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Environment Section,
Office of Public Works,
Headford,
Co. Galway.

23rd January 2023 Our Ref: SCP211001.2

Re: Submission on the draft Arterial Drainage Maintenance Activities 2022-2027 and associated SEA environmental report.

Dear Sir/Madam,

We acknowledge your notice, dated 4th November 2022, in relation to the Draft Arterial Drainage Maintenance Activities 2022-2027 (the 'Plan') and accompanying SEA Environmental Report (SEA ER). We welcome the opportunity to engage with the OPW in this process.

The EPA is one of the statutory environmental authorities under the SEA Regulations. In our role as an SEA environmental authority, we focus on promoting the full and transparent integration of the findings of the Environmental Assessment into the Plan and advocating that the key environmental challenges for Ireland are addressed as relevant and appropriate to the Plan. Our functions as an SEA environmental authority do not include approving or enforcing SEAs or plans.

We acknowledge the OPW's statutory role in supporting the implementation of government policy, in particular in relation to flood risk management for protection of public health and the built environment, and the drainage of agricultural lands to support food production. However, it is important to acknowledge at the outset the need to balance the requirement for arterial drainage with Ireland's environmental protection obligations. This is necessary to ensure that key aspects of our environment are not compromised, particularly where ongoing drainage may have consequences for greenhouse gas emissions, water quality and biodiversity. In this context there is an urgent need for a review of the Arterial Drainage Acts 1945 and 1995 to address the Acts' actual and potential conflicts with the Water

Framework Directive and Habitats Directive. The OPW should liaise with the relevant Government Departments with a view to progressing this review as a matter of priority.

This submission is comprised of this cover letter setting out our key observations and three Appendices: Appendix I providing specific comments on the draft Arterial Drainage Maintenance Activities 2022-2027, Appendix II providing specific comments on the SEA Environmental Report (SEA ER) and Appendix III referencing relevant chapters in the EPA's most recent State of Environment Report *Ireland's Environment - An Integrated Assessment 2020*. In addition, this submission should be considered in conjunction with our earlier submission made at the SEA scoping stage.

Key EPA Messages

1. Conflict with national plans and programmes

As noted above, the draft Arterial Drainage Maintenance Plan has the potential to be in conflict with key environmental protection legislation and policy, in particular the Water Framework Directive (WFD), the Habitats Directive and key national plans including the Climate Action Plan, the draft National Biodiversity Action Plan and the draft 3rd River Basin Management Plan.

Of particular concern is the continued investment in drainage of organic soils in arterial drained catchments which will result in the release of CO_2 emissions. The IPCC guidelines indicate that drained organic soils can emit 5.3 tonnes C/ha per year in temperate climates.[1] This is in conflict with the State's investment in rewetting drained organic soils to reduce greenhouse gas emissions. Conversely, in the case of wet mineral soils, drainage may in fact be of benefit in terms of reducing greenhouse gas emissions from this particular cohort of soils [2].

Past iterations of the Climate Action Plan (2019, 2021 & 2023) have identified the rewetting or raising of the water table, of up to 80,000 ha of currently drained grasslands on organic soils, as a measure which could provide significant greenhouse gas mitigation potential. While the current drainage status of these lands is unknown, it is likely that the management of water table height on an area of land of this scale will overlap with, or be part of, what is proposed in terms of the arterial drainage maintenance activities. Bord na Móna is also undertaking significant peatland restoration/rehabilitation works on their lands in the context of the Peatlands Climate Action Scheme and the EU LIFE Peatlands and People project. This work may also impact arterial drainage maintenance works and vice versa.

[1] CHAPTER 1 (ipcc.ch)
[2] Teagasc Manual on Drainage and Soil Management (2nd Edition)
https://www.teagasc.ie/media/website/environment/soil/Teagasc_Drainage_Manual_2022.pdf

It is thus strongly recommended that the OPW and Bord na Móna work together to assess both of the aforementioned water table management actions in terms of their effect on proposed drainage maintenance works and whether proposed drainage maintenance works may conflict with the water table management actions. The assessments can be used to inform future project-based works.

2. Integration of the environmental assessments into the Plan

The Plan should include a clear commitment to integrate and implement the recommendations and mitigation measures identified in the SEA ER. Integrating the SEA ER into the Plan will maximise the potential for overall positive environmental outcomes. We acknowledge the inclusion in both the SEA ER and the Plan of mitigation measures. However, it is not clear how these mitigation measures link to the significant adverse effects on the environment nor how they will work in practice. The SEA ER does not provide clarity on how the SEA process was undertaken in conjunction with the development of the Plan.

We note that a Natura Impact Statement has been prepared in support of the Plan, which also includes mitigation measures. The SEA ER should include any additional recommendations and mitigation measures from the Natura Impact Statement and discuss how these will be incorporated into the Plan.

3. Flood Protection

In terms of flood protection, the Plan should consider the role of nature-based solutions in the upper reaches of the catchments in minimising flooding downstream, and as a climate adaptation measure to build resilience into the system. National and international research, much of which is assembled on www.NWRM.eu along with 120 case studies, has shown that slowing the flow of rivers and implementing nature-based solutions in upper catchment areas are effective measures in reducing the extent of flood risks in lower catchment areas and increasing catchment resilience. The proposed maintenance activities run contrary to this approach by increasing the rate of water conveyance through the straightened and drained channels upstream, thus delivering the water more quickly to the lower lying areas downstream.

4. Water Framework Directive and Water quality

It is critical that the Plan does not compromise Ireland's ability to meet the objectives of the Water Framework Directive. Hydromorphological impacts, or changes to the physical habitat conditions in rivers, is the second most important pressure impacting on waterbodies.

The majority of these hydromorphological changes arise from the drainage and maintenance of channels carried out as part of both the OPW and Local Authority drainage schemes. Drainage works can remove and disturb important bed, bank and riparian zone features which are important for healthy aquatic ecosystems. In addition, significant changes can affect the nature of the flow regime which impacts channel forming processes downstream. Furthermore, the release of fine sediment from the bed and banks, during

and sometimes long after the works, can also impact the integrity of ecosystems and habitats. The provision of the existing best practice environmental guidance for drainage works, the auditing procedures that are in place, and the proposed environmental enhancement works programme within the Plan are all welcomed.

The EPA recommends, in view of the points raised above on potential conflicts with other plans, policies and directives, that an assessment be conducted of whether there are parts of the drained catchments where maintenance drainage activities might be scaled back and/or ceased altogether, particularly in areas where the soils are organic and the habitats are protected.

5. Integration of the drainage works into catchment management plans

The Plan should include a commitment to assess and report on the environmental impacts of the works, including impact on WFD objectives, at the catchment scale. This could be undertaken as part of the project level catchment-specific assessments which are typically carried out in advance of OPW drainage scheme works.

Integrating these catchment-specific assessments with the 46 catchment management plans proposed in the draft River Basin Management Plan 2022-27, and being developed by the Local Authority Waters Programme, is recommended. This would provide an opportunity to bring a holistic catchment management approach to the management of flood risks alongside other strategic environmental objectives. The sharing and exchange of data on the drainage works actually carried out would also allow integrated assessments of the outcomes of the plans to be assessed in an evidence based way.

6. Clarity in the Plan and the SEA Environmental Report

Both the Plan and the SEA Environment Report lack specificity in terms of what works will be carried out. For example, information on timeframes, specific waterbodies and how suggested mitigation measures will actually operate should be provided. The list of schemes to be maintained as part of the Plan, should be accompanied by a specific description of what maintenance activities will be undertaken in each scheme. This information should be included in both the Plan and the SEA environmental report.

Furthermore, the clarity of the Plan could be improved by making better use of existing spatial data which would allow the OPW to tailor arterial drainage activities to particular catchments, while also improving the level of clarity in the Plan. For example, the SEA environmental report includes maps showing where OPW channels intersect with nature conservation sites, historical sites and monuments in a number of catchments. The SEA environmental report also includes a catchment by catchment assessment of the impact of the draft Plan. Both the spatial data and the data from the catchment assessments could be used to develop overlay maps of environmental data on a scheme by scheme basis to identify specific environmental issues of concern for each scheme.

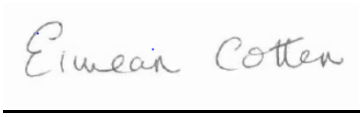
7. Data Sharing & Transparency

Where assessments are undertaken, either by the OPW or on behalf of the OPW, there should be greater transparency as to how they are undertaken. Conclusions from these assessments should be collated and published to support the evidence base to better inform the assessments of the schemes on water quality by both OPW and EPA. It would also be useful to demonstrate if alternative options are being considered at project stage.

It is strongly recommended that this evidence base generated from assessments, and information on exactly what, where, how and when works are carried out, is shared with the EPA and the Local Authority Waters Programme (LAWPRO). This will enable the water quality impacts of the drainage schemes, both positive and negative, to be determined and support Water Framework Directive (WFD) characterisation assessments carried out by the EPA.

If you have any queries or need further information in relation to this submission, please contact Suzanne Wylde, Strategic Environmental Assessment Unit directly. I would be grateful if you could send an email confirming receipt of this submission to: sea@epa.ie.

Yours sincerely,



Dr Eimear Cotter
Director
Office of Evidence and Assessment

APPENDIX I: ADDITIONAL SPECIFIC COMMENTS ON THE DRAFT ARTERIAL DRAINAGE MAINTENANCE ACTIVITIES 2022-2027

General comments

The Plan as documented is brief and relatively generic, noting that the detail is expected to be provided at project level. This means it is difficult to assess the plan's environmental outcomes. A number of issues are listed that are considered in deciding what maintenance works are to be carried out, but it is not clear how the decision-making process works for assessing consistency and coherence with Water Framework Directive (WFD) objectives at the waterbody scale.

The measures outlined within Measure M1 (*improved maintenance planning*) are welcome, particularly with regard to working with EPA and LAWPRO on processes to manage potential impacts to WFD monitoring sites. It will also be key to engage with the National Hydromorphology Working Group which is chaired by the EPA and includes OPW representatives. The proposed actions within Measure 3 (*Monitoring of all maintenance activity with continuous improvement*) and Measure 6 (*monitoring of environmental conditions*) are also welcome.

In order to understand potential impacts of the drainage schemes on hydromorphology and the WFD environmental objectives (as noted in Measure 3), data on the maintenance works is required to provide the evidence base to identify and understand any specific impacts, to determine appropriate mitigation measures, and to assess the effectiveness of these measures. This would assist the OPW in their assessments and assist the EPA with the WFD characterisations assessments. While it is acknowledged that the planned maintenance programme will be shared with stakeholders, we understand that what is planned and what is executed on the day may not be one and the same, depending on various circumstances. The key information required by various public bodies is the detail of what was actually carried out, where, when and at what frequency. This understanding is needed so that the activities can be related back to water quality (e.g. based on the existing drainage maintenance subcategories). This will need to be available in spatial format to all implementing bodies so that any change in water quality outcomes as a result of the works can be assessed, the effectiveness of the mitigation measures can be evaluated, and any gaps where new measures are required or existing measures need refinement can be identified.

With regard to Measure 7 (*Natural Flood Management, Working with Natural Processes and Land Management Practices*), the programme should consider engagement with the public bodies throughout the WFD governance structures, particularly the National Technical Implementation Group (chaired by the EPA) and the Natural Water Retention Measures Working Group (a subgroup co-chaired by EPA and OPW). This would contribute to implementing the WFD in a coherent manner and highlight the interlinkages

and dependencies between this Plan and other key national plans and programmes to reduce conflicts.

Environmental Liability Regulations (S.I. 547 of 2008)

The requirements of the Environmental Liability Regulations should be considered in implementing the drainage activities outlined in the Plan. In this context we direct you to the European Commission Guidelines[1] providing a common understanding of the term 'environmental damage' as defined in Article 2 of Directive 2004/35/EC of the European Parliament on environmental liability. In particular, the OPW should be cognisant of any significant environmental damage on water, land or biodiversity in the course of implementing the Plan.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021XC0407(01)&from=EN

APPENDIX II: SPECIFIC COMMENTS ON THE SEA ENVIRONMENTAL REPORT (SEA ER)

General Comments

The EPA's principal observation with respect to the SEA ER is the apparent lack of integration of the findings of the assessment into the Plan. The SEA ER does not provide clarity on how the process was undertaken in conjunction with the development of the Plan.

We note that a Natura Impact Statement has been prepared in support of the plan, which includes mitigation measures. It would be useful for the SEA ER to include any additional recommendations and mitigation measures from the Natura Impact Statement and discuss how these will be incorporated into the plan.

Consultation

The SEA ER makes reference to the consultation that was undertaken with the environmental authorities in Northern Ireland as part of the SEA scoping stage of the process.
The relevant requirements of the SEA protocol[3] under the ESPOO Convention should be taken into account, for any transboundary consultations with non-EU Member States at the SEA ER and draft Plan stage.

Alignment and conflicts with other Plans & Programmes

The OPW should ensure that the Plan aligns with key relevant plans and programmes and is consistent with the relevant objectives and policy commitments. These include plans such as the draft 3rd River Basin Management Plan (RBMP), the upcoming Forest Strategy Implementation Plan, the draft National Biodiversity Action Plan and the National Peatlands Strategy.
Given the well-documented evidence of the pressure which hydromorphology places on water quality, it is critical that the Plan does not compromise Ireland's ability to meet the objectives of the Water Framework Directive. The activities outlined in the Plan should not be in conflict with measures included in the either the RBMPs or other key plans.

Chapter 5 of the SEA ER should be reviewed prior to publication of the final report to ensure that the plans and programmes referred to, in setting the policy context, are the most up to date iterations. For example, in relation to Forestry Management, reference is made to the National Forest Programme 2014-2020; the Department of Agriculture, Food and the Marine are currently finalising the next iteration of this plan, along with a new national strategy for forestry.

Chapter 5 would also benefit from the inclusion of a schematic illustrating the national and European policies and plans with which the arterial drainage activities are linked. It would

[3] UNECE Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context

also be useful to include a similar schematic in the Plan. This would help to identify areas where there are interlinkages and dependencies to ensure full alignment and avoid conflicts.

Plan description

The SEA ER and the SEA Non-Technical Summary do not include a clear outline of the contents and the main objectives of the draft Plan. While Table 3-1 lists OPW schemes carried out under the Arterial Drainage Acts 1945 and 1995, there is no description of the schemes to be included in this Plan. The text makes reference to a Table 3.2 which describes the scope of the Arterial Drainage Maintenance Activities, but this table has not been included in the SEA ER. Both the SEA ER and Plan should include the list of schemes to be included in the Plan along with a specific description of what maintenance activities will be undertaken in each scheme.

Likely significant effects

Water Quality

The SEA ER notes that the draft 3rd RBMP has identified water bodies that are under significant pressure and has prioritised a range of measures to address the impacts on these water bodies. Due to the fact that this Arterial Drainage Maintenance Plan lacks detail, it is not immediately clear, from either the SEA ER or the Plan, if the water bodies covered by the arterial drainage activities are amongst those identified as being under significant pressure in the draft 3rd RBMP.

The SEA ER should clarify that the heavily modified waterbody designation for the third cycle of the WFD has not yet been finalised. There are currently no waterbodies designated as heavily modified due to arterial drainage; there are only candidate waterbodies.

The OPW ten-step Environmental Drainage Maintenance Guidance note[4] was referenced in relation to supporting the WFD objectives. This guidance was developed over ten years ago. However, physical modification of waterbodies remains the second most significant pressure on water quality in Ireland. The main category within this pressure relates to drainage. The SEA ER should recommend that this guidance be reviewed and updated, as a priority, to mitigate against impacts of drainage on water quality and to ensure that drainage activities do not impact on Ireland's achievement of the WFD objectives.

Flooding

Prevention of flooding is a major objective of the proposed arterial drainage works and the schemes selected for drainage works can be selected based on their potential to cause flooding. The SEA ER would benefit from the inclusion of environmental sensitivity maps around the area of each arterial drainage scheme. The Environmental Sensitivity Mapping

[4] https://www.fisheriesireland.ie/sites/default/files/migrated/docman/EDM%2010%20steps%20April%202011.pdf

tool would be a useful tool to use to develop these maps (www.enviromap.ie). The report would also benefit from some flood projections in terms of expected severity of flooding from the selected schemes.

Conflicting messages within the SEA ER

The assessment conclusions are often unclear and present conflicting messages. For instance, the SEA ER predicts that, with the exception of a small number of schemes, the activities outlined in the Plan would have a minor negative impact on the strategic environmental objectives relating to supporting the WFD objectives. The basis for this conclusion is unclear given that physical modification (or hydromorphological pressures) is the second most significant pressure impacting Ireland's waterbodies from achieving the objectives of the WFD.

Furthermore, the SEA Non-Technical Summary notes that there will be negative impacts to the Corrib catchment as a result of the drainage activities but elsewhere states that drainage maintenance activities carried on in the Corrib catchment proved to deliver slightly positive effects for the catchment. It is unclear what evidence was used to conclude this and whether the positive effects relate to drainage function or to water quality.

It is also noted that measures undertaken at Environmental River Enhancement Programme sites within the Corrib catchment will reduce impact, but the report is not clear on what indicators are used to assess the effectiveness of these measures. The EPA understands that, because these measures are often at local scale, they are unlikely to rehabilitate fluvial processes at the catchment scale. These are important points from an environmental perspective which need to be addressed by OPW prior to finalising the SEA ER and Plan. The conclusions and recommendations of the SEA ER should be reviewed to ensure there are no conflicting messages.

Alternatives

The SEA ER does not include a description of why the chosen alternatives were selected nor does it explain why the preferred alternative was selected. It is a requirement of the SEA Directive to include an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such a technical deficiencies or lack of know-how) encountered in compiling the required information.

In line with the recommendations in the EPA's guidance document *Development and Assessing Alternatives in Strategic Environmental Assessment* the alternatives presented in the SEA ER should reflect the decisions taken during the development of the Plan and should be developed through close collaboration between the plan and SEA teams. The plan-making and SEA processes should be clearly interlinked. The alternatives assessed should be realistic, reasonable, viable and implementable.

The alternatives in the SEA ER could be enhanced by assessing specifically what works would be undertaken over the next five years or what would happen if arterial drainage was halted or amended until such time as the works would not be in conflict with achieving the objectives of the WFD.

The "*do existing*" alternative options briefly makes reference to the modification of arterial drainage schemes. This could entail cessation of maintenance for some schemes and lead to broader catchment scale enhancement and natural flood management. Linking with the River Restoration and Nature-based Solutions for Integrated Catchment Management framework would also be beneficial, as measures within this framework consider the different options of modifying drainage practices.

The alternatives suggested above could be considered reasonable alternatives and may be more informative in terms of the overall objective of the SEA legislation.

It may also have been useful to have referred to the alternatives considered as part of the environmental assessment of the previous Plan and how they differ to those considered as part of the present iteration.

Mitigation Measures

Chapter 9 of the SEA ER includes a list of seven mitigation measures, which are explained in detail in the text. Appendix D of the SEA ER suggests which of these mitigation measures would be suitable for each drainage scheme identified in the Plan. The SEA Directive requires that mitigation measures are envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the Plan. While we note that substantial detail has been included in the report regarding the nature of the recommended mitigation measures, it is not clear how the measures are linked to the environmental impacts of the Plan.

We welcome the suggestion in the SEA ER that integrated catchment management will reduce silt deposition and vegetation growth, and hence reduce the frequency and magnitude of maintenance activities. However, it is not clear how this will be implemented in practice. We strongly recommend including more specific mitigation measures to ensure the expected outcome of integrated catchment management is achieved in practice.

While we note that the mitigation measures proposed in the SEA ER have been incorporated into the Plan, the mitigation measures included in the Plan are not specific to the drainage schemes, as recommended in the SEA ER. The integration of the mitigation measures into the Plan would benefit from further detail as to how the measures will be implemented in practice for individual drainage schemes.

Monitoring

Article 10 of the SEA Directive requires that the significant environmental effects of implementing plans and programmes shall be monitored in order, *inter alia*, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action.

The Monitoring Programme should be flexible to take account of specific environmental issues and unforeseen adverse impacts should they arise during implementation. It should consider and deal with the possibility of cumulative effects. Monitoring of both positive and negative effects should be considered. The monitoring programme should set out the various data sources, monitoring frequencies, responsibilities and reporting.
Guidance on SEA-related monitoring is available on the EPA website at https://www.epa.ie/publications/research/environmental-technologies/research-306-guidance.php
Section 20 of the SEA ER describes the monitoring measures proposed for the SEA related monitoring and covers topics including water, air, biodiversity and fisheries. However, it does not provide clarity on what the monitoring framework will actually entail. The final SEA monitoring framework should describe what indicators will be used, how these indicators will be linked to the strategic environmental objectives set out in the SEA ER, who will be responsible for undertaking the monitoring and the frequency of monitoring.
The monitoring framework should also include a commitment to report on the monitoring results at regular intervals during the lifetime of the Plan. This would address the flexibility required in the monitoring and provide the OPW with the opportunity to react to any unforeseen environmental effects that may arise during the implementation of the Plan.
In finalising the monitoring programme, it would be useful to review the monitoring programme and related monitoring results for the previous iteration of the Plan and identify areas where there were data gaps and how the monitoring programme could be expanded to build an informative scientific database that can assess the environmental impacts of the implementation of the Plan.

Integration of SEA into the Plan

The integration of the SEA process should reflect the overall objective of the SEA Directive "*to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development*".

There is merit in considering amending Chapter 3 of the Plan "Environmental Management" to "Environmental assessment and management". The chapter could describe how the assessment processes (SEA and Appropriate Assessment) and any related recommendations have been integrated into the Plan.

Future Amendments to the Plan

Any future amendments to the Plan should be screened for likely significant effects, using the same method of assessment applied in the "environmental assessment" of the Plan.

SEA Statement – "Information on the Decision"

Once the Plan is adopted, an SEA Statement should be prepared that summarises:

- How environmental considerations have been integrated into the Plan;
- How the Environmental Report, submissions, observations and consultations have been taken into account during the preparation of the Plan;
- The reasons for choosing the Plan adopted in the light of other reasonable alternatives dealt with; and,
- The measures decided upon to monitor the significant environmental effects of implementation of the Plan.

A copy of the SEA Statement with the above information should be sent to any environmental authority consulted during the SEA process.
Guidance on preparing SEA Statements is available on the EPA website at the following link: https://www.epa.ie/publications/research/environmental-technologies/research-306-guidance.php

Environmental Authorities

In accordance with the SEA Regulations the following authorities should be consulted with:

- Environmental Protection Agency;
- Minister for Housing, Local Government and Heritage;
- Minister for Environment, Climate and Communications; and,
- Minister for Agriculture, Food and the Marine.

APPENDIX III: KEY CHAPTERS OF IRELAND'S ENVIRONMENT – AN INTEGRATED ASSESSMENT 2020

Chapter 7 of the SOER2020 relates to Water Quality and identifies hydromorphology as a significant pressure on our waters. The chapter focuses on the dramatic reduction in pristine waters from 500 in 1990 to 20 in 2020. It notes that changes in hydrological flow as a result of physical morphological changes can increase sedimentation rates and alter the composition of river and lake substrates, which in turn can affect bottom dwelling organisms. There is a need for methods to assess the impacts that physical structures and changes to water bodies have on their ecology; solutions will also need to be implemented to address significant pressures.

Other chapters in the SOER2020 may also be useful to consider in finalising the Plan including land and soil (Chapter 5) and nature (Chapter 6).

These chapters should be consulted along with the related Key Messages prior to finalising the Plan and the SEA process.