FEARNA STORAGE

Fearna Pumped Storage Hydro Scheme
EIA Report

Chapter 2 – The Proposed Development

February 2025

Quality Information

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2. The Proposed Development

2.1 Introduction

2.1.1 This chapter describes the Proposed Development. The location of the Proposed Development is shown in **Figure 2.1 – Location Plan** and its arrangement is shown in **Figure 2.2 – Scheme Arrangement** and **Figure 2.3 – Scheme Arrangement (Aerial)**.

2.1.2 The function of the Proposed Development would be to create a nationally significant large-scale long duration electricity storage (LDES) scheme which would store energy from and release to the electricity transmission system to balance supply and demand for electric power at a national scale. This would facilitate the further deployment of intermittent renewable generation and the reduction of fossil fuel energy production.

2.1.3 The generating capacity of the scheme would be up to 1,800MW, with enough storage with the upper reservoir full to generate for approximately 20 hours at this capacity. Based on OFGEM published data on average electricity consumption, the Proposed Development could potentially provide energy to 1.3 million average homes for up to 20 hrs. The pumping capacity would be rated at up to 1,980MW, which would allow national-scale renewable generation projects to continue to operate, rather than being paid to constrain, with the energy being imported to the Proposed Development.

2.1.4 The Proposed Development would operate by transferring water between a lower reservoir, the existing Quoich reservoir, and an upper reservoir created by raising the level of Loch Fearna. The reservoirs would be connected by a system of underground waterways, with the turbines located in shafts within a powerhouse structure by the shore of the Quoich reservoir.

2.2 Site Description

2.2.1 The Proposed Development would be situated within the boundaries of a number of landholdings approximately 23km to the west of Invergarry. Access from the A87 to the site for construction would be taken on a route to the south of Loch Garry, the “Southern Access Route” (SAR), passing through mostly commercially forested areas before traversing open moorland. The final section of access to the site would be along the existing public road, the C1144, which would be widened locally.

2.2.2 The main PSH works, comprising the upper and lower reservoirs and associated works, are situated approximately 1km to the west of the Quoich Dam.

2.2.3 The main PSH site comprises south and southwest-facing slopes and corries of upland blanket mire, heathland, and flush habitat; burns with associated riparian woodland; acid grassland, bracken, mire, and heath habitats in the lower-lying ground and a rock shingle beach along the shoreline of Loch Quoich. M15 wet heath is the most widespread community within the survey area, followed by M17 blanket bog, and M25 mire.

2.2.4 No woodland would be affected by the main PSH works, however the Southern Access Route (SAR) would impact on some native and commercial woodland.

2.2.5 The site is currently used for highland sports, commercial forestry, hydroelectric generation and recreation. The Applicant is working closely with landowners to ensure any potential adverse effects on their existing interests are minimised.

2.2.6 The site is located entirely within the modified upper catchment of the River Garry. Loch Fearna drains via the Allt Fearna to Loch Quoich as does the adjacent Coire Dubh via the Allt Mheil. Loch Quoich was dammed in the 1950s at both its east and west ends to create the storage for the Quoich Hydro project. Loch Quoich operates on a 26m vertical range, therefore is already subject to significant modification by hydropower infrastructure including dams, a reservoir with fluctuating

water levels and associated drawdown scarring, an intake tower, control building and a power station downstream.

2.3 Scheme Operation

2.3.1 The Proposed Development would be operated either in:

- 'generating' mode during periods of low supply / high demand, when electricity would be generated by releasing water from the upper reservoir (Loch Fearna) through the reversible pump turbines and into the lower reservoir (Loch Quoich), and exported to the grid; or
- 'pumping' mode, when surplus electricity in the grid would be used to power the reversible pump turbines to pump water from the lower to the upper reservoir, to be stored to allow generation when required.

2.3.2 The Proposed Development would utilise the storage reservoir of the existing Quoich hydro scheme as its lower reservoir. Loch Quoich is currently one of the largest storage reservoirs in the UK and the Proposed Development would require around 11% of the available storage to fill the upper reservoir. Therefore no modifications to the existing Quoich dams or operating regime are required to support the operation of both schemes.

2.3.3 The operational range of Loch Quoich would remain unchanged from its current maximum and minimum levels and the existing Quoich Hydro station would continue to operate as usual. The addition of the Proposed Development would not divert water out of the existing catchment of Loch Quoich, nor would it increase spill at Quoich Dam nor affect the current compensation flows or any other aspect of the existing SEPA CAR Licence covering the Quoich Hydro/Garry cascade. The Proposed Development would be constrained from pumping water when Loch Quoich is below an agreed level, with sufficient reserve for compensations flows and the ongoing operation of the Quoich hydro scheme.

2.3.4 The Proposed Development would not present any additional flood risk or increase spill from Loch Quoich. An agreement has been developed with the owners of the Quoich hydro scheme which dictates that the Proposed Development would not release water from the Fearna reservoir to Loch Quoich when it is above an agreed level, thereby avoiding any additional spill risk at the Quoich dam.

2.4 Scheme Description

2.4.1 The principal permanent components of the Proposed Development would be:

- Loch Fearna – the upper reservoir;
- The underground waterway system;
- Loch Quoich – the lower reservoir;
- The powerhouse and switchyard;
- Access tracks and footpaths;
- Temporary construction facilities and borrow pits; and
- Areas of habitat compensation and enhancement.

Loch Fearna (Upper Reservoir)

Fearna and Coire Dubh Dams

2.4.2 Two rockfill dams (referred to as Fearna Dam and Coire Dubh Dam) would be constructed to allow the reservoir to store water between the levels of 540m AOD and 600m AOD. This would provide storage of approximately 40 Mm^3 of water. The dams would be of similar appearance and

construction to the existing Quoich Dam. The upper reservoir and its dams are shown in **Figure 2.4 – Upper Reservoir Plan**, **Figure 2.5 – Fearna Dam GA** and **Figure 2.6 – Coire Dubh Dam GA**.

2.4.3 The dams would be constructed from rock which has been excavated from borrow pits located within the reservoir inundated area. The faces of the dams would be at an approximately 1:1.5 gradient and the water would be retained by an impermeable upstream face or dam core. The downstream face would be rockfill.

2.4.4 The dams would have a road across the crest to allow maintenance access, together with other facilities including a bottom outlet valve house for passing water through the dam as required, and facilities for the release of compensation flows to the watercourses downstream. Public access would be provided along the Fearna dam access road as part of the proposed diversion of the existing walking route from Spidean Mialach. There would be a concrete-lined spillway down the west side of each dam to accommodate the discharge of flood flows in the unlikely event that these occurred when the reservoir was already full and the water level could not be reduced through the turbines. Small access tracks would service the spillways, valve houses and along the toes of the dams for maintenance.

Upper Control Works

2.4.5 An upper control works located within the reservoir would feed water to/from the underground pressure tunnels. This is shown in **Figure 2.7 – Upper Control Works GA**.

2.4.6 The upper control works would comprise two reinforced concrete cylindrical towers, located over each of the vertical tunnel shafts. The towers would be connected by bridges to the Fearna dam and to each other. This would allow for pedestrian and vehicular access for operation and maintenance of the facilities within the upper control works. No public access would be provided to these structures.

2.4.7 Each tower would incorporate screens below the bottom operational water level of the reservoir to prevent debris from entering the underground waterway system. In addition, gates would be provided to isolate the reservoir from the tunnels during plant maintenance.

Dam Construction

2.4.8 The construction of the Fearna and Coire Dubh dams would require the following steps:

- Stripping of peat and removal of superficial material to expose the bedrock;
- Preparation of the bedrock to create a solid formation for the dam to be constructed on;
- Construction of concrete works at the base of the dam;
- Stripping of borrow pits and excavation of rock, which would then be processed to the required grading for dam construction;.
- Placing and compaction of the rock within the dam to the required level (possibly with an impermeable core);
- Construction of the concrete spillway, parapet walls, valve houses and other ancillary works;
- Installation of the impermeable upstream layer (unless an impermeable core has been used);
- Construction of a wave wall, dam crest roadway, spillway, and valve house;
- Installation of hydraulic isolation gates, telemetry and communications; and
- Testing, commissioning and certification by Reservoir Engineers.

2.4.9 In is anticipated that Loch Fearna would require to be temporarily drawn down to allow the construction of the Fearna dam. This would be achieved by pumping water from the loch to the Allt Fearna. The lower level would be maintained by pumping to a temporary outfall to the diversion at a lower level which is located outwith the construction works footprint.

2.4.10 The catchments which would be modified by the Fearna and Coire Dubh dams are small, at approximately 1.3km^2 each. Natural runoff from the Fearna and Coire Dubh catchments would be temporarily diverted through or around the dam works as required in culverts or open channel. Once the permanent structures in the base of the dams are complete to allow the catchment flows to be passed through, these would be utilised.

2.4.11 To manage sediment, the natural runoff from the catchments would be kept separate from runoff from the exposed areas of the construction site. This would prevent the mixing of clean runoff and silty water from the construction site and therefore minimise the volume of water that requires silt management measures.

2.4.12 Silty water would be controlled and managed in accordance with best practice and using natural measures where possible to filter silt and return clean water to catchment downstream of the works. Mechanical measures would also be utilised where appropriate.

Underground Tunnel System

2.4.13 Water would transfer between Loch Fearna and Loch Quoich via an underground waterway system comprising:

- two headrace tunnels connecting the Fearna Reservoir to the powerhouse;
- an access tunnel from the powerhouse ground level area to the headrace tunnels and powerhouse shafts lower level; and
- six tailrace tunnels, one between each powerhouse shaft and Loch Quoich.

Headrace Tunnels

2.4.14 Water would transfer between Loch Fearna and the powerhouse via two underground pressure tunnels, approximately 9m in diameter, constructed through bedrock. The tunnels would drop vertically below the upper control works before continuing at a gradient of approximately 1:10 and then horizontal towards the powerhouse. The tunnel arrangement is shown in **Figure 2.8 – Tunnel Layout Plan**.

2.4.15 As they approach the powerhouse, each tunnel would split into three branches to connect the two tunnels to the six powerhouse shafts.

2.4.16 Surge shafts would not be required on this scheme and therefore all of the tunnel infrastructure would be below ground.

2.4.17 The pressure tunnels would be lined with concrete and additionally with steel approaching the powerhouse due to the high water pressures and to maintain watertightness of the system.

Access Tunnel System

2.4.18 An access tunnel system would be required to provide access to the pressure tunnels and the lower level of the powerhouse shafts for construction, operation and maintenance purposes. The tunnel arrangement is shown in **Figure 2.8 – Tunnel Layout Plan**.

2.4.19 The access tunnel system would have support and lining as required for structural and operational safety reasons.

2.4.20 The entrance adit(s) to the access tunnel system would be located within the disused former quarry adjacent to the proposed powerhouse site. The exact position and number of adits from the disused quarry would be developed at the detailed design stage. These would incorporate concrete portal

structures with steel security gates. The arrangement is shown in **Figure 2.9 – Access Tunnel Adit GA**.

Tailrace Tunnel System

2.4.21 The powerhouse would be connected to the lower control works in Loch Quoich by six tailrace tunnels, one from each powerhouse shaft.

2.4.22 The tunnels would be concrete lined and incorporate hydraulic gates for isolation purposes.

Loch Quoich (Lower Reservoir)

Reservoir

2.4.23 Loch Quoich is currently used as a storage reservoir for the operational 19MW Quoich hydro scheme and provides approximately 360 Mm^3 of water storage for hydro generation. The total volume of Loch Quoich when full is in the region of 560Mm^3. The Proposed Development would utilise some of this storage but without affecting the existing operational arrangements for the Quoich hydro scheme. No modifications are required to the existing Quoich dam nor to any of its associated structures and facilities.

2.4.24 A concrete slipway would be constructed to the east of the powerhouse compound area connecting this to the low water level within the reservoir. This would facilitate access for boats required for maintenance of the lower control works and the existing Quoich hydro infrastructure, as well as improving boat access for the estates which use boats on Loch Quoich for estate management purposes.

Lower Control Works

2.4.25 Up to six lower inlet/outlet structures, each serving the pump-turbine units, would be constructed on the banks of Loch Quoich adjacent to the powerhouse, to allow water to be abstracted or released as required. The arrangement of the lower control works is shown in **Figure 2.11 – Powerhouse and Lower Control Works GA**.

2.4.26 The inlet/outlet structures would be screened to prevent fish and debris entering the underground waterways and hydraulic gates would enable the tunnels to be isolated from the reservoir for inspection and maintenance purposes.

2.4.27 The lower control works would be located below the reservoir lower operating level, requiring maintenance works to be carried out by boat and divers.

Powerhouse and Switchyard

2.4.28 An indicative arrangement of the powerhouse is shown in plan in **Figure 2.2 – Scheme Arrangement** and **Figure 2.11 – Powerhouse and Lower Control Works GA**, **Figure 2.12 – Powerhouse Area Plan** and in section in **Figure 2.13 – Powerhouse Cross Section**.

2.4.29 The powerhouse and switchyard would be located on the shores of Loch Quoich, partially within a disused former quarry which was created in the 1950s to win rock for the Quoich dam. A platform would be formed at around 205m AOD, which is above the maximum flood level for Loch Quoich of 203m AOD. This would entail raising the level of the existing quarry floor, as well as excavating a bench in the slope above Loch Quoich to accommodate the main powerhouse building. The material for increasing the quarry floor level would be won from the excavation for the powerhouse area and other rock arisings as required. The old quarry area would be protected from views from the public road by Quoich dam and from the dam itself by a landscaped bund to the east side of the powerhouse and switchyard compound area, formed sympathetically with the natural surroundings.

Powerhouse

2.4.30 The powerhouse would comprise vertical shafts approximately 90m deep which would house the pump-turbine units and ancillary equipment, with a superstructure above.

2.4.31 The powerhouse shafts are required to be sufficiently deep to allow the pump-turbine units to function across the full operational level range of Loch Quoich whilst giving a minimum depth of water over the pump-turbines to allow them to operate properly. The distance between the shafts is governed by the predicted geological stability of adjacent shafts during construction. The current distance is a conservative value, which may reduce once detailed ground investigation works have been carried out, in which case the powerhouse length may be able to be reduced slightly at its west end from that shown in the figures.

2.4.32 The pump-turbines, generators and associated mechanical equipment would be located at the bottom of the shafts, which would assist with attenuation of noise from the powerhouse.

2.4.33 The powerhouse superstructure would be located above the shafts. The dimensions of the building are driven by the functional requirements of spanning the shafts both along and across the building, with the height being the minimum that would accommodate an overhead gantry crane with sufficient clearance from the ground to handle all of the components for the hydroelectric plant. The building would be 400m long by 42m wide by 15m high.

2.4.34 The building would be designed to be sympathetic to the surrounding landscape and utilise naturally available materials where possible. For example, it could have a grassed roof, and the front elevation could be faced with naturally sourced material from the site to create a vegetated rock facade. Details of the preliminary architectural design of the powerhouse and switchyard are given in the Design Statement attached at **Appendix 2.1- Sustainable Design Statement**.

2.4.35 The powerhouse would house an office and administration area, welfare and maintenance facilities in annexes on the north elevation, which would be used by operational staff during operation and maintenance of the project.

2.4.36 Parking would also be provided, including provision for electric vehicle charging.

Switchyard

2.4.37 The Developer has accepted Grid Connection Offers from National Energy System operator (NESO) for the full export and import capacity required. Electrical works associated with connecting the project to the National Grid would also be provided adjacent to the powerhouse within a switchyard sited within the disused quarry. This switchyard would provide the interface between the Proposed Development and the transmission network, with switchgear to allow the isolation of the site from the network during maintenance and faults. Whilst the detailed design of the switchyard and associated infrastructure has yet to be developed by the Transmission Owner, sufficient information is available to define the likely maximum dimensions of the area, and these have been used in this application.

2.4.38 The switchyard would be connected to the national electricity network by cables between this point and the main transmission network in the Invergarry area. Apart from the footprint area of the powerhouse switchyard, the other components of the Transmission Owner's grid connection would be covered by a separate planning application, so consideration of the environmental effects associated with those components is not considered in this Section 36 Application and supporting EIA Report.

2.4.39 The Proposed Development requires a switchgear building on its side of the switchyard. This building is proposed to follow a similar architectural concept as the main powerhouse building. The switchyard building would be approximately 70m x 20m x 15m high, located as shown in **Figure 2.2 – Scheme Arrangement** and **Figure 2.12 - Powerhouse Area Plan**.

Site Access Tracks and Footpaths

2.4.40 Access tracks would be provided for the construction of the Proposed Development and for operational, maintenance, and emergency access.

2.4.41 The Proposed Development would be accessed for construction and major maintenance from the A87 trunk road at Whitebridge, north of Invergarry and via the Southern Access Route, described

below Existing tracks would be utilised wherever possible, subject to upgrading to the standard necessary for the expected construction traffic.

2.4.42 Where appropriate, permanent tracks would be reduced in width after completion of construction.

2.4.43 Safe access for recreational users would be maintained throughout the construction and operation of the Proposed Development. Where existing routes would be altered new structures, alternative routes would be provided, with these in place before the original routes were affected by construction. Details of these arrangements are included in **Chapter 14 – Recreation and Access**.

2.4.44 The overall layout of the existing and proposed assess tracks and footpaths is shown in the following figures:

- **Figure 14.1 - Existing Access Routes and Footpaths SAR**
- **Figure 14.3 - Existing Access Routes and Footpaths PSH Area**
- **Figure 14.11 - Access Routes and Footpaths During Construction PSH Area**
- **Figure 14.12 - Access Routes and Footpaths During Operation PSH Area**
- **Figure 14.13 - Access Routes and Footpaths During Construction SAR**

Detailed plans and sections of the proposed tracks are referenced below.

2.4.45 Access would be provided for the main construction of the Proposed Development as follows:

- Access to the PSH site from the A87 would be by the "Southern Access Route" (SAR), a combination of existing and new tracks through the Glen Garry Forest, joining the minor public road between the A87 and Kinloch Hourn, the C1144, approximately 1.5km from the powerhouse site; including widening of the C1144 for a length of approximately 2.3km to create a two-lane carriageway for public and construction access as far as the access track to the upper reservoir;
- Access by a new track to the powerhouse in the site of a disused former quarry;
- Access to the upper reservoir works by a new track; and
- Only the case of an unforeseen circumstances which may cause the SAR to be temporarily inaccessible, temporary access for light vehicles and standard HGVs by the C1144.
- A traffic management system would be implemented by the Principal Contractor to control vehicle movements, with details provided within the final CTMP.

2.4.46 Access would be provided for the operation of the Proposed Development as follows:

- Access for light vehicles and standard HGVs during normal operation only by the C1144;
- Access for abnormal loads during normal operation by the SAR;
- Access for all vehicles during significant maintenance activities by the SAR; and
- Access to the powerhouse and upper reservoir works by the new tracks.

2.4.47 Access track alignments would be designed sensitively to achieve manageable and safe alignments and visibility for both construction and operational vehicles and to minimise visual impact. Best practice would be applied to their design, construction and reinstatement.

2.4.48 Details of the proposed access routes are outlined in the following paragraphs.

Southern Access Route (SAR)

2.4.49 The SAR is shown in the following figures:

- **Figure 2.1 – Location Plan**
- **Figure 2.14 - Southern Access Route Upgrades (Sheets 1-13)**

- **Figure 2.15 - Southern Access Route - River Kingie to C1144 (Sheets 1-9)**
- **Figure 2.16 – SAR Widening and passing place details**
- **Figure 2.17 – River Kingie Bridge GA**
- **Figure 2.18 – Gearr Garry Bridge GA**
- **Figure 2.19 - C1144 Road Widening Plan and Long Section (Sheets 1-5)**
- **Figure 2.20 – C1144 Road Widening Details (Sheets 1-2)**
- **Figure 2.21 – SAR Junction with the A87**
- **Figure 2.22 – SAR Bridge over the River Garry at Whitebridge**
- **Figure 2.23 – Powerhouse Access Track**
- **Figure 2.24 – Access Track from C1144 to Upper Reservoir (Sheets 1-12)**
- **Figure 2.25 – Access Track from C1144 to Upper Reservoir Sections (Sheets 1-2)**
- **Figure 2.26 – Access Tracks Typical Cross Sections (Sheets 1-2)**

2.4.50 The existing forestry junction off the A87 and bridge over the River Garry are unsuitable for the traffic which would need to access the Fearna PSH site via the SAR. For this reason, a new junction and bridge are proposed, linking to the existing track behind the recreational car park at Whitebridge. The existing car park and its access would be retained for recreational users.

2.4.51 The new bridge over the River Garry would be designed to pass a 1:1000 year plus climate change allowance flood.

2.4.52 The new junction, bridge and first section of the SAR would also be used for the construction and operation of the Coire Glas PSH. It is probable that this part of the SAR would already have been constructed by the Coire Glas development prior to the start of construction of the Proposed Development. If not, it would be constructed as part of the Proposed Development.

2.4.53 The SAR would utilise existing forest tracks through the Glen Garry Forest as far as the existing bridge over the River Kingie. The existing tracks are single track with passing places. The tracks would be upgraded as follows:

- Existing passing places would be extended, and additional passing places would be constructed to provide facilities for passing at approximately 200m intervals, with adequate sightlines between passing places. The passing places would be a mixture of 15m and 30m long;
- Local realignment would be carried out at a small number of locations to make the track suitable for the largest loads that would deliver equipment to the Proposed Development and to improve visibility;
- The existing forest roads between the main site compound SC1 and the River Kingie crossing would be widened to allow for two-way traffic, after which a new two-way access track would be constructed to meet the C1144. This would provide full two-lane connectivity between the main site compound and the construction site.
- Scrub and small trees would be cleared from the road verges to improve forward visibility and drainage;
- Drainage and surfacing would be maintained as necessary; and
- The upgrading works would be designed in a way which minimises or potentially eliminates the need to remove any mature Caledonian pine trees. The feasibility of such a design has already been developed with Forestry and Land Scotland (FLS), which owns the land covered by the Caledonian Pine restoration area.

2.4.54 Where the existing track crosses the River Kingie and heads west, a new bridge would be constructed immediately to the north of the existing one connecting to a section of new track, initially to the west of the River Kingie, then to the south of the Gearr Garry. This track would be similar in construction to the existing forest tracks within the FLS Glen Garry Forest however would be 8m wide to provide a two-lane carriageway. At the end of the existing forestry plantation the track would

contour across the sloping open hillside as far as a new bridge crossing over the Gearr Garry (at the site of an existing ford), before crossing an area of level moorland to join the C1144.

2.4.55 The new bridges over the River Kingie and the Gearr Garry would be designed to pass a 1:1000 year flood, plus allowance for climate change.

2.4.56 From where the SAR joins the C1144 as far as where the Upper Reservoir Track branches off it, a length of 2.3km, the C1144 would be widened by approximately 4m to make it into a two-way road suitable for construction and operational access to the Proposed Development, as well as maintaining safe access for other road users. Parts of this widening may already have been completed as part of the C1144 road improvements being provided by SSEN's Skye Transmission Reinforcement Project.

Powerhouse Access Track

2.4.57 Access to the lower works including the powerhouse site and the construction area within the disused former quarry is proposed via a new junction and access track off the C1144 public road. This is shown in **Figure 2.23 - Long Sections Powerhouse Access Track**.

2.4.58 The new junction would be required to allow construction vehicles to turn safely in both directions.

2.4.59 The access track would be designed to an alignment suitable for the normal and exceptional vehicles which would require access to the powerhouse.

Upper Reservoir Access Tracks

2.4.60 A new access track would run from the C1144 up to the upper reservoir. This is shown in **Figure 2.24 - Long Sections C1144 to Upper Reservoir (Sheets 1 to 11)** and in **Figure 2.25 - C1144 to Upper Reservoir Cross Sections (Sheets 1 to 2)**. Following completion of construction, this track would be reduced in width where possible from 8m wide to 6m wide with passing places, to form an operational access track. The elevation difference between the lower and upper reservoirs dictates that the track would require to generally contour up the hillside at approximately 10% gradient.

2.4.61 Bridges would be constructed to cross the Allt Fearna, the Allt Mheill, and the Coire Dubh and Fearna dams spillway channels.

2.4.62 Facilities would be provided for safe crossing where footpaths cross the track. These are detailed in **Chapter 14 – Recreation and Access**.

2.4.63 Small tracks would be constructed adjacent to the Coire Dubh and Fearna dam spillways and along the toes of the dams to allow access to these and the dam gatehouses for construction, operation and maintenance.

Access via the C1144

2.4.64 The C1144 minor public road runs between the A87 and Kinloch Hourn, passing through the site of the Proposed Development. This is a single-track road with passing places. It is understood that it would have been significantly upgraded as part of SSEN's proposed Skye Transmission Reinforcement Project prior to the start of construction of the Proposed Development, but at this stage the details of the upgrading are unknown to the Applicant.

2.4.65 It is proposed that the ground investigation works, enabling access works and preliminary site mobilisation would use the C1144, prior to the SAR linking the site to the C1144 and the commencement of the main construction works, which would then use the SAR. No abnormal loads would be required for these preliminary works and it is anticipated that the upgrades carried out by SSEN for the Skye transmission reinforcement project prior to commencement would provide sufficient traffic capacity and weight limits to allow initial access to the Proposed Development site.

2.4.66 It is anticipated that the Proposed development would not use the C1144 for any heavy vehicles during the main construction period, with these vehicles utilising the SAR.

2.4.67 During the construction period, all light vehicles would also use the SAR, except in the case of an incident blocking the SAR, in which case the C1144 would be used for light vehicles and standard HGVs only, limited to the period during which the SAR was unavailable.

2.4.68 Signage agreed with the Roads Authorities would be provided at the junction of the A87 and the C1144 prohibiting access to construction traffic. All staff, visitors and deliveries to the site would be advised of the rules for access in writing prior to coming to the site, which would be a contractual obligation where practicable.

2.4.69 During operation of the Proposed Development, light traffic would use the C1144 for normal daily access. This is likely to be limited to approximately 20 vehicles per day in each direction. Vehicles capable of complying with any weight restrictions on the C1144 would use this route for routine maintenance. Heavier vehicles and abnormal loads would access the site via the SAR.

Access to Loch Quoich for Boats

2.4.70 Upgraded facilities for safely getting boats into and out of Loch Quoich, and for mooring them in the more rapidly fluctuating reservoir levels created by the operation of the Proposed Development would be provided to the east of the powerhouse area, where the existing slipway facility is located.

Additional Temporary Construction Tracks

2.4.71 During construction, temporary construction tracks would be required within the Fearna and Quoich reservoirs' inundated areas to allow the excavation and movement of material and general construction access. On completion of the construction, the temporary tracks would be reprofiled to a natural landform and ultimately submerged.

Public Access

2.4.72 The footpath which forms part of the route to the Munros Spidean Mialach and Gleouraich would be affected by the creation of the site access track and upper reservoir. Temporary and permanent diversion of this path would be required. This is covered in **Chapter 14 – Recreation and Access**.

Access Track Construction

2.4.73 Site access tracks would typically be constructed with graded rock or gravel won from borrow pits within the site. Except for the access from the A87, all access tracks would have an unbound surface, i.e. not tarmacked.

2.4.74 The proposed widths of the access tracks is shown below in **Table 2.1 - Track Widths**.

Table 2.1 – Track Widths

Track Section	Construction Period Detail	Operation Period Detail
A87 Junction to the Coire Glas access junction	8m, upgrading of existing track	As for construction
SAR, Coire Glas access junction to Main Site compound	Existing track with additional passing places	As for construction
SAR, Main Site Compound to Kingie Bridge	8m - existing track widened to 2 way.	As for construction
SAR, Kingie Bridge to C1144	8m – new 2-way track	As for construction
SAR, C1144	8m – existing road widened	As for construction
Powerhouse Access	10m – new 2-way track	Reduced to 6m
Upper Reservoir Track	8m – new 2-way track	Reduced to 6m

Track Section	Construction Period Detail	Operation Period Detail
Tracks to dam toes and valve houses	8m – single track	Reduced to 4m

2.4.75 New tracks would be constructed using cut track techniques. Details of these track construction methods are shown in **Figure 2.2.26 – Typical Cross Sections (Sheets 1 -2)**.

2.4.76 Peat and soil from excavations on site would be utilised for reinstatement along both sides of the track verges and allowed to regenerate naturally. Further details are provided in **Appendix 2.2 - Outline CEMD** and **Appendix 12.2 - Draft Peat Management Plan**. In areas where tracks would be more visible, for example traversing the flank of a hillside, these would be landscaped by bunding to the downslope side of the tracks.

2.4.77 Drainage of access tracks would be designed to the requirements of SEPA using regular drainage grips and small diameter cross drains as required at closely spaced intervals to disperse run-off locally.

Footpath Construction

2.4.78 Construction details for the proposed temporary and new permanent footpaths, including signage, are included in the Draft Access Management Plan at **Appendix 14.1 – Draft Access Management Plan**.

Areas of Habitat Compensation and Enhancement

2.4.79 The Proposed Development would include a significant package of habitat compensation and enhancement works, both within the site and adjacent landholdings. These would include:

- peatland restoration;
- native tree planting (including riparian planting);
- removal of non-native flora including rhododendron and exotic tree species within areas of Caledonian pine forest;

2.4.80 These proposals would demonstrably contribute significantly to the enhancement of biodiversity, including restoring degraded habitats and building and strengthening nature networks and the connections between them. Details of the proposed habitat compensation and enhancement works are outlined in **Chapter 8 – Terrestrial Ecology** and **Appendix 8.7 - Outline Biodiversity Enhancement and Management Plan**.

2.5 Mass Balance Strategy

2.5.1 The Proposed Development aims to manage excavated rock and other soil materials to achieve a mass balance, whereby all excavated material would be re-used beneficially on site rather than exported. This would minimise the environmental impact of the Proposed Development by avoiding the need to transport bulk materials to the site wherever possible and by minimising the generation of any waste material that would need to be taken off site for disposal. The site presents favourable conditions to achieve this balance, with large volumes of rock available at or near surface and a net requirement to excavate rock, rather than creating a surplus.

2.5.2 The following materials would be won from the site:

- Aggregates for the construction of access tracks;
- Aggregates for the site manufacture of concrete (cement would need to be imported);
- Crushed rock to create the platform area in the disused quarry above the Loch Quoich flood level and for structural fill;

- Rock for the powerhouse façade;
- Rock fill materials for construction of the dams; and
- Earth and peat materials for use in landscape mitigation measures and reinstatement.

2.5.3 These materials would be generated from the following sources:

- Aggregates would be sourced from the powerhouse excavation, from the excavation of the underground waterway systems and, where required, from a number of borrow pits;
- Rock materials would be sourced from excavation of the powerhouse, the underground waterway system and from a number of borrow pits;
- Earth fill materials would be sourced from the powerhouse excavation and from removal of in situ material from the footprints of the dams; and
- Where necessary, peat would be taken from the footprint of the various structures and excavations.

2.5.4 Rock from surface excavations, such as the powerhouse area, lower control works and borrow pits would be used for the construction of the site compound area, access tracks and dams where possible. The powerhouse façades would also use selected site-won rock.

2.5.5 Material from underground excavations would be used for concrete aggregate, landscaping and reinstatement of borrow pits. Due to the relatively short lengths of tunnels, the underground excavation volumes would be minimised. Unsuitable engineering fill materials would be used to reinstate borrow pits and for landscaping and finishing works.

2.5.6 An indicative Mass Balance Strategy and Borrow Pit Plan has been developed, which provides information on the anticipated volume, source, usage, temporary storage and handling of material generated and used during the construction of the works. This is attached at **Appendix 2.3 – Mass Balance Strategy and Borrow Pit Plan**.

2.6 Borrow Pits

2.6.1 The Proposed Development site presents excellent potential for borrow pits and preliminary calculations suggest that there are sufficient volumes of suitable rock available to construct the Proposed Development without the import of any rock or aggregate.

2.6.2 The proposed borrow pits are generally adjacent to the works areas, such as adjacent to the dams and alongside the access tracks. The exact location of borrow pits would be micro-sited depending upon site surveys with respect to availability of suitable material and proximity to where it is required, as well as any environmental sensitivities.

2.6.3 The following borrow pits are proposed:

- Extension of the Forestry and Land Scotland (FLS) Poulary East Quarry adjacent to the SAR;
- Existing processed stone stockpiles along the SAR;
- Borrow pits in the Glen Kingie Forest Estate and Kingie Estate, adjacent to the SAR;
- Winning of material from the main site compound adjacent to the SAR during the upgrade works;
- The powerhouse excavation;
- Fearna reservoir Borrow Pit 1;
- Fearna reservoir Borrow Pit 2; and
- Fearna reservoir Borrow Pit 3.

Poulary East Quarry

2.6.4 The primary source of material for upgrading and maintaining the SAR would be the existing Poulary East Quarry, which has already been developed by FLS for the same purpose.

2.6.5 This quarry would be extended as shown in **Figure 2.27 - Poulary East Quarry Plan**.

2.6.6 On completion of construction the quarry would be left as a working quarry (i.e. not reinstated) to continue to service the future roadstone needs of the Proposed Development and FLS's other tracks in the area.

Other SAR Borrow Pits

2.6.7 The SAR works on Glen Kingie Forest and Kingie Estate would utilise borrow pits on those estates respectively. Refer to **Figure 2.28 – Glen Kingie Forest Borrow Pit Plan** and **Figure 2.29 - Kingie Estate Borrow Pit Plan**.

Main Site Compound

2.6.8 The main site compound, shown in **Figure 2.30 - Site Compound Plan** and **Figure 2.31 - Site Compound Sections**, would comprise three level terraces formed by cut and fill. The area is characterised by thin peat deposits overlying glacial material and potentially rock. There is rock outcropping adjacent to the site which it is proposed would be developed into borrow areas as part of the terracing operation. This material would be used for surfacing the compound areas, as well as contributing to the stone required for upgrading the SAR. The compound area would be returned to commercial timber plantation on completion of the construction works.

The Powerhouse Excavation

2.6.9 Excavation of the powerhouse area would generate approximately 250,000m^3 of rock. Excavation of the six powerhouse shafts would generate a further approximately 300,000m^3 of rock. This would be used to bring up the level of the existing disused quarry adjacent, for rock and aggregate materials for access track construction, and for aggregates for concrete.

2.6.10 The excavation is shown in **Figure 2.32 – Powerhouse Excavation Plan**

2.6.11 The material would be handled and stored as necessary within the disused quarry area, which would form part of the powerhouse and switchyard area later in the construction programme.

Fearna Reservoir Borrow Pit 1

2.6.12 Fearna reservoir borrow pit 1 is shown in **Figure 2.33 - Borrow Pit 1 Plan** and **Figure 2.34 - Borrow Pit 1 Section**.

2.6.13 The borrow pit would generate approximately 0.6Mm^3 of material, to be used primarily in the construction of the Fearna and Coire Dubh dams.

2.6.14 The borrow pit would be contiguous with the Fearna reservoir borrow pits 2 and 3.

Fearna Reservoir Borrow Pit 2

2.6.15 Fearna reservoir borrow pit 2 is shown in **Figure 2.35 - Borrow Pit 2 Plan** and **Figure 2.36 - Borrow Pit 2 Section**.

2.6.16 The borrow pit would generate approximately 7Mm^3 of material, to be used primarily in the construction of the Fearna and Coire Dubh dams.

Fearna Reservoir Borrow Pit 3

2.6.17 Fearna reservoir borrow pit 1 is shown in **Figure 2.37- Borrow Pit 3 Plan** and **Figure 2.38 - Borrow Pit 3 Section**.

2.6.18 The borrow pit would generate approximately 3Mm^3 of material, to be used primarily in the construction of the Fearna and Coire Dubh dams.

2.7 Construction Stage Water Abstractions and Drawdown of Loch Quoich

2.7.1 During the construction stage of the project, temporary abstraction points would be required to supply water for the following activities:

- Welfare facilities at the construction site compounds located at all the main works areas;
- Concrete production;
- Rock processing;
- Drilling;
- Piling;
- Grouting;
- Dust suppression; and
- Wheel washing.

2.7.2 Water for the above activities would be required for the full duration of the construction programme, albeit at varying abstraction rates.

2.7.3 Dewatering may be required in parts of the site, the extent of which would be a function of the local ground conditions. It is possible that dewatering techniques would be required at the dams and the upper and lower control works construction areas.

2.7.4 The details of all abstraction and dewatering required during the construction phase would be set out in the Principal Contractor's methodology, which would be submitted to SEPA as part of the requirements of the construction license required under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 covering the Construction Works.

2.7.5 A temporary drawdown of Loch Quoich would be required to establish temporary works for the construction of the lower control works. During the drawdown period, compensation flows to the Gearr Garry would be maintained. The timing of the drawdown would be planned to avoid low flows downstream of the Quoich dam during the sensitive salmon running period of February to May. As the details of the temporary drawdown are developed with the Main Contractor, there would be close liaison between them, the operators of the Quoich and Invergarry hydro schemes (SSER) and the Ness District Salmon Fishery Board.

2.8 Site Drainage

2.8.1 At the detailed design stage, a Drainage Impact Assessment (DIA) would be provided. The DIA would include details relating to any existing drainage and the management of surface water drainage, which would be designed in line with general Sustainable Drainage Systems (SuDS) principles. Mitigation measures to manage the residual risk of overland flow/pluvial flooding would be included in the DIA.

2.8.2 Natural flood management techniques would also be applied to reduce the rate of runoff where possible. Tracks would not act as preferential pathways for runoff and efforts would be made to retain any existing drainage network. Appropriate drainage would be provided to restrict runoff to pre-development rates and to minimise erosion to existing watercourses. The DIA would ensure that post development runoff rate is no greater than pre-development runoff rate (i.e. greenfield runoff) for all return periods up to the 1 in 200 year event including an allowance for climate change.

2.8.3 Runoff from all events up to and including the 1 in 200 year plus climate change event would be managed within the site boundary, with no flooding to critical roads or buildings.

2.9 Construction Compounds

2.9.1 The following primary construction compounds are proposed:

- The main site compound and workers' accommodation camp, adjacent to the SAR;
- A compound at the powerhouse area; and
- A compound at the Fearna reservoir area.

2.9.2 The following secondary construction compounds are proposed:

- SAR junction and bridge;
- Poulary quarry;
- Kingie bridge; and
- Gearr Garry bridge.

2.9.3 The movement of labour, materials and equipment to and from all of the compounds would be managed by the Principal Contractor.

2.9.4 Site compounds would generally be constructed by the following process and in accordance with **Appendix 2.2 – Outline CEMD**:

- Strip topsoil and peat and temporary store the material;
- Cut/fill exercise to create level working platforms using the in-situ material;
- Excavation of rock (if required) and crushing / screening to create capping material;
- Capping of formation with crushed rock and compacted;
- Installation of drainage, lighting and other services;
- Construction of screening bunds using site won material and placement of stored peat/turves on bunds and exposed earthworks slopes wherever possible; and
- Delivery and installation of site offices, accommodation, temporary buildings and facilities.

2.9.5 All compounds would be fully reinstated following the completion of construction except for the powerhouse area compound which would be retained for use during operation of the scheme and to facilitate occasional major maintenance or refurbishment activities, and the Fearna reservoir compound which would be within the permanently inundated area of the reservoir so surface restoration would not be carried out.

Main Site Compound and Accommodation Camp

2.9.6 A main site compound would be located towards the western end of the preferred SAR. Its location is shown in **Figure 2.1 – Scheme Location** and details are in **Figure 2.30 - Site Compound Plan** and **Figure 2.31 - Site Compound Sections**.

2.9.7 The compound would be established early in the main construction programme, or potentially as part of a separate enabling works contract in advance of the main construction contract.

2.9.8 Prior to establishing the compound an area of recently planted commercial forestry would be cleared. This would be replanted with native species as part of the restoration of the compound following construction.

2.9.9 The compound would be established on three level terraces with a total area of approximately 15ha.

2.9.10 The northern end of the northern terrace would include a vegetated bund to reduce visibility of the compound from properties to the north of the River Garry.

2.9.11 The compound would be in use twenty-four hours a day during the main construction period. Lighting would be sensitively designed to minimise its visibility from any residential properties.

2.9.12 This compound would act as the primary area for the following:

- The main site offices and associated welfare facilities;
- Temporary accommodation facilities for up to 500 people, including welfare and recreation facilities;
- Workshop and internal fabrication and storage facilities;
- Parking;
- Laydown areas for materials deliveries;
- Plant storage areas;
- Facilities for water supply and waste treatment;

2.9.13 Power supply to the compound would be by a temporary overhead line electrical connection from the Quoich sub-station. This would be removed on completion of construction and reinstatement of the compound.

2.9.14 Personnel attending the site would be transported along the SAR and within the site by minibus from car parking areas outwith the site. This would reduce the traffic on the SAR, improve safety and avoid unsuitable vehicles travelling on the route.

Powerhouse Site Primary Compound

2.9.15 A site compound is proposed within the disused former quarry area adjacent to the proposed powerhouse site. The compound would be within the powerhouse platform described above. Refer to **Figure 2.39 – Site Compound SC2 Plan** for indicative details of the proposed compound.

2.9.16 The compound would include the following facilities:

- Site offices and associated welfare facilities;
- Parking;
- Laydown areas for materials deliveries;
- Plant storage areas;
- Facilities for water supply and waste treatment; and
- Mobile generators for power supply and/or via an OHL grid connection.

Fearna Reservoir Primary Compounds

2.9.17 Compound areas would be created at the upper reservoir area, within the area which would be inundated by the reservoir after construction is complete. The compound arrangements would be finalised by the Principal Contractor for the construction works. Refer to **Figure 2.41 – Site Compound SC3 Plan** for indicative details of the proposed compound.

2.9.18 The compounds would include the following facilities:

- Site offices and associated welfare facilities;
- Parking;
- Laydown areas for materials deliveries;
- Plant storage areas;
- Accommodation for approximately 100 people;

- Facilities for water supply and waste treatment; and
- Mobile generators for power supply and/or via a buried power cable running from the powerhouse area alongside the access track to the upper reservoir. Buried communications cabling would also be laid alongside the track.

SAR Junction and Bridge Secondary Compound

2.9.19 A secondary / satellite compound is proposed at the area of the new junction between the A87 and the SAR and the new bridge over the River Garry. The compound would include the following facilities:

- Self-contained power generation and welfare facilities;
- Parking and plant storage areas;
- Laydown areas for materials deliveries; and
- Crane pad(s) for the installation of the bridge.

2.9.20 This compound would be established early in the main construction programme, or as part of a separate enabling works contract in advance of the main construction contract. After construction of the new A87 junction and River Garry bridge are complete, the compound would be retained to provide a manned security facility for the site, together with car parking for visitors to the site, who would be transported to the site from there by minibus.

2.9.21 There is a possibility that the access and bridge construction would already have been completed by the Coire Glas PSH project in advance of the start of construction of the Proposed Development, in which case the compound facilities would already have been constructed and be available to the Proposed Development as a shared facility.

Poulary Quarry Secondary Compound

2.9.22 A secondary / satellite compound is proposed within the Poulary quarry site.

2.9.23 The compound would include the following facilities:

- Self-contained power generation and welfare facilities; and
- Parking, plant and materials storage areas.

2.9.24 The compound would be established early in the main construction programme, or as part of a separate enabling works contract in advance of the main construction contract. Materials generated from this quarry would be used in the upgrading of the SAR and its maintenance during the construction period on FLS-owned land.

2.9.25 Restoration of the compound would be carried out once use of the quarry by the Proposed Development is complete.

Kingie Bridge Secondary Compound

2.9.26 A secondary / satellite compound is proposed to facilitate construction of the Kingie bridge.

2.9.27 The compound would include the following facilities:

- Self-contained power generation and welfare facilities;
- Parking, plant and materials storage areas;
- Laydown areas for materials deliveries; and
- Crane pads for installation of the bridge.

2.9.28 The compound would be established early in the main construction programme, or as part of a separate enabling works contract in advance of the main construction contract.

2.9.29 The compound would be reinstated on completion of the bridge construction works.

Gearr Garry Bridge Secondary Compound

2.9.30 A secondary / satellite compound is proposed to facilitate construction of the Gearr Garry bridge.

2.9.31 The compound would include the following facilities:

- Self-contained power generation and welfare facilities;
- Parking, plant and materials storage areas;
- Laydown areas for materials deliveries; and
- Crane pads for installation of the bridge.

2.9.32 The compound would be established early in the main construction programme, or as part of a separate enabling works contract in advance of the main construction contract.

2.9.33 The compound would be reinstated on completion of the bridge construction works.

2.10 Site Traffic

2.10.1 Construction traffic to the Proposed Development would take access from the A87 at Whitebridge. Operational and maintenance traffic would also utilise this access route or the C1144 as described above.

2.10.2 An estimate of construction traffic generation and the potential effects of this on the local road network, is included in **Chapter 15: Transport and Access**.

2.10.3 During operation, the Proposed Development would be manned from the administration area inside the powerhouse. It is estimated that an average of 10 to 15 staff would require daily access to the site. These personnel would access the site using the C1144. Vehicles that can comply with any weight restrictions on the C1144 would use this route during routine maintenance. Heavier vehicles and abnormal loads would use the SAR.

2.11 Construction Programme and Working Hours

2.11.1 An outline project programme has been prepared for the Proposed Development and is attached at **Plate 2.1 below**.

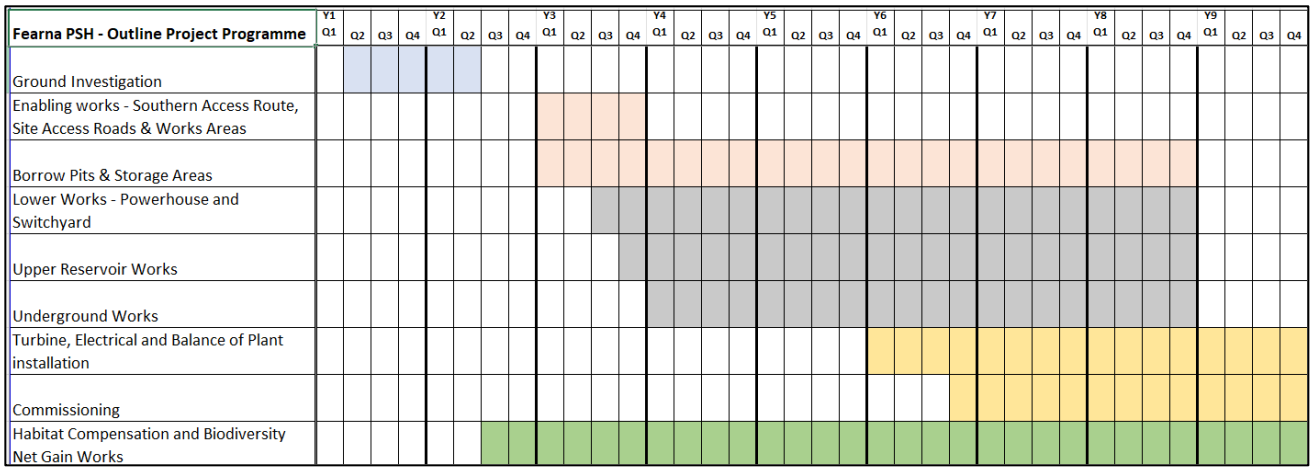

Plate 2.1 – Outline Project Programme

2.11.2 It is anticipated that the construction and commissioning period would last approximately seven years and the workforce could reach approximately 500 on average and possibly higher for some periods at the peak of the construction phase. The number of construction workers on-site would

vary depending on the stage of the works, generally ramping up from a small number at the beginning of construction and tailing off during the commissioning and demobilisation.

2.11.3 Normal construction shifts would generally apply for the surface works, but these could be subject to some variation to suit the construction activities, weather conditions and time of year. The underground operations would continue 24 hours a day, seven days a week. As the workforce would be housed within the site, these hours should not lead to any "out-of-hours" traffic on the local roads.

2.11.4 Although it would be far enough away from any noise sensitive receptors so as not to cause any nuisance, any surface blasting on site would normally only take place between the hours of 07:00 to 19:00 on any given day, unless otherwise approved in advance in writing by the Planning Authority.

2.11.5 Any works that would continue to take place during the hours of darkness would have management measures in place to ensure that any noise and lighting is mitigated for receptors above ground. The final CEMD, to be prepared by the appointed Principal Contractor, would include a Construction Noise and Vibration Management Plan (CNVMP) for construction activities, including blasting activities. This plan would also include measures that would be implemented during construction to ensure local receptors are not adversely affected by noise and measures for community liaison to advise on the timing and duration of blasting activities. The final CNVMP would be submitted to the Planning Authority for approval prior to the commencement of the Proposed Development. An outline noise Management Plan is provided in **Appendix 16.3 – Draft Construction Noise and Vibration Management Plan (CNVMP)**. Further information on Noise is provided in **Chapter 18: Noise and Vibration**.

2.12 Construction Environmental Management

Construction Environmental Management Processes

2.12.1 Construction mitigation and environmental protection measures would be managed through a suite of documents under the umbrella of a Construction Environmental Management Document (CEMD). An outline CEMD is attached at **Appendix 2.2 – Outline Construction Environmental Management Document**.

2.12.2 The Construction Environmental Management Document (CEMD) would apply to all construction activities and be implemented via the Contractors' Construction Method Statements. In particular, the CEMD would specify conditions relating to protection of habitats and species, pollution prevention and the means by which site monitoring would occur. The final site-specific CEMD would be drawn up by the Applicant, in consultation with the Highland Council (THC), Scottish Environment Protection Agency (SEPA), and NatureScot, once planning permission had been obtained and the main contractor appointed.

2.12.3 The CEMD would include the following:

- Pollution Prevention Plan;
- Mass Balance Strategy;
- Borrow Pit Management Plans;
- Spoil Management Plans;
- Site Monitoring Plan;
- Waste Management Plan;
- Incident Response Plan;
- Drainage Impact Assessment;
- Drainage Management Plan;
- Biodiversity Enhancement and Management Plan;
- Ecological Management Plan;

- Species Protection Plans (SPPs);
- Tree Protection Plan (TPP);
- Surface Water Quality Monitoring Programme (SWQMP);
- Dust Mitigation Plan;
- Peat Management Plan & Soil Management Plan (PMP & SMP);
- Peat Hazard Emergency Plan;
- GWDTE Assessments and Exclusion Plan;
- A Schedule of Watercourse Crossings;
- Access Management Plan;
- Construction Traffic Management Plan (CTMP);
- Abnormal Indivisible Load - Transport Management Plan;
- Construction Staff Travel Plan;
- Construction Noise and Vibration Management Plan; and
- Reinstatement Plan.

Ecological Clerk of Works

2.12.4 Construction would be supervised and monitored by specialist advisers including Ecological Clerks of Works (ECoWs) to ensure that sensitive ecological habitats and species are adequately protected in accordance with the methodologies in the CEMD and associated documents.

Micro-siting

2.12.5 There may be a requirement to micro-site elements of the Proposed Development from the positions shown on **Figure 2.2 – Scheme Layout**, as a result of additional constraints encountered during site works. Any micro-siting would require agreement of the specialist advisors (e.g. the ECoW) as appropriate.

Schedule of Mitigation

2.12.6 A schedule of mitigation is included in **Chapter 19 – Mitigation Schedule** of this EIA Report, which consolidates and cross references all of the suggested mitigation measures documented in this EIA Report to minimise or offset potential environmental effects.

Community Mitigation Liaison Group

2.12.7 The implementation of mitigation can often involve a number of parties other than the developer. It is proposed that a local liaison groups involving the local community would be established to liaise on the phasing of construction works – abnormal load deliveries, construction works to the road network, borrow pit blasting, etc. Glengarry Community Council has already established the "Glengarry Community Led Liaison Group" with the remit to study in detail the cumulative/combined impact of all the ongoing infrastructure projects in the wider Glengarry area. It is proposed to engage with this group for the purposes of this liaison, unless the group disbands, or a more specific liaison group is established through the Glengarry Community Council.

Site Environmental Management

2.12.8 The Principal Contractor would have overall responsibility for environmental management on the Site. The services of specialist advisors, such as the project ECoW, would be retained as appropriate to be called on as required to advise on specific issues. The Main Contractor and the Applicant would ensure construction activities are carried out in accordance with the mitigation measures outlined in this EIA Report and those detailed in the approved CEMD.

2.12.9 Contractors would be required to adhere to the following in order to reduce or mitigate the environmental effect of the construction process:

- The requirements set out in this EIAR;
- the conditions of any consent granted; and
- relevant environmental regulations.

2.12.10 A copy of any conditions of consent and the CEMD would be incorporated into tender and contract documents and form part of the contract between the Applicant and the Main Contractor. The selection criteria for the Main Contractor would include their record in dealing proactively with environmental issues, and provision of evidence that they incorporate all environmental requirements into their method statements and thereafter implement these on site.

Storage of Hazardous Substances

2.12.11 It is not anticipated that any flammable, toxic or explosive chemicals detailed in The Town and Country Planning (Hazardous Substances) (Scotland) Regulations 2015 would be stored on site in quantities such that a Hazardous Substances Consent would be required under section 2 of the Planning (Hazardous Substances) (Scotland)Act 1997, except potentially the storage of explosives for tunnel blasting, which may exceed the quantity threshold in the Act. Explosives would be stored on site in accordance with the Act for Explosive Materials 2014. The type and quantities of explosives stored on site are unknown at this stage as they would depend on the Contractor's methodology, but if the planned quantity of chemicals triggered the requirement for a Hazardous Substances Consent, then this would be sought prior to their storage in a quantity exceeding the threshold. If any other hazardous substances could exceed the quantity threshold requiring consent, consent would similarly be sought.

Site Reinstatement

2.12.12 Reinstatement would be undertaken as soon as practical following the construction works in each area.

2.12.13 Site tracks and some hardstanding areas would be retained for use during maintenance operations, although the upper reservoir access track would be reinstated to 6 m with passing places. The track edges would as far as possible be blended to the adjacent contours, with natural vegetation being allowed to re-establish.

2.12.14 All construction equipment and other temporary infrastructure would be removed from site and the temporary storage areas would be reinstated.

2.13 Land Take

2.13.1 It is estimated that the maximum permanent development footprint of the Proposed Development would be approximately 135ha. During the construction period it is estimated that a further 20ha would be temporarily required which would be reinstated following completion of the construction works.

2.13.2 Land use within the development area is covered in **Chapter 13 – Land Use**.

2.14 Lighting

Construction Lighting

2.14.1 For safety reasons, temporary lighting would be required for all external construction activities during hours of darkness and low natural light. Lighting would also be required at the construction compounds. This lighting would be designed to minimise illumination, glare or light spillage to nearby receptors.

2.14.2 The Defence Infrastructure Organisation, part of the MoD, have advised that the Proposed Development falls within part of the UK Military Lowflying System designated Tactical Training Area 14T (TTA 14T), an area within which fixed wing aircraft may operate as low as 100 feet or 30.5 metres above ground level to conduct low level flight training. The introduction of a new building or structure with a height above ground of 15m or greater in this location, along with the significant changes to the surrounding landscape and increase in water levels has the potential to introduce a physical obstruction to low flying aircraft operating in the area. To address the impact up on low flying given the location and scale of the development, the MOD would require that conditions were added to any consent issued requiring that the development is fitted with aviation safety lighting, and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction.

2.14.3 If aviation safety lighting is required by the MoD for the final design of the dams and powerhouse, this would be infrared lighting, which, as it is invisible to mammals and birds, would have no effect on the landscape and visual or ecological impacts of the Proposed Development.

2.14.4 The final CEMD, to be prepared by the appointed Principal Contractor, would include a detailed description of lighting requirements for construction activities and measures that would be implemented during construction to minimise illumination, glare or light spillage out with the Site boundary.

Operational Lighting

2.14.5 Once operational, external lighting would only be provided at key areas, such as the powerhouse and switchyard but would only be used during essential operational and maintenance activities, for example if a switching operation was necessary in the external switchyard. No lighting would be operated by PIRs. Prior to the commencement of Proposed Development, final design details for the external lighting during operation would be agreed with the Planning Authority.

2.14.6 The powerhouse surface building would be designed with automatic blinds on all glazed windows and doors, with these closed between dusk and dawn.

2.14.7 If aviation safety lighting is required by the MoD for the final design of the dams and powerhouse, this would be infrared lighting, which, as it is invisible to mammals and birds, would have no effect on the landscape and visual or ecological impacts of the Proposed Development.

2.15 Electric Car Charging Point Strategy

2.15.1 Wherever practicable, vehicles used in the operation of the Proposed Development would be electric vehicles (EVs). The powerhouse would be provided with sufficient charging points for all vehicles used to operate the scheme, as well as for staff vehicles to recharge whilst at work.

2.16 Project Operation and Maintenance

2.16.1 The Proposed Development would normally be manned 24 hours a day, with most operations being controlled from the control building within the powerhouse or remotely. Regular visits would be made to inspect and maintain the scheme components as follows:

- Daily visits to the powerhouse, intake and tailrace screens for routine operation and maintenance;
- Weekly visits to the dams, for routine operation and maintenance;
- Non-routine and scheduled major maintenance tasks would be carried out at longer intervals as required. These tasks could potentially extend to several weeks/months;
- Periodic inspection of the underground tunnel works and dam structures; and
- As-required maintenance of the access tracks and other infrastructure.

2.17 Project Decommissioning

2.17.1 With proper maintenance, the Proposed Development should remain functional indefinitely and as such, an assessment of decommissioning effects has not been provided as part of the EIA Report. If the Proposed Development ceases operation, decommissioning would take place and the site would be restored as follows:

- Moveable infrastructure would be removed;
- Underground tunnels would be sealed;
- Generation plant would be removed;
- Where removal of infrastructure, for example the dams, would result in more damage than leaving in place, they would be left in-situ; and
- Disturbed ground would be reinstated.

2.17.2 Full details of the decommissioning plan would be agreed with the appropriate authorities and landowners prior to any decommissioning works commencing.