Queens Park – Current Works and Biodiversity Net Gain

All documents here refer - https://drive.google.com/drive/folders/1zuNu_noj-X_egndQM1zGH1pPyCNzCdhJ?usp=drive_link

The Lake and Pond

I've been calculating that Queens Park Lake is roughly 9,000m2 in surface area with an average depth of 0.76m. It therefore has as an estimated volume of 6,840 cubic meters (6,840,000 litres!) The EA has removed permitted products such as Diquat, Fluridone, or Flumioxazin as using them can deplete oxygen, leading to fish kills.

Therefore, our only option is manual removal, we must stay on top of this. Biological products such as these are available and I've calculated the treatment rates and amount needed –

- Banish Duckweed BioActive - 2L @ 23.49. 20ml per 225L. 6,840,000 / 250 x 20ml = 608L which is 243 bottles and a total price of £5,707.07
- Ecopond Duckweed Control - 20L @ £171.10. 25ml per 450L. 6,840,000 / 450 x 25ml = 380L which is 19 containers and a total price of £3,250.90
- Bio Shock - 5KG @ £108.33. 5kg per 250m3. 6,840m3/250 * 5kg = 28 boxes and a total price of £3,033.24
- Schlixx - 500kg @ £4,415 = 1 barrel and a total price of £4,415

One of the problems is that a product such as a liquid duckweed controls can't just be poured in at the edge, they'll need to be sprayed in across the lake and will need 2-3 applications across the growing season, so we're looking at potentially £6,500–£9,750 annually plus significant staff time to do this. Secondly, we have already tried Schlixx and it didn't really deliver results. With 6,073m^3 of silt in the lake, the scale of the problem is probably beyond what biological treatment alone can address as it's trying to digest a volume of silt nearly equal to the entire water volume.

If we did want to tackle both the duckweed (immediate) and the nutrient source (longer term), Ecopond Duckweed Control + Schlixx together would be £7,665.90 which is still significantly cheaper than a single year of repeated duckweed only treatments. The BNG/dredging route remains the best long-term answer if we can make the numbers work.

The problem with dredging the main lake is sheer cost. The cheapest quote obtained is £150,000 which does not include de-watering or removal from site. Dewatering and removing 6,000m3 of silt is a huge and expensive operation. The CEO has been investigating the potential of piling a corner of the lake and the islands to restore the surface area of the islands and edge eroded over time and create more nesting habitat

for birds. The lake would lose surface area but gain drastic volume which increases habitat for aquatic life. The council needs to explore all options in relation to funding in order to procure these works.

Biodiversity Net Gain (BNG)

The following should be read in conjunction with the BNG assessment metric and resulting Habit Management and Monitoring Plan (HMMP)

What the metric results show

The biodiversity metric assessment covers the 0.8ha ornamental lake plus the small wooded islands (totalling approximately 1ha of site area). The baseline gives the site 4.0 habitat units in total: 3.84 units from the lake (classified as "Ornamental lake or pond" with low distinctiveness, moderate condition) and 0.16 units from the broadleaved woodland on the islands (medium distinctiveness, poor condition).

The enhancement scenario consists of introducing oxygenating plants like hornwort, improving waterflow with new water features, dredging sediment, and treating the duckweed. this would lift the lake's condition from "Moderate" to "Fairly Good". This produces a post-intervention total of 4.295 units, giving a net gain of 0.295 habitat units, or 7.38%. The woodland islands are retained as-is. All trading rules are satisfied.

However, the metric flags that the 7.38% gain falls short of the 10% target. The shortfall is approximately 0.105 units. This is important context because the works as described don't quite reach the standard 10% BNG threshold.

Does this convert to sellable BNG credits/units?

The short answer is not directly and not without significant further steps.

The 0.295 unit uplift represents the biodiversity improvement the lake works would deliver. In principle, this uplift could be sold to developers as off-site BNG units if the council were to register Queen's Park Lake as a biodiversity gain site. To do that, the council would need to enter a legal agreement (S106 with Swindon Borough Council or a conservation covenant with a responsible body), register on Natural England's national Biodiversity Gain Site Register and commit to a minimum 30-year management and monitoring regime.

The habitat type matters here. The lake habitat falls into the "Lakes" broad habitat category. At low distinctiveness it would sit at **Tier A1** for statutory credit purposes, where the government sets credit prices at £42,000 per credit. On the private off-site market units are currently trading at roughly £15,000–£25,000 per biodiversity unit though lake-specific units may command different prices given their relative scarcity.

So realistically 0.295 units at private market rates might be worth somewhere in the range of £4,400–£7,400. That's a very low amount before accounting for the costs of

registration, legal agreements, the 30-year management commitment, monitoring reports and the actual enhancement works themselves (dredging, planting, water features, bacterial treatment, plus the recommended eDNA surveys and potential badger camera trapping).

Practical Considerations

There are a few important points to weigh up. First, the metric applies the "High" difficulty risk multiplier (0.33) to the enhancement, reflecting that improving lake habitats is genuinely challenging and uncertain especially as the duckweed problem is persistent and the ACD report itself recommends seeking specialist freshwater ecology advice. Second, the uplift doesn't reach 10% so it would need additional measures. Third, the 0.295 units is a relatively small quantum to bring to market as most habitat banks deal in much larger volumes.

Realistically, it is now evident that the primary value of this work isn't as a revenue-generating BNG credit sale. It's about improving the ecological condition of an asset that's degraded sigmnificantly over time. The lake annually being blanketed in duckweed is both an ecological and amenity issue. With the biodiversity metric providing a framework to measure and demonstrate that improvement. If the council were ever pursuing development-related BNG obligations across its wider estate, having a documented uplift at Queen's Park could form part of a broader portfolio but as a standalone commercial proposition the numbers are very small relative to the costs involved.

The HMMP itself is a useful document for guiding the practical works including the schedule of works, the protected species precautions around badgers and the eDNA survey recommendation for great-crested newts before dredging are all we need to plan we would need to plan into our current projects. The optimal window for applying bacterial culture is spring and habitat clearance near the banks needs to account for nesting bird season (avoiding March–August) and reptile/amphibian activity periods.