

<b>Name of Hydro Scheme - Inverlochlarig</b>	
Location - Inverlochlarig, near Balquhidder.	File Ref (to be completed by Munro Society)
OS Map - OS Landranger 1:50,000 Sheet 56 (Loch Lomond and Inveraray).	
Date of Survey: 18 July 2017 and 5 August 2017	Surveyor name: Derek Sime
Initial or follow up visit? (please number if known, 1,2,3 etc.) Initial and only. It is suggested that no follow up visit is required to this location.	
Any comments on survey (weather, area walked) - 18 July - Very warm sunny weather and clear; 5 August – Bright with sunny intervals and cloud base c900m.	

Notes for surveyors: it would help if you can take photos to illustrate your answers, including photos of good and poor practice in terms of restoration and landscape scale photos (e.g. from neighbouring hills) which show overall impact on landscape. Where, you are undertaking a follow up visit, there is no need to repeat information from initial form that is unchanged.

<b>Development details</b>	
Landowner	Braes Farming Co. Ltd.
Developer (if different)	Braes Farming Co. Ltd.
Contractor (where known)	Campbell of Doune / M.A.M. Contracting / Allt Energy
Planning reference/s	2012/0085/DET.
Date planning permission granted	3 October 2012.
Date work started (if known)	Not known.
Date work completed (if known)	April 2014.
Monitoring period post completion (if any)	Not known.
Size of scheme in generating power (K/W)	100KW.

<b>Overall landscape assessment</b>	
Can the development be seen from hill summit areas or ridges? Y/N. If so which?	<p>Cannot be seen from Beinn Tulaichean summit but is seen from nearby, and some areas on the ascent / descent. Not obvious from Cruach Ardrain summit but likely to be seen from Stob a'Choin, but not from Stob Binnein summit.</p>  <p><i>Inverlochlarig from B. Tulaichean ridge</i></p>
Is the development next to an access route to hills? Y/N. If so, which?	Yes – in Inverlochlarig Glen, which is often used for access to / from Beinn Tulaichean and

	Cruach Ardrain, and less so for Ben More and Stob Binnein.
Were there previously hydro schemes or electricity infrastructure in area? If so, describe	No.
Were there previously hill tracks in area?	Yes – the track in Inverlochlarig Glen has existed for many years.

<b>Access Track - location</b>	
Is access track permanent Y/N?	Yes, but mainly using the pre-existing track, which does not appear to have been altered significantly by the scheme. There is a short new track leading down to the intake, and an even shorter new track to the power house.
Access track starting point (Grid Reference)	NN 43780 18228, on the pre-existing track.
Length of track, intake to powerhouse?	2.5km, but roughly 2.3km of this is over the pre-existing track.
Was there a track to area of intake previously Y/N	Yes, to within c100m of the intake – only the last 100m is new.  <p><i>Intake access track</i></p>
If yes, how much of track follows line of previous track?	Approximately 2.3km, or approximately 92%.
If no, how much of track is new?	Approximately 100m.
Can the access track be seen from hill summits or ridges? If so which?	Cannot be seen from Beinn Tulaichean summit but is seen from nearby, and some areas on the ascent / descent. Not obvious from Cruach Ardrain summit but likely to be seen from Stob a'Choin, but not from Stob Binnein summit.  <p><i>A winter view of Inverlochlarig from Cruach Ardrain summit</i></p>

Is there any evidence of off-road track erosion caused by vehicles leaving the track? If so, please describe	No.
Any other comments on line/location of track including, if its new, comments on its impact on the landscape.	Very little impact on the landscape – the existing track is for the most part c2.5m wide, well established and generally well-constructed, and has a vegetation strip down the middle. The new section to the intake also has a vegetation strip down the middle, although the new section to the power house does not. The new sections are no wider than the pre-existing farm track, except for the turning areas, and are both very short.
<b>Access track – standard of construction</b>	
Is width greater than 2m on flat sections and 2.5m on bends?	Generally c2.5m wide for most of the route, with one short section of c6m wide.
If yes, how much of track is broader than this: (All, most, more than half, less than half, little, none)	Most of the track is c2.5m wide, with <5% at c6m wide.
What is maximum width?	c6m over a short length.
Is there evidence of unnecessary passing places / turning points?	No.
Does the upward inclination of the track exceed 14% in any place? (The max for light vehicles) If so how frequently?	The power house access track has a grade of up to 20° (36%). The Intake access track has a grade of up to up to 20° (36%). The pre-existing (main) access track has a grade of up to 15° (27%).
Is there evidence of gulying on the track? If so what is cause of this (e.g. too steep, inadequate drainage)	No.
Is there a vegetated strip running down the middle?	Yes, in the pre-existing track, and on the new section to the intake, although not on the new section to the power house.
Have any of uphill banks / batter slopes been blasted through rock?	No.
If yes, have these been restored?	N/A.
Are any uphill batters too steep (e.g. over 45% or too steep to retain vegetation)?	On the main (pre-existing, but probably widened at this point) access track there is a short length of batter slope of up to 40° (84%).

	 <p><i>Section of steep batter slope on main access track</i></p> <p>On the intake access track there is a short length of batter slope of up to 45° (84%), with small areas of up to 75° (373%).</p>  <p><i>Steep batter slope on intake access track</i></p>
<p>Is there any evidence of spoil from track spilling down slopes?</p>	<p>No.</p>
<p>Have the edges of the track been finished through replacement of vegetation?</p>	<p>Generally, yes.</p>
<p>Is there evidence that surface vegetation and different soil types have been stored separately and then replaced separately? (All, most, more than half, less than half, little, none) *</p>	<p>Most.</p>
<p>Has downhill side spoil been moulded to match existing landscape?</p>	<p>Generally, yes.</p>
<p>Approximately how much of the land on either side of the track has been restored through replacement of vegetation? (All, most, more than half, less than half, little, none)</p>	<p>Most.</p>
<p>To what extent have the culverts been cut back and covered? (All, most, more than half, less than half, little, none)</p>	<p>Most.</p>
<p>Any other specific comments, including examples of good and poor practice you wish to highlight?</p>	<p>Generally good practice, albeit with some shortcomings in places.</p>
<p>Evidence of further restoration work since initial survey</p>	<p>N/A.</p>
<p>How would you rate the walking experience along the track?</p>	<p>Excellent along the pre-existing track; good along the new sections, but note that the hill</p>

(Excellent, good, medium, poor, terrible)	walker would normally have no reason to walk on the new sections.
Has the track impacted on existing paths? If so, how?	No.

<b>Intake/s</b>	
How many intakes are there? (Please repeat for each intake starting with largest intake)	One.
<b>Intake</b>	
Altitude and Grid Reference	315m; NN 43221 19472.
Setting (e.g. open flood plain, gorge, set between banks)	Set between banks. 
	<i>Intake</i>
How visible is intake from neighbouring summits and ridges?	Cannot be seen from Beinn Tulaichean summit but is seen from nearby, and some areas on the ascent / descent. Not obvious from Cruach Ardrain summit but likely to be seen from Stob a'Choin, but not from Stob Binnein summit.
Has the intake dammed the river or is it true "run of river"?	True run of river.
If dammed, length of pool	N/A.
Approx. max height intake walls	1.6m from downstream water level to top of wall.
Have intake walls been faced with natural materials?	No – in situ concrete. 
	<i>Intake walls</i>
Approx. width of intake (across burn / river)	11m.
Has rip rap bouldering+ been used on upstream side? Extent? Visible from what distance?	Yes – over a short distance (about 8m) on the right bank only.

	 <p><i>Rip rap bouldering</i></p>
<p>Has rip rap bouldering+ been used on downhill side? Extent? Visible from what distance?</p>	<p>No.</p>
<p>Are safety fences metal or wood?</p>	<p>There are no safety fences.</p>
<p>Is exposed pipework in natural colours?</p>	<p>Light grey, similar in tone and colour to the surrounding (dry) rock), so it depends on the definition of “natural”.</p>  <p><i>Pipework</i></p>
<p>Any other comments (e.g. signs, lifebelts, size of turning area, presence other structures and signs of good or poor practice you wish to highlight?)</p>	<p>No signs or lifebelts. Turning area 12 x 8m. Some cable work appears to be unfinished, with coils of spare cable at the termination box.</p>
<p>Evidence of further restoration work since initial survey</p>	<p>N/A.</p>

<p><b>Pipeline</b></p>	
<p>Is the pipeline buried (except for specific places)? Y/N</p>	<p>Yes. The pipeline route is under / alongside the pre-existing track for 2/3 of its route, with only the first 1/3 from the intake being under virgin ground.</p>
<p>Locations of exposed pipe (e.g. crossing streams, by powerhouse or intake) and colour</p>	<p>Unable to see any exposed pipe, except immediately adjacent to the power house, where it was brown in colour.</p>
<p>If pipes cross burns, have they been buried or hidden under bridges?</p>	<p>Some appear to have been buried, and at least two hidden under bridges.</p>

	 <p><i>The hidden steel bridge</i></p>
<p>Is there evidence that surface vegetation and different soil types have been stored separately and then replaced in the right order above the pipeline? (All, most, more than half, less than half, little, none of the time)</p>	<p>Surface vegetation appears to have been restored along the entire length of the pipeline, as in most areas, it is almost impossible to see where it has been buried.</p>  <p><i>Barely discernable line of buried pipeline</i></p>
<p>Have air / pressure release valves / pipeline access points been finished properly?</p>	<p>They appear to have been.</p>
<p>Other comments (including examples of good / poor practice you wish to highlight)</p>	<p>Appears to have been very well installed leaving little trace for most of its length.</p>
<p>Evidence of further restoration work since initial survey</p>	<p>N/A.</p>

<b>Powerhouse</b>	
<p>Location</p>	<p>NN 43763 18343, on the right bank of the Inverlochlarig Burn, and fairly close to farm buildings, so does not look out of place.</p>

	 <p><i>The power house</i></p>
<p>How visible is powerhouse from neighbouring summits / ridges?</p>	<p>Cannot be seen from Beinn Tulaichean summit but is seen from nearby and some areas on the ascent / descent. Not visible from Cruach Ardrain summit, Stob Binnein summit, or Stob a'Choin summit (screened from the latter by established trees).</p>
<p>Construction materials walls</p>	<p>Probably blockwork, but rendered with roughcast, painted light grey.</p>
<p>Construction material roof</p>	<p>Corrugated iron, painted red, which matches some of the nearby farm buildings.</p>
<p>Is there tree planting around powerhouse?</p>	<p>No new tree planting, but some established trees nearby, which help to screen it.</p>
<p>Is there hardstanding around powerhouse? If so, how much and what materials?</p>	<p>Approximately 4m<sup>2</sup> in situ concrete immediately outside the doors, and approximately 75m<sup>2</sup> of compacted gravel / type 1 material around 2 sides of the power house – this also comprises the turning area.</p>  <p><i>Hard standing at the power house</i></p>
<p>How visible is tailrace?</p>	<p>Very discrete.</p>

	 <p><i>Power house and tailrace</i></p>
<p>Any other comments (including examples good or poor practice you wish to highlight)</p>	<p>Generally good practice, as the power house blends in very well with the nearby farm buildings and farmstead environment. An unexpected environmental benefit is that house martins have built 3 nests under the roof.</p>  <p><i>House martins' nests on the power house</i></p>
<p>Evidence of further restoration work since initial survey</p>	<p>N/A.</p>

<b>Other</b>	
<p>Have new pylons / overhead wires been required to connect scheme to grid?</p>	<p>No.</p>
<p>If yes, describe extent?</p>	<p>N/A.</p>
<p>Have construction compounds been restored?</p>	<p>Yes.</p>
<p>Was there evidence of construction materials or equipment being left on site (e.g. old pipes, imported aggregate left in spoil heaps) Please describe</p>	<p>Four sections of surplus or damaged pipe have been left lying next to the access track.</p>

	 <p><i>Surplus or damaged pipe sections left on site</i></p>
<p>Evidence of other rubbish left on site?</p>	<p>Nil.</p>
<p>Are there bridges and if so what materials have they been constructed from?</p>	<p>There is, according to the planning application, one steel bridge, but this is concealed by soil and vegetation. This is at NN 43230 19380. Other bridges – not possible to ascertain the materials used.</p>  <p><i>Bridge</i></p>
<p>Any other comments on evidence for restoration work since initial survey</p>	<p>Noted that two silt traps had been left in situ, now in a dilapidated state.</p>  <p><i>Silt trap left in situ</i></p>

Overall assessment or comments on scheme (this space is to enable you to highlight what you think are main issues or examples of good practice in this scheme)

Generally, a very well implemented scheme by the looks of it, which blends in well with the landscape.

The power house is in no way intrusive, and fits in with the nearby agricultural buildings, and the course of the pipeline is barely noticeable – in fact much of it is very difficult to see where it has

been buried, with only a slightly darker strip of vegetation when viewed from a distance. Disturbed ground is restoring well. Although there are minor shortcomings, such as short sections of steep batter slope, and the (pre-existing) access track being slightly wider than 2m, it is suggested that this should be held up as an exemplary scheme. The Inverlochlarig Burn, as it reaches the farm, has a fenced off enclosure to encourage natural regeneration as a Wild Rivers demonstration site (provided jointly by WWF, SNH, and Braes Farming Co.) – this has been in place for at least the last 8 years, and is not significantly compromised by the hydro scheme, as the flow in the burn remains significant.

Follow up/action points (for office use)	
Date	Action

\* Evidence to look for: turfs or moorland vegetation, peaty soils, hummus, glacial till: peat with associated mosses etc. should be on top rather than substrata of glacial till and soils. Large amount of rock scattered over the surface is often a sign that soils have not been kept or restored separately)

+ Rip rap bouldering - the boulders piled up either above or below intake to re-enforce banks.

Useful references

<http://www.snh.org.uk/pdfs/publications/heritagemanagement/constructedtracks.pdf>