitivity of landscape and visual receptors would be given close consideration in the development of the design with the integration of landscape mitigation measures where appropriate. Given the relatively enclosed and wooded qualities of the site, the potential for landscape and visual effects is expected to be confined to a relatively small area around the existing Sloy Power Station and along the eastern shore of Loch Lomond. It is considered unlikely that any

notable effects would be experienced from the mountain area to the west. As a high standard of design is proposed, the potential for effects to be significant is anticipated to be most closely associated with the impact on the role of the existing Sloy Power Station as a focal point within the landscape and views.

6.6.3. PROPOSED SCOPE OF ASSESSMENT

It is proposed that a Landscape and Visual Impact Assessment (LVIA) will be undertaken for the Proposed Development to identify potential landscape and visual effects. The LVIA will also inform design and mitigation proposals in order to help accommodate the Proposed Development as a positive addition to the baseline landscape.

6.6.3.1. Proposed LVIA Study Area

Given the small scale of the Proposed Development and existing enclosure of woodland and landform, a 2.5 km study area is proposed as likely to contain all potentially significant landscape and visual effects. The study area will be reviewed as the detailed design progresses and following review of ZTVs to ensure that it remains appropriate.

6.6.3.2. Scope of LVIA

The LVIA will be undertaken in accordance with best practice guidance, the Guidelines for Landscape and Visual Impact Assessment (Third Edition) (GLIVIA3)[4], and will be presented in two parts discussing the anticipated effects on the separate aspects of landscape character and visual amenity during both the construction and operational phases of the Proposed Development. The assessment of operational effects will assume the implementation of any mitigation measures proposed.

The assessment will be supported by figures and appendices as required.

The key aspects of the LVIA are set out below:

Zone of Theoretical Visibility

The LVIA will be informed by a ZTV. The ZTV is a computer-generated diagram which uses a terrain model to indicate areas from which elements of proposed development would theoretically be visible. It is proposed that the ZTV would be produced representing the height of the proposed new buildings to give an idea of where this may form a feature within views.

Landscape Assessment

The Landscape Character Assessment will include assessment of the Proposed Development in relation to the identified national scale LCTs within the Study Area. However, given the anticipated small scale and localised nature of effects, these areas may be broken down into local character zones to give a more detailed consideration to the local characteristics which would be most likely to be affected.

The landscape assessment would consider the potential for effects on the fabric and character of the landscape including the direct effect of potential change to landscape elements and experiential qualities of Proposed Development site and surrounding areas, and potential indirect effects to the broader landscape resource.

The assessment of effects on landscape character will be used to feed into a review of potential effects on the LLTNP and Loch Lomond NSA. Given the relatively small scale of the Proposed Development, it is considered that a full SLQ Assessment should not be required. However, a review of the predicted effects on

[4] Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA) (2013) Guidelines for Landscape and Visual Impact Assessment (Third Edition) Routledge.

SLQs with the potential to be affected by the Proposed Development would be included as part of the landscape assessment. At this stage, the following SLQs have been identified as relevant to the Proposed Development:

- General Qualities:
  - The rich variety of woodlands; and
  - Famous through-routes.
- Loch Lomond:
  - Immensity of loch and landscape;
  - Banks of broadleaved woodland.

Taking into account the setting of the Proposed Development adjacent to the existing Sloy Power Station, and in an area where other development and road traffic is present, the likelihood of any notable effects on the wild land qualities of WLA 7 is considered very low. It is therefore proposed to scope out assessment of WLA 7 as part of the LVIA.

Visual Assessment

The visual assessment will comprise a receptor-based assessment, considering the potential for effects on visual amenity within the study area. This will take into consideration all visual receptors located at residential and other building locations, recreation and tourism sites, and route-based receptors using the public road network and mapped and signposted recreational routes within the study area.

However, due to the activities which they would be involved with, and the association of the Proposed Development with the existing site, it is proposed to scope out workers at the existing Sloy Power Station from the visual assessment.

Cumulative Landscape and Visual Assessment

Cumulative Landscape and Visual Assessment would consider the landscape and visual effects of the Proposed Development in addition to other similar ongoing or proposed developments which would be likely to have a similar effect within the study area. At this stage, it is proposed that this would include the proposed Sloy Power Station Transformer Replacement Scheme being developed by SSEN Transmission.

Visualisations

Visualisations are proposed to support the visual assessment. The visualisations would be prepared in accordance with current NatureScot standards, Visual Representation of Wind Farms, (NatureScot, 2017) and would be intended to illustrate the Proposed Development within the landscape and visual setting. The exact location of visualisations would be refined once the design has been fully developed in order to achieve the best representative view. However, the following locations are proposed for inclusion as they are considered most representative of the types of views which would be obtained by the public:

- Inveruglas Car Park, looking southwest towards the existing Sloy Power Station.
- The A82, near the southern entrance of the existing Sloy Power Station, looking to the north.

6.7. TRAFFIC AND TRANSPORT

6.7.1. BASELINE FINDINGS

There are two existing bellmouth junctions to access the existing Sloy Power Station off the A82. The southern junction is used for the day to day operation of the existing scheme. The northern junction acts as a secondary access and the gates are currently locked. As was the case for the consented scheme, it is

anticipated that the northern junction, will be used during the construction of the Proposed Development. This will allow construction traffic to be kept separate from traffic to the existing operational power station, while utilising an existing access route.

The existing northern access junction will require temporary modifications and the removal of the existing Category A Listed wall and gates, which would be reinstated following the completion of the construction phase, during which the gate will be locked and out of use, with access to the site taken via the existing southern junction. A pre-construction survey would be carried out to provide a baseline of the state of the wall and gates prior to any temporary modification works, to ensure that the structures are re-instated appropriately.

It is proposed that the study area network for use in the traffic and transport assessment would be as follows:

- The A82 between Tarbet and Crianlarich.
- The A83 between Tarbet and Ardgaten.
- The A82 between Tarbet and Dumbarton.

The study area is based upon the likely origin points for materials, staff and components required for use during the construction phase of the Proposed Development.

To fully capture the baseline traffic and transport conditions for the Proposed Development, the following information will be gathered:

- Traffic survey data for use in the assessment would be obtained from the Traffic Scotland database (where such data exists) for the following links:
    - A82 to the north of Tarbet (ref. ATCCS001);
    - A83 to the west of Tarbet (ref. ATC08104); and
    - A82 south of Tarbet (ref. ATC08119).
- An Automatic Traffic Count (ATC) survey of the A82 at the existing northern access junction to Sloy Power Station would also be undertaken during a neutral month for a one week period.
- In addition to traffic flow data, traffic accident data for a five year period for the A82 within 1 km of the northern access junction would be obtained from the public website source, Crashmap[5].
- A site visit would also be undertaken to review the proposed access route and obtain further baseline data and characteristics to inform a traffic and transport assessment.

A plan layout drawing of the temporary access will be appended to the Transport Assessment to illustrate the proposed temporary junction works for the construction phase, along with a Stage 1 Road Safety Audit for the construction access layout.

Requirements for Abnormal Indivisible Loads (AIL) are not known at this time but will be determined during design development once the pump technology has been established. Should plant required for the construction be categorised as an AIL, an appropriate assessment will be undertaken.

Sensitive receptors to be considered in the assessment will include communities within the study area and users of the road links. All receptors, both communities and users will be considered in detail.

[5] https://www.crashmap.co.uk.

6.7.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

6.7.2.1. Construction

Potential effects that may arise during the assessment may include the following for users of the road and those resident along the delivery routes during the construction phase only:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Fear and intimidation; and
- Accidents and safety.

The effects on receptors within the study area will be reviewed during the construction phase, with a peak construction period assessment undertaken. This will review the maximum impact and presents a robust assessment of the effects of construction traffic on the local and trunk road networks.

The effects that will be considered will be based upon percentage increases in traffic flow and reviewed against the impacts noted above. Standard mitigation measures that are likely to be included in the assessment are:

- Production of a Construction Traffic Management Plan (CTMP) including assessment of construction traffic movements, management of traffic movements into and out of the site and areas required for stacking of deliveries;
- Construction of a materials handling / vehicle holding area in close proximity to the proposed works for the duration of the construction activities;
- The design of suitable access arrangements with full consideration given to the road safety of all road users; and
- A Staff Sustainable Access Plan.

Site Specific measures may also be required, depending upon the results of the assessment.

6.7.2.2. Operational

The Proposed Development will not result in additional operational traffic flows and as such, it is proposed that the assessment of the operational phase is scoped out of the assessment.

6.7.3. PROPOSED SCOPE OF ASSESSMENT

A Transport Assessment (TA) would be provided to review the impact of transport related matters associated with the Proposed Development. This would be appended to the EIA Report and would be summarised into a Traffic and Transport chapter within the EIA Report.

The Guidelines for the Environmental Assessment of Road Traffic (IEMA 1993) sets out a methodology for assessing potentially significant environmental effects. In accordance with this guidance, the scope of assessment will focus on:

- Potential impacts (of changes in traffic flows) on local roads and the users of those roads; and
- Potential impacts (of changes in traffic flows) on land uses and environmental resources fronting these roads, including the relevant occupiers and users.

The main transport impacts would be associated with the movement of general Heavy Good Vehicles (HGV's) traffic travelling to and from the site during the construction phase of the development.

A cumulative assessment would take place where a proposed development has planning consent and would have a significant impact on the study network (i.e. over 30% increase in traffic flows). These traffic flows would be included into the baseline flows used within the assessment.

Planning proposals that do not have planning consent are not committed development and as such would not be included in the assessment.

The following rules taken from the guidance would be used as a screening process to define the scale and extent of the assessment:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

Increases below these thresholds are generally considered to be insignificant given that daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flow below this level predicted as a consequence of the Proposed Development would therefore be assumed to result in no discernible environmental impact and as such no further consideration will be given to the associated environment effects.

The estimated traffic generation of the Proposed Development would be compared with baseline traffic flows, obtained from existing traffic survey data, in order to determine the percentage increase in traffic.

Potentially significant environmental effects would then be assessed where the thresholds as defined above are exceeded. Suitable mitigation measures would be proposed, where appropriate.

The assessment would consider the impact of construction traffic in a future year. Baseline traffic flows would be subject to Low National Road Traffic Growth factors to allow for the future year baseline.

Cumulative assessments would be undertaken from nearby significant traffic generating developments that have been consented only. Details of the required committed development schemes would be obtained from the consultees or a review of the planning portal.

6.8. NOISE AND VIBRATION

6.8.1. BASELINE FINDINGS

Prior to undertaking any noise assessment, a baseline sound level survey will be undertaken. It is anticipated that monitoring will be undertaken at three Noise Monitoring Locations (NMLs), and indicative NMLs are shown on **Figure 5**. Continuous unattended monitoring will be conducted for a period of approximately 1 week, although some attended spot measurements may also be undertaken during the installation and decommissioning of the survey equipment. Simultaneous wind speed and rainfall monitoring will be carried out on the development site and the measured sound level data filtered for periods of high wind speeds and precipitation events.

The measured sound levels will be analysed in accordance with BS 4142 to establish a representative background sound level for each NML, which will then inform an operational noise assessment.

The baseline data will also be used to determine ambient sound levels in the area, which will be used to set appropriate noise thresholds for the construction phase of the development.

A desktop survey has been undertaken to identify the location of the nearest noise Sensitive Receptors (NSRs) within a 1,500 m search radius. **Figure 5** details the location of the NSRs in relation to the Proposed Development site.

TAN1/2011 '*Assessment of Noise',* which is the Technical Advice Note (TAN) that accompanies *'Planning Advice Note (PAN) 1/2011 Planning and Noise,'* provides an example of the level of sensitivity that can be assigned to various NSR types (Table 2.1 of the TAN). NSRs that have been identified in proximity of the Proposed Development with a High level of sensitivity (as described in the TAN) include a cottage located approximately 100 m to the south of the existing power station, a small cluster of residential properties at Inveruglas Farm, approximately 450 m to the south, and Loch Lomond Holiday Park, which is located further to the south. One NSR has been identified with a medium level of sensitivity, which is the visitor centre at Inveruglas, located approximately 150 m away. A number of low sensitivity receptors have been identified but it is proposed that these are not included any assessment.

6.8.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

The Proposed Development will introduce new noise sources into the area in the form of construction plant and activities during the construction phase, and fixed plant such as the pumps, mechanical ventilation, cooling equipment and similar during the operational phase.

Construction noise effects would be temporary in nature, although the construction period is anticipated to last approximately 24 months, so noise effects do have the potential to be significant if not mitigated.

Operational noise effects would be permanent in nature and so noise control elements may need to be installed to reduce noise level output to acceptable levels.

The method by which rock will be excavated has not yet been determined.. Until the construction methods become more fixed, it is not possible to determine the likelihood for significant vibration effects, however, appropriate vibration level limits for the nearest residential receptors can be adopted to ensure no adverse vibration impacts should occur.

6.8.3. PROPOSED SCOPE OF ASSESSMENT

PAN 1/2011 provides little guidance in respect of construction noise, other than recommending that the use of planning conditions is not the preferred method for controlling temporary construction noise. Specifically, the document states:

"32. While planning conditions can be used to limit noise from temporary construction sites, it is most effectively controlled through the Control of Pollution Act 1974 (COPA74) and the Pollution and Prevention Control Act 1999 for relevant installations. Notice can be served in advance of works and site conditions set to control activities."

BS5228:1997 '*Noise and vibration control on construction and open sites. Code of practice for basic information and procedures for noise and vibration control' parts 1 to 5* (BSI, 1997) is the approved Code of Practice under COPA74, however, it is the 2009 version of the Standard which should be used for Environmental Impact Assessments (EIA) and planning applications. In this regard, the TAN states;

"However, under Environmental Impact Assessments and for planning purposes i.e. not in regard to the Control of Pollution Act 1974, the 2009 version of BS 5228 is applicable. The 2009 version of the standard consists of Parts 1 and 2 for noise and vibration respectively."

The BS5228:2009 standard provides useful guidance on practical noise and vibration control. Part 1, provides recommendations for basic methods of noise control including sections on community relations, training, occupational noise effects, neighbourhood nuisance and project supervision. The annexes provide information on noise sources, noise calculation procedures, mitigation measures and their effectiveness. Part 2 provides similar guidance for vibration.

Accordingly, it is proposed that an assessment of construction noise is undertaken in accordance with the BS 5228 guidance. Where appropriate, this assessment will also consider the potential for adverse vibration impacts, although this will not cover blasting, which can only be assessed following a series of test blasts on the development site.

It is anticipated that operational noise will be assessed in accordance with BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound,* although consultation will be undertaken with a relevant Environmental Health Officer (EHO) beforehand, to fix the scope and method of assessment. BS 4142 is an appropriate method of assessment for both electrical infrastructure developments and mechanical plant and is a recognised standard within PAN1/2011 and the associated TAN. It should be noted, however, that BS 4142 is suitable only for the assessment of residential receptors and so an alternative method of assessment will need to be agreed with the EHO to account for any non-residential receptors.

It is proposed that the following elements are scoped into the Noise Impact Assessment.

- Construction Noise.
- Construction Vibration: Will be considered within the EIA Chapter but a full assessment may not be necessary or possible.
- Operational Noise.

It is proposed that the following elements are scoped out from the Noise Impact Assessment.

- Operational Road Traffic Noise: No significant increase in road traffic is anticipated.
- Operational Vibration: No vibration effects are anticipated from operation of the Proposed Development.
- Decommissioning Noise: As detailed in Section 2.6, there are no plans for decommissioning in the future.
- Blasting Noise (Air-overpressure): It is not possible to predict noise from blasts and limits cannot be set. It is in the interests of the blast engineer to minimise air overpressure to increase the efficiency of the blast.
- Blasting Vibration – It is not possible to assess this at the EIA stage and is more appropriately controlled through the setting of vibration limits.

6.9. CULTURAL HERITAGE

6.9.1. BASELINE

6.9.1.1. Cultural Heritage Designations

6.9.1.2. Proposed Development Area

One Category A Listed Building, Sloy Power Station (LB 43188), stands within the Proposed Development area (**Figure 6**). The listing includes the power station buildings, an office block, a valve house and pipes, and the power station boundary wall and gate piers.

There are no Scheduled Monuments within the Proposed Development site, and no part of the site lies within a World Heritage Site, Inventory Garden and Designed Landscape, Inventory Historic Battlefield or Conservation Area.

6.9.1.3. Wider Landscape

Within 1 km of the Proposed Development there is one Scheduled Monument, Inveruglas Castle (SM 9264), and five Listed Buildings (see **Table 6.1**). The locations (and extents) of the designated heritage assets are shown on **Figure 6**.

Table 6.1: Listed Buildings within 1 km of the Proposed Development

Ref	Designation Title	Category
LB 864	Creag-An-Arnain Railway Viaduct	B
LB 43186	Inverglas Barn	C
LB 43187	Inverglas Steading	C
LB 41389	Sloy Power Station Bridge	C
LB 43190	Sloy Power Station Bungalow	C

There are no World Heritage Sites, Inventory Gardens and Designed Landscapes, Inventory Historic Battlefields, or Conservation Areas within 1 km of the Proposed Development.

No designated heritage assets with settings sensitive to change arising from the Proposed Development have been identified beyond 1 km from the Proposed Development.

6.9.1.4. Cultural Heritage Assets

The West of Scotland Archaeology Service (WoSAS) Historic Environment Record (HER) and the National Record of the Historic Environment Record (NRHE) database (Canmore), accessed via Pastmap, record one non-designated heritage asset within the Proposed Development site, a section of a former military road (1) (see **Figure 5**).

The well-preserved remains of the old military road were identified in an area of woodland, immediately north of the existing Sloy Power Station, during field survey carried out in 2008 for the consented EIA. The surviving section of the road is cut into a southeast facing slope and forms a linear terrace that measures approximately 5 m wide. The road does not survive to the south of the fenced boundary of Sloy Power Station, having been destroyed during construction works for the existing hydro-electric scheme.

Evidence from vertical aerial photography (dating to 1946 and 1954) shows that the footprint of the existing power station and an area extending into the woodland to the north of the power station (**Figure 6**) was substantially disturbed by the construction of the existing power station.

Taking the above baseline into account, it is assessed that the potential for buried archaeological remains to be encountered during construction of the Proposed Development is low, with a slightly higher likelihood that buried remains may be present within a small part of the woodland to the north, which has not been previously developed and where the remains of an old military road survive (**Figure 6**).

6.9.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

6.9.2.1. Direct Impacts

The Proposed Development could potentially directly impact upon two of the recorded heritage assets within the site: Category A Listed Sloy Power Station (LB 43188) and the remains of an old military road (1) (**see Figure 6**).

The Proposed Development would be built as a free-standing structure next to the existing Power Station and the addition of a new surface building to house the pumps and electrical swichgear would not result in a direct impact on the Listed Building, or change the character of the existing building. There would be direct impacts to walls and gate piers as small sections would be temporarily dismantled during construction, as was the case for the consented scheme.

Remains of the old military road (1) survive within woodland to the north of the existing Power Station. Should this area be identified as the preferred area to locate the site establishment and rock storage, these remains would be avoided during the construction works and preserved in situ i.e. by being fenced off, as was committed to by the Applicant for the consented scheme.

6.9.2.2. Setting Impacts

The Proposed Development could potentially give rise to adverse impacts on the settings of one or more designated heritage assets within the wider landscape surrounding the Proposed Development. The asset that is most likely to be affected is the Inveruglas Castle (SM 9264) Scheduled Monument, which occupies a small island at the edge of Loch Lomond, just southeast of the Proposed Development, and from which views along the loch shore are important to appreciation of its setting. The Proposed Development would, however, be seen in the context of the existing power station development in views from, and to, the castle and the Proposed Development would not be likely to significantly adversely affect the setting of the Scheduled Monument.

The Proposed Development would result in a change to the setting of Category A Listed Sloy Power Station (LB 43188), through the introduction of a new building immediately to its northeast. However, as the new building would be an integral part of the power station and directly related to its purpose and usage, it is unlikely that its introduction would significantly adversely affect the setting of the existing Listed Building.

It is unlikely that the Proposed Development would give rise to adverse impacts on the settings of any of the other Listed Buildings within 1 km of the Proposed Development.

6.9.3. PROPOSED SCOPE OF ASSESSMENT

The EIA report will include a chapter that will present an assessment of the Proposed Development's potential effects upon archaeology and cultural heritage assets. The assessment will consider the potential for direct (i.e. physical) effects on the cultural heritage within the Proposed Development area, arising from construction activities, and effects upon the settings of heritage assets with statutory and non-statutory designations in the wider landscape surrounding the Proposed Development.

The proposed approach to the cultural heritage impact assessment will follow the methodology detailed in the following paragraphs.

6.9.3.1. Post-Scoping Consultation

Following receipt of the EIA Scoping Opinion consultation will be carried out where necessary to clarify and resolve any points raised through the scoping process and to agree a final list of designated heritage assets to be included for assessment.

6.9.3.2. Desk-based Assessment

A detailed desk-based assessment will be carried out, drawing on up to date archive records and other available sources, to identify all known heritage assets that could be directly affected by the Proposed Development, and to inform an assessment of the archaeological potential of the Proposed Development site.

The following sources will be consulted to ensure that the baseline data is up to date:

- Historic Environment Scotland's (HES) on-line GIS Spatial Data Warehouse:
- West of Scotland Archaeology Service (WoSAS) Historic Environment Record (HER).
- National Record of the Historic Environment (NRHE).
- Historic maps held by National Library of Scotland.
- Historic Land-Use Assessment Data for Scotland (HLAmap).
- Modern aerial photographic imagery (available online).
- Lidar data, where available (available through the Scottish Government's Scottish Remote Sensing Portal); and,
- Readily accessible bibliographic resources, including previous studies covering the Proposed Development site (including documents relating to cultural heritage produced in support of previous planning applications and results from field surveys carried out in 2008).

6.9.3.3. Field Survey

No field survey is proposed as the Proposed Development area (and vicinity) was subject to detailed survey in 2008 for the consented EIA and the assessment will rely upon the results of that work.

6.9.3.4. Impact Assessment

The cultural heritage impact assessment would be carried out with reference to the following guidance documents:

- Chartered Institute for Archaeologists (2019) 'Standard and Guidance for Historic Environment Desk-Based Assessment'.
- SNH & HES (2018) 'Environmental Impact Assessment Handbook'.
- HES (2019) 'Designation Policy and Selection Guidance'.
- HES (2016) 'Managing Change in the Historic Environment: Setting'.
- Planning Advice Note (PAN) 2/2011: Planning and Archaeology.
- Principles of Cultural Heritage Impact Assessment (IEMA, IHBC & CIfA, 2021).

The assessment would consider the potential for significant effects associated with:

- Physical (direct) impacts of construction on cultural heritage assets within the Proposed Development site.

- Setting (indirect) effects on the experience, appreciation and understanding of an asset resulting from the introduction of the Proposed Development.
- Cumulative effects.

Assessment of likely direct effects, effects on settings of designated heritage assets, including cumulative effects, of the Proposed Development on heritage assets would take into account the sensitivity of the heritage asset and its setting, where appropriate, and the likely magnitude of change, which would be combined to provide a likely significance of effect. The methodology that would be employed in the assessment, based on the guidance in the SNH/HES Guidance (2018), would be agreed through consultation with HES and WoSAS.

Mitigation measures designed to prevent, reduce, or offset significant adverse effects would be set out and residual effects remaining following the implementation of proposed mitigation measures would be reported.

6.9.3.5. Assessment of Effects on Setting

HES' guidance document, 'Managing Change in the Historic Environment: Setting' (HES, 2016), notes that:

"*Setting can be important to the way in which historic structures or places are understood, appreciated and experienced. It can often be integral to a historic asset's cultural significance*."

"*Setting often extends beyond the property boundary or 'curtilage' of an individual historic asset into a broader landscape context*."

The guidance also advises that:

"*If proposed development is likely to affect the setting of a key historic asset, an objective written assessment should be prepared by the applicant to inform the decision-making process. The conclusions should take into account the significance of the asset and its setting and attempt to quantify the extent of any impact. The methodology and level of information should be tailored to the circumstances of each case*".

The guidance recommends that there are three stages in assessing the impact of a development on the setting of a historic asset or place:

- Stage 1: identify the historic assets that might be affected by the proposed development.
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated, and experienced.
- Stage 3: evaluate the potential impact of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated.

Following the guidance, it is proposed that the cultural heritage assessment will include consideration of potential impacts of the Proposed Development on the settings of: Category A Listed Building, Sloy Power Station (LB 43188), which stands within the Proposed Development area, and Scheduled Monument, Inveruglas Castle (SM 9264), which stands on a small island in Loch Lomond c.250m southeast of the Proposed Development area.

We would seek to scope out assessment of the impacts of the Proposed Development on the setting of other Listed Buildings present within 1 km of the Proposed Development (see **Figure 6**) on the basis that these are all buildings that have localised settings that are constrained to, and defined by, their immediate surroundings, and which have no intended long views out to the wider landscape that form key elements of their settings.

No designated heritage assets with settings sensitive to change arising from the Proposed Development have been identified beyond 1 km from the Proposed Development.

6.10. LAND USE AND RECREATION

6.10.1. BASELINE FINDINGS

6.10.1.1. Land Use

The Proposed Development would be located within the grounds of the existing Sloy Power Station and would affect an area of amenity grass with scattered and relatively young amenity trees.

The Proposed Development may also affect an area of woodland to the north of the existing power station if this is identified as the preferred location for site establishment and storage of excavated rock spoil, as for the consented scheme. This area of woodland was used during the construction of the original power station in the 1940-50's and has become established in the last 70 years. It is dominated by birch woodland with coniferous plantation, and there has recently been extensive removal of densely spread invasive rhododendron throughout the woodland.

As for the consented scheme, the use of an overflow car park at Inveruglas Visitor Centre, which falls within the ownership of the Applicant, would be proposed to be used during the construction phase of the Proposed Development. In addition, it is anticipated that a temporary construction compound and vehicle holding area would be required in close proximity to the proposed works for the duration of the construction activities.

6.10.1.2. Recreation

The A82 located immediately to the east of Sloy Power Station is a busy tourist route along the west side of Loch Lomond. Inveruglas visitor centre / cafe, coach/park, picnic site and jetty, located around 50 m to the north-east, is a popular stopping off point, particularly during the summer months. The West Highland Railway Line runs north-south along the hillside to the west of the Proposed Development and adjacent woodland areas, but views towards the site are generally very restricted. The Loch Lomond Holiday Park is located just over 500 m to the south.

There are many hill walks including Scottish Hill Track routes within the vicinity, these include the Arrochar Alps circuit to the west and Rowerdennan to Inversnaid and Inverarnan to the east. The Inveruglas car park is often used as a starting point for the ascent of Ben Vane and Ben Vorlich, two popular Munros to the west and the northwest of the Proposed Development, with the preferred routes going along the A82 past the front of the existing power station and up a track running adjacent to Inveruglas Water. Within the vicinity to the west is also Beinn Ime, Beinn Luibhean, Beinn Narnain and The Cobbler, which are all popular hill walks. However, these hills to the west of the existing power station are likely to have restricted views of the site, if any, as views are obscured by the rising topography and existing woodland. Walkers on the hills to the east of the loch may also have very distant views towards the existing power station, these include Beinn a Choin and Ben Lomond.

A small tourist ferry runs between Inveruglas jetty across Loch Lomond to Inversnaid Hotel on the east shore, during the summer months, with views towards the existing power station being gained on approach to Inveruglas jetty. In addition, the jetty and loch are used by many other boat and water sports users.

On the east side of Loch Lomond runs a section of the West Highland Way walking route, with distant views across the loch towards the existing power station. Walkers on the hills to the east of the loch may also have very distant views towards the site. The Loch Lomond and Cowal Way, and Three Lochs Way also run within close proximity of the site from Inveruglas pier, along the A82 in front of the existing power station, continuing south to Inveruglas Water, then turning off to the west. Users of these routes would likely have good views of the power station and surrounding grounds. The Loch Lomond and Cowal Way, Three Lochs Way and The West Highland Way are also recognised as three of Scotland's Great Trails.

6.10.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

The Proposed Development would result in impacts on land use and recreation and the main changes would be the temporary and permanent land take associated with:

- The proposed building, underground pumps and pipeline connection would be located almost entirely within the existing power station grounds, within an area of amenity planting and grass.
- A small area of conifer and broadleaved woodland out with the boundary fence may also be affected should this be identified as the preferred location for site establishment and storage of excavated rock spoil.
- Use of an overflow car park at Inveruglas Visitor Centre during the construction works, omitting its use temporarily by members of the public.
- Loss of amenity resulting from construction activity and construction traffic.
- The proposed new infrastructure would be visible from views to the east of the site, including views from Inveruglas pier and from Loch Lomond itself.
- The Proposed Development offers the potential to include limited public access and interpretation of the existing hydro scheme.

6.10.3. PROPOSED SCOPE OF ASSESSMENT

This review has indicated that no significant impacts on land use are envisaged as the proposal would be located almost entirely within the existing power station site, on land owned by the Applicant. Therefore, it is anticipated that no further assessment of impacts on land use is required. However, this would be reviewed following the selection of a preferred location for a site establishment area, storage and reuse of excavated rock spoil.

Although no significant impacts are anticipated on recreation, further assessment would be carried out following more detailed evaluation and design development to ensure that any adverse impacts in the wider area during the construction of the Proposed Development are kept to a minimum and that mitigation measures maximise the potential for any benefits arising from the Proposed Development. It is envisaged that further assessment of impacts on users of the A82 and also the Inveruglas area during the construction and operation of the Proposed Development will be undertaken, as well as impacts on recreational users of Loch Lomond at Inveruglas bay, and also walkers on the West Highland Way, Cowal Way and Three Lochs Way, and walkers using the track adjacent to Inveruglas Water.

6.11. SCHEDULE OF MITIGATION

A Schedule of Mitigation will be provided in the EIA Report to summarise all mitigation measures identified that are considered necessary to protect the environment prior to and during construction, operation or decommissioning of the Proposed Development.

7. Recommended Features to be Scoped Out

Assessment for the following environmental features are proposed to be scoped out of the EIA for the Proposed Development.

7.1. GEOLOGY, SOILS AND WATER

7.1.1. BASELINE FINDINGS

The Proposed Development is shown by the British Geological Survey (BGS) to be underlain by bedrock of the Beinn Bheula Schist Formation which comprises psammites and pelites. The bedrock is overlain by superficial deposits of glacial till.

Published soil mapping indicates that the Proposed Development is underlain by humus iron podzols. Review of priority peatland mapping published by NatureScot indicates that the site is underlain by mineral soils and not located in an area designated as priority peatland.

An intrusive ground investigation (GI) survey was carried out in 2010 by Jacobs Engineering across the consented development area.

The bedrock is classified by the BGS as a low productivity aquifer whereby small amounts of groundwater is typically found in near surface weathered zones and secondary fractures.

The Proposed Development lies entirely within the surface water catchment of Loch Lomond which is located immediately east of the site. The Loch Lomond catchment is designated as a Drinking Water Protected Area (DWPA).

SEPA flood mapping confirms that the majority of the site is shown to not be at risk from flooding, however, fluvial flooding associated with Loch Lomond is noted along the south eastern boundary of the Site.

Review of NatureScot's SiteLink website confirms that no designated sites lie within the Proposed Development area or within 1 km of the Site.

7.1.2. BEST PRACTICE AND MANAGEMENT

The construction of the Proposed Development would be undertaken in accordance with the relevant technical guidance including Pollution Prevention Guidelines (PPGs) (and replacement Guidance for Pollution Prevention (GPPs)) and other codes of best practice, to safeguard soils and limit the potential for contamination of both ground and surface waters.

It is proposed a Construction Environmental Management Plan (CEMP) would be prepared as part of the section 36 submission and agreed with consultees prior to commencement of any construction work. The CEMP will outline measures which will be used during the construction phase of the works to minimise the potential for the development to impair soils, groundwater and surface water.

Subject to the adoption of the best practice construction techniques no significant effects on soils, geology or the water environment are anticipated, and it is therefore proposed that an assessment of geology, soils and water environment is scoped out of the EIA.

7.2. AIR QUALITY

Potential air quality effects associated with the Proposed Development relate to the construction phase of the project through the generation of dust and road traffic emissions as a result of the temporary construction works.

The following relevant guidance documents have been considered and applied, as necessary, to screen air quality impacts and to inform this scoping report:

- Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction'[6];
- IAQM 'A guide to the assessment of air quality on designated nature conservation sites'[7];
- Environmental Protection UK (EPUK) & IAQM 'Land-use planning and development control – planning for air quality'[8]; and
- Scottish Executive Technical Guidance on Air Quality (LAQM.TG (22), 2022)[9].

7.2.1. BASELINE FINDINGS

The Site is wholly located within the jurisdiction of the LLTNPA and the character of the surrounding land is rural in nature with the closest residential dwelling located approximately 370 m south of the Site, in close proximity to the A82.

Regarding Local Air Quality Management (LAQM), the closest Air Quality Management Area (AQMA) designated for exceedances of the Air Quality Objectives (AQOs) is more than 40 km from the Site within Glasgow City Council administrative area.

The closest statutory ecological designation is the Pollochro Woods SSSI and Loch Lomond Woods SAC located 860 m east of the Site.

7.2.2. POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

Potential local air quality effects associated with the construction phase of the Proposed Development are:

- Potential effects associated with dust / particulate matter generated from temporary construction activities upon sensitive human and ecological receptors;
- Potential effects associated with emissions from temporary construction generated traffic flows upon human health and ecological receptors; and
- Potential effects associated with emissions from temporary onsite Non Road Mobile Machinery (NRMM) upon human health and ecological receptors.

7.2.2.1. Construction Dust Effects

In accordance with the IAQM 'Guidance on the assessment of dust from demolition and construction', an assessment may be required if construction activities are located within proximity to sensitive receptors specifically:

- Human receptors within 350 m of any proposed onshore construction works, and within 50 m of routes used by construction vehicles on the public highway, up to 500 m from site exits; and

[6] Holman et al (2014). IAQM Guidance on the assessment of dust from demolition and construction. Version 1.1, June 2016
[7] Holman et al (2020). A guide to the assessment of air quality impacts on designated nature conservation sites. Version 1.1, May 2020
[8] Moorcroft and Barrowcliffe. et al. (2017). Land-use planning and development control – planning for air quality Version 1.2, January 2017
[9] Scottish Government (2022). Local Air Quality Management, Technical Guidance (TG22). August 2022.

- Ecological receptors within 50 m of any proposed onshore construction works, and within 50 m of routes used by construction vehicles on the public highway, up to 500 m from site exits.

The closest human (residential) receptors are further than 350 m from the Site and more than 500 m from the site exit. It is not considered to be a requirement for an assessment of dust effects on human receptors. The Site is located within the National Park, though there are no ecological receptors with a sensitivity to dust within the IAQM distance criterion.

Dust emissions associated with the temporary construction phase of the Proposed Development are considered unlikely to have a significant effect and have been scoped out of the EIA. Nevertheless, an Outline Construction Environment Management Plan (CEMP) will be provided as an appendix within the EIA Report which will provide general and best practice information relating to the control and management of dust during the construction phase.

7.2.2.2. Construction Phase Traffic Emissions

Indicative criteria for assessing change in vehicle trips generated by a development on human receptors is defined within the EPUK/IAQM guidance 'Land-Use Planning and Development Control: Planning for Air Quality'. For areas outside of an AQMA, 'a change of Heavy-Duty Vehicle (HDV) flows of more than 100 Annual Average Daily Traffic (AADT)' would trigger a detailed air quality assessment.

For ecological receptors, the IAQM guidance 'A guide to the assessment of air quality on designated nature conservation sites' advises that developments likely to generate either >1,000 (and/or 200 HDV) AADT movements on a road link within 200 m of a sensitive qualifying feature has the potential to cause a significant effect and further assessment would be required.

Vehicles generated during the construction phase of the Proposed Development are considered highly unlikely to exceed either of the criterion states above. Road traffic emissions are considered unlikely to have significant effects on human and ecological receptors and have been scoped out of the EIA.
Non Road Mobile Machinery (NRMM)According to the IAQM 'Guidance on the Assessment of the Dust from Demolition and Construction', experience of assessing exhaust emissions from NRMM suggests that they are unlikely to make a significant impact on local air quality.

According to LAQM.TG(22) guidance, experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that, with suitable controls and site management, they are unlikely to make a significant impact on local air quality.

In accordance with LAQM.TG(22) and IAQM guidance, impacts associated with the Proposed Development, onsite generated NRMM emissions are considered unlikely to have a significant effect on human and ecological receptors and have been scoped out of the EIA..

Suitable controls and site management in relation to on-site NRMM would be contained within the Outline Construction Environment Management Plan (CEMP) which would be provided as an appendix within the EIA Report.

7.2.3. SUMMARY

Based upon the considerations undertaken using relevant guidance, effects on local air quality are not considered likely to be significant and have been scoped out of the EIA.

7.3. FORESTRY

There are no areas of commercial forest within the site itself. No significant effect on commercial forestry is anticipated as a result of the Proposed Development and therefore, it is proposed that an assessment of forestry would not be required.

7.4. CLIMATE CHANGE

With regard to climate change, in the context of the EIA process climate change is considered both in relation to the contribution of the Proposed Development to increasing or decreasing gaseous emissions with global warming potential (GWP) and in relation to climate change adaption.

Emissions associated with the Proposed Development would be limited to temporary and short-term emissions of exhaust gases from vehicles and construction plant. This is not considered likely to be significant in terms of GWP.

In terms of climate adaption, consideration would be given to the potential implications of climate change on design of infrastructure (e.g. design for increased flood risk); however, no potential for significant impacts have been identified and it is therefore proposed that an assessment of climate change is scoped out of the EIA.

7.5. HUMAN HEALTH

Potential effects on human health as a result of the Proposed Development could relate to traffic, noise or impacts to air and/or water quality during construction and operation.

An assessment of construction and operational noise and traffic impacts will be considered as part of the EIA Report. However, it is not considered that air or water quality will result in a significant effect and is proposed to be scoped out of the EIA (see Sections 7.1 and 7.2). Nevertheless, an Outline Construction Environment Management Plan (CEMP) will be provided as an appendix within the EIA Report which will outline construction mitigation and environmental protection measures.

It is therefore considered that an assessment of human health will be adequately covered in the EIA Report and a separate assessment be scoped out.

7.6. MAJOR ACCIDENTS AND DISASTERS

The Proposed Development is not in a location which is susceptible to natural disasters or extreme weather. Due to the nature of the Proposed Development, the risk of a major accident or disaster is considered to be extremely low.

A risk assessment process would be followed by the Principal Designer during the design stage as part of the requirements of the Construction (Design and Management) Regulations 2015. This would ensure that all potential risks are identified at an early stage and appropriate mitigation is implemented. The Proposed Development would be constructed in accordance with relevant health and safety legislation including the Health and Safety at Work Act 1974.

During the operational stage of the Proposed Development, routine maintenance inspections would be completed in order to ensure compliant operation of the Proposed Development.

No further assessment of the risk of major accidents and / or disasters is proposed in the EIA Report.

7.7. SOCIO ECONOMIC

The Applicant is already a major employer throughout the UK, including the North of Scotland, providing direct employment through the development and construction of generation or infrastructure projects.

The projected socio-economic effects of the Proposed Development would take the form of a short-term effect during development and construction through employment, spending of employees and purchase of materials and services. There will also be an opportunity for long terms jobs during operation and maintenance phases of the project, and the project would support local and Scottish supply chain initiatives. This will create jobs and leave a lasting legacy in the area as well as supporting the renewables sector as a whole.

It is considered that the effects on socio-economics resulting from the Proposed Development are largely positive with no residual effects which could be considered significant within the context of the EIA Regulations and therefore an assessment would not be required.

8. References

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The Loch Lomond and the Trossachs National Park Local Development Plan, 2017-2021: Renewable Energy Supplementary Guidance.

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Wildlife and Countryside Act 1981 (as amended).

FIGURES

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Key

- Site Location
- Proposed Development Area

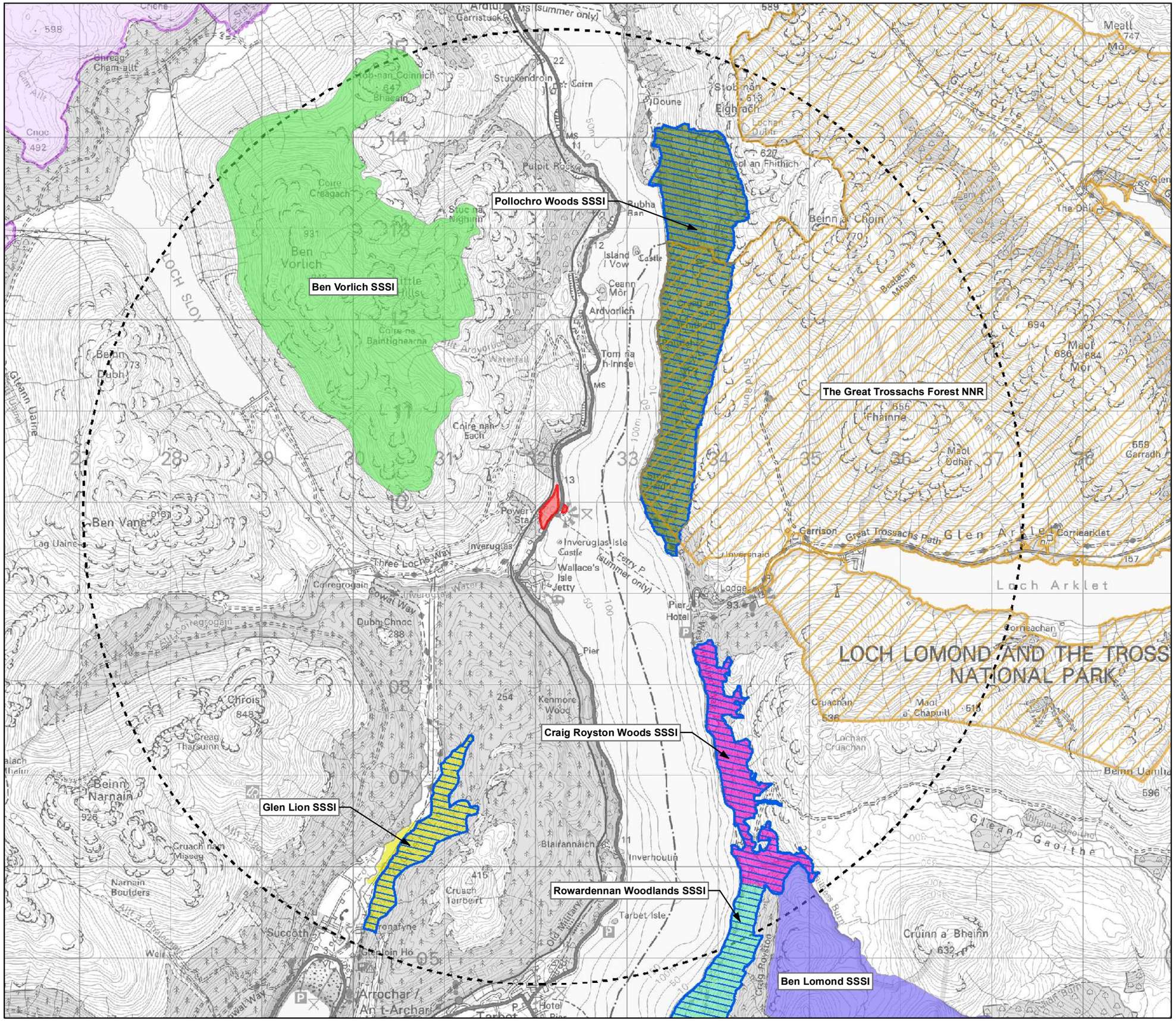
Scale 1:60,000 @ A3

0 0.5 1 1.5 2 Kilometers

Figure 1
Location Plan and
Proposed Development Area

Sloy Pumped Storage Scheme
Scoping Report

Drawing No.: 122009-SCP-D1-1.0.0 Date: 23/06/2023



Key

- Proposed Development Area
- 5km buffer area

Designated Sites

- Ben Lomond SSSI
- Ben Vorlich SSSI
- Craig Royston Woods SSSI
- Glen Loin SSSI
- Pollochro Woods SSSI
- Rowardennan Woodlands SSSI
- Loch Lomond Woods SAC
- The Great Trossachs Forest NNR

Figure 2
Natural Heritage Designations within 5km buffer

Sloy Pumped Storage Scheme
Scoping Report

Drawing No.: 122009-SCP-D2-1.0.0 Date: 23/06/2023

232000 232250 232500

710000 709750

N

A82

Path

Pipelines

Inveruglas

0 Kilometers 0.5

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envirocentre

Key

- Proposed Development Area
- Site Boundary

Ecological Constraints

- Japanese Knotweed
- Potential Squirrel Drey
- Tree with PRF - Moderate
- White Butterbur
- Reptilte & Amphibian Hibernation Refugia
- Mammal Burrow

Phase 1 habitats/JNCC codes

- A1.1.1 Semi-natural Broadleaved Woodland
- A1.2.2 Conifer Plantation Woodland
- A1.3.2 Mixed Plantation Woodland
- B5 Marshy Grassland
- E3.1 Valley Mire
- G1 Open Standing Water
- J1.2 Amenity Grassland
- J3.6 Building
- J4 bare ground
- Wall

Note:
Target Note 1: Flush/Spring
Target Note 2: Stream

Scale 1:2,000 @ A3

Figure 3: Extended Phase 1 Habitat Survey and Ecological Constraints

Sloy Pumped Storage Scheme Scoping Report

Drawing No.: 176783-GIS005

Date: 02 JUNE 2023

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Key

- Site Location

Landscape Designations

- Loch Lomond and The Trossachs National Park Boundary
- National Scenic Area (NSA)
- Wild Land Area (WLA)
- Area of Panoramic Quality (APQ)

Land Use and Recreation

- Tourist Location
- Mountain
- Buildings
- 50m Building Buffer
- Waterbody / Watercourse
- A82
- Railway Track
- Inveruglas to Inversnaid Ferry Route
- Core Path
- Scottish Hill Track
- Mountain Route
- West Highland Way
- The Three Lochs Way / Loch Lomond and Cowal Way

Scale 1:50,000 @ A3

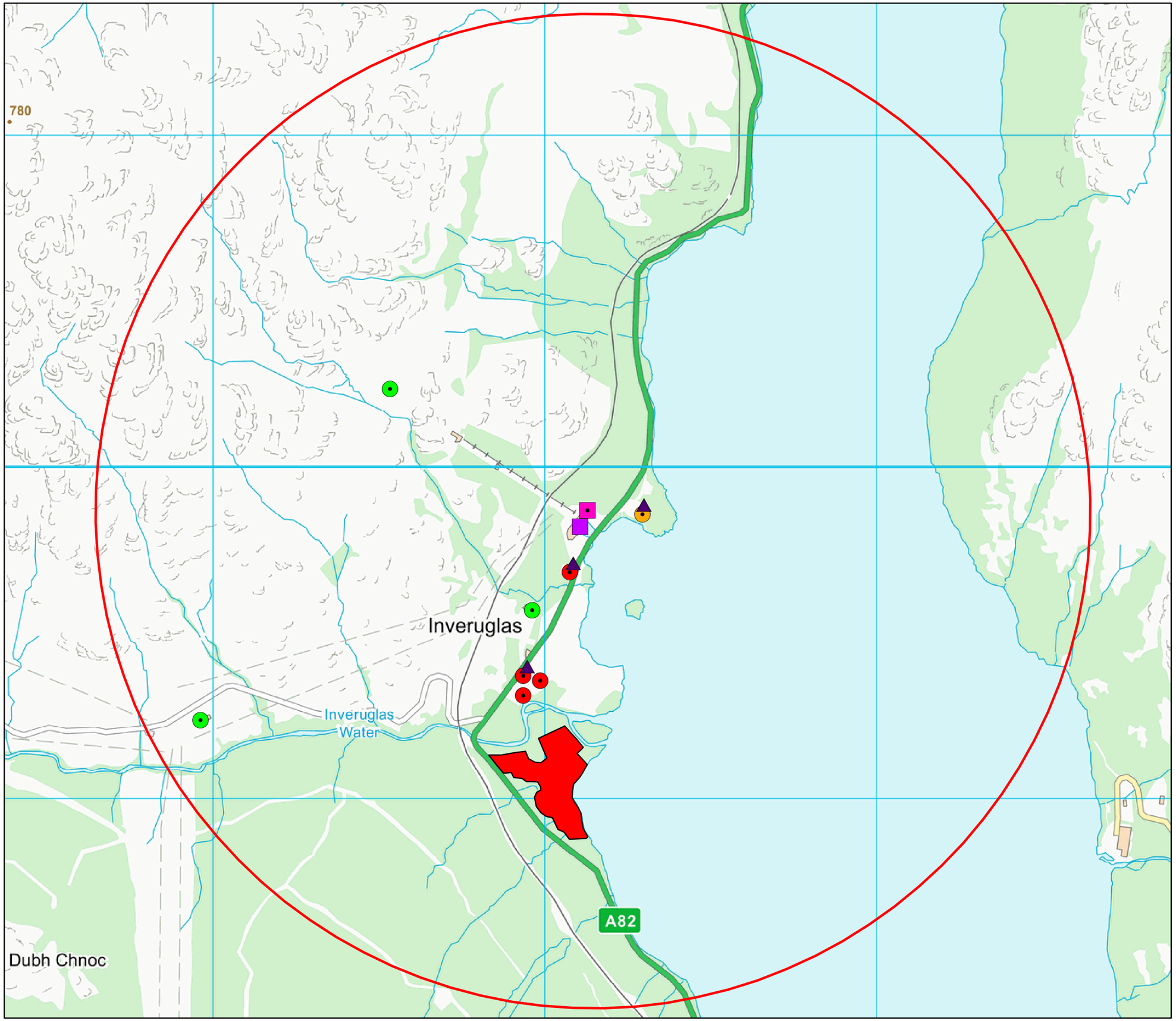
0 0.5 1 1.5 2 Km

N

Figure 4
Landscape Designations and Recreational Constraints

Sloy Pumped Storage Scheme
Scoping Report

Drawing No.: 122009-SCP-D4-1.0.0 Date: 23/06/2023



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Key

- Indicative Noise Monitoring Locations (NML)
- Proposed Sloy Pumped Storage Site Location
- Existing Sloy Hydro Building

Noise Sensitive Receptors (NSR)

- Low Sensitivity Receptor
- Medium Sensitivity Receptor
- High Sensitivity Receptor
- High Sensitivity Receptors - Caravan Park

Scale 1:11,000 @ A3

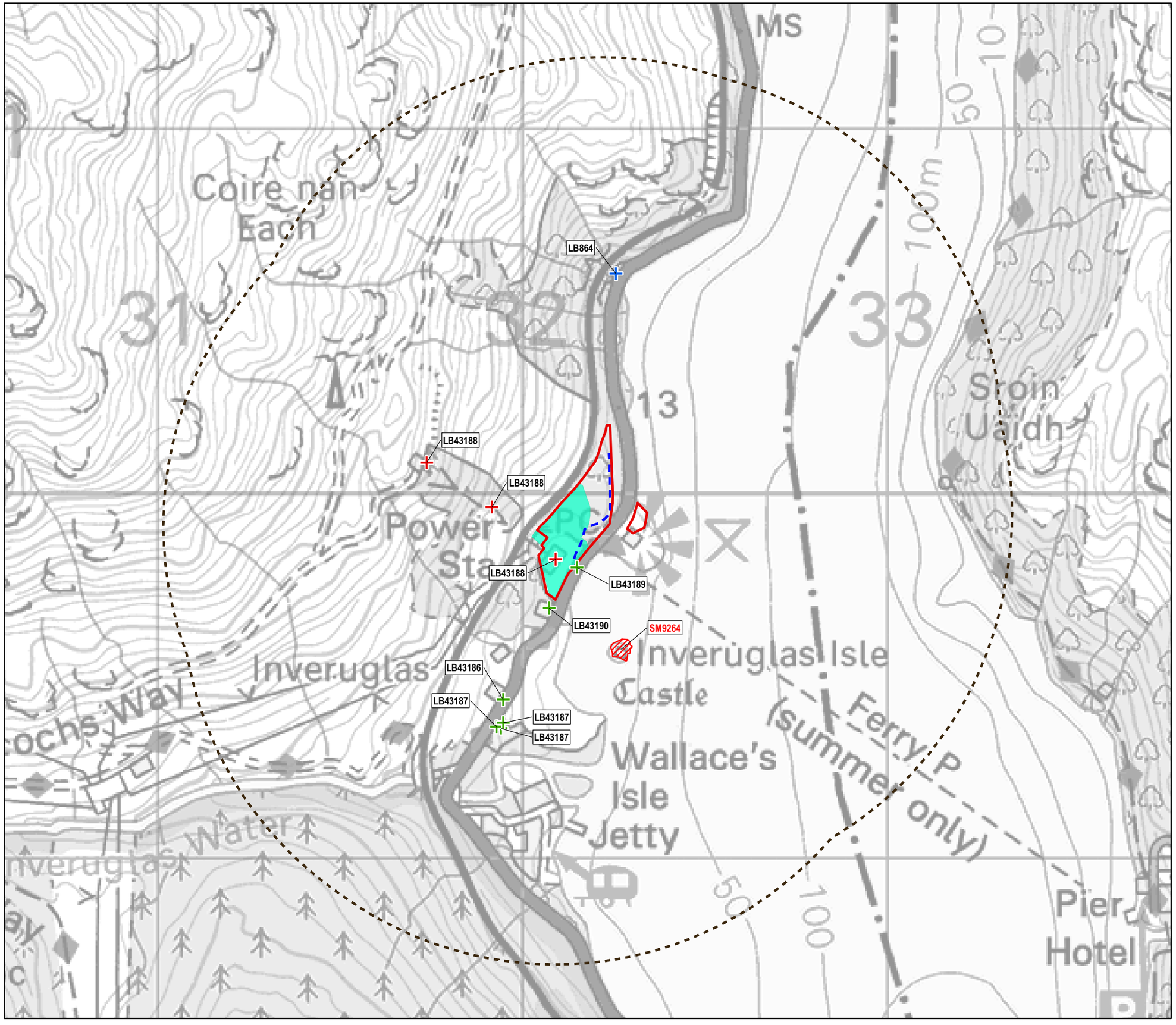
0 0.5 Km

N

Figure 5:
Noise Study Area

Sloy Pumped Storage Scheme
Scoping Report

Drawing No.: 16027-002 Date: 19/05/2023



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CFA ARCHAEOLOGY LTD

Key

- Proposed Development Site
- Previously Disturbed Ground
- 1 km Study Area
- Scheduled Monument
- Category A Listed Building
- Category B Listed Building
- Category C Listed Building
- Old Military Road (1)

Scale 1:10,000 @ A3

0 0.5 Km

N

Figure 6
Cultural Heritage Constraints

Sloy Pumped Storage Scheme
Scoping Report

Drawing No.: 01

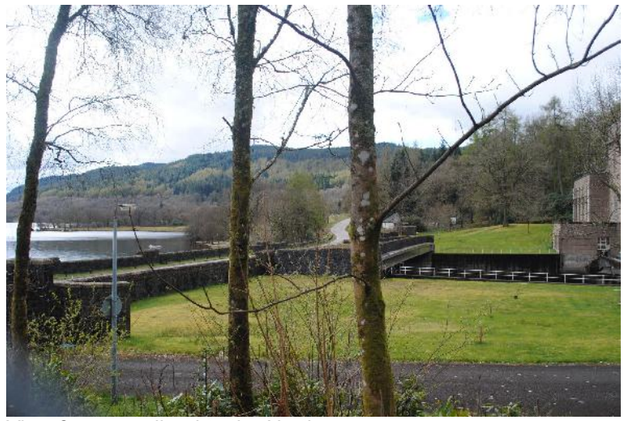
Date: 23/05/2023

View from A82 looking North

View from A82 looking South

View from A82 of proposed area for pump building

View from woodland to the North
of location for proposed pump building.



View from woodland to the North
of location for proposed pump building
and view onto Loch Lomond

View from East side of the A82 towards site entrance and
steeply sloping rock to the North

Transformers located at rear of the power station

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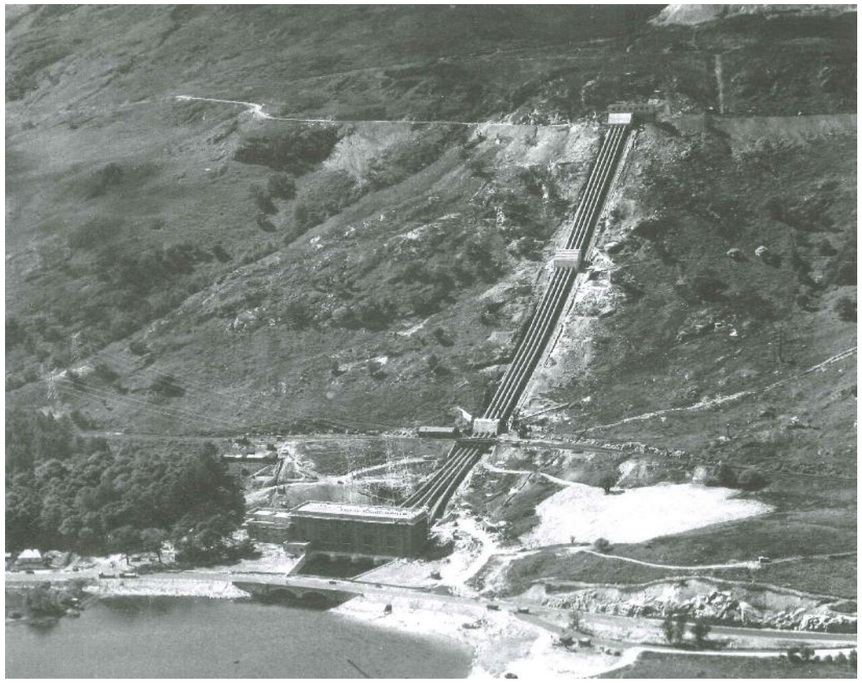
Figure 7a
Site Photographs

Sloy Pumped Storage Scheme
Scoping Report



View of Sloy Power Station, tailrace and high pressure pipes, including area cleared for construction activities to the north of the site. Photograph taken circa 1950.

Excavation of Sloy Power Station tailrace during construction. Photograph taken circa 1949.

View of the rear of Sloy Power station including view of area to the north of the site cleared for construction activities. Photograph taken circa 1950.

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Figure 7b
Sloy Hydro-Electric Scheme
Construction Photographs

Sloy Pumped Storage Scheme
Scoping Report