Appendix J

Donich Hydro Scheme

Landscape and Visual Impact Assessment

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Landscape & Visual Impact

1 Introduction

This report provides a basic assessment of the landscape character at Donich Water and is accompanied by Zone of Theoretical Visibility maps (ZTVs) and visualisations to assess the potential visibility of the proposed hydro scheme.

2 Landscape Character

2.1 Existing Situation

The proposed scheme is located at Inveronich, near Lochgoilhead within the Loch Lomond & the Trossachs National Park. The scheme would abstract from the Donich Water which runs in a south-westerly direction into the head of Loch Goil. The scheme is positioned on FCS land therefore the landscape is dominated by dense coniferous plantation.

The Cowal Way is a long distance recreational route that runs the length of the Cowal Peninsula. This recreational route runs past along the Donich Water, along the south bank and is therefore unaffected as an access route.

2.1.1 Special Qualities of the National Park

The Donich Water hydro scheme is located within the Loch Lomond and the Trossachs National Park, which is broken up into four landscape areas: Argyll Forest, Loch Lomond, Breadalbane and the Trossachs[1]. The scheme falls within the Argyll Forest landscape area, therefore the following special qualities will be considered:

- A remote area of high hills and deep glens
- A land of forests and trees
- Arrochar's mountainous and distinctive peaks
- The variety of glens
- The dramatic pass of Rest and Be Thankful
- The seaside architecture of Kilmun and Blairmore[2]

2.2 Landscape Character Areas

The hydro scheme falls within the following regional landscape character areas (RLCAs):

- Hill and Upland Glen Associations - The Ardgoil group
- Highland Loch Basins – Loch Goil.[3]

Specifically, the scheme will affect the following landscape character types (LCAs):

- Forest Upland Glens
- Forested Glenside
- Farmed Strath & Glen Floor[4]

[1] SNH & LLTNPA (2010). *The special landscape qualities of the Loch Lomond and The Trossachs National Park*. SNH Commissioned Report, No.376
[2] Ibid.
[3] Environmental Resources Management (2005). *Loch Lomond and the Trossachs landscape character assessment. Scottish Natural Heritage Commissioned Report No. 093*.
[4] Ibid

2.3 Wild Land

The project area does not fall within the SNH areas identified as Wild Land as indicated on Search Areas for Wild Land map as it is easily accessible and not particularly rugged.

2.4 Recreational Access

The Cowal Way is a long distance recreational route that is located along the opposite bank of the proposed hydro scheme. Consequently the scheme will not place any restrictions on this route during construction. However, there are a number of core paths within the vicinity of the scheme and one path will be directly affected by the pipeline route. Core paths are paths that provide for a variety of recreational and everyday uses and form a network across the National Park area.

2.5 Potential Effects

Each of the individual scheme components will have a different effect on the landscape character of the area and these are considered below.

2.5.1 New Forest Roads

It is proposed to construct two new spurs of forest road that will extend along the contours of the hillside, to provide access to the pipeline and intake. These new roads will be permanent and will be used for forestry purposes in the future. Therefore, it could be argued that the new road additions are in keeping with the landscape.

2.5.2 Powerhouse

The powerhouse building will be located at Inveronich within the farmed strath and glen floor Landscape Character Area. The building will be positioned on the right bank of the Donich Water. With wooden clad walls and a green tin roof, the function of the powerhouse building will most likely be perceived to be associated the nearby FCS and Scottish Water buildings.

2.5.3 Intake

The third component that will impact on the landscape character will be the run-of-river concrete intake weir on the Donich Water. Although this structure will impact on the character of this river, the effect will be minimised to a certain extent by the nature of the river, which is predominantly cascade in character around the location of the intake. The intake will effectively become an additional waterfall in the course of the burn. The 'naturalness' of the burn has already been compromised to some extent by the presence of the water supply weir; therefore the long term effect of the addition of another man-made structure will be **minor**.

2.5.4 Pipeline

The fourth and final component that is likely to impact on the landscape character of the area is the pipeline. The pipeline exits the intake on the right bank of the Donich Water (facing downstream) and runs in a westerly direction down the hillside to the powerhouse.

This feature will be visible during the construction period but thereafter will be buried and natural vegetation will be encouraged to grow over the top. On a typical hydroelectric scheme the regeneration of vegetation over the buried pipeline would be estimated to take two to three years to mask the pipeline route. Additionally, a temporary construction track for pipeline installation will run alongside the pipe route in areas that are inaccessible via existing tracks. However, on completion of the scheme, these construction tracks will become redundant, allowing the vegetation to re-establish (please refer to the Construction Method Statement for details on temporary track/pipeline restoration and turve management). The pipeline runs across forested

upland glen and forested glen side, with planted coniferous that will be felled independently of the scheme. Only the route of the pipeline and a small area of plantation below the pipeline will be felled for the hydro scheme (refer to the Tree Plan drawing, Appendix L), therefore there will be enough forestry in the wider landscape to retain the landscape character, therefore the long term effect is predicted to be minor.

2.5.5 River character

The operating regime of the hydro scheme is designed to protect low flows by providing a minimum compensation flow equivalent to Q95 (i.e. the flow that is exceeded in the burn 95% of the time). This compensation flow will rise to Q80 when the flow upstream of the intake is at Q30. This variation in flow will not only help maintain the ecological integrity of the river, but will help to maintain the natural character of river. Moreover, as only the design flow will be abstracted from the river, the scheme protects high flows. When the burn is in spate, the weir crest will be overtopped and the spate flows can continue down the burn. Moreover, due to the steep gradient of the landscape, this effect is lessened by the flashiness of the burns, which respond quickly to rainfall.

The subsequent inundation of water behind the intake weirs could also be considered a variation in the natural character of the watercourses although this would be localised, only affecting a short stretch of the burn and, given the presence of existing weir on the Donich Water, it could be argued that this is in keeping with the contemporary character of the watercourse.

Overall, the impact of the hydro scheme on the character of the river could be considered **minor**.

2.5.6 Impact on the Special Landscape Qualities of the National Park

The extensive conifer plantings that cover most of the lower hillsides are one of the special qualities of the Argyll Forest landscape type (‘a land of forests and trees’). The overall long-term impact of the scheme on this special quality is likely to be **minor**. Located on FCS land, the trees in the wider landscape will be felled and restocked independently of the scheme. The felling that will occur as a result of the hydro scheme will not impact the riparian broadleaf woodland on the banks of the Donich Water. Therefore, the contrast between the dark coniferous plantation and the lighter broadleaf woodland would be retained. This is typical of the extensive plantation landscape within Argyll and considered to be a positive landscape feature.[5]

The scheme is unlikely to significantly affect any of the other special landscape qualities of the National Park.

2.6 Conclusions

Although the construction of the scheme will impact on the landscape character of the area, this effect will be minor. The construction of the forest road spurs are in keeping with the existing forest road that runs through the site and the powerhouse is designed to be similar in appearance to the nearby FCS and Scottish Water buildings. The pipeline will be buried and the intake, once established, will effectively become an additional waterfall in the burn.

[5] SNH & LLTNPA (2010). *The special landscape qualities of the Loch Lomond and The Trossachs National Park*. SNH Commissioned Report, No.376

3 Visual Impact

3.1 ZTVs

The potential visual impact of the scheme was initially assessed using Zones of Theoretical Visibility maps (ZTVs). The ZTVs show, as shaded areas on a map, zones from which the scheme components will be theoretically visible. From these maps it is possible to determine whether the scheme components will be visible from nearby dwellings, walking routes and popular viewpoints.

3.1.1 Assumptions and Limitations

The ZTVs were generated using a Digital Terrain Map, which provides elevation data for the ground surface. The ZTV maps are designed to show long range views. They have been generated to have a 10km range; however it is worth noting that elements of the scheme are unlikely to be noticeable to the human eye at distances greater than 5km.

Drawing Nos. P626 80105 – P626 80104 make allowances for surrounding forestry as depicted on a 1:50,000 OS map and assume that felling will be carried out in accordance with the Tree Plan (Drawing No. P626 10111, Appendix L). Consequently, whilst these ZTVs do not account for recent felling activities, they also do not account for other vegetation, which actually may impede the visibility of the scheme, such as scrub habitats or trees that are not depicted on the OS map. Due to the nature of the forested landscape at Donich Water, these ZTVs are considered to be the most realistic.

Drawing Nos. P626 80105 – P626 80108 do not make allowances for wooded and forested areas and assume a worst-case 'bare ground' scenario. It is worth noting that the landscape at Lochgoilhead is heavily afforested therefore the bare ground ZTVs may significantly overestimate the zones of theoretical visibility of a scheme component.

It is envisaged that the actual zones of visibility will a combination between the two types of ZTV maps.

3.2 Photomontages

In order to further assess the potential visual impact of the scheme, photomontages were drawn up in conjunction with the ZTVs. Key visual receptor sites include views around Lochgoilhead, the surrounding hills, the Cowal Way and the existing forest roads.

3.3 Potential Visual Impact

3.3.1 New Forest Roads

The layout of the Donich hydro scheme is one that minimises the visual impact on the landscape by making use of existing forest roads as far as possible. The bare ground ZTV demonstrates that these permanent components to the hydro scheme are likely to present the greatest visual impact (P629 80108). More than 75% is theoretically visible to the hills south of Donich Water as well as Beinn Bheula to the southwest. The 'forested' ZTV demonstrates that these new roads will also be theoretically visible to the hills south of Donich Water, such as The Steeple and Cnoc Coinnich and from Bheinn Bheula to the south west (P626 80104). There is likely to be a long term visual effect on these views through the addition of new permanent access to the landscape. However, given the presence of the existing forest roads not only at this hillside but also in the wider landscape, the significance of this effect is likely to be **minor**.

They will also be visible to the existing forest road / core path (viewpoint 10 of the photoset) and up to 75% of the new tracks are likely to be visible to sections of the Cowal Way (viewpoint 11).Whilst the visual effect is likely to be high in the short term

during construction, the significance of the medium and long term impact will be **minor**, as the new tracks are unlikely to erode the scenic value of an afforested landscape, where tracks are prevalent.

The ZTV maps suggest that 26-50% of the tracks will be visible to views from Drimsynie but they will not be visible from Lettermay, Lochgoilhead nor the forest roads on the hillside of Glen Goil (viewpoints 1 & 3, P626 80104 P626 80108). Due to the lack of visibility from these receptor sites, it is likely that the long term visual effect of the new additions of forest road will be **minor**.

Powerhouse

The bare ground ZTV shows that the powerhouse is primarily visible from Lochgoilhead and other dwellings at the head of Loch Goil (P626 80106). According to the 'forested' ZTV, the powerhouse is also theoretically visible to the buildings at Lochgoilhead as well as buildings across the head of Loch Goil at Corrow and Lettermay (P626 80102). The powerhouse is potentially visible from local roads at Inveronich (viewpoint 4). There is likely to be a high short term visual effect on Inveronich House during construction and a moderate visual effect in the medium term, immediately after construction while the ground vegetation re-establishes. Whilst there will be a permanent impact from the addition of this building, it is unlikely to detract from the scenic quality of the Inveronich area, which holds a number of general utility buildings. Moreover, the visual impact of this building will be lessened by its recessive appearance; the building is designed to be sympathetic to the existing buildings in the vicinity, which will help to integrate the powerhouse as part of the existing landscape (viewpoints 6 & 7). Therefore the long term visual effect on the residential buildings at Inveronich and Lochgilphead is likely to be **minor**.

The powerhouse may also be visible from lower sections of the Cowal Way footpath on the glen floor at Lochgoilhead. However, the long term visual impact on views from these sections of the path are likely to be minor, given the context of the more developed lower glen. Also, in reality, this building is not likely to be visible from the majority of the higher sections of this path due to forestry and topography (viewpoints 10 & 11 of the photoset). Therefore the impact on this footpath is predicted to **minor-negligible**.

The ZTV maps demonstrates that the powerhouse will be absent from view of Ben Donich and peaks to the northeast. It is potentially visible to the Beinn Bheula and Cruach nam Miseag peaks. However, the long term visual effect on these views is likely to be **minor** as the building is designed to be inferior in scale in the setting of the surrounding forestry. Furthermore, the ZTVs do not account for any buildings at Lochgoilhead that may actually help to screen long distance views.

Overall, the long term visual impact of the powerhouse will be **minor**.

Intake

The bare ground ZTV demonstrates that the intake structure is theoretically visible to peaks to the northeast and southwest including The Cobbler and Beinn Bheula, as well as Beinn Donich and The Brack (P626 80105). It is also theoretically visible to sections of the Cowal Way. The 'forested' ZTV demonstrates that the intake is likely to be the least visible component of the scheme due to its position within the forestry (P626 80101). In reality, will be absent from view of the Cowal Way (viewpoints 10 & 11 of the photoset), therefore the intake will have a **minor** visual effect on this footpath. It will only be theoretically visible to elevated views such as the peaks of The Steeple and the Corbetts Ben Donich & the Beinn Bheula. However, Beinn Bheula is located approximately 8km away; therefore the scale of a low profile weir will be inferior in the

landscape and views from this peak will be **minor**. If required, large rocks/boulders of local origin could be placed around the structure to soften the visual impact.

Pipeline

The bare ground ZTV demonstrates that the pipeline has a wide theoretical ZTV, with the greatest proportion of visibility from elevated peaks of Beinn Bheula and Cnoc Coinnich (P626 80107). The greatest proportion (>75%) of pipeline on the 'forested' ZTV is likely to be seen from the land to the west and southwest of the scheme, most notably the Beinn Bheula and the Beinn Lochain peaks (P626 80103). Although a corridor of trees will be felled to accommodate the pipeline and access track, there is likely to be enough residual trees provide significant screening, helping to minimise the overall visual impact on the landscape.

Up to 50% of the pipeline is also most likely to be visible from the southern hillside of Donich Water, and will therefore affect some sections of the Cowel way (viewpoint 11). Regardless of the presence of forestry, buildings at Lochgoilhead are only likely to be in view of <25% of the pipeline. Buildings at Lettermay however, are likely to be in view of some sections of the pipeline (viewpoint 1).

Whilst the pipeline is likely to be the most visible aspect during the construction period, it is likely to be barely discernable following vegetative restoration 2-3 years after completion of the scheme. It is therefore anticipated that although there will be a high visual impact at several receptor sites during construction, the long term effect of this reversible impact will be **negligible** in the long-term, 2-3 years after construction, once the corridor is restored.

3.4 Conclusions

The overall visual impact of the pipeline is **temporary**, as the ground vegetation cover will be restored on completion of the scheme. The powerhouse is likely to be most noticeable to the buildings at Lettermay and local roads at Inveronich, but the visual impact of the building will be alleviated by its recessive design, which is in keeping with the local buildings in the vicinity. The additional forest roads will theoretically have the greatest permanent visual impact, but in a landscape that is heavy modified by forestry management, this impact would be **minor**. The intake itself will be absent from view from nearby buildings and will be small in scale, so it will theoretically have a **minor** visual impact.

4 Summary

Overall, during construction and the early operational years, the scheme may cause minor adverse landscape and visual impact to the hillside at the head of Loch Goil. However, the impact of the pipeline is largely reversible and the long-term impact on the landscape is predicted to be low overall. The new forest roads are likely to be the most visible long-term component to the proposal, but the significance of these in a landscape already modified by forestry and tracks is likely to be minimal. Moreover, the recessive appearance and design of the powerhouse building will help the structure to integrate into the existing landscape.