

MWP



Lough Funshinagh Interim Flood Relief Scheme

Project overview

Roscommon County Council

September 2024

Contents

1. Lough Funshinagh 1

2. Flooding regime at Lough Funshinagh..... 2

3. Interim Flood Relief scheme proposal..... 3

4. Monitoring controls and community liaison 5

5. Timelines 5

6. Summary 6

Tables

Table 1 - significant lake levels2

Figures

Figure 1 - Lough Funshinagh, located due west of Lough Ree and northwest of Athlone1

Figure 2 – Potential extent of flooding at SW corner of Lough Funshinagh with water levels exceeding 69.35 mOD...4

Project No.	Doc. No.	Rev.	Date	Prepared By	Checked By	Approved By	Status
24821	24821 6004	P01	17/09/2024	KF	SD	IB	Final

MWP, Engineering and Environmental Consultants
Address: Park House, Bessboro Road, Blackrock, Cork, T12 X251, Ireland
www.mwp.ie



Disclaimer: This Report, and the information contained in this Report, is Private and Confidential and is intended solely for the use of the individual or entity to which it is addressed (the “Recipient”). The Report is provided strictly on the basis of the terms and conditions contained within the Appointment between MWP and the Recipient. If you are not the Recipient you must not disclose, distribute, copy, print or rely on this Report. MWP have prepared this Report for the Recipient using all the reasonable skill and care to be expected of an Engineering and Environmental Consultancy and MWP do not accept any responsibility or liability whatsoever for the use of this Report by any party for any purpose other than that for which the Report has been prepared and provided to the Recipient.

1. Lough Funshinagh

Lough Funshinagh is located in County Roscommon due west of Lough Ree and northwest of the town of Athlone. The Lough is located within the townlands of Ballagh, Carrick, Carrickbeg, Inchiroe, Gortfree, Kildurney, Lisfelim, Lysterfield and Rahara. See Figure 1 below showing the location of the lake.



Figure 1 - Lough Funshinagh, located due west of Lough Ree and northwest of Athlone

Lough Funshinagh, a turlough historically known for its fluctuations in water level, is located in County Roscommon. The lough fills during the winter months and drains in the summer, with the extent of water levels varying according to climatic conditions. Unlike typical lakes, there is no surface watercourse draining Lough Funshinagh; instead, water discharges through karst bedrock to the south, creating a distinctive hydrological system. This unique environment supported a wide variety of flora and fauna, leading to the lake's designation as a Special Area of Conservation under the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

Up to a decade ago the lake's water level is not known to have exceeded the height of the surrounding road network, including roads in the townlands of Ballagh to the north and Ardmullen & Lisfelim to the south. Ordnance Survey maps from the 1800s depict settlements surrounding the lake, showing that its boundaries were well established, and with limited peripheral areas marked as 'liable to flooding'. The extent of the lake is shown to be much smaller than it is currently.

2. Flooding regime at Lough Funshinagh

Severe weather events in the winters of 2009/2010 and 2015/2016 caused the lake's water levels to rise beyond historical records, flooding nearby roads and even exceeding the floor level of one house in Ballagh. In response, Roscommon County Council erected a protective bund around the affected property, successfully preventing floodwaters from entering. Since 2015/2016, the lake has exceeded its previous maximum water levels four more times during separate winters, forcing the council to raise roads at three locations to maintain access and implement continuous over-pumping to protect both residential and agricultural properties. The house that was successfully protected in 2015/16 was flooded and abandoned during one of these later floods. Photographs 1 and 2 below show flooding along the shores edge affecting properties and public roads.



Lough Funshinagh Technical Subgroup, consisting of experts from GSI, NWPS, Trinity College and SETU completed analysis and a report stating that ‘there has been a substantial shift in the hydrological operation at Lough Funshinagh post- the 2016 flood event towards higher flood levels. ’

Table 1 identifies the key lake levels and the changing trends in maximum water levels that has been occurring over in recent years.

Year	Level	Comment
1891	63.89	OSI 25” map recorded on 23 rd March 1891 (218.5’ Poolbeg datum)
2009	67.00	Recorded by Geological Survey Ireland
2016	68.25	First year that RCC had to raise roads and protect houses
2020	68.26	2019/20 peak level on 28 th March 2020
2021	69.03	2020/21 peak level on 04 th April 2021
2024	69.37	2023/24 record level reached on 16 th April 2024

Table 1 - significant lake levels

The winter of 2023 / 2024 saw the area around Lough Funshinagh experience a significant flooding event. The current event has resulted in the inundation of an estimated 500 hectares of surrounding land, with the water reaching a peak level of 69.37 mOD.

Analysis carried out by MWP in May / June 2024 indicated that the natural flow path for water overtopping Lough Funshinagh at its southwest corner would be in a southerly direction through the village of Curraghboy. Water would then continue to flow southwards to the Cross River which is located approximately 500 metres south of the village. The flooding from Lough Funshinagh presents a significant threat to public safety, human life and the environment.

In the spring of 2024, Lough Funshinagh reached an unprecedented maximum water level of 69.37 mOD. During this period, the lake overtopped the hill at its southwest corner in the townland of Carrick, located southwest of the lake, and flowed into a nearby depression adjacent to the R-362 Regional Road. Tragically, a dwelling in this area was lost to the floodwaters. Fortunately, the lough level started to recede in mid-April 2024 in time to avoid flooding of Curraghboy. If it had continued to overflow, an extensive area of land and two additional houses adjacent to the R362 road would have been inundated before the flow continued to Curraghboy.

To date, Lough Funshinagh has claimed two properties, rendering them uninhabitable. Roscommon County Council is currently providing flood defences for eight additional homes and maintaining access to two more properties at risk. Two public roads remain closed because of the high water level. This is the first year this has occurred.

The current water level in Lough Funshinagh is 68.23 mOD (16th Sep 2024), as recorded by the Geological Survey of Ireland (GSI) onsite gauge. This is the highest water level recorded for the lake at this time of year, a period when the lake is normally at its lowest level. From now until approximately April 2025, the lake is expected to drain more slowly while rainfall volumes increase, leading to rising water levels. Based on previous records, consultants estimate that there is a high probability that the lake could reach a level of 69.60 mOD by spring 2025. There is also a medium probability that the lake could rise to 69.95 mOD which would cause flooding in the village of Curraghboy.

3. Interim Flood Relief scheme proposal

Roscommon County Council in conjunction with other stakeholders has been working on developing a solution for Lough Funshinagh. Given the unprecedented nature of the situation at Lough Funshinagh, and the immediate need for intervention, a two-prong approach to the situation has been adopted. This entails the development of an interim solution to manage water levels, and in tandem the development of a long-term infrastructure solution for the Lough. The long term/permanent solution will be subject to full environmental/ecological assessment and planning consent through the appropriate statutory process.

The long-term scheme is currently being developed by a team of experienced consultant companies in conjunction with Roscommon County Council and other stakeholders. This work includes the completion of baseline environmental and ecological surveys and the development of design solutions. That process will take a significant length of time and a planning application for a final scheme will be lodged with An Bord Pleanála in 2025.

Given this reality it was vital to develop an interim measure to manage and control the water levels in Lough Funshinagh during next winter because of the likely prospect of increased maximum water levels which would lead to further human, economic, environmental and ecological impacts.

The do-nothing scenario would likely lead to further record unmanageable lake levels, but in addition would lead to the risk of overtopping of the lake at its southwest corner and consequent further significant threat to local houses, lands and the village of Curraghboy.

Figure 2 shows an indicative map of potential flood extents should the lake level exceed 69.35 mOD. If lake level increases further there is a significant risk that the village of Curraghboy could be impacted. Once the lake level exceeds 69.95 mOD the entire net inflow to Lough Funshinagh will ultimately flow through Curraghboy village at an average rate of 600 litres per second.

Over a six-week period from the beginning of February to mid-March 2020 the net inflow to Lough Funshinagh exceeded 2,000 litres per second. A recurrence of this during an overflow event would have catastrophic implications for Curraghboy village.

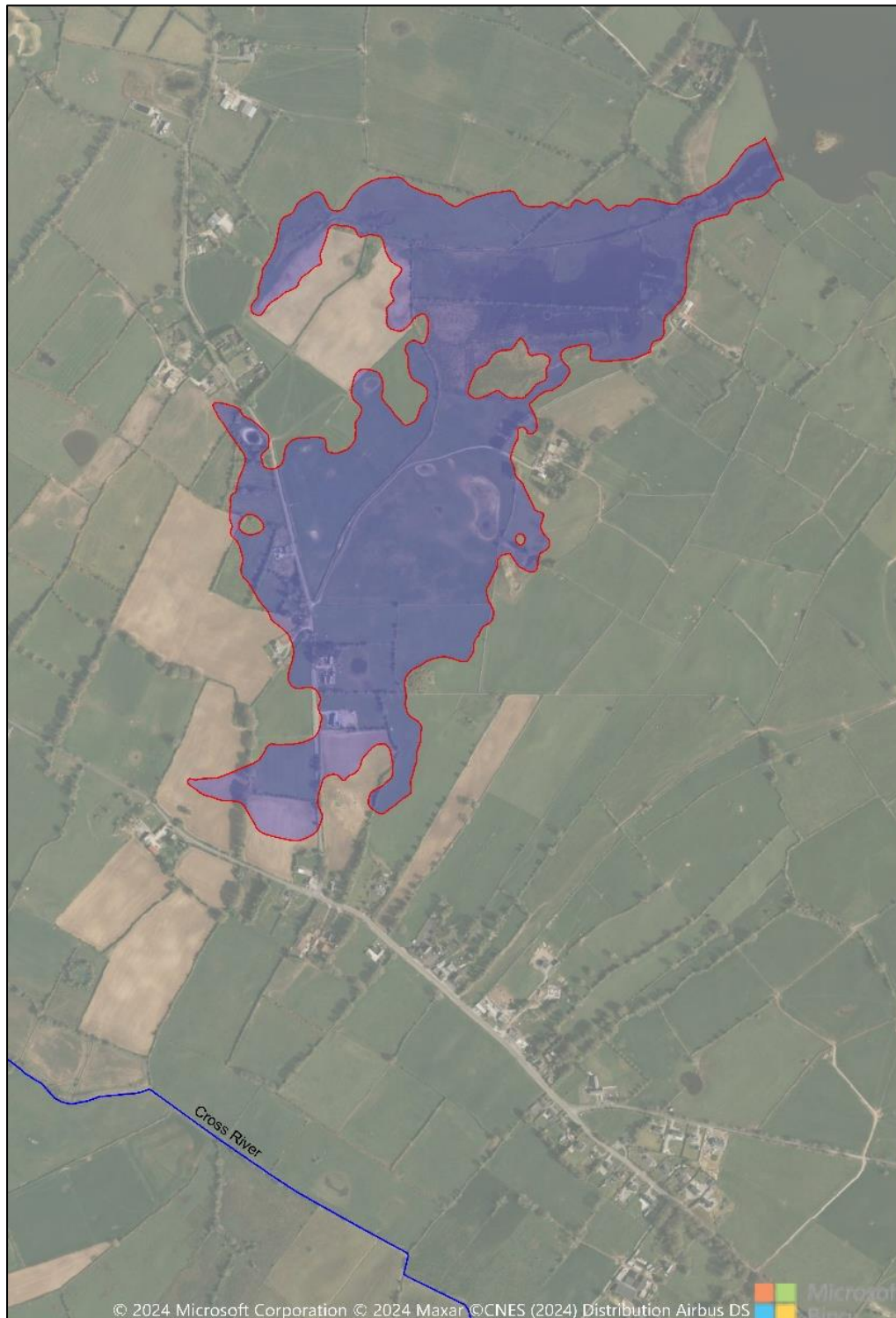


Figure 2 – Potential extent of flooding at SW corner of Lough Funshinagh with water levels exceeding 69.35 mOD.

Over the last four months an interim pumping scheme has been developed to focus on this essential task. The scheme provides a mechanism to control and manage water levels by pumping water from the southwestern corner of the Lough at Carrick through a temporary overland pipe system to a discharge point on the Cross River due south of the village of Curraghboy.

This interim solution has been the subject of full design, environmental and ecological assessment in conjunction with key stakeholders including Inland Fisheries Ireland, NPWS, GSI, National Monuments Service and other stakeholders.

4. Monitoring controls and community liaison

The interim scheme once in place will be monitored with a focus on water levels at the lake shore and in the rate of flow at three locations on the Cross River. The design approach for pumping has modelled a range of pumping regimes with the design maximum pumping rate of 300 litres per second determined so as not have negative effects on the topography or riparian zone of the Cross River or impact on the downstream lands or community.

Roscommon County Council will liaise with the community and stakeholders during the operation of the interim flood relief scheme.

5. Timelines

Lastly, given the time involved in developing the permanent design solution for Lough Funshinagh and bringing that project through the full consenting process, a precautionary period of up to 2 years for this interim scheme is sought from An Bord Pleanála.

That timeline and this interim approach will facilitate the planning and consenting process for the permanent solution to progress, while at the same time managing and controlling lake levels to avoid further and worsening impacts.

Full details of the engineering design and environmental and ecological assessments are included within the planning submission hereto.

6. Summary

Extreme flooding events have been happening on a continuous and seasonal basis at Lough Funshinagh since the extreme winter of 2009/2010. The flooding events and its effects have worsened over time and at this juncture have fundamentally changed the physical extent of the lake with severe and significant effects on residential homes, farmsteads, agricultural lands, local infrastructure and valuable habitats including the SAC.

The do-nothing approach is not an acceptable stance to take. Finding a solution has to be the only approach to adopt.

Roscommon County Council have been focussed on developing a permanent solution for the flooding events at Lough Funshinagh. The permanent and long term solution will take time to develop and secure consent.

In the meantime, the imperative is to put in place an interim flood relief scheme to hold the current status of the Lough in terms of flood levels and to ensure that the lake levels rise no further over the coming winter and winter of 2025/2026.

The interim flood relief scheme that has been developed will achieve this objective.

The interim flood relief scheme has been developed in conjunction with all stakeholders and has been subject to extensive environmental and ecological assessment in conjunction with a detailed and robust design approach.

The scheme if approved by An Bord Pleanála via the Section 177AE process will allow for implementation of the scheme within a timely manner and thus avoiding further or increasing flood risk at Lough Funshinagh and until the permanent solution is put in place.