The cost of dismantling the funicular at Cairn Gorm â?? stacking up problems for the future

Description

Fifteen months ago, I tried to find out from Highlands Enterprise the estimated costs of removing the funicular and, after an initial brush off, they admitted they had commissioned a â??Funicular Railway (Railway Dismantling Reportâ?• in May 2019 (see here). However, HIE refused to provide the report pending their development of a business case for the repair of the funicular. It would have been difficult to contest that argument under our Freedom of Information legislation so I decided not to take the case to appeal. But I asked for the report again after the Funicular Business Case and the COWI engineering report were made public at the end of last year. Ten days ago I finally received a copy of the Dismantling Report (see here) and this post considers the implications.

HIEâ??s case for repairing the funicular was based on the claim that the capital costs of removing it would be almost as much repairing it. Indeed in the case presented to the Scottish Government the capital costs of removal, Option 1a at Â£16.92, are MORE than the Â£16.16m cost of repair which are shown in Option 3b:

Table 5.4: Total Capital Costs per option

Option	Construction Cost (Funicular Solution)	Additional Capital Investments	Construction OB	Profess (inclu Intern
Option 1a	[redacted]	[redacted]	[redacted]	[redacted]
Option 1b			[redacted]	[redacted]
Option 2a			[redacted]	[redacted]
Option 2b			[redacted]	[redacted]
Option 3a			[redacted]	[redacted]
Option 3b			[redacted]	[redacted]

Note: Capital expenditure estimates are inclusive of construction inflation. The add split between high priority investments and other, as per tables 5.2 and 5.3 above. table 5.2 are subject to the budget request as part of this Full Business Case.

Option 1a is the costs of removing the funicular, whereas Option 1b is the cost of removing funicular HIEâ??s preferred option which has been approved, includes the cost of repair in 3b plus additional OBâ?• = costs in the original business case. Most of these were revised upwards in the final busines

Unfortunately, it is not possible to be certain exactly what costs HIE presented to the Scottish Government. This partly because of the redactions, but also because the Â£16.92m capital costs in Option 1a are described as â??*Do Minimum (removal of funicular, no CMSL funding or additional investment)â?•* and *â??assumes that the operating company ceases tradingâ?•*. They could therefore include the cost of removing other infrastructure.

HIEâ??s letter of October 2019 (link above) claimed, however, *that the â??high level estimate of the potential cost of physically dismantling the funicular railway and reinstating the hillside is up to Â£13.3m, excluding professional feesâ?•.* Since most figures in the final business case were revised upwards, it appears safe to assume that it is based on removal costs of at least this amount.

The Dismantling Report reveals that the Â£13.3m figure used by HIE was in fact the worse case scenario:

Summary of Conclusions

Based on the work done to date BAM has determined that:

- The cost of dismantling the funicular railway, excluding the removal of the carriages and rope system, is expected to lie in the following range (based on current prices):

Probably Best Case	£8,500,000	Assumes 4 weeks weather downtime. 2 seasons required.
Most Likely	£10,500,000	Assumes 7 weeks weather downtime 2 seasons required.
Probably Worst Case	£13,300,000	Assume 11 weeks weather downtime 3 seasons required.

Any reasonable organisation would have chosen the â??Most Likelyâ?• estimate of Â£10,500,000 and there is no explanation in the business case as to why HIE selected the most expensive estimate.

There are further serious questions to be asked about all BAMâ??s estimated costs. HIE only obtained one quote, and that from a very large construction company. Another company, might have come up with a quite different amount. The top end estimated removal costs are, after inflation, almost twice the original estimated construction costs, after adjusting for inflation. According to the Audit Scotland 2009 report into the funicular railway, *â??the tendered cost, at Â£4,724,000, was Â£46,000 less than the budget set (Â£4.77 million) for this element of the workâ?•*. While acknowledging that those estimated costs overran, using the Bank of England Inflation calculator, Â£4,724,000 in 1999 would be worth Â£8,372,158 now. Construction cost inflation (see here) is not that different. It is legimate therefore to ask why, according to HIE, it should now cost almost twice as much to remove the funicular as to construct it?

Even the figure in BAMâ??s best case scenario for removing the funicular, Â£8,500,000, which adjusted for inflation comes close to the estimated cost of the original construction, requires explanation. A significant part of the original construction costs, in terms of labour, would have been digging out and laying the foundations. In the BAM estimate the foundations would sensibly have been left in situ and the anchor blocks, which secure the whole structure, would only have been cut down to

0.2m below ground level:

Extent of the Dismantling Work

The extent of the dismantling work considered by BAM is:

- Removal of rails, plus electrical and communication systems.
- Removal of all beams between the base station and the tunnel
- Removal of all crossheads.
- Removal of all piers to foundation base level and reinstatement of existing ground over bases
- Removal of all anchor blocks to 0.2m below existing ground level
- Demolition of mid station passenger drop off infrastructure
- Demolition of the tunnel to the top station, including the cast insitu concrete base slab.

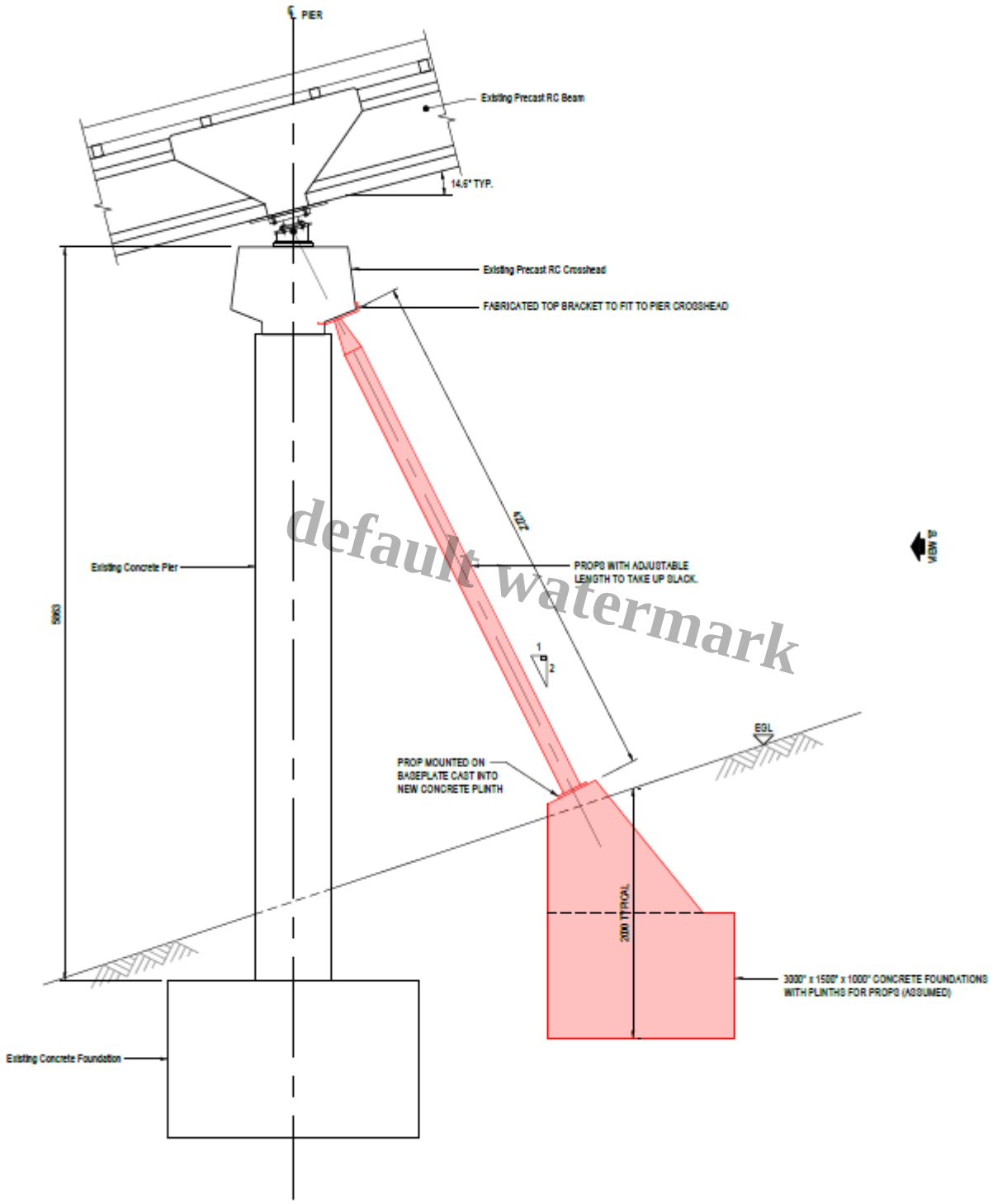
But that should mean far less work would be required to remove the funicular than construct it. It is also not clear if the BAM estimates include the re-sale value of the recycled material.

It is difficult to see how these estimates could have survived proper scrutiny by HIE staff, the HIE Board and the Scottish Government. The only conclusion can be that HIE and others involved have shamelessly manipulated the costs of removing the funicular in order to make their preferred repair option look better (it still does not stack up).

Creating more problems for the future

Let us, however, give Highlands and Islands Enterprise the benefit of all doubts and accept their Â£13.3m figure but then consider the implications for sustainable economic development, one of the four statutory aims of the Cairngorms National Park Authority, at Cairn Gorm.

The repair proposals approved by the Scottish Government involve the installation of props to prevent 63 of the 94 existing piers which support the funicular from falling over. While the main part of each prop is metal, which is relatively easy to remove, each requires a new foundation, the design of which will make them costly to remove in future:



TYPICAL SECTION

The diagram shows how is it is relatively simply to remove the piers: they can be pushed over (that should be easy because we know they are already tilting) and the foundations then covered up. By contrast, the concrete plinths into which the metal props are sunk protrude about ground. They would require to be broken up before their foundations could be covered up â?? an expensive exercise.

When it comes to built developments, particularly in sensitive areas like Cairn Gorm, we should only ever install what can be taken out. This is because every structure, however well designed, will

eventually fail and unless removed will have permanent adverse impacts. That is why HIEâ??s decision to use concrete rather than metal supports for the funicular was so disastrous (see here). Unfortunately, despite their statutory duty to promote sustainable economic development, the Cairngorms National Park Authority completely failed to consider whether or how the funicular would be eventually removed before approving the repairs. Instead they took a short-term view, the arguing that â??the principle of developmentâ?• had been accepted at Cairn Gorm.

The lower half of the funicular illustrating the impact on the landscape and the large amount of concr

In terms of the long term landscape and environmental impacts, it is instructive to compare the decision to repair the funicular and add yet more concrete to Cairn Gorm with what is happening in the Alps. Graham Garfoot has already pointed out how the Ellmau funicular, on which the Cairngorm funicular was apparently originally modelled, has been replaced by a gondola because this is a cheaper and more efficient form of uplift. Gondola technology has been constantly improving:

The replacement gondola at Champoluc, off the Aosta valley, in Italy. Four of the seven pylons are visible in the photo.

Not only can gondolas now operate in much higher winds and carry far more people than funiculars, they also require far fewer support structures. This gondola at Champoluc is equivalent in length to the

funicular. The previous gondola here had 13 support pylons, these have now been reduced to just seven, compared to 94 for the funicular. Learning from others has never been one of HIEâ??s strengths and at Cairn Gorm they are going in the opposite direction to the rest of Europe. While other countries are gradually addressing the destructive environmental and landscape impacts of historic ski developments, while at the same time improving downhill skiing facilities, at Cairn Gorm, the decision to repair the funicular will make matters worse. Where is the ambition that the Scottish Government constantly advocates for Scotland?

Whether you accept the costs of removal or reject them, the Funicular Dismantling Report adds to the evidence that there is no long-term financial justification for repairing the funicular and that the long-term landscape and environmental implications are likely to be disastrous. It provides yet more evidence that until HIE is removed from Cairn Gorm, matters can only get worse, not better.

Category

1. Cairngorms

Tags

1. Cairn Gorm
2. CNPA
3. HIE
4. planning
5. Scottish Government

Date Created
February 7, 2021
Author
nickkempe