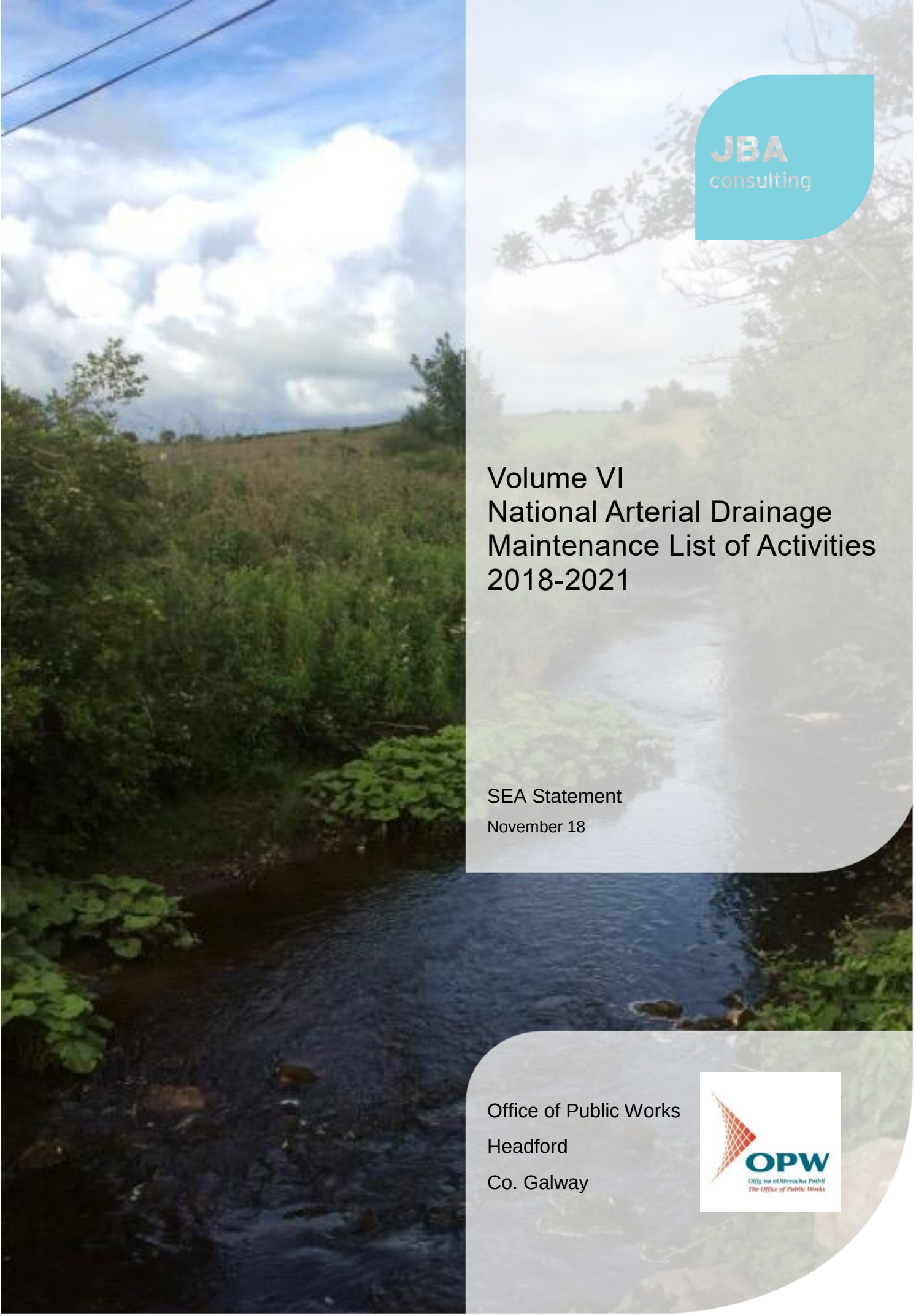

Volume VI
National Arterial Drainage Maintenance List of Activities 2018-2021

SEA Statement

November 18

Office of Public Works
Headford
Co. Galway

JBA Project Manager

Tom Sampson BSc MSc FRGS C.WEM MCIWEM
24 Grove Island
Corbally
Limerick
Ireland

Revision History

Revision Ref / Date Issued	Amendments	Issued to
V1.0 / 05 October 2017	First issue	Nathy Gilligan, OPW
V 2.0/ 22 January 2017	Minor updates. Second Issue	Nathy Gilligan, OPW
V 3.0 / November 2018	Following EPA comments and OPW review of mitigation and monitoring	Nathy Gilligan, OPW

Contract

This report describes work commissioned by The Office of Public Works, by a letter dated (27/01/2016). The Office of Public Works' representative for the contract was Nathy Gilligan. Tom Sampson, Declan Egan and Catalina Herrera of JBA Consulting carried out this work.

Prepared by ..... Catalina Herrera BSc MSc
Environmental Scientist

Reviewed by ..... Tom Sampson BSc MSc FRGS C.WEM MCIWEM
Principal Analyst

Purpose

This document has been prepared as a Final Report for the Office of Public Works. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

JBA Consulting has no liability regarding the use of this report except to the Office of Public Works.

Copyright

Carbon Footprint

A printed copy of the main text in this document will result in a carbon footprint of 338g if 100% post-consumer recycled paper is used and 430g if primary-source paper is used. These figures assume the report is printed in black and white on A4 paper and in duplex.

JBA is aiming to reduce its per capita carbon emissions.

Contents

List of Figures

List of Tables

Abbreviations

AA	Appropriate Assessment
ACA	Architectural Conservation Area
DECLG	Department of Environment, Community and Local Government
DHPLG	Department of Housing, Planning and Local Government (Formerly DECLG)
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
GSI	Geological Survey Ireland
IFA	Irish Farmers Association
IFI	Inland Fisheries Ireland
INFF	Irish National Flood Forum
NFM	Natural Flood Management
NHA	Natural Heritage Area
NI	Northern Ireland
NIAH	National Inventory of Architectural Heritage
NIG	National Implementation Group
NPWS	National Parks and Wildlife Service
OPW	Office of Public Works
PCD	Public Consultation day

RBD ..... River Basin District
RBMP..... River Basin Management Plan
SAAR ..... Standard Average Annual Rainfall
SAC..... Special Area of Conservation
SEA..... Strategic Environmental Assessment
SFRA ..... Strategic Flood Risk Assessment
SI..... Statutory Instrument
SPA..... Special Protection Area
SUDS..... Sustainable Urban Drainage System
WFD..... Water Framework Directive

1 Introduction

This is the Strategic Environmental Assessment Statement (SEA Statement), which forms the last stage of the SEA process, for the National Arterial Drainage Maintenance List of Activities 2018-2021, hereinafter referred to as, the Plan. The draft activities and SEA Environmental Report refer to a timescale of 2016-2021, which has been revised to align with the timescale of the 2018-2021 River Basin Management Plan for Ireland.

The SEA Statement has been prepared by JBA Consulting Engineers and Scientists Ltd. Grove Island, Corbally, Co. Limerick. JBA Consulting Engineers and Scientists Ltd. will be referred to hereafter as JBA in this report.

1.1 Structure of the Plan

The structure of the Plan is set out below:

- National Arterial Drainage Maintenance Activities 2018-2021 SEA List of Activities
- Volume I- National Arterial Drainage Maintenance Activities 2016-2021 SEA Non-Technical Summary
- Volume II- National Arterial Drainage Maintenance Activities 2016-2021 SEA Environmental Report
- Volume III-National Arterial Drainage Maintenance Activities 2016-2021 SEA Natura Impact Statement
- Volume IV- National Arterial Drainage Maintenance List of Activities 2016-2021- Appendices
- Volume V – Addendum to SEA Environmental Report
- **Volume VI- National Arterial Drainage Maintenance List of Activities 2018-2021- SEA Statement**

1.2 SEA Statement SEA Definition and Role

The SEA is a formal, systematic evaluation process for predicting, assessing and mitigating, the likely significant environmental effects of implementing a national, regional plan or programme prior to it being adopted. The SEA process allows for the public and/or interested stakeholders, to comment and to be kept informed of the decisions, progress, and evolution of the strategic plan/programme, in accordance with the Aarhus Convention. It facilitates the integration of environmental considerations into environmental decision-making at an early stage.

1.3 Legislation and Guidelines

The SEA process is a requirement of European law. The EU enacted the Strategic Environmental Assessment (SEA) Directive under Council Directive 2011/42/EC on the 'Assessment of the Effects of Certain Plans and Programmes on the Environment'. The purpose of the Directive is to undertake an environmental assessment to assess the likely significant impacts of the plan or programme on the environment before it is adopted. The Directive was transposed into Irish legislation under S.I. No. 435 of 2004 - the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004 and S.I. No. 436 of 2004 the Planning and Development (Strategic Environmental Assessment) Regulations. These statutory instruments were amended under S.I. No. 200 of 2011 and S.I. No. 201 of 2011 respectively.

An SEA has been recommended for the National Arterial Drainage Maintenance List of Activities 2016-2021. Note that the timescale has now changed to 2018-2021. This is not a statutory SEA.

A number of governmental departments have prepared guidance documents to assist SEA practitioners in interpreting the requirements of the SEA Directive and their associated Regulations. The key guidance documents are:

- Department of Environment, Heritage and Local Government 2004: Implementation of SEA Directive: Assessment of the Effects of Certain Plans and Programmes on the Environment. Guidelines for Regional Authorities and Planning Authorities (2004)
- Integrating Climate Change into SEA, EPA 2015
- Developing and Assessing SEA Alternatives, EPA 2015

- GISEA Manual - Improving the Evidence Base in SEA, EPA 2017
- Environmental Protection Agency: SEA Pack (2008)

1.4 SEA Statement

The SEA process is being conducted in compliance with national legislation and guidelines to ensure an environmentally robust plan, which includes a programme of measures, for the National Arterial Drainage List of Activities 2018-2021.

The purpose of this SEA Statement is to:

- Demonstrate how environmental considerations have been integrated into the Plan;
- Demonstrate how the opinions expressed by interested stakeholders and the public have been considered in the Plan;
- State the reasons for choosing the plan measures in light of the reasonable alternatives considered;
- Identify the mitigation measures that will be put in place to reduce/remedy any significant environmental impacts associated with the Plan;
- Identify the measures to be taken to monitor any significant effects of implementing the Plan.

For a comprehensive understanding of the environmental aspects of the Plan, the associated Environmental Report (Volume II- National Arterial Drainage Maintenance Activities 2016-2021 SEA Environmental Report) should be consulted. The Environmental Report presents an in-depth baseline assessment for all environmental aspects within the scope of the assessment and includes a Non-Technical Summary (Volume I- National Arterial Drainage Maintenance Activities 2016-2021 SEA Non-Technical Summary).

1.4.1 SEA Process in compliance with necessary requirement

The Directive requires that certain information pertaining to the Plan be made available after the decision-making stage has been completed in order to inform stakeholders, statutory bodies, and the public that the SEA process followed the necessary requirements. Table 1-1 below responds to four criteria for an SEA Statement outlined in the EPA's SEA Pack, Output 4: SEA Statement (page 28).

Table 1-1: Requirement of SEA Directives EU Council Directive 2001/42/EC and the Irish Regulations (S.I. No. 200 of 2011) to complete the Strategic Environmental Report

The information to be provided under Article 5(1), subject to Article 5 (2), subject to Article 5 (3), is the following:	Section of SEA Environmental Report
(a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	Section 3: Programme Description
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	Section 5: Interaction with Plans, Programmes, Policies
(c) the environmental characteristics of areas likely to be significantly affected;	Section 6: Current Environmental Status
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	Section 9: Alternatives considered
(e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	Section 10: Evaluation of the impacts of the proposed arterial maintenance activities
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic	Section 6: Current Environmental Status

The information to be provided under Article 5(1), subject to Article 5 (2), subject to Article 5 (3), is the following:	Section of SEA Environmental Report
factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	Section 10: Evaluation of the impacts of the proposed arterial maintenance activities Volume III-National Arterial Drainage Maintenance Activities 2016-2021 SEA Natura Impact Statement
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	Section 7.0. SEA Environmental Objectives
(i) a description of the measures envisaged concerning monitoring in accordance with Article 10;	Section 10: Evaluation of the impacts of the proposed arterial maintenance activities
(j) a non-technical summary of the information provided under the above headings.	Section 11: Recommended Mitigation Measures
Habitats Directive Assessment	Volume III-National Arterial Drainage Maintenance Activities 2016-2021 SEA Natura Impact Statement

2 Summary of how environmental considerations have been integrated into the National Arterial Drainage Maintenance Activities (the plan)

2.1 Introduction

The Plan has integrated environmental considerations into the assessment of arterial drainage maintenance activities, setting environmental objectives and assessing the selected measures. Environmental considerations have been taken into account throughout preparation of the Plan, as follows:

- Plan preparation - The Plan is focussed on providing a framework with regards to National Arterial Drainage Maintenance Activities. Environmental receptors (including ecological, social, cultural and economic) have been a key consideration in its development.
- SEA - Through the SEA process objectives, targets and indicators were identified to describe and monitor change and predict impacts of the proposed Plan on the environment.
- Natural Impact Statement (NIS) – Natura 2000 sites, designated under the EU Birds Directive (2009/147/EC) and Habitats Directive (92/43/EEC), are located within the zone of influence of the proposed Plan, for that reason an appropriate assessment (AA) process at a plan level in accordance with Article 6(3) of the Habitats Directive.
- Stakeholder Consultation - at all relevant stages of the Strategy preparation, consultation has been undertaken with statutory consultees, relevant stakeholders, and also the general public. The comments raised have been taken into account in the SEA process and the development of the Plan.

2.2 Strategic Environmental Assessment

S.I. No. 435 of 2004 the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004 (amended 2011 by S.I. No. 100 of 2011) sets the requirements for a SEA to be carried out in respect of a Plan or Programme.

The SEA was not a statutory requirement, but following screening consultation with the Environmental Protection Agency (EPA), it was deemed appropriate for a SEA to be carried out to manage ongoing drainage maintenance activities and/or works.

The primary role of the SEA during the preparation of the plan was to consider the potential impact (s) from the Plan, assess already existing plans and programmes and consider them in combination with the Plan. Most importantly to influence mitigation and monitoring measures proposed by the Plan to prevent or moderate any potential significant adverse impact on the environment. The SEA also ensured that there was sufficient scope for considering the potential effects of proposed measures in greater detail at project level.

The findings of the SEA assessment in relation to the Plan were presented in an Environmental Report which were submitted to the various consultees and the public in conjunction with the Plan. The purpose of the Environmental Report was to inform the statutory bodies, stakeholders and the public of the likely environmental impacts of implementing the Plan.

Changes made to the Activities were evaluated, and the draft Environmental Report does not require any updates. Neither does the Natura Impact Statement require an update.

The SEA process can be categorised in a number of stages as summarised in Figure 2-1 and Table 2-1: Summary of Strategic Environmental Assessment.

Figure 2-1: Overview of SEA Process for the Plan

Table 2-1: Summary of Strategic Environmental Assessment

Stage	Description
Screening	Since the SEA was a statutory requirement of the plan, there was no requirement for screening.
Scoping	Scoping was conducted to determine the baseline environmental conditions and issues to be considered further in the Environmental Report. Submissions received from Environmental Authorities, statutory and non-statutory consultees have been incorporated into the Environmental Report.
Consultation with statutory authorities, relevant stakeholders, and the public	A draft Scoping Report was sent to the statutory consultees and other relevant stakeholders and they were given a consultation period to make submissions and observations.
SEA environmental objectives	A set of Environmental Objectives was developed and integrated into the scoping report, with stakeholder consultation to ensure the Objectives set were appropriate. The OPW and JBA Consulting reviewed the objectives to ensure that they are achievable and measurable.
Preparation of Environmental Report for the Plan including: - Environmental Baseline Data - Environmental Objectives - Development Plan Objectives and zoning assessment - Consultation with statutory consultees - Assessment of Alternative - Mitigation measures identified - Monitoring measures identified	A multi-disciplinary team was established to create policy consistent with documents and to examine the effects on the environment from the implementation of the Plan. The SEA process and team was fully integrated in the development and update of Plan. - Potential impact(s) on the environments were identified. - Assessment of cumulative effects of options - Alternatives to the Plan were considered and examined. - Mitigation measures were proposed, discussed and selected. - Monitoring framework proposed.
Consultation on the Environmental Report	The draft Environmental Report was sent to Statutory Consultees and relevant stakeholders, as well as made available to the public and they were given a consultation period (5-weeks) to make submissions.
Strategic Environmental Assessment (SEA) Statement (Current Stage in the process)	An outline of how environmental considerations are integrated into the Plan; how the Environmental Report, the opinions of the public and statutory authorities and the results of trans-boundary consultations are taken into account, and the reasons for choosing the Plan as adopted in the light of other reasonable alternatives.
Monitoring the Plan	Monitoring environmental effects over the lifetime of the Plan

2.3 Interaction between the Plan, SEA and Appropriate Assessment Processes

The Plan has been the subject of a Strategic Environmental Assessment (SEA) and an Appropriate Assessment (AA) to meet the requirements of the Irish Regulations transposing the EU SEA and Habitats Directive respectively.

Legislation and guidance relating to SEA recommends that the process of plan preparation, SEA and AA should be integrated and prepared in an iterative process to facilitate the ongoing assessment and evaluation of environmental consideration during the plan preparation.

The Draft Plan issued for consultation was accompanied by a SEA Environmental Report (Vol. II), which documented the SEA process. A Natura Impact Statement (Vol. III) also accompanied the draft Plan, to set out the potential impacts of possible measures on Natura 2000 sites (core breeding and resting sites for rare and threatened species, or sites for some rare natural habitat types). A final revised NIS report (Vol III) has been prepared.

Figure 2-2 shows the interactions between the stages of the Plan, the SEA and AA processes.

Following consideration of observations made in response to the public consultation on the Draft Plan, including comments received on the SEA Environmental Report and the draft Natura Impact Statement, the final Plan has been prepared.

Environmental considerations and consultation with statutory bodies, stakeholders and the general public has been essential to the development of the Plan. It was important to meet statutory requirement for consultation with relevant parties but also ensure that the views of the general public were taken into consideration throughout the process.

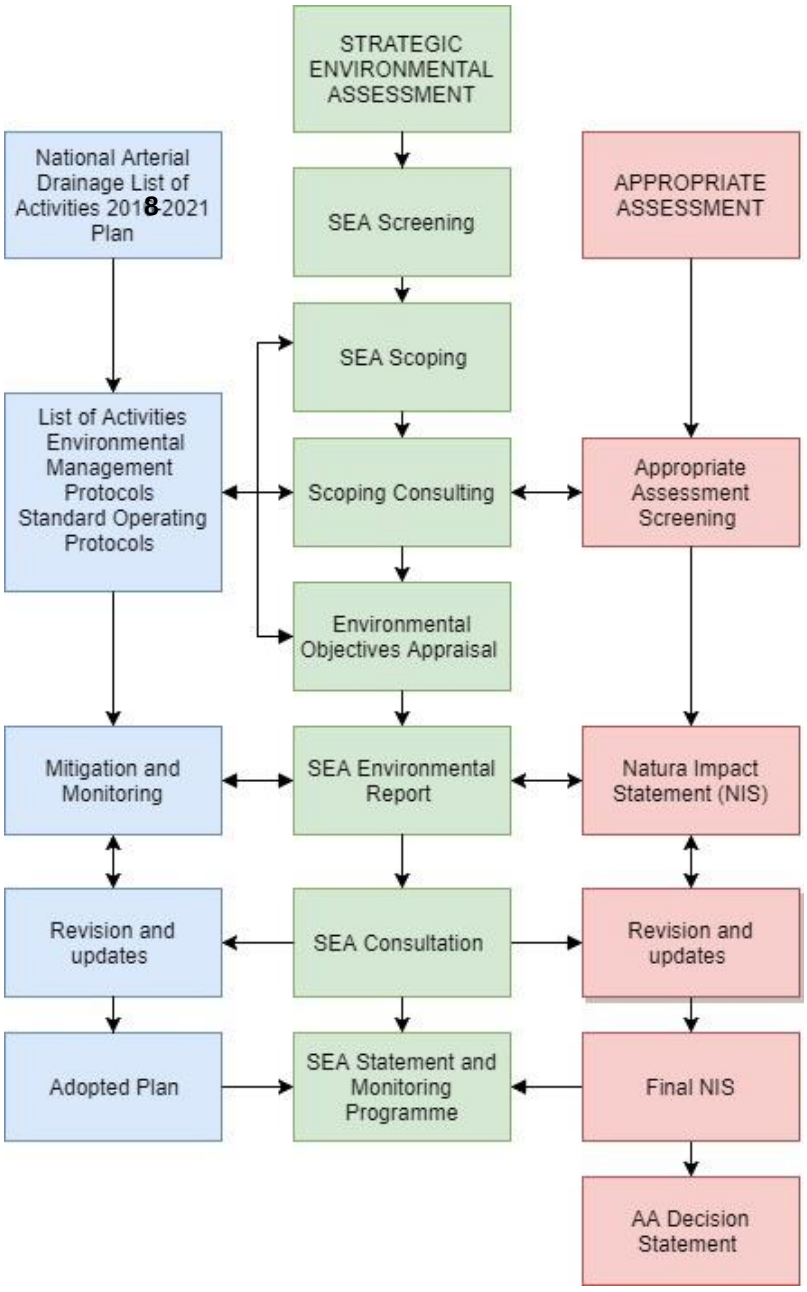

Figure 2-2: Diagram displaying the interactions between the stages of the Plan, the SEA and AA processes

3 Summary of how the SEA Report and the submissions received from stakeholders have been considered

3.1 Introduction

The Plan in conjunction with the SEA Environmental Report and Natura Impact Statement was made available to the public, statutory consultees and other interested parties as part consultation process. These views were taken into account and amendments were made to the final activities document (the plan), where necessary. Volume II- National Arterial Drainage Maintenance Activities 2018-2021 SEA Environmental Report documents any further assessment or updates to the proposed mitigation measures or monitoring in response to updates to the Plan following the consultation process. At the appropriate stages during the SEA the relevant statutory consultees have been consulted and their comments incorporated into the development of the activities.

3.2 Consultation Process

3.2.1 Overview

Public and stakeholder engagement is a critical component to the process of developing a sustainable, long-term Plan. This engagement is necessary to ensure measures are suitable and appropriate, as well as technically effective.

3.2.2 SEA Public and Stakeholder Consultation and Engagement

The involvement of external parties (both stakeholders and the public) has been essential for the development of the Plan and accompanying SEA. It has been crucial to meet the statutory requirements for consultation with relevant parties, as well as, ensuring that the opinion, comments and suggestions of the public, stakeholders, and statutory bodies were taken into account throughout the process. Legislation and guidance relating to SEA recommends that the process of plan preparation, SEA and Appropriate Assessment (AA) should be integrated and prepared in an iterative process to facilitate the ongoing assessment and evaluation of environmental considerations during plan preparation.

The new amending SEA Regulations S.I No 200 of 2011 and S.I No. 201 of 2011 outline the statutory Environmental Authorities which were consulted as part of the SEA process:

a. Environmental Protection Agency (EPA);
b. Ministry of Housing, Planning, Community and Local Government Ministry of Agriculture, Food, and the Marine and/or the Ministry of Communications, Climate Actions & Environment;
c. Department of Arts, Heritage, Regional, Rural, and Gaeltacht Affairs (DAHRRGA);
d. Any adjoining planning authority whose area is continuous to the area prepared a draft plan, proposed variation or local area plan.

Figure 3-1 is an overview of the Plan Stages, which further demonstrates how the SEA process has been integrated throughout the lifetime of the plan preparation. The nature of the SEA process is such that the Plan is informed by environmental considerations throughout the preparation and development of the Plan objectives. The Natura Impact Statement (NIS) is a separate document to the Environmental Report both which accompany the Plan.

The Plan **The National Arterial Drainage Maintenance List of Activities 2018--2021**	**Strategic Environmental Assessment (SEA) and Appropriate Assessment (Natura Impact Statement)**
Commence review and preparation of Draft Plan 2015-2016	**Commence review and preparation of Scoping Process** January -April 2016
Plan, SEA Scoping, and SEA Objectives Consultation	

May-June 2016
Draft National Arterial Drainage Maintenance List of Activities Plan with SEA and AA The Draft Plan, SEA, and AA was published for the purposes of public consultation on. Thursday March 30, 2017- Friday, May 17, 2017.
Review, Revisions, and Updates of Plan, SEA, and AA (where necessary) Based on consultation responses June 2017 to October 2018
SEA Statement and Adopted Plan October 2018

Figure 3-1: Overview of the Plan and SEA Stages and Structures

3.3 Key Issues raised in the SEA Report with Mitigation

The SEA Environmental Report presented an in-depth assessment of the Plan's objectives to identify aspects of the Plan that may require revising, as a result of potential significant environmental effects. A summary of the environmental constraints, issues and opportunities is presented below in Table 3-1.

Table 3-1: Summary of potential impacts of plan on environmental receptors

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
Human Beings	It is important to consider the areas where the works are being carried out and its susceptibility to flooding. Consider residences/housing locations both upstream and downstream of the works. It is necessary to ensure that the works will not increase the risk of flooding (i.e. complete removal of treeline/riparian vegetation, increases erosion and in turn rate at which runoff and sediment discharge to watercourses) by impacting the flows or removing areas of water accumulation/storage. The consideration for areas both upstream and downstream of the potential works is crucial. In-channel works have the potential to cause diffuse pollution or release of settleable solids which could impact water quality, directly or indirectly, affecting recreation activities (angling) or fishing. Some flood risk alleviation for residences near channels as a result of drainage and maintenance. It is also important to recognise the benefit of drainage schemes and maintenance activities for agricultural and benefitting lands.
Material Assets	Arterial Drainage cannot eliminate the risk of flooding. Most of the OPW arterial drainage schemes are designed to reduce flooding of agricultural land on average to the 1 in 3 annual probability design standard. Therefore, flood risk from climate change and changes in land management practices may not be mitigated through Arterial Drainage Maintenance Activities (2018-2021). The Wild Atlantic Way and Ireland's Ancient East are two major touring routes/destination themes which cover the majority of the areas included in the Arterial Drainage Maintenance Scheme. The high quality environment is a key selling point of these destinations, therefore any risk of degradation of environment and aesthetics posed by the Arterial Drainage Maintenance Activities (2018-2021) could be a threat to tourism and recreation based economy. Where possible the maintenance activities could enhance the landscape character of the river corridors or channels in sections with valuable landscape characteristics. Maintenance activities such as trimming of trees/branches, tree cutting, or bank protection can in some cases create or

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
	clear access routes and/or paths along the river corridor which can be used for tourism or recreational purposes (angling especially) as experienced in various areas along the Moy scheme.
Water	Water quality and biological potential of surface water have major pressures which comprise of diffuse pollution of fine sediments and other pollutants such as nutrients from the agriculture and industry. There could be potential impacts on drinking water abstraction points downstream of proposed maintenance activity sites. In some cases, arterially drained channels can act as pathways to pollutants into other watercourse or groundwater/aquifers. Hydromorphological changes such as sediment production, water/sediment/wood flux, river channel adjustment, lateral connectivity which influence processes (i.e. pools, riffles, bars) can lead to habitat degradation, impacting the WFD ecological status. Climate change impacts on water quality due to increased storm events, rainfall and flooding with the potential to change hydromorphology of river beds, cause bank erosion, and re-suspended nutrients. Changes in water quality could create pressure and impacts on the ecological and chemical status of waterbodies: river, lakes, ponds, standing waters, and other wetlands including peatlands. Arterial Drainage Maintenance Activities (2018-2021) works should not interfere in accomplishing the goals set out by the WFD, the second cycle of RBMP objectives, and any other programmes or measures that aim to protect water quality (i.e. nutrients). Arterial drainage maintenance activities prevent the deterioration of channel conditions due to unprecedented erosion and/or blockage, which could result in diffuse pollution of the channel (erosion/sediment discharge) or increase the risk flooding. Maintenance works such as silt vegetation management, bush cutting/branch trimming, aquatic vegetation cutting among other activities help mitigate potential impacts and helps improve the lateral and longitudinal hydraulic connectivity of the channel. Integration of environmentally sensitive land and catchment management, and arterial drainage maintenance could reduce the silt deposition and vegetation growth in channels, which could reduce the frequency and scale of maintenance required. Opportunities along river channels for river restoration and ecological enhancement beyond EREP criteria. The REFORM tools and guidance may present opportunities and mechanisms to implement catchment restoration whilst maintaining land drainage functions. All arterial drainage maintenance activities being proposed should fully consider any WFD implications and, wherever possible, link to and support the programme of measures in the RBMP. The impacts on water quality due to both the immediate increase in sediment in the water and long-term (release of nutrients into a water body and increase occurrence of eutrophication) should be fully considered.
Morphology, geomorphology and hydromorphology	Proposed arterial drainage maintenance activities must be compatible with any WFD requirements to restore the natural morphology of waterbodies ‘at risk’ due to structural alterations. Diffuse pollution is considered to be the primary pressure causing siltation and degrading of fish spawning sites. Siltation and shoaling of coarser

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
	material can compromise flood capacity and is common where channel dimensions have been increased, a hydromorphic assessment is needed to ensure WFD compliance. In-stream maintenance activities have the potential to disturb spawning gravels at a number of sites. Floodplain and coastal habitats are linked to river dynamics and must be considered during maintenance planning, flood alleviation and engineered structure design. Regardless of the rate, channel maintenance will impact directly on water quality and flood risk by potentially altering the conveyance potential of the channel. Hydromorphological pressures are relevant in relation to potential impacts on benthic invertebrates and fish populations, but the link between these pressures and ecological status in Irish waters needs further investigation. In-channel maintenance work can also lead to hydromorphological issues in the waterway, for example, the work can often reduce the roughness of the river bed resulting in enhanced conveyance. If the channel is not connected to the floodplain, the water volume will increase, resulting in more extreme flood peaks and potential flooding downstream. In-channel maintenance works can release entrapped nutrients in the sediments which may become available to the water bodies. Nutrients of particular concern would be nitrogen and phosphorus both of which are limiting nutrients and are associated with eutrophication in estuaries and freshwater respectively.
Soils & Geology	Natural flood storage, attenuation and conveyance areas on floodplains including wetlands, should be considered in light of the impact on soil conditions and sediment regimes. Depending on the location drainage maintenance activity could be of benefit or detriment to soil conditions. Extensive and intensive land drainage in both the uplands and lowlands can increase the speed at which water reaching the land surface (from precipitation) is then transported to the main arterial networks and discharged downstream to potentially threaten flood risk receptors (people and property). Certain inappropriate and untimely land management practices, especially on more sensitive soil types, can contribute to a reduction in the infiltration of water into the soil and an increase in rapid surface runoff (e.g. clearing of riparian vegeration on river banks). Appropriately managed pasture, rough semi-natural vegetation, wetlands (including peat bogs) and forestry/woodland can all assist in the attenuation and storage of rapid surface runoff and floodplain flows upstream of flood risk receptors. The targeted use of appropriate agri-environment scheme agreements could be used for multiple benefits, including flood management and biodiversity enhancement. Natural flood storage and attenuation areas on floodplains including wetlands, should be further protected from development pressures.
Land Use and Land Cover	The extent and intensity of land drainage in both the uplands and lowlands could have an impact on the regime of the waterways, and potentially increase flood risk. Inappropriate land management practices, especially on more sensitive soil

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
	types could reduce water infiltration into the soil resulting in an increase of surface water runoff. The management of grassland, semi-natural vegetation, wetlands, and woodlands can assist in the storage of rapid surface runoff and floodplain flows upstream of flood risk receptors. Inappropriate or intensive land-use practices can result in erosion, modification of channel geomorphology, or discharge of receiving sediments. Natural flood storage areas on flood plains including wetlands should be protected from development pressures. The potential for maintenance activity to ensure sustainability of land-use through the maintenance of an FRS for sustainability of flood risk and maintenance of channels for agricultural productivity. Consideration of maintenance activities for land-use planning.
Air & Climate	Potential for increased fluvial, pluvial, and tidal flooding resulting from climate change. The carbon footprint of activities should be considered during their development. Measures to compensate for the losses of sequestered carbon in the peat and drainage channels should be considered by the OPW.
Biodiversity, Flora & Fauna	A large proportion of the arterial drainage schemes are of high biodiversity interest and value. Many of these are located within or adjacent to Natura 2000 sites, which contain annexed habitats and species and for that reason, appropriate assessments under the Habitats and Birds Directive should be conducted in order to assess if the draft programme will pose adverse impacts to the SACs and SPAs. However, it is still important to conserve, where possible, non-EU designated habitats and species (e.g. riparian vegetation and badgers). Causing negative impacts on sensitive habitat NHAs or pNHAs (ie:peatlands, limestone habitats). Freshwater Pearl Mussel, Atlantic Salmon, lamprey species, and White-clawed Crayfish will be particularly sensitive to pollution and in-channel maintenance works, which may also contradict objectives of the WFD. Changes to the flooding regime river channels and adjacent lands may have impacts on habitats and species which require particular inundations periods or in the case of groundwater dependent ecosystem (e.g. fens) particularly water supply mechanisms and water chemistry. Ensures that potential works do not alter fish spawning and nursery areas. Maintenance activities should not negatively impact or block passages of migratory fish. Riparian areas such as alluvial forests and wetlands, should not be altered, unless there is a significant and demonstrable flood risk, as they provide habitats, support species, and increase biodiversity. The spread of non-native invasive species has the potential to threaten native flora and fauna. Where possible, opportunities to treat and control non-native, invasive species as part of maintenance activities should be taken. Measures such as avoidance of working in areas containing invasive species, and implementing method statements and adopting appropriate biosecurity measures during works will minimise the spread of invasive species. Protect and where possible enhance the integrity of fishery habitat within

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
	Arterial Drainage Scheme catchments, Flood Relief Scheme channels and designated channels. Improve methods and processes for managing invasive species and risk of invasive species colonisation, growth, and spread. Maintain or expand habitat supporting salmonid fisheries and carry out enhancement works where possible. Increased flooding has the potential to provide opportunities for enhancement or creation of wetland areas, with associated benefits for the species these habitats support. Changes to the flooding regime can adversely impact upon biodiversity, through nutrient enrichment, detrimental impacts on water quality, siltation and community changes.
Archaeology & Cultural Heritage	Potential to reduce the risk from flooding to existing archaeological and architectural resources, both in historic city centres and to individual sites. Drainage maintenance activities will be constrained by the need to protect the setting of areas of existing archaeological and architectural value e.g. Monuments, Protected Structures, ZAPs, ACAs etc. Specific impacts on known individual sites, monuments and structures, and further consideration of undiscovered archaeological resources will need to be addressed at the pre-works stage. The archaeological potential of all drainage areas should be investigated.
Climate Change	Potential for increased fluvial and coastal flooding resulting from climate change. Increased likelihood of river and coastal flooding. Increased rainfall and sea level influencing the ability of arterial drainage schemes and embankments to function as designed. The release of greenhouse gases because of altering or cutting bog and peatlands and removing trees. Greenhouse gas emissions from machinery, vehicles and materials used to undertake maintenance activity. For small coastal schemes, sea level rise alone could result in the existing scheme being unable to provide its intended function. It is important to consider how climate change predictions could prompt a change in land-use in order to adjust accordingly. The carbon footprint of activates should be a consideration during their development. Measures to compensate for the losses of sequestered carbon in the peat and drainage channels should be considered long term by the OPW. With a management strategy that allows for adaptive capacity to be maximised, flood protection and land drainage function could be continued into the future. There is also the potential for schemes to provide enhanced flood protection where there is potential significant future flood risk. Protection, conservation and enhancement of existing carbon stores (e.g. peatlands and forest) can offer some contribution to the net carbon budget of the state. This could be achieved through careful planning of maintenance activity to maximise ecosystem conditions. Reduction in greenhouse gas emissions from continual evolution of

Environmental Receptor	Potential Impact of Plan on Environmental Receptor
	machinery and vehicle fleet used in drainage maintenance activity. Also an opportunity to consider of the carbon footprint of materials used.

3.3.1 Project-level programmes

The Arterial Drainage Scheme 6- year maintenance programmes stemming from the Plan will apply a range of measures that will mitigate potential environmental impacts. The applicability of processes and particular measures will be dependent on the nature and scale of each project. Proposed activities outside of the maintenance programmes shall be subject to their own assessments.

The integration of the SEA process, the screening of AA, and the preparation of the Plan has ensured that:

- Environment, social and economics were considered at all stages of the process
- Environmental constraints were identified at the early stages in the process and screened out a number of flood risk management measures and options
- The preferred measures have been selected based on a number of assessments
- Public consultation and stakeholder consultation was undertaken throughout the preparation of the Plan.

3.4 Submissions Received and response

In accordance with the Aarhus Convention, the public and other interested stakeholders were involved in the decision making for the Plan, SEA, and AA. Appendix A summarises the submissions and actions in response to them. In addition, an overall consultation synthesis reports will include a nationwide account of all submission and actions/responses, as well as, all Local Authorities will receive a specific response on how their consultation have been addressed.

3.4.1 Changes to the plan following consultation

Appendix A contains full details of how all consultation responses have been considered and how these have altered the plan and assessment. Some of the key updates to the Arterial Drainage maintenance List of Activities are set out in Table 3-2.

Table 3-2: Updates to the plan following consultation

Submission Comment / Observation	How this has influenced the plan	Reference
Suggestion to align the dates of the plan to the RBMP cycle 2 plan.	The dates for the plan have been amended to align the other related plans.	The Arterial Drainage Maintenance List of Activities 2018-2021 Volume III-National Arterial Drainage Maintenance Activities 2016-2021 SEA Natura Impact Statement
Recommended updates to mitigation and monitoring measures.	The plan contains amended mitigation measures. The changes are focused on aligning the mitigation and monitoring to ongoing achievable programmes, both by the OPW and other bodies, without reducing the scope or effectiveness of the mitigation or monitoring.	The Arterial Drainage Maintenance List of Activities 2018-2021 Volume III-National Arterial Drainage Maintenance Activities 2016-2021 SEA Natura Impact Statement
Added details and explanation of how the plan fits in with other plans.	The plan now contains improved description of how the activities fit with five year and annual maintenance programmes.	The Arterial Drainage Maintenance List of Activities 2018-2021
Relationship with additional	A review of these plans has been	Volume V – Addendum to SEA

Submission Comment / Observation	How this has influenced the plan	Reference
updated plans and programmes. Consultation submissions have requested the activities take account of a number of national policies and plans, and regional spatial strategies.	reported in a brief addendum to the SEA Environmental Report. The consideration does not materially alter either the environmental assessment or require amendment to the plan.	Environmental Report.

3.4.2 Re-assessment of the changes to the plan

The changes to the mitigation and monitoring measures in response to the consultation comments and observations do not require re-assessment of the impacts. None of the changes reduce the scope or intent of the proposed mitigation or monitoring.

A review of additional updated plans is documented in Volume V – Addendum to the SEA Environmental Report.

The Natura Impact Statement (Volume III) has been updated to reference the final plan as amended following consultation.

3.5 Conclusion

In response to the issues raised in the SEA Report and consultation submissions by national stakeholders, statutory authorities, and the general public, a consistent set of recommended mitigation measures have been developed nationally, these are outlined in the final plan.

4 Reasons for choosing the Flood Risk Management Plan as adopted, in the light of other reasonable alternatives

4.1 Introduction

This section discusses the alternatives that have been considered for the maintenance activities. The JBA project team has followed the EPA guidelines for the assessment of alternatives in Strategic Environmental Assessment. The key consideration for the Arterial Drainage Maintenance Activities 2018-2021 is that the alternatives proposed and assessed must be technically viable and within existing Arterial Drainage Act legislation. The current approach is unlikely to be significantly changed as this would require an amended or new Arterial Drainage Act legislation. There are however potential alternatives within the scope of the Arterial Drainage Acts. All of the recommended mitigation measures proposed in this SEA comply with the current legislation, however some of the follow-on findings or changes may require updates to legislation in the future.

4.2 Summary of the Alternatives Considered

The following sections of this report describes the alternatives considered at the spatial scale and the types of measures considered. JBA has carried out a desktop assessment for a number of alternatives that was considered for this SEA. The full assessment is presented in Appendix E of Volume IV and the main findings of the assessment are discussed below. The alternatives are assessed against the current maintenance activities.

4.2.1 The 'Do Nothing' Alternative

This is not a viable alternative due to Arterial Drainage Act legislation and will not be assessed.

4.2.2 Do minimum

It is plausible that unforeseen circumstances in the next six years may result in the situation where funding for Arterial Drainage maintenance is cut. An indicative cut in funding by 50% has been assessed and used to evaluate the impacts of a reduced maintenance regime.

With such a reduction in funding there are both positive and negative outcomes in relation to the proposed activities, both of which could occur on the same catchment or even at the same location. The do minimum alternative will more than likely result in more negative impacts than the proposed activities. This is because the reduced funding is most likely to be targeted at maximising the coverage of maintenance activities each year and not allocated to monitoring or changes to planning and onsite activities and approaches.

4.2.3 Do existing

This is the same as the proposed activities, which are no change from current practise.

4.2.4 Alternative 1 – an evolved approach to the selected preferred method activities

This alternative would be the implementation of changes in the planning, supervision and details of activities and mitigation. These changes are to improve both the planning and application of arterial drainage maintenance activities in the following areas:

- M1- Improved maintenance planning (6-year and annual plans),
- M2- Improved Standard Operating Procedures and Environmental Protocol,
- M3-Monitoring of all maintenance activities with continuous improvement through feedback into methods and approach,
- M4-Expansion of river restoration and environmental enhancement
- M5-Assests Management and Climate Adaptation Planning
- M6-Monitoring of environmental conditions.

Under Alternative 1 more positive impacts are expected for most of the objectives. As there is no reduction or enhancement in the benefit of arterial drainage schemes, there is no change to the impacts upon some of the social and economic objectives.

This evolved approach to the current activities does allow for planning in advance of the works which will enable environmental constraints to be identified at an early stage and appropriate mitigation measures put in place. This in turn would assist in the provision of more protection of the habitats and species while still meeting the requirements of the Arterial Drainage Act. Water quality would also be maintained which would ensure compliance with the WFD objectives. Overall Alternative 1 would support the environmental objectives for water, flora, fauna and biodiversity, fisheries, climate change, economics and cultural heritage.

Pre-planning would also involve the provision of an archaeological desktop assessment to determine the archaeological potential of the sites in question.

The natural flood management options would require sufficiently more detail and planning. Site selection would be constrained by the presence of Annex 1 habitats, SAC, NHA or SAC's. Current land uses, compensation etc. would all need to be considered for some of the natural flood management options. Depending on the size and extent of the natural flood management option and environmental impact assessment and NIR may be required. The OPW could start investigating this alternative for future activities.

4.2.5 Alternative 2 – different methods to achieve the objective of Arterial Drainage Maintenance

This alternative is based upon the application of different methods to achieve the same objectives. This would include:

- M2- Improved Standard Operating Procedures and Environmental Protocol,

Improved standard operating procedure and environmental protocols are focused on aiming to address concerns from stakeholders on the methods and approaches of specified maintenance activities. The intention of these recommendation is to further facilitate good environmental practices. These should be considered as continual improvement of existing procedure as opposed to new extra procedures.

Under Alternative 2 more positive impacts are expected, however this alternative would be expected to support fewer objectives than Alternative 1. This is because no changes to the planning of maintenance activities are included in this alternative. The current planning approach and systems will remain. Under this alternative, the approach to, and carrying out of maintenance activities in the field will change.

The assessment of this alternative is a limited improvement above current operating procedures and less environmentally effective than Alternative 1.

4.2.6 Alternative 3 – modification of Arterial Drainage Schemes

Alternative 3 is to change the form and function of arterial drainage schemes. This could range from walking away from some schemes, broader catchment scale environmental enhancements and natural flood management (e.g. forestry, restoring natural floodplains, runoff storage). Any modification to Arterial Drainage Schemes requires ministerial consent.

The application of Alternative 3 for each catchment cannot be determined at present and so the potential impacts are highly uncertain. It is likely that the benefit of arterial drainage schemes to rural communities and agriculture would reduce. The level at which benefits would be impacted and the compensatory measures applied to manage this cannot be determined at this stage.

4.3 Summary of Alternatives

In summary, the assessment of alternatives shows that improvements to the planning, methods and monitoring of arterial drainage maintenance activities would result in more positive impacts than the proposed activities. These will be addressed in this SEA through a set of recommended mitigation measures.

5 Measures decided concerning monitoring

5.1 Introduction

A monitoring programme allows the actual impacts of the Plan and/or Programme to be tested against those that were predicted. It allows major problems to be identified and dealt with in a timely manner, and environmental baseline information to be gathered for future Programme reviews. Monitoring is carried out by reporting on the set of indicators and targets drawn up previously and used to describe the future trends in the baseline, which will enable future positive and negative impacts on the environment to be measured.

The purpose of the monitoring programme is to provide the evidence base needed to monitor and manage the negative impacts of the Plan. The monitoring programme will also inform the planned cyclical review and update of the Plan. The indicators will be used to plot trends in the data over the 6-year cycle. The monitoring framework can be reviewed and revised during the cyclical review of the Plan, to take into account the experiences gained from the implementation of the Plan, changes as a result of climate change and any new environmental data or legislation that may arise over the review cycle.

When the Plan is initiated, a monitoring programme can be put in place using the baseline data presented in this Strategic Environmental Report. This monitoring will inform updates to the Plan as is a requirement of the EU Floods Directive.

It is important to note that since the completion of the SEA Environmental Report on the draft activities plan, the OPW has commenced implementing some of the recommended mitigation measures for the planning, delivery and post works stages of maintenance activities. There are two strands to the monitoring requirements.

- Strand 1 – to focus on monitoring the implementation of recommended mitigation measures
- Strand 2 – to focus on monitoring the environmental conditions and trends.

5.2 Responsibilities for Monitoring

Article 10 of the SEA Directive and the SEA Regulations requires that the responsible authority monitors the significant effects of the implementation of a plan or programme. The purpose of the monitoring programme is to identify unforeseen adverse effects at an early stage and undertake appropriate remedial actions. This is analogous to the approach suggested by JBA in this SEA; pre-maintenance assessment and post-maintenance assessment. The monitoring will provide a cross-check of the impacts.

The focus of the monitoring framework is to set out the measures that can be used by the OPW to monitor the implementation of the maintenance activities and the effects that this has on the environment. The EPA's Catchment Portal (www.catchments.ie) can be used as a baseline for the environmental status of a habitat or waterbody prior to the commencement of any projects arising from the Plan. The data and maps that are available on this website can be incorporated into the SEA monitoring programme. Monitoring requirements will also be conditioned on any consents/planning permissions required for the Plan.

The proposed Arterial Drainage Maintenance Activities 2018-2021 sets out what maintenance activities could occur on applicable channels, embankments and structures (see Table 3 1). A full monitoring programme for the draft activities is difficult to present at this stage because the actual maintenance activity to be carried out, when and with what mitigation measures is not determined until the five year and annual maintenance programmes are developed. In some cases, such as where Otters presence is identified during a pre-works inspection the need for mitigation measures or refinement in approach may not be specified until this point.

The recommended mitigation measures include proposed monitoring to build a scientific evidence base on:

a. the impacts of the Arterial Drainage Maintenance Activities 2018-2021, and
b. environmental change to assess how maintenance activities and the scheme elements should evolve and adapt over time.

The continued development of the scientific evidence base will be a valuable tool in the appropriate assessment of maintenance activities.

It is recommended that all the monitoring data generated is stored in a centralised database that can be accessed nationally, and where appropriate shared with third parties. This information should be used to inform future updates to the Arterial Drainage Maintenance Activities (2022-2027). The review should focus on:

- Have any significant impacts occurred during this period?
- What new data has been accumulated from other programmes during this timeframe and how has it been made available to the OPW
- What Plans/Programmes have been initiated during this period that could influence/impact on the maintenance activities
- How have the recommended mitigation measures in the SEA been integrated into the maintenance planning and delivery?
- Does the review of the monitoring data for this period highlight any changes/amendments that should be made to the Arterial Drainage Maintenance Activities or Flood Risk Management Plans?
- Has the monitoring assessed the adaptive capacity of arterial drainage schemes, channels, embankments and structures to climate and other future changes? Has this resulted in any change in the management approach? Are there any schemes, or parts of schemes, which will no longer be able to offer any flood protection of land drainage function in the future?
- Have any new approaches to flood risk management, land management and land drainage been identified within this period?
- What progress has been made with integrating Arterial Drainage Maintenance Activities 2018-2021 with other Plans and Programmes such as the CFRAM FRMPs, WFD, National Biodiversity Plan, Peatland Conservation Plans, Freshwater Pearl Mussel Conservation Plans etc.

5.3 Recommended Monitoring Programme

The Plan, with its associated SEA and plan-level AA, sets out a series of monitoring requirements, in connection with the SEA objectives and the predicted effects of the Plan.

A suggested monitoring log is set out below in order to develop a framework for continued monitoring.

5.3.1 Strand 1: Monitoring Implementation of Mitigation Measures

Table 5-1: Strand 1 Mitigation measure implementation

Stage	SEA/AA Mitigation Measure	Status as of October 2018
Planning	Training	Ongoing
	Pre-works inspection approach	Environmental Risk Assessment to identity whether activities are outside of 5yr maintenance programme. In development
	Updated Environmental Drainage Maintenance Guidance, containing evolution of procedures	In development
	Environmental Management System	In development
	Pilot Studies	In development
During works	Updated Environmental Drainage Maintenance Guidance, containing evolution of procedures	In development
Post works	Monitoring the effectiveness of invasive species control measures	In development
	Specific monitoring to build scientific evidence base of impact of different maintenance activities on specific species and habitats of interest	Ongoing
	Specific monitoring to build scientific evidence base of impact of different	In development and ongoing

Stage	SEA/AA Mitigation Measure	Status as of October 2018
	maintenance activities on hydromorphology and WFD Status.	
	Modelling and monitoring of the benefits of maintenance activity	In development and ongoing

5.3.2 Strand 2: Monitoring Environmental Conditions and Trends

The table of the environmental objectives and target presented in Section 7 of the report Volume II- Arterial Drainage Maintenance Activities 2016-2021 identifies the indicators and monitoring requirements for the SEA. Following the consultation stage these have evolved and the final version is included in the National Arterial Drainage Maintenance Activities 2018-2021 SEA List of Activities. The tables highlight the monitoring frequencies and responsibilities for collection of the monitoring data. Once captured this real time information can be used to update the baseline information presented in the Environmental Report (Volume III). The data can be used as a benchmark and trends identified can be used to show where SOPs may need updating or where new SOPs might be required. The monitoring programme should be aligned with the monitoring programme for other Plans and Programmes such as the CFRAM programme, WFD, and the EPA's fluvial geomorphological assessment programme. The similarity between many of the activities assessed here and the Flood Risk Management Plan (FRMP) measures presents an opportunity for a cohesive approach to monitoring. In particular, this monitoring will inform the future updates of the FRMPs as is a requirement of the EU Floods Directive.

Section 15 of the Climate Action and Low Carbon Development Act, 2015 places a legal obligation for all Government Departments and Semi-State Bodies to reduce their carbon footprint. The capture of real time carbon dioxide emission data from the maintenance activities will help the OPW to build up a picture of their footprint and it will assist in measures to be put in place to reduce this.

6 Conclusion

The Plan sets out a proposed strategy for the sustainable, long-term management of the National Arterial Drainage Maintenance List of Activities 2018-2021. The SEA and AA informed the plan through an ongoing iterative process that incorporated environmental considerations and sensitivities throughout the plan development. The SEA and AA were undertaken in line with the Planning and Development (Strategic Environmental Assessment) Regulations 2004 to 2011 (as amended), the Planning and Development Act 2000(as amended), and the European Communities (Natural Habitats) Regulation 2011. The approval / adoption of the Plan has not and does not confer approval or permission for the installation or construction of any physical works. EIA and/or AA Screening, and, where so concluded from the screening, Environmental Impact Assessment and/or Appropriate Assessment, must be undertaken in accordance with the relevant legislation where relevant as part of the progression of measures that involve physical works. Subject to the full and proper implementation of mitigation and monitoring measures outlined in the final activities (the Plan), the implementation of the plan is not likely to have significant impacts to the environment.

References

European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, (S.I. No. 200 of 2011), amending the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004),

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland –Synthesis report (EPA, 2003) http://www.epa.ie/pubs/advice/ea/developmentofseamethodologiesforplansandprogrammesinireland.html

Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland –Synthesis report (EPA, 2003)

Department of Environment, Heritage and Local Government 2004: Implementation of SEA Directive: Assessment of the Effects of Certain Plans and Programmes on the Environment. Guidelines for Regional Authorities and Planning Authorities (2004)

Environmental Protection Agency: SEA Pack (2008)

Environmental Protection Agency: GISEA Manual - Improving Evidence Base in SEA (2017)

Environmental Protection Agency Developing and Assessing Alternatives in Strategic Environmental Assessment (2015)

Council of European Communities (CEC). (1992). Council Directives 92/43/EEC of 21 May 1992 on the conservation of natural habitats and wild fauna and flora. Official Journal of the European Communities, L206/ 7-50.

EU, 2009. DIRECTIVE 2009/147/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 November 2009 on the conservation of wild birds

Irish Statute Book (ISB). (2011). S.I. No.477/2011-European Communities (Birds and Natural Habitats) Regulations 2011.

The Department of Environment Community and Local Government Guidelines: “Implementation of SEA Directive 92001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment –Guidelines for Local Authorities and Planning Authorities” (DEHLG, 2004)

DEHLG, 2009. ‘Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities’. https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf.

Appendices

A Consultation Responses

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
31/05/2016	Transport Infrastructure Ireland	SEA should have regard, inter alia, to the following -Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-TII would be specifically concerned as to potential significant impacts the development would have on the existing national road network (and junctions with national roads) and structures on the network in the proximity of any proposed development,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-In the interest of maintaining the safety and standard of the national road network, the SEA should consider the methods/techniques proposed for any works transversing/in proximity to the national road network,	Mitigation Measures (SoPs, protocols and methods)
31/05/2016	Transport Infrastructure Ireland	-TII should be consulted with regard to any specific works affecting any existing structures or propsed structures on national roads resulting from any drainage scheme/works and all such works should be undertaken in accordance with the NRA DMRB. In addition, it should be noted that i. Any structures works where national roads are impacted are required to be in accordance with the NRA DMRB and MCDRW; ii. Works to structures require Technical Acceptance from TII in accordance with DMRB BD02 in advance of any work being undertaken,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-Regard should be had to any environmental impact statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the areas concerned. In particular, have regard to any potential cumulative impacts,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-In conducting SEA, have regard to the NRA DMRB and the NRA Manual of Contract Documents for Road Works,	Mitigation Measures (SoPS, protocols and methods)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
31/05/2016	Transport Infrastructure Ireland	-At any individual product stage it would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment to be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road networks and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the NRA/TII TTA Guidelines which addresses requirements for sub-threshold TTA,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-At project stage, designers are asked to consult the DMRB Road Safety Audit (HD 19) to determine whether a Road Safety Audit is required, P15	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-In relation to haul route identification, where relevant the applicant/developer should clearly identify haul routes proposed and fully asses the network to be transevered. Separate structure approvals/permits and other licenses may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed,	Mitigation Measures (Planning Stage)
31/05/2016	Transport Infrastructure Ireland	-All areas where proposed works are planned should be surveyed for the presence of non-native invasive plant species since rivers, streams etc., are identified to be important vectors in the spread of such plant species. Notwithstanding any of the above the developer should be aware that this list is non-exhaustive thus site and development specific issues should be addressed in accordance with best practice.	Mitigation Measures (Planning Stage) Mitigation Measures (SoPS, protocols and methods) Monitoring
17/06/2016	EPA	Chapter 1 – Introduction In Section 1.2 Legislation and Guidelines, there are a number of additional SEA guidance documents available to consider on the EPA website including Integrating Climate Change into SEA, Developing and Assessing SEA Alternatives and recently updated SEA/Plan Integration Guidance and lists of spatial information sources. These can consulted at: http://www.epa.ie/pubs/advice/ea/	Approach to the SEA
17/06/2016	EPA	Chapter 2 – Methodology In Section 2.1.1 SEA Process, we note that newly constructed flood relief schemes are outside the scope of the Maintenance Activities and will be recommended through other programmes such as the CFRAMS Programme. The Maintenance Activities should however take into account the potential for cumulative effects which may arise from these new flood relief schemes in combination with activities that may arise in the Maintenance Activities.	Assessment - in-combination

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Chapter 3 – Programme Description In Table 3-1 OPW Schemes carried out under the Arterial Drainage Acts 1945 & 1995, we note the list of various schemes described under the 1945 Act which goes up to 2015. The table could clarify whether future schemes (arising from implementing the Maintenance Activities) will also come under the remit of the Arterial Drainage Act. The link between flood alleviation options, arising from the CFRAMS Programme, and any associated maintenance activities/schemes which may accompany the preferred flood alleviation options, in the context of relationship to the Arterial Drainage Act should also be clarified. There is also merit in coordinating and integrating, the relevant aspects of the CFRAMS and Maintenance Activities where possible. Interactions with the Water Framework could also be coordinated with key stakeholders.	Programme description
17/06/2016	EPA	Section 3.3 – Communication with stakeholders (3 Programme Description) on page 10, describes that the OPW communicate the annual arterial drainage maintenance programme to the relevant stakeholders. It would be beneficial if information on how progress on implementing the programme was also disseminated (i.e. when, where and what works carried out). This would be useful for related environmental-related monitoring programmes (i.e. biological, hydrological, hydro-morphological/fluvial geomorphological) in terms of site selection, selecting time of site visit and interpreting results.	Programme description Monitoring
17/06/2016	EPA	The Maintenance Activities could also describe the wider stakeholder consultation which has taken place in the preparation of the Activities. Aspects such as altering water levels may require consideration by other organisations including: - Waterways Ireland and ESB, (issues related to altering water levels) - EPA hydrometrics unit and the Catchment Science and Management Unit for WFD related monitoring programmes (short term sediment impacts on monitoring equipment) - Irish Water and National Federation of Group Water Schemes (in terms of potential impacts on drinking water abstraction points) - Local Authorities (Environment and Planning teams involved in aspects such as discharges, local flooding and possible impact on zoned land) - DAFM and Irish Farmers Association - Inland Fisheries Ireland - Bord Na Mona	Programme description Mitigation Measures (Planning Stage)
17/06/2016	EPA	We understand that the OPW intend establishing an online database to provide information on the nature and extent of the works carried out within the arterial drainage schemes. This will be extremely useful to organisations such as IFI and the EPA. If notification of proposed works could also be incorporated into the design of this database, this will enable new proposed works to be communicated to key stakeholders. This would greatly assist in work programme planning and related environmental monitoring.	Mitigation Measures (Planning Stage)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Section 3.4 – OPW Standard Operating Procedures (SOP) (3 Programme Description) There would be merit in considering incorporating or acknowledging the relevant aspects of the Forestry and Freshwater Pearl Mussel Plan, currently being prepared by the DAFM, into the relevant Standard Operating Procedures (SOPs) where protection of FWPM catchments are concerned.	Mitigation Measures (SoPS, protocols and methods) Mitigation Measures (Planning Stage)
17/06/2016	EPA	For any proposed maintenance activities in, or adjacent to, areas of Nationally or European designated (peatland) sites, the relevant aspects of the finalised National Peatlands Strategy and SAC Raised Bog Conservation Management Plan should also be acknowledged and considered. It is also worth noting that the NPWS will be preparing an SAC Blanket Bog Conservation Management Plan, which should also be referred to.	Mitigation Measures (Planning Stage) Mitigation Measures (SoPS, protocols and methods)
17/06/2016	EPA	It would be useful to include an appendix to summarise the relevant OPW SOPs and provide the associated updated web links. Information relating to the control and management of invasive species and associated aspects should also be included.	Programme description
17/06/2016	EPA	Section 3.5.3 – Auditing (3 Programme Descriptions) The Plan should clarify (Page 13, Paragraph 1:) whether audits are to be carried out at Environmental River Enhancement Programme (EREP) sites only and whether there are EREP sites in all of the arterial drainage schemes.	Programme description
17/06/2016	EPA	The Plan should also consider existing sites that may not fit into the EREP criteria (i.e. gradient ≥0.002, Q value ≥3, EQR Moderate). Sites that do not fit these criteria are not generally considered suitable for salmonid habitat (i.e. gradient/location in the system unsuitable). However, they are not as resilient to drainage/channelisation impacts compared to sites of higher gradient and could be considered for auditing as fluvial geomorphological processes (e.g. sediment production, water/sediment/wood flux, river channel adjustment, lateral connectivity) which will be altered and other biota, that may be affected due to habitat degradation.	Mitigation Measures (Planning Stage)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Chapter 4 – Plan and Policy Context Section 4.2 – Plan and Policy Context Table 4-1 – Legislation, policies and plans/programmes adopted at the European Union, National or Regional level: Additional Plans/Programmes/Policies to consider include the following: - EU Regulation 1143/2014 on Invasive Alien Species - National Planning Framework (under preparation) - FoodWise 2025 - SAC Raised Bog Conservation Management Plan (SAC Blanket Bog Conservation Management Plan also to commence preparation). - Regional Economic and Spatial Strategies (to commence). - Regional Waste Management Plans	Interaction with other plans, programmes and policies
17/06/2016	EPA	Section 4.2.1 – Related Studies The EPA Catchment Science and Management unit is developing a fluvial geomorphological assessment tool that will provide an understanding of the fluvial geomorphological condition of rivers, identify morphological pressures and the response of the river to these pressures. This will address the hydro-morphological component of characterisation under Article 5 of the Water Framework Directive. It will be based on the Italian Morphological Quality Index (MQI) method which was recommended by the EU FP7 project, REstoring rivers FOR effective catchment Management (REFORM). The MQI takes a fluvial geomorphological based approach as it considers processes (e.g. sediment production, water/sediment/wood flux, river channel adjustment), along with the features that these processes create. It is multi-scale assessment where the 'reach' scale is the basic spatial unit (1-10km). This method comprises two components, segmentation (to identify morphological typologies to understand how a river will behave in a certain stretch of the river) and condition assessment. This assessment has the potential to contribute to the arterial drainage maintenance programme in the future.	Mitigation Measures (Planning Stage)
17/06/2016	EPA	Chapter 5 – Baseline Environment The Activities should take into account the relevant aspects of the NPWS Article 17 Reports for 2013 in particular when considering activities in areas where designated sites and protected species may be impacted.	Current environmental status
17/06/2016	EPA	Section 5.2 – Human Beings Page 19, Landscape: We note the comment on "The Arterial Drainage Maintenance Activities (2016-2021) protect where possible and enhance the landscape character and visual amenity within the river corridor". The Plan should provide additional clarification on this aspect. The Plan should describe how the arterial drainage maintenance activity protects/enhances the landscape character and visual amenity within the river corridor.	Current environmental status

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	In 5.2.1 Future Trends, we note the reference that “all agricultural land is now premium for food production”. The Maintenance Activities should consider that marginal agricultural lands may also have significant biodiversity value, support ecological corridors for designated sites/support protected species, act as riparian zones to minimise impacts on water quality from agricultural land management practices and also provide flood attenuation benefits. The challenge will be to support environmentally sustainable land drainage which will assist in supporting and sustaining the ecosystem services provided by these lands (e.g. habitat/species/linkages conservation, flood relief/attenuation considerations, buffer areas for capturing runoff from potential poor land management practises (nutrient management/pesticides etc.).	Current environmental status
17/06/2016	EPA	Section 5.2.2 – Key Environmental Issues While the example, (on Page 20, Paragraph 4), of how arterial drainage works can increase the risk to flooding is acknowledged (i.e. through removal of riparian vegetation which reduces the ability to retain water/buffer pollutants and sediment/stabilise banks), a more significant issue is that works can often reduce the roughness of the bed and therefore, increases the ease of flow which leads to improved conveyance. Quite often the channel is cut off from the floodplain and so the volume of water in the channel increases, flood peaks are much greater and water rapidly transports itself through the system which may result in flooding further downstream. This can also lead to bank erosion/bed incision. Altered flow conditions due to this modification may also impact ecology.	Current environmental status
17/06/2016	EPA	Section 5.3 – Land Use In relation to the ‘Peatlands’ subsection, we recommend that the reference on page 23 to “lowering of the local water table can benefit and encourage peat cutting …” be removed or reworded. This is in the context of the promotion that peat cutting should not be considered a benefit given the potential environmental implications for climate change, flood attenuation and impacts on biodiversity. The drainage of wetlands and peatlands is an on-going concern, and the NPWS Article 17 Report highlights the status and integrity of our peatlands and wetlands are in decline, due to land management practices including peatland/wetland drainage.	Current environmental status
17/06/2016	EPA	The Plan should clarify (on Page 21, Paragraph 2) that while CORINE was released in November 2014, it is actually a 2012 dataset.	Current environmental status
17/06/2016	EPA	Section 5.5 – Flora, Fauna, Biodiversity The Scoping Report should recognise (on Page 27 - Freshwater Pearl Mussels - Paragraph 1), that the Bundorragha FWPM population are no longer in favourable condition. The Maintenance Activities should also refer to the Forestry and Freshwater Pearl Mussel Plan, currently being prepared, for more recent information in terms of measures required to protect freshwater pearl mussels (FWMP) and to protect priority FWPM catchments.	Current environmental status

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Section 5.6 – Water The proposed new approach to River Basin Management Planning in Ireland under the second cycle of the Water Framework Directive should be described in this section. Ireland will have 1 RBMP and including an international RBMP.	Interaction with other plans, programmes and policies
17/06/2016	EPA	Given that drainage/channelisation is the most significant pressure on the hydro-morphological condition of Irish rivers, the WFD hydro-morphological elements should be acknowledged (in Page 32, Surface water, Paragraph 1).	Interaction with other plans, programmes and policies
17/06/2016	EPA	Consideration of hydro-morphology within the WFD is regarded by the European Commission as an area of work in need of improvement across the EU. As a result, hydro-morphology will be a major focus in the 2016-2018 Common Implementation Strategy (CIS) work programme.	Interaction with other plans, programmes and policies
17/06/2016	EPA	Page 32, Surface water: The last line of paragraph 1 (Arterial Drainage Maintenance Activities proposed on the river channels have the potential to change the hydro-morphological condition of the water bodies resulting in alterations in water quality through increased sediment loading from dredging or similar works) focuses on the indirect effect on water quality. The Maintenance Activities should however, also acknowledge how altering both the fluvial geomorphological processes (e.g. sediment production, water/sediment/wood flux, river channel adjustment, lateral connectivity) and the features that these processes create (e.g. pools, riffles, bars) can lead to habitat degradation, which in turn, can affect WFD ecological status. Ecological risk is briefly mentioned in the last paragraph but it should be addressed at the start of the section and also in more detail. The Water section could be subdivided into: 1) water quality and; 2) hydro-morphological condition. As drainage/channelisation is a major hydro-morphological pressure, this should be reflected in the Scoping report. It is also worth noting that at present hydro-morphological conditions can only downgrade High Ecological Status sites. However, fish and macro invertebrates can be affected by arterial drainage so this can affect the entire spectrum of ecological status (High, Good, Moderate, Poor, Bad). As acknowledged, it is difficult to dis-entangle multiple pressures when considering ecological impacts. However, if water quality data does not indicate eutrophication/enrichment, hydro-morphological pressures may be driving status. It is noted that the relationships between ecology and hydro-morphology are not well known, in Ireland or internationally and the approach taken in this case utilises available data, knowledge and experience. It could be acknowledged that this science is rapidly evolving (e.g. the recent EU REFORM project as mentioned previously) and is likely to be required to be taken into account over the next few years.	Current environmental status
17/06/2016	EPA	Page 33, Surface water, Paragraph 1: The number of lake water bodies downgraded due to hydro-morphological condition is addressed but not for rivers. Where possible, information for rivers should also be included.	Current environmental status
17/06/2016	EPA	Section 5.6.1 – Future trends Page 37, Paragraph 4: Sentence appears to be incomplete.	Current environmental status

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Section 5.6.2 – Key Environmental Issues Page 37, Paragraph 2-3: Issues highlighted focus more on water quality. The scoping report should make a distinction and highlight whether water quality is in relation to fine sediment or other pollutants such as nutrients. More emphasis on the effects on hydro-morphological condition required, particularly with regard to the WFD and its hydro-morphological elements.	Current environmental status
17/06/2016	EPA	It will be also important to consider and take into account the potential impacts on the trend of water quality status. The Plan should reflect any relevant recommendations which may arise from the second cycle of River Basin Management Planning (and related programmes of measures to protect water quality in implementing the Maintenance Activities.	Current environmental status
17/06/2016	EPA	"Arterial Drainage Maintenance Activities (2016-2021) works must ensure that the objectives align with those of the WFD and that the Arterial Drainage Activities proposed will not interfere in accomplishing the goals set out by the WFD, RBMP objectives, and achievement of good ecological status/potential. " It is not clear what measures will address this. EREP/other restoration projects as discussed in Section 6, focus on the restoration of salmonid habitat which is often implemented at a site scale. It is not clear whether these programmes will be sufficient to achieve the stated aims of supporting WFD objectives.	Current environmental status
17/06/2016	EPA	Page 37, Paragraph 7: Further clarity around how water quality can be improved through flood risk management would be useful.	Current environmental status
17/06/2016	EPA	The Maintenance Activities should also consider whether potential impacts on drinking water abstraction points downstream of proposed maintenance activities are to be considered.	Current environmental status
17/06/2016	EPA	Section 5.9 - Air and Climate Change The Climate Action and Low Carbon Development Act, Climate Change Sectoral Adaptation Plans and National Mitigation Plan shoud be referenced here in terms of key considerations to be aware of and taken into account.	Current environmental status
17/06/2016	EPA	Chapter 6 – Draft Environmental Objectives and Targets Page 45, Table (Water Sub-objective): it needs to be noted that the EREP focuses on restoration of salmonid habitat only. The Maintenance Activities should describe whether the EREP alone will be sufficient to meet the environmental objective. Clarification on whether these EREP-related site measures will restore fluvial processes at a larger scale. In addition, the implications for river water bodies outside the EREP should also be considered and described.	Objectives

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	The EREP has been a valuable starting point to address the ecological impacts of physical modification. Since the development of this programme along with the development of the physical habitat assessment (RHAT), our understanding of hydromorphology/fluvial geomorphology has greatly improved. Many initiatives/projects have been set up throughout Europe, and further afield, to develop assessments that acknowledge processes, spatio-temporal variability and geomorphic responses to human modification in addition to improvements to river restoration measures. As mentioned previously, the EPA is developing a fluvial geomorphological assessment that has the potential to contribute to the arterial drainage maintenance programme, along with its associated works such as EREP, in the future. The relevant aspects should be reflected in the Plan and SEA Environmental Report.	Mitigation Measures (Planning Stage)
17/06/2016	EPA	Page 45, Table (Water Monitoring): Ensure that the arterial drainage works will not conflict with achieving good water quality status of the waterbodies. This section should include an acknowledgement of biological (all WFD water bodies) and hydro-morphological status (if high ecological status), where relevant.	Current environmental status
17/06/2016	EPA	Chapter 7 – Proposed Monitoring Programme Section 7.3.1 – Water Page 55: As referred to previously, the EPA is developing a fluvial geomorphological assessment that has the potential to contribute to the arterial drainage maintenance programme, along with its associated works such as EREP, in the future.	Monitoring
17/06/2016	EPA	We also refer you to www.catchments.ie which the EPA has launched to serve as a key portal for integrated catchment management from a EPA WFD perspective. Resources, data and maps are available to consider incorporating into the SEA monitoring programme, as appropriate and relevant to the Maintenance Activities.	Current environmental status (data sources)
17/06/2016	EPA	1. Are there any key constraints/issues that you feel have been missed out Cumulative Effects / Regional Considerations The Maintenance Activities could make greater reference to regional considerations and associated cumulative catchment level environmental implications of any channel maintenance/arterial drainage activities. This may be in the context of addressing how an issue in the upper catchment (requiring drainage/maintenance) may cause problems further downstream, for Floods Directive implementation, or the implementation of other Directives, such as WFD, Habitats etc.	Assessment - in-combination
17/06/2016	EPA	In terms of assessing and selecting preferred channel drainage maintenance options, the preferred flood alleviation options identified in the various CFRAMS (and related Flood Risk Management Plans) should be taken into account in terms of supporting an integrated methodology for flood alleviation and channel maintenance/drainage activities while also providing for the appropriate protection environmental sensitivities.	Assessment - in-combination

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Biodiversity/Flora/Fauna Additional aspects to consider in relation to Biodiversity/Flora/Fauna include: - Changes to the flooding regime may have an impact on habitats and species which require particular inundation periods or in the case of groundwater dependent ecosystems (e.g. fens) particular water supply mechanisms and water chemistry.	Assessment - in-combination
		Geology/Soils and Land Use - The relationship with forestry and forest management should be taken into account also in terms of potential influence on channel maintenance/arterial drainage works. - On aspects pertaining to soil, the permeability of the soils should be summarised, as from a flood risk perspective, this is potentially of greater relevance than soil type. For example gley soils are typically of low permeability and will contribute to greater surface runoff.	Assessment - in-combination
		Water - For groundwater related aspects, it would be useful to include an aquifer classification map where possible	current environmental status
		-The issue of rejected recharge should also be considered in The context of The unproductive aquifers. These aquifers have low permeability, storage and transmissivity which may contribute to greater surface runoff during storm events.M64	current environmental status and Mitigation measures (planning stage)
		-The role of wetlands and peatlands for the attenuation of flood waters should also be considered. A stronger emphasis on hydro-morphology is required in the water section. The impact of hydro-morphological alteration should be elaborated on, especially as land drainage/channelisation is a significant hydro-morphological pressure in Ireland	Mitigation Measures (Planning Stage)
17/06/2016	EPA	More information is required on how the WFD objectives will be affected by hydro-morphological alteration. Hydro-morphological classification of high ecological status sites and hydro-morphological characterisation under Article 5, should also be considered. Evaluation of restoration/enhancement works should also be considered. The evaluation of these works was highlighted during the EU FP7 REFORM project as an important component of the restoration process in order to understand the effectiveness of restoration/enhancement efforts. This will need clearly defined evaluation criteria.	Mitigation Measures (Planning Stage)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	2. Are you aware of any other sources of environmental data or plans/policies/programmes that would be of use for this study Data A number of additional data sources are provided below to be considered as appropriate Biodiversity - DAHG (aspects including The Status of EU Protected Habitats and Species in Ireland (DAHG/NPWS, 2013) - DAFM (Forestry, Agriculture, Fisheries, Shellfisheries) - DCENR (Energy related infrastructure including hydroelectric, tidal etc) - National Biodiversity Data Centre (including ecological indicators useful in monitoring) - Loughs Agency - Heritage Council, Local Authority Biodiversity Plans/ - Coillte / Forest Service, Bord na Mona , Irish Peatlands Conservation Committee - EU Regulation 1143/2014 on Invasive Alien Species	Current Env Status
		Population & Human Health - (Population) The Regional Planning Guidelines (and Regional Economic and Spatial Strategy) once prepared, within the lifetime of the Plan, will set out updated/reviewed population targets up and identify key areas for growth and development which may need to be supported by arterial drainage and maintenance activities.	Current Env Status
17/06/2016	EPA	(Human Health) Locational data on known combined sewer overflows should also be incorporated in terms of potential pathogen exposure which may arise from flood related discharges (and possible implications for maintenance activities in proximity to these discharge areas). In addition, Local Authority data on the location of Section 4 discharges should be considered for inclusion along with the location of Irish Water assets (plants and networks).	Current Env Status and Mitigation Measures (planning stage)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Water - Waterways Ireland - Local Authorities - Inland Fisheries Ireland - EPA WFD Catchment Management guidance and mapping information available on www.catchments.ie - A national risk screening data set is available on the WFD Application which is available through the Eden portal (to registered users at: https://www.edenireland.ie/). Further risk data will become available through the sub-catchment and catchment reports that are currently being prepared, to inform the second cycle of River Basin Management Plans. There should be ongoing liaison with EPA on the status of the WFD Application and related outputs. - EU Flood Directive Approval has been reached by the European Committee for Standardisation (CEN) Committee that hydro-morphology standards EN14614:2004 (Water Quality – Guidance standard for assessing the hydro-morphological features of rivers) and EN15843:2010 (Water Quality – Guidance standard for determining the degree of modification of river hydro-morphology) will be revised. It is now formally registered as a 'Preliminary Work Item'. Revision of these standards will begin at the end of this year. - EU Floods Directive (mentioned on page 18) - Rural Development Plan 2014-2020 (including GLAS) - National Peatland Strategy (mentioned on page 23) - Bog Conservation Plans	Current env status

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	Plans/Programmes The second cycle of the River Basin Management Plan(s) (and associated programme of measures) should also be taken into account here and, the relevant aspects should be integrated. The updated RBMP (s) will provide updates of recommendations to achieve the requirements of the Water Framework Directive. Additionally, Irish Water and the National Federation of Group Water Schemes should also be consulted, in terms of assessing potential flood risk and flood alleviation/drainage maintenance activities The relevant aspects of the following plans/programmes should be considered, whereappropriate: National: SEE LETTER FOR PLANS Considering the relevant aspects of the above plans would be useful to determine potential impacts of channel maintenance activities and drainage options on aquaculture, agricultural activities etc. Critical service infrastructure investment and associated water management activities may need to take account of additional activities arising out of implementation of the Plan.	Mitigation Measures (Planning Stage)
17/06/2016	EPA	Additional Transboundary consideration: The Maintenance Activities should consider describing any potential transboundary-related plans/programmes which may need to be taken into account. These may include draft flood risk management plans and any draft updates to river basin management plans for Northern Ireland.	Mitigation Measures (Planning Stage)
17/06/2016	EPA	3. Do you agree with the draft SEA objectives and monitoring proposals We acknowledge the proposed draft SEA Objectives and associated monitoring proposals as established. Due to the nature of works associated with Maintenance Activities, the challenge will be to align the SEA objectives and monitoring proposals with the objectives of the WFD particularly in relation to hydro-morphology.	None
17/06/2016	EPA	With particular regard to the EREP and other IFI restoration projects, these sites are a small subset of rivers within the arterially drained river network and focus primarily on salmonid habitat. The SEA should acknowledge that the current approach is unlikely to contribute to mitigating against the larger scale impacts of drainage works on the hydro-morphological characteristics of rivers. Nevertheless, the science to enable such work to be undertaken is not currently clear. The EREP has been a good starting point to introduce the concept of river restoration to Ireland and address the ecological impacts of physical modification. There is merit in considering a recommendation that further guidance or research is needed.	Mitigation Measures (Planning Stage)
17/06/2016	EPA	Since the development of this programme, along with the development of the physical habitat assessment RHAT, our understanding of hydro-morphology/fluvial geomorphology has greatly improved. This area has progressed greatly in the last few years with many initiatives/projects set up throughout Europe, and further afield, to develop assessments that acknowledge fluvial geomorphological processes, spatio-temporal variability and geomorphic responses to human modification in addition to improvements to river restoration measures (taking into account how appropriate and cost effective they will be).	Mitigation Measures (Planning Stage)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	EPA	The EPA is developing a fluvial geomorphological assessment based on the Italian Morphological Quality Index (MQI) method. This approach has the potential to contribute to the arterial drainage maintenance programme, along with its associated works such as EREP, in the future. We would suggest a review of the Arterial Drainage Maintenance Activities programme be considered at the end of 2018, to determine whether there are any improvements that could be made given the development of the science/technology in the interim.	Monitoring
17/06/2016	EPA	The draft SEA Objectives and monitoring proposals (including monitoring frequency) should be closely linked with those of the National CFRAMS Programme (Flood Risk Management Plans and associated SEAs). These are due to issue for consultation in July / August 2016. This would provide for a consistent methodology for assessing and monitoring how well both the CFRAMS and Arterial Drainage Maintenance Activities are being implemented, taking into account potential for cumulative effects.	Monitoring
17/06/2016	ICMSA	ICMSA welcomes the OPW Arterial Drainage Activities 2016-2021, however, the timescale and budgets provided for this activity will clearly be very important for a sizeable number for rural dwellers in particular farmers and rural areas	
17/06/2016	ICMSA	In assessing this report and the wider matter of the arterial drainage maintenance activity being planned for the next six years, ICMSA believe regard must also be had to the Draft Climate Change Sectoral Adoption Planned Flood Risk Management (2012-2019) document also prepared by OPW. Clearly there is an overlap between flood risk and abatement and drainage and this linkage is highlighted a number of times in the document currently under review.	Current env status
17/06/2016	ICMSA	In this context and with regard to the Climate Change Sectoral Adoption Planned Flood Risk Management document and the inter-linkage with the Arterial Drainage Maintenance Activities 2016-2021, ICMSA would like to make the following specific comments:	
17/06/2016	ICMSA	The preservation of the existing agricultural land bank and its inherent productivity and fertility in the medium and the long-term is clearly of critical importance as the global demand for food increases significantly and rapidly. While it is extremely difficult to predict or model for this, we believe this issue should be addressed in the final report.	Assessment - in-combination
17/06/2016	ICMSA	The Climate Change Sectoral Adoption Planned Flood Risk Management Document proposed than an assessment should be carried out on the lLand Commission Embankments. It appears that no one has actual and meaningful statutory responsibility for these embankments. That report highlights the lack of a central record of the standard of protectyion provided by each embankment and their physical condition. Therefore, it is highly probable that the protection afforded by these embankments which were first constructed on the nineteenth century has deteriorated and is possibly inadequate for the level of flooding that existed up to now. Even if there was no increased risk of flooding arising from climate change the current situation is untenable. With the expected increase in the risk of flooding, not alone must the existing Land Commission Embankments be retained and maintaind but they will require enforcement. In addition, it is highly probable that there will be a need for an extension of the actual embankments system over the longer term	Mitigation Measure (planning stage) and Monitoring

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	ICMSA	Food Harvest 2020 has been referenced a number of times in the document and ICMSA beleive the more recent strategy document for the sector, Food Wise 2025 should be analysed for the purposes of the report.	
17/06/2016	ICMSA	The Climate Change Sectoral Adoption Planned Flood Risk Management document also gave a commitment that future options for the management of the embankments will be examined and ICMSA believe there is a need for the statutory responsibilty to be clarified and that a single agency should be responsible. ICMSA believe that the statutory responsibility for all embankments should rest exclusively with the OPW. These embankments should include the existing Land Commission Embankments, the embankments which are part of the arterial drainage system, which are already withimn the statutory responsibility of the OPW, and embankments which form an integral part of drainage under the Drainage district schemes which currently fall within the remit of Local Authorities.	See above (row 83)
17/06/2016	ICMSA	In the section 5.2.1 the following is stated-"At the moment, Arterial Drainage Schemes benefit rural populations as it allows landownersa to install field drainage, which reduces waterlogging of land and enables it to carry more livestock or produce higher crop yields. If the shift from rural to urban continues, it may be worth considering a shift of maintenance regime to more urban areas, however, this could conflict with agricultural productivity goals. Maintaining a close look at population dynamics will be essential for planning future Arterial Maintenance Activities". ICMSA has concerns that this could amount to a major shift in resources and may actually not be in conformity with the Arterial Drainage Acts. ICMSA believe it is essential maintenance programmes are not based solely on population as this may have a detrimental effect on rural areas and the agri-food sector.	Monitoring
17/06/2016	ICMSA	At section 5.2.2 the following is stated-"Arterial Drainage cannot eliminate the risk of flooding. Most of the schemes carried out by the OPW aimed to reduce flooding of agricultural fields from the main channel on average at a 'three year return' flood period. Therefore, flood risk from climate change and changes in land management practices (new developments in flood sensitive area) may not be mitigated through Arterial Drainage Maintenance Activities on Channels". ICMSA believe it is important that the OPW provide unqualified assurances on the need to at least maintain the existing protection for beneficial lands in terms of adequate land drainage outfalls and the avoidance of flooding.	None
17/06/2016	ICMSA	A related matter, ICMSA believe that the design or redesign of the arterial drainage maintenance programme which may involve the establishment or re-establishment of floodplains to the detriment of the agricultural value of such lands should only be taken after full public consultation and proper and full compensation being paid to the landowners affected	None

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
17/06/2016	ICMSA	The following paragraph 5.3.2 raises major issues from the view of agriculture and farmers-"In accordance with the SEA Regulations [S.I 435 of 2004], considerations have been given to whether the environmental effects, both positive and negative, of the Arterial Drainage Maintenance Activities (2016-2021) are likely to be significant on each receptor. There are several issues that should be considered while planning and carrying out the Arterial Drainage Maintenance Scheme and maintenance work: -the extent and intensity of land drainage in both the uplands and lowlands could have an impact on the regime of the waterways, and increase flood risk. -Inappropriate land management practices, especially on more sensitive soil types could reduce water infiltration into the soil resulting in an increase of surface water runoff. -The management of grassland, semi-natural vegetation, wetlands, and woodlands can assist in the storage of rapid surface runoff and floodplain flows upstream of flood risk receptors. -Natural flood storage areas on flood plains including wetlands should be protected from development pressures. -Inappropriate or intensive land-use practices can result in erosion, modification of channel geomorphology or discharge of receiving sediments". Each of these issues, on their own, if incorporated into the maintenance activity programme for any river could have a major impact on individual farmers or indeed groups of farmers. ICMSA has serious concern that this represents a substantial deviation and modification to the arterial maintenance activities carried out to date by OPW under the Act and would welcome some clarification on the issue.	Assessment - in-combination
17/06/2016	ICMSA	ICMSA would like to seek clarification and assurances regarding the issues raised in paragraph 5.4.2 in relation to floodplains and land use. Specifically, in relation to the references to flood plains in this paragraph does it imply, or mean, the non-maintenance of drainage of some flood plains resulting int the "re-wetting" of these lands with the resultant reduction in their productive use.	None
17/06/2016	ICMSA	ICMSA broadly agree with the objectives and details of the objectives as set out in section 6 of the scoping report. With regard to agriculture and agriculture land under the broad objective of economic aspects, it is reassuring that specific sub-objectives are given in relation to continuation of arterial drainage to ensure the drainage of the lands concerned. However, these assurances or sub objectives must bhe interpreted having regard to the reservations and qualifications in the earlier part of the report and which are delt with above.	Objectives / Assessment

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	The Department refers to JBA's correspondence of 20/05/16, on behalf of the OPW, in respect of the proposed or planned five-year national programme of 'Arterial Drainage Maintenance Activities 2016- 2021'. It has been outlined that consultation at this stage is in relation to the scope of the SEA that is (or appears to be) required, and the 'Arterial Drainage Maintenance List of Activities 2016-2021: Strategic Environmental Assessment Scoping Report' (May 2016) is noted. The following observations are made at SEA scoping/pre-draft programme stage in the context of the Department's role in relation to nature conservation, including as an environmental authority under SEA legislation. The observations are not exhaustive but are offered to assist the OPW in meeting the obligations that arise in relation to European sites, other nature conservation sites, protected species and natural habitats, biodiversity and environmental protection in general in the context of this programme, the environmental assessments required, and the drainage maintenance activities that will be undertaken from this year to 2021. They are made without prejudice to any observations or recommendations that may be made by the Minister and this Department in the future. The current observations reiterate many points previously made by the Department to the OPW in relation to their environmental assessments five-year and annual programmes, and individual schemes, including particularly at two meetings in 2013; two key earlier submissions of 04/03/13 and 14/12/15 are particularly relevant, some extracts of standardised advice from which are appended to these observations. The latter was related to the OPW's consultation about this five-year programme. The Department also notes the response received from the OPW to the letter of 14/12/15. The Department would be happy to make the correspondence available to JBA, with the OPW's agreement, given its relevance to this assessment process, or JBA may obtain it directly from the OPW. The Department recommends that these observations are read in conjunction with all other observations that have issued to the OPW in recent years, as they highlight a range of relevant environmental and ecological sensitivities that may or are affected by Arterial Drainage, and in the interests of efficiency, the Department will not repeat those here.	Mitigation Measures (Planning Stage), Mitigation Measures (SoPs, Protocols), Monitoring

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	It is expected that previous advice given by this Department regarding approaches to screening for appropriate assessment, and appropriate assessment in the case of annual and multi-annual drainage maintenance programmes will be taken into account. In this context, the OPW should have regard to a recent judgment of Justice Barton (Irish High Court, January 2016), namely in the case of Balz et al versus An Bord Pleanála and the obligations of decision-making authorities to resolve scientific matters raised by other parties in relation to the potential effects of a proposal on European sites, and their appropriate assessments. Essentially the Court found that an appropriate assessment must address situations where there are differing scientific opinions and the appropriate assessment determination must demonstrate that such differing opinions were addressed and the particular reasons for preferring one view over another must be recorded.	See row 92
20/06/2016	NPWS	The Department has been consulted on the scope of the SEA Environmental Report. It is understood that the OPW has also determined that an appropriate assessment is required, presumably because it cannot be excluded, on the basis of objective information, that the programme, individually or in combination with other plans and projects will have a significant effect on a European site or sites. The current consultation has been taken as an opportunity to provide observations to the OPW and their consultants on the appropriate assessment process and on the scope of the NIS required. The responsibilities of the OPW under the Arterial Drainage Acts are noted. These must be balanced against the duties of the OPW as a public authority within the meaning of the European Communities (Birds and Natural Habitats) Regulations, 2011 to safeguard European sites. These duties include the specific requirements of appropriate assessment, as expanded below, and also place obligations on the OPW to exercise its statutory powers and functions in compliance with and, as appropriate, so as to secure compliance with the requirements of the Birds and Habitats Directives, and the Regulations. Appropriate steps must be taken by the OPW to prevent the deterioration of natural habitats and the habitats of protected species as well as significant disturbances of species in European sites.	Appropriate Assessment
20/06/2016	NPWS	Status of the programme and relationship with other OPW activities, plans and programmes It is noted that the cover letter received by this Department states that SEA is mandatory for these activities. While there are some comments in the scoping report which may be inconsistent with this view, this Department notes the definitive statement in the covering letter, which would benefit from reflection within any subsequent SEA Reports.	See row 92
20/06/2016	NPWS	It is also advised that a definitive position should be taken as to whether this five-year programme of drainage maintenance activities is or is not a plan for the purposes of the Birds and Natural Habitats Regulations, 2011, and as defined in Part 1 of the Regulations. The Regulations are available in full at: http://www.irishstatutebook.ie/2011/en/si/0477.html	Appropriate Assessment
20/06/2016	NPWS	It is noted that the proposed programme commences in 2016, seemingly to dovetail with Water Framework Directive reporting schedules. However, further consideration should be given to this timeframe for reasons that are set out below: 1. Given the further programme development and consultations required, it is unlikely that the programme will be prepared and adopted, (and the appropriate assessment completed), or otherwise given effect by the OPW, until late 2016.	no action

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	2. Arterial drainage maintenance activities are already underway and on-going for 2016 so must themselves be compliant with relevant legislation, and must have been subject to screening for appropriate assessment and appropriate assessment by the OPW, where necessary. The OPW is required to maintain records of all relevant screening and appropriate assessment determinations for their works or activities in 2016 (see B&NH 2011, Regulation 61 in relation to Retention of Records).	no action
20/06/2016	NPWS	3. The previous five-year programme, 2011-2016, began preparation in 2011 in the same way as the current programme preparation is occurring in 2016. As the sequencing has not caught up sufficiently, consideration should be given to completing, assessing and adopting the current programme in 2016 so that it is ready for roll out in 2017. This could be done in conjunction with revised or new procedures being put in place by the OPW to ensure that all annual drainage maintenance programmes can be streamlined, and clearly demonstrated to be compliant with relevant legislation when notified to various bodies and authorities at the beginning of each year (i.e. the supply of the 'books of drawings').	Mitigation Measures (planning stage)
20/06/2016	NPWS	4. The relationships between the five-year national programme and the annual catchment, scheme or channel programmes require further examination by the OPW; the necessary explanation of these relationships should be provided in the five-year programme. Note that this is required in particular in this case for any overlap between the activities that are occurring this year, and the activities in the five-year programme that will occur this year. This is particularly important in ensuring all "lower-level" programmes of work are subject to any ecological assessments that may be required, particularly in view of obligations of the Birds and Natural Habitats Regulations.	see row 99
20/06/2016	NPWS	5. What are the reasons for aligning the OPW's five-year programmes with those of the Water Framework Directive, and what are the relationships between the OPW's programmes and the forthcoming CFRAM Flood Risk Management Plans?	no action
20/06/2016	NPWS	The OPW will be aware that many of the above points were raised previously by this Department in relation to the preparation and assessment of the first five-year programme, 2011-2016, and on a series of occasions subsequently.	See row 93
20/06/2016	NPWS	Particular consideration also needs to be given to the relationship between the programme and projects or series of projects that are undertaken in each year, and their screenings for appropriate assessment, and appropriate assessments, where necessary.	See row 99

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	The Programme It is understood that the five-year programme will encompass the normal range of drainage, embankment, structural, and flood relief scheme maintenance activities that are carried out by or on behalf of the OPW in general. In addition to the specific channels and structures, and the general and specific works and activities involved, the programme must consider the full extent of all works areas and all lands required or likely to be required during the implementation of the programmes, including, for example, access points and access routes, site compounds, temporary and permanent storage and disposal locations, and all associated, ancillary and accommodation works, including reinstatement or reseeding of lands. Any river enhancement works (e.g. EREP), if proposed, should be included. All parts of the programme should be described and assessed in the NIS; temporary, permanent and cumulative effects must be taken into account. The need for the works should also be set out. It is particularly important that further consideration be given by the OPW as to how to ensure compliance with the Birds and Habitats Directive at the project/site-level for works that are or may be undertaken as part of this programme, or supporting annual programmes. The Department is aware of a number of examples where arterial drainage maintenance activities have been undertaken without project-level AA screenings or appropriate assessments being undertaken, including at least one occasion where serious ecological issues have arisen as a result (e.g. alluvial woodland clearance in an SAC in County Cork). There appears to be an on-going reliance on the use of standard operating procedures to avoid the risk of site-damage at the project-level which does not meet the standards and tests of Article 6 of the Habitats Directive. The Department has noted some specific examples below, but please also refer to the attached correspondence. It is expected that such matters, and all those raised within this submission, will be clearly addressed in the development of the Programme documentation and the Natura Impact Statement that is to be submitted to the Minister in due course. In summary, OPW needs to address this issue to ensure that it is meeting its legal obligations and to avoid the potential for legal challenges to be taken either at a national level or at a European level. Environmental assessments should be carried out on the basis of final project design, or the specifics of the programme elements, and not a general outline of works that may occur or a specimen design that could be subject to future changes or alterations. The hydraulic, hydrological or hydrogeological and disturbance impacts resulting from each element should be considered, in addition to the ecological impacts. Any necessary method statements that establish the details of the construction methods, the works areas involved, and the mitigation measures required, should form part of the application so that a robust and informed appropriate assessment may be carried out.	Programme description

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	In the event that advance intrusive site or ground investigations, or archaeological testing, are required, these activities should also be subject to screening and, if necessary, assessment, with details of any specific mitigation measures for separate phases of works set out as necessary. As noted above, the OPW has developed Environmental Management Protocols and Standard Operating Procedures (SOP), and requires drainage maintenance activities to comply with these measures. It is recommended that it should be clear in all cases how this is achieved in practice, and where the responsibilities for correct implementation, and supervision and enforcement lie, and whether there is sufficient expertise to enable interpretation and correct application.	see row 93 and 99

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	Where these constitute ecological mitigation measures for the avoidance of significant effects on European sites in view of their conservation objectives, adverse effects on European sites, or adverse effects on the environment (including European sites, NHAs, protected species and natural habitats, etc.), full details of mitigation measures should also be provided and shown in maps and drawings, as appropriate. In sensitive locations, the likely effects of ecological and other mitigation measures should be assessed, e.g. the installation and subsequent removal of silt control measures, or archaeological testing. Mitigation measures should be demonstrated to be effective in addressing and ameliorating the full scale and nature of the effects arising, at all relevant project stages, and should be demonstrated to be feasible within the specific characteristics and constraints of each scheme. Whether silt control measures, if necessary, will work in low and high water conditions, both during and after the works are carried out, should be considered and risks assessed accordingly. As well as a reliance on standard procedures which may or will not be sufficient in all or many instances to avoid damage to European sites, noted earlier, this Department has a concern that on occasion there can be an assumption that this Department will undertake work on behalf of the OPW rather than through the undertaking of required ecological assessments. An example is as follows: “Freshwater Pearl Mussel: The OPW channels listed in Table 5-7 have been identified as containing FWPM. Any works carried out in the vicinity will have to follow procedures recommended by NPWS.”	See row 93

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	The OPW is reminded of its own responsibilities in undertaking its functions in a manner that ensures compliance with the Directives and the Birds and Habitats Regulations; this includes the undertaking of complete, precise and definitive appropriate assessments, that include scientific analysis of the implications of a programme for European sites. It will be for the OPW to undertake such assessments and to develop the necessary procedures to meet these obligations. The OPW is also reminded of the following, set out in the Department's correspondence of 04/03/2013: "As discussed at the 10/01/2013 meeting, the OPW should note that it is no longer acceptable to agree procedures on the ground with Rangers and machine operators in lieu of a more formal agreement in advance of the works taking place".	Mitigation Measures (planning stage)
20/06/2016	NPWS	With respect to Otter it is stated "Dense areas with access directly to water should be noted and avoided where feasible. If there are any recognisable signs of otter presence observed such as spraints, footprints, or suspected Holts. If any features have been found, no maintenance activities should take place within 30m or 150m if a breeding holt is found".	Mitigation Measures (planning stage) and (SoPs, Protocols) - see row 93
20/06/2016	NPWS	As non-intervention is always likely to be feasible (except in health & safety emergencies), this means that often areas of the densest growth causing obstruction to water flow would be left intact. The Department would welcome clarification on the issues that will be considered in relation to "feasibility" in subsequent documentation, including with respect to the incomplete sentence above.	See row 93
20/06/2016	NPWS	Nature conservation issues The drainage maintenance activities will be occurring within, upstream and downstream of various European sites, NHAs, and other nature conservation sites. They will also be occurring in and near natural habitats and the habitats of protected species, including the breeding sites and resting places of strictly protected (Habitats Directive Annex IV) species.	Assessment - in-combination
20/06/2016	NPWS	Cumulative / in combination effects The likely effects of each programme and element of the works must be assessed cumulatively or in combination with other plans and projects. This should include the on-going annual or multi-annual drainage maintenance activities, and other plans and projects that could act in combination to affect, for example, water quality, siltation, hydrology, flow rates, scouring, bank erosion, etc.	Assessment - in-combination / Monitoring

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	Other Specific Comments Figure 2.1 – flowchart of steps and timeline should include 'Assessment and preparation of NIS' an explanation of how it was determined what ecological and other surveys were required and, specifically in the context of the NISs, the rationale for the distance criterion of "within 100m of associated Natura 2000 sites". It is stated in the Mitigation and Monitoring Section that "An Ecological Impact Assessment (EcIA) is needed if the works are not within the Natural [sic] 2000 site but if they still have influence over the broader protected habitat". The OPW is reminded that obligations in relation to appropriate assessment also apply to works to occur outside a Natura site that may affect the habitats within the site.	Mitigation Measures (planning stage)
20/06/2016	NPWS	The Department welcomes the OPW's proposal to develop its own monitoring programme as this Department's Article 17 and Article 12 monitoring programmes are not designed to identify impacts and effects specifically arising from the OPW's programmes. Details of the programmes and the methodologies employed are available on the Department's website and should be examined to explore potential opportunities for complementarity with the OPW's programme. The Department also notes that it is stated that "An OPW supplementary monitoring programme could carry out walkover surveys of Arterial Drainage Channels in order to provide annual reporting of change (length of channel, invasive species reporting etc.)." The Department notes that such a methodology would not identify many of the effects that may arise from arterial drainage activities.	Monitoring
20/06/2016	NPWS	Available information Data and information about European sites, and other nature conservation sites, including GIS datasets, are available from www.npws.ie. This includes site boundaries, site synopses, lists of qualifying interests (SACs) and special conservation interests (SPAs), conservation objectives (European sites), features of interest (NHAs), and dates of site designation.	Current env status (data sources)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	The most up-to-date version of the conservation objectives for each site should be sourced, referenced and used in the NISs. Site-specific conservation objectives, and associated supporting documents and GIS datasets, are available for some sites. For all other European sites, generic conservation objectives are available. Where site-specific conservation objectives and supporting documents are available for relevant qualifying interests or special conservation interests, these will assist in understanding the sensitivities of the habitats and species, and the potential for impacts on them, as well as assisting in the understanding of the nature and scope of the generic conservation objectives. It should be noted that the generic conservation objectives are "to maintain or restore the favourable conservation condition" of the qualifying interests or special conservation interests of the sites in question. In the absence of site specific conservation objectives, and where qualifying interest habitats are in unfavourable status at a national level, a precautionary approach should be adopted in the interpretation of the generic conservation objectives.	Current env status (data sources)
20/06/2016	NPWS	GIS datasets are available for download for certain habitats and species arising from various sources, including national surveys4. Of these, the mapped 'Margaritifera Sensitive Areas' are of particular importance to the OPW's operations and drainage schemes. Other NPWS-held data on habitats and species may be requested by submitting a 'Data Request Form'5. The Habitats Directive Article 17 reports for 2007 and 2013, which should also be consulted, are available from http://www.npws.ie/article-17-reports-0, as is the recent national report on Article 12 of the Birds Directive, at http://www.npws.ie/news/birds-directive-article-12-reporting.	Current env status (data sources)
20/06/2016	NPWS	The Department's 'Irish Wildlife Manual' Series should be consulted for available data, information and survey methodologies (and associated constraints), including, for example, on the following: • No. 76, 23: Otters • No. 45, 37, 1: White-clawed Crayfish • No. 27, 24, 22, 21, 15, 14, 5: Lamprey • No. 12, 9, 8: Freshwater Pearl Mussel	Current env status (data sources)
20/06/2016	NPWS	Peer-reviewed literature should also be reviewed to inform the appropriate methodologies, surveys and associated constraints, including the recent research undertaken by O'Briain, funded by the OPW, concerning crayfish in arterially drained rivers.	Current env status (data sources)
20/06/2016	NPWS	Data on ecological features in or near the programme areas will be available from various other sources including, for example: • Other organisations, e.g. National Biodiversity Data Centre, BirdWatch Ireland, IFI, Bat Conservation Ireland, etc.; • EISs, NISs and other reports for projects in the general area, including previous EISs and NISs for OPW activities and schemes; • NIRs and SEA environmental assessments of plans in the general area, including County Development Plans.	Current env status (data sources)

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
20/06/2016	NPWS	Appendix 1 - Notes on screening for appropriate assessment (reflecting the Department's previous advice of 04/03/13 to the OPW) SEE LETTER	Appropriate Assessment
20/06/2016	NPWS	Appendix 2 - Notes on the preparation and content of an NIS SEE LETTER	Appropriate Assessment
20/06/2016	NPWS	Appendix 3 - Freshwater Pearl Mussel SEE LETTER	See row 93
27/06/2016	NPWS	The Department has the following observations to make in relation to underwater archaeology and the SEA scoping report for OPW arterial drainage maintenance activities for 2016-2021. The Department would be happy to meet the OPW in due course to discuss any of the issues raised below in more depth.	
27/06/2016	NPWS	The Department has reviewed the cultural heritage section (page 37-8) of the Baseline Environment chapter and notes that no reference is made to the Shipwreck Inventory of Ireland Database (SIID). Underwater archaeology is protected under the National Monuments Act 1930 – 2004 with the protection of Historic Wrecks specifically addressed in 1987 and 1994 (Amendment) Acts. Section 3(4) of the 1987 Act provides that a person shall not dive on, damage, or generally interfere with, anywreck which is more than one hundred years old or an archaeological object which is lying on, in or under the sea bed or on or in land covered by water except in accordance with a licence issued by the Minister for Arts, Heritage & Gaeltacht under Section 3 (5) of the Act. The National Monuments Service has compiled an inventory of shipwrecks for the coastal and inland waterways of Ireland, the records of which are stored in the official register of historic shipwrecks known as the Shipwreck Inventory of Ireland Database (SIID). To date over 18,000 wrecks are recorded in the Shipwreck Inventory of Ireland Database, which is available for consultation by appointment through the Archive Unit of the National Monuments Service. Works associated with arterial drainage may have the potential to negatively impact known or potential wrecks or submerged archaeology. It is therefore recommended that the SEA includes and references the Shipwreck Inventory of Ireland as a KeyEnvironmental Issue when compiling the Cultural Heritage Section of the SEA report.	
27/06/2016	NPWS	In addition, no reference is made to archaeological objects which are also protected under the National Monuments Acts. The National Museum of Ireland maintains the register of archaeological objects which should be consulted for background and contextual information as part of the SEA of the proposed arterial drainage programme.	
27/06/2016	NPWS	It should be noted that any proposed work to or in proximity to National Monuments in State or Local Authority care or subject to a preservation order will require the consent of the Minister for Arts,Heritage and the Gaeltacht under section 14 of the National Monuments Act 1930 as amended by Section 5 of the National Monuments (Amendment) Act 2004. Similarly, for recorded monuments,which are not national monuments, under Section 12 of the 1994 National Monuments Acts, written notification is required to be given to the Minister for Arts, Heritage and the Gaeltacht two months in advance of any works commencing.	

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
27/06/2016	NPWS	It shall also be noted that there are also National Monuments which are afforded the highest level of statutory protection, namely World Heritage Sites. Examples include Brú na Bóinne in Co. Meath and Skellig Micheal off the Co. Kerry coast. These sites are inscribed on the World Heritage List, under the 1972 UNESCO World Heritage Convention. Further information can be found on these sites from www.worldheritageireland.ie. Any activity which may affect these World Heritage Sites requires a consent from the Minister for Arts, Heritage and Gaeltacht.	
27/06/2016	NPWS	Further clarification is sought in relation to the last paragraph of section 5.7 (page 38). It is unclear from an archaeological perspective what is meant by “it is important to be sensible when carrying out the works” and what exactly “appropriate methodologies” refers to and how this will help ensure the protection of the archaeological heritage. This section is vague and unclear and should be expanded and rewritten clearly outlining what the probable impacts will be on known or potential archaeology and what type of mitigation may be suitable to ensure that the archaeological heritage is not negatively impacted.	
27/06/2016	NPWS	It is recommended that the archaeological heritage section of the SEA should be compiled by a suitably qualified archaeologist experienced in underwater archaeology.	
27/06/2016	NPWS	In order to achieve the aims/goals listed in section 5.7.2 (Key Environmental Issues), a comprehensive archaeological assessment and impact statement will be required to be completed ofthe proposed drainage maintenance programme and its impact (including cumulative effects) onknown or potential archaeological heritage. This will enable the Department to make an informedarchaeological recommendation before works proceed.	
27/06/2016	NPWS	It is also recommended that an archaeological monitoring programme be put in place similar to those proposed in section 7.3 relating to Flora, Fauna, Biodiversity, Water, Human Beings and Climate Change etc. The Underwater Archaeology Unit of this Department would be willing to provide advice to the OPW in setting up such a monitoring programme.	
27/06/2016	NPWS	Protected wrecks, archaeological objects and world heritage sites should be included as on page 52 of the report.‘Subobjectives’	
27/06/2016	NPWS	To ensure that ‘Maintenance activity causes no detrimental impact upon or loss of unknown cultural heritage features’ (see page 53, column 4), it is recommended that a detailed archaeological mitigation and plan, approved by this Department, be completed by a suitably qualified archaeologist to ensure that previously unknown archaeological sites, archaeological objects, areas of archaeological potential and wrecks are not negatively impacted by the proposed works.	
27/06/2016	NPWS	The SEA should also assess the potential impact that the proposed drainage programme may have on known or potential monuments, archaeological objects and on known or potential wrecks should waterlogged sites adjacent to drainage channels become dried out as a result of the works.	

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
07/07/2016	EPA	The nature and extent of what constitutes “channel maintenance activities and arterial drainage” should be clearly described.	Programme description
07/07/2016	EPA	Consideration should be given to including a specific section in the Maintenance Activities on Governance and Implementation. Provisions should be included for robust and transparent mechanisms to oversee the implementation of the Maintenance Activities’ commitments and actions. Where possible, the implementation of the Maintenance Activities should be aligned and/or integrated with other relevant national agriculture, water, biodiversity, climate, land use and related policies, plans and programmes. An integrated catchment based approach, along the lines of the approach being implemented for the second cycle of river basin management planning in Ireland, should be considered to assist in assessing the potential for likely significant effects on water quality in implementing the Maintenance Activities. The inclusion of a specific commitment to establish an Implementation Steering Group, with relevant sub groups, as appropriate; to oversee and review the implementation of the Maintenance Activities should also be considered, if appropriate. The inclusion of an environmental component with a focus on oversight of implementing relevant environmental commitments as well as monitoring of the environmental performance of the Maintenance Activities and associated reporting should also be considered. The model set up by for the implementation stage of the Offshore Renewable Energy Development Plan (OREDP) is a model which merits considering in this regard.	Mitigation Measures (planning stage)
07/07/2016	EPA	The SEA process should identify and assess any significant impacts likely to result from the implementation of the proposed Activities. The focus should be on addressing the key issues and related likely significant environmental effects. The potential cumulative effects associated with multiple drainage activities within individual rivers (and on a river catchment level) need to be considered. Where significant adverse effects on the environment are identified, specific mitigation measures to prevent reduce and as fully as possible offset these effects environment should be identified. These should be reflected as commitments in the Maintenance Activities. The positive effects likely to arise from implementation of the Activities should also be assessed and highlighted. The achievement of these positive outcomes should be reflected in the monitoring programme for the Maintenance Activities’ implementation and the associated environmental monitoring. The EPA has prepared a range of SEA Guidance resources including an SEA Scoping guidance document (updated regularly), an SEA Pack, SEA Process Checklist, SEA Spatial Information Sources and guidance on Integrating Climate Change into SEA, is available on the EPA website and should be considered in the preparation of the SEA. Guidance on Developing and Assessing Alternatives in SEA will also be relevant in the context of the Plan. These SEA resources can be consulted at: http://www.epa.ie/pubs/advice/ea/	Assessment in-combination
07/07/2016	EPA	The various options available which fall under the remit of the Maintenance Activities should be described and incorporated into the scope of the associated environmental assessments (SEA and AA). Any assumptions, selection and assessment criteria for various maintenance activities should be clearly set out in the preparation and assessment of the Activities. The recently published EPA publication on Developing and Assessing Alternatives in SEA should be of assistance in determining possible approaches to considering alternatives. https://www.epa.ie/pubs/advice/ea/SEA-Alternatives-157-Published_web.pdf	Alternatives

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/06/2016	IFI	Eight lakes are listed as containing Zebra Mussel populations, there are however many more including Lough Conn, Lough Arrow and the River Glyde catchment. All catchments sources of invasive species with the relevant biosecurity procedures followed for all plant / equipment. should be treated as potential	current env status
18/06/2016	IFI	It is important to note that while many surface waters maintained for Arterial Drainage are not designated under the Habitats Directive, they hold species that are designated under that directive. Atlantic salmon for example, are listed as an Annex II Species under the European Habitats Directive. The Report of the Standing Scientific Committee of the National Salmon Commission "Status of Irish Salmon Stocks in 2006 and precautionary catch advice for 2007" states that in applying the Habitats Directive consideration must be given to all of the populations and not just specifically to the 26 SAC designated Rivers. In determining the likely significant effects of the Arterial Drainage Maintenance Programmes 2016-2021, regard should be had to the need for the sustainable development of the inland and marine fisheries resource (including the conservation of fish and other species of fauna and flora, aquatic habitats and the biodiversity of inland and marine water ecosystems). Some key issues for consideration include: • Water quality • Surface water hydrology / hydromorphology • Fish spawning and nursery areas • Passage of migratory fish • Biological Diversity • Ecosystem structure and functioning • Sport and commercial fishing and angling • Amenity and recreational areas	current env status
18/06/2016	IFI	National Fisheries Legislation must be considered as part of the SEA process for Drainage Maintenance operations. County Heritage plans (e.g. Monaghan Heritage Plan 2012 - 2017 and the County Louth Heritage Plan) should also be included as plans of relevance to Arterial Drainage Maintenance.	plans and policies
18/06/2016	IFI	The implementation of all relevant environmental SOP's and the promotion of environmental management best practice through the continued development of the Environmental River Enahncement Programme (EREP) in addition to the provision of ongoing formal environmental training to OPW staff is regarded as critical over the coming arterial drainage phase. It is essential that OPW monitoring programmes continue to fully assess the impacts of Arterial Drainage Maintenance activities on water / habitat quality and on the fisheries resource itself.	Monitoring

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	Archaeology The National Monuments Service welcomes this initiative, particularly the proposed objectives and targets as set out in section 6.8.4 and in Table 7-1 (pages 103-104) of the SEA Scoping Reports. We recommend implementation of the proposed plan of action for the Cultural Heritage, as detailed in Mitigation Measures M2c on pages 128-129 of the Report, be put in place as soon as possible. The proposed engagement of a suitably qualified riverine/underwater archaeologist is indeed appreciated, who can begin the initial undertaking of a baseline desktop study of all areas that will be the subject of arterial maintenance drainage. We would advise that the Project Archaeologist be engaged at the earliest opportunity to initiate the long-term cultural heritage plan for the OPW schemes and inform its on-going planning for such works. We similarly agree with the suggested development of SOPs (as described in section 10.2.10 & 10.2.11) to address the Cultural Heritage and the National Monuments Service would welcome engagement on this. We note that suggested pilot sites will be selected to inform the wider and more long-term programme of works. We would advise that a timeline should be put in place, in consultation with the Underwater Archaeology Unit of the National Monuments Service, for these studies so that results and subsequent requirements can be considered and put in place in a timely fashion. This would be relevant to the suggested mitigation measures in section 11.2.3 (M3g, pages 131-132), for example, where decisions on short- to long-term archaeological requirements are concerned. Again this can be discussed with regard to any proposed SOPs and following the engagement of the Project Archaeologist.The Underwater Archaeology Unit of the National Monuments Service is available to discuss and advise on any element of the proposed initiative, including the engagement of a suitably qualified riverine/underwater archaeologist and would welcome the opportunity to do so.	Mitigation Measures (SoPs, protocols and methods)and updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	Nature Conservation The Department refers to JBA Consulting's correspondence of 09/03/17, on behalf of the OPW, in respect of the 'National Arterial Drainage Maintenance Draft List of Activities 2016-2021' (March 2016). Reference is also made to the associated environmental assessment volumes which have been supplied, as listed below: · Vol. I – SEA (Environmental Report) Non-Technical Summary · Vol. II – SEA Environmental Report (February 2017) · Vol. III – Natura Impact Statement (NIS) (February 2016, with minor updates of February 2017) · Vol. IV – SEA Environmental Report Appendices For ease of reference, the term 'plan' is used hereafter to refer to the 'National Arterial Drainage Maintenance Draft List of Activities 2016-2021' document. The current consultation is taken by this Department to be equivalent to public consultation at draft plan (or programme) stage, where the plan is accompanied by an SEA Environmental Report and an NIS. In the case of the NIS, it is presumed that this has been supplied by the OPW in the context of a plan that is being prepared by a public authority1 where it has been determined by that authority that an appropriate assessment is required in accordance with Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (hereafter the '2011 Regulations').	Mitigation Measures (SoPs, protocols and methods)and updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	The current observations are made in the context of this Department's advisory role in relation to nature conservation, including as an environmental authority under SEA legislation. The observations are not exhaustive but are offered to assist the OPW in meeting the obligations that arise in relation to European sites, other nature conservation sites, protected species and natural habitats, and biodiversity and environmental protection in general in the context of this plan, the environmental assessments required, and the drainage maintenance activities being undertaken in the period 2016-2021. In addition to the screening/assessment, plan-making and record-keeping obligations2 that exist in this case, the OPW should also be mindful of: · the general duties placed on all public authorities3 by Regulation 27 of the 2011 Regulations in relation to European sites. Among other things, this includes a duty to exercise all functions, including but not only consent functions, in compliance with, and so as to secure compliance with the requirements of the Habitats and Birds Directives and the 2011 Regulations. Public authorities are obliged, when exercising their functions, to take appropriate steps to avoid, in European sites, the deterioration of natural habitats and the habitats of species, as well as disturbance of species for which a site has been designated insofar as this disturbance could be significant in relation to the objectives of the Habitats Directive; · general obligations in relation to protected species of flora and fauna and their key habitats, including breeding sites and resting places, wherever they occur, under the 2011 Regulations (i.e. strictly protected Habitats Directive Annex IV species), and Wildlife Acts, 1976-2000. Derogation licences may be required from this Department where strictly protected species, or their key habitats, would be damaged or disturbed in the course of drainage maintenance works or other associated activities; · general obligations not to cause or allow 'environmental damage' to occur, as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, and including damage to 'protected species and natural habitats'4.	Mitigation Measures (SoPs, protocols and methods)and updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	The Department provided detailed nature conservation observations to the OPW and JBA Consulting on 24/06/16 in response to the earlier round of consultation at SEA scoping stage; these are attached again for further review and consideration as particular effort was made to guide and advise the OPW in relation to some key procedural and ecological matters. Detailed submissions have also been made to the OPW by the Department over a number of years on annual and multi-annual catchment-level plans or programmes of drainage maintenance works. It is again reiterated that current observations should be read in conjunction with other relevant Departmental nature conservation submissions to the OPW in recent years, as they highlight a range of recurrent environmental and ecological considerations and sensitivities which are pertinent to arterial drainage and its maintenance.	Mitigation Measures (SoPs, protocols and methods)and updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	The following points are in addition to, or reiterate previous observations and advice to the OPW: 1. The operational dates of the plan continue to be 2016-2021; consideration should be given to amending the timeframe and particularly the start date/year. 2. The relationship between this national plan and the annual and multi-annual programmes of drainage maintenance works at catchment level requires clarification (for each level in the hierarchy and for each Arterial Drainage Maintenance Region), as does the relationship between these programmes and the project-level works on specific channels. Furthermore, the approaches to the assessment processes at the different levels in this hierarchy would benefit from clarification, noting that, in relation to the appropriate assessment process, a screening step, and two other potential steps or elements exist: a. Screening for appropriate assessment – mandatory and carried out by the OPW for any relevant plans and projects; b. Preparation of an NIS; c. The appropriate assessment – mandatory where necessary, and carried out by the OPW for any relevant plans or projects.Note that where the OPW has obligations to reach determinations (i.e. in respect of a. and c. above), records, which include any necessary reasoning, should be kept and made available in accordance with Regulation 61 of the 2011 Regulations. 3. The legislation under which the NIS has been supplied to this Department and the Minister is presumed to be Regulation 42 of the 2011 Regulations, but this has not been stated by the OPW or its consultants. Similarly, it is presumed that this is the legislation under which the appropriate assessment will be carried out by the OPW as the public authority adopting or making the plan in this case. It is again advised that the OPW should ensure that it can demonstrate its compliance with the relevant legislation, and particularly the 2011 Regulations, wherever applicable and necessary. 4. It remains unclear as to whether it has been determined that the plan falls within the definition of plans and projects in the 2011 Regulations, and/or by the relevant SEA legislation, and/or is being prepared to manage the ongoing drainage maintenance and associated activities of the OPW.	Updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	5. It is understood that environmental management protocols and standard operating procedures (SOPs) are developed and updated by the OPW on an on-going basis. It is also understood from discussions with the OPW that the elements listed in Section 3.0 of the plan are out-of-date, including with respect to consultation with NPWS/this Department. It is recommended that the plan contains or references the current or most recent versions of these procedures, but see also below. 6. The plan pre-dates the SEA Environmental Report and does not reflect or contain the recommendations and mitigation measures specified in Tables 11-1 to 11-7, and Section 11.3 of that report. Furthermore, the plan does not contain the mitigation measures specified in the NIS (Section 11.3); these parallel and are the same as those of the Environmental Report. The assessments, analyses, recommendations, and mitigation and monitoring measures contained in an Environmental Report and NIS should amend and/or be incorporated into a plan. In the absence of the necessary mitigation measures and plan amendments and updates, it cannot be excluded that the plan will have adverse effects on the environment, or on the conservation objectives and integrity of European sites. 7. Notwithstanding point 6 above, it is noted that some of the mitigation measures are, in effect, recommendations which lack clear commitment or certainty as to their implementation, including the timelines likely to be involved, e.g. preparation of new SOPs, and the undertaking of project-level assessments. Furthermore, it has not been demonstrated how the mitigation measures will be effective at lower levels of application and how they will negate the specific adverse ecological and environmental effects identified. This would benefit from further examination and analysis, noting also point 8 below.	Updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/05/2017	DAHRRGA	8. The Department acknowledges that the OPW has been proactive in developing environmental management protocols and SOPs for drainage maintenance works. It is also understood that the standards, procedures, mitigation measures and safeguards contained within these documents apply to OPW operations in general and as required, and that their implementation is overseen by the OPW. In cases where risks of adverse effects on European sites and their conservation objectives could result from arterial drainage and its maintenance, alone or in combination with other plans and projects, and mitigation measures are required, the full details of the latter, and their implementation and likely effectiveness in the specific case and channel or site in question, need to be available to the OPW when an appropriate assessment is carried out, noting the standards for this process. Any uncertainty as to the implementation or effectiveness of these environmental protection measures and requirements, including the making of decisions locally as to which mitigation measures should apply, and how they should be applied in a given setting, should also be taken into account. It also needs to be demonstrated that any necessary mitigation measures will be effective in addressing and ameliorating the full range and likely significance of the adverse effects that may result from the plan or project; the final analysis by the decision-making authority should be of the residual effects. Specialist input or advice is likely to be required in designing and delivering mitigation measures and specifying the locations where these are required. The OPW will be aware of cases where the implementation and reliance on SOPs have been ineffective in preventing damage to European sites. 9. In addition to the drainage maintenance works, the EREP elements, on their own or in combination with other plans and projects, require mitigation measures at plan-level, and will need to be subject to screening for appropriate assessment, and appropriate assessment where necessary.	Updates in plan

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
18/09/2018	EPA	Please find attached the Environmental Protection Agency's comments in relation to the Arterial Drainage Maintenance Activities (the Activities) and the associated SEA Environmental Report (ER). The EPA is one of five statutory environmental authorities, to be consulted under the SEA Regulations. Our role in SEA focuses on promoting integration of the findings of the SEA into the Plan and promoting the consideration of the relevant key environmental challenges for Ireland are. Attached is our previous submission at the SEA Scoping Stage. The Activities should be reviewed to ensure key relevant aspects are reflected, where appropriate, in the commitments in and the related Mitigation and monitoring associated with Activities.	no action required

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Drainage Activities and Process Improvements We acknowledge that the OPW is working towards achieving higher standards and process improvements on how maintenance activities are (and will be) being carried out. It will, however, be important to ensure that these improvements are effectively implemented, monitored and audited. Particular emphasis will need to be given to ensuring the planned maintenance activities do not result in conflicts with relevant statutory water and water related environmental protection obligations in particular the Water Framework Directive, Floods Directive, Habitats and Birds Directives and associated regulations. We welcome the OPW's commitment to developing and introducing a precautionary environmental risk assessment (ERA) based approach in order to identify areas of potential risk or ecological/environmental sensitivity. This precautionary ERA based approach will need to reflect the relevant obligations in the environmental Directives referred to above.	no action for SEA or changes to activity description required.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		WFD Obligations We note the timescale of the proposed Activities has been aligned to facilitate coordination with the WFD River Basin Management Plan and the CFRAMS Studies. The RBMP and the CFRAMS related Flood Risk Management Plans (FRMPs) have now been finalised and are at implementation stage. This should be reflected in the finalisation of the Activities. It will be important to ensure the implementation of the Activities does not compromise Ireland's responsibilities on the protection of water quality status and supporting habitats and species, under the Water Framework Directive. Relevant monitoring should be put in place to provide the evidence to support this. The EPA's WFDApp provides a very useful resource to assist in the ongoing monitoring of water quality in the context of environmental monitoring associated with the Activities. See http://www.epa.ie/water/watmg/wfd/wfdapp/ The relevant indicators in the most recent EPA Water Quality in 2106 Indicators Report (EPA, 2018) should be reflected in the water quality related monitoring programme. See http://www.epa.ie/pubs/reports/water/waterqua/Water%20Quality%20in%202016%20An%20Indicators%20Report.pdf	Opportunity to align dates to the RBMP 2018-2021. Monitoring measures amended - the OPW shall review EPA WFD monitoring, including hydromorph status and report on conditions and trends in arterial drainage schemes. M3d. M3e. M3f. No action for SEA, however OPW will use WFD data in monitoring. M3e. Monitoring measure M3e to include reference to this report. The OPW to base the reporting of monitoring for arterial drainage schemes around these indicators.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Integrated Catchment Management Approach An Integrated Catchment Management approach should be adopted in the implementation of the proposed and future iterations of the Activities. It is recommended that consideration be given to assessing the proposed drainage activities at a catchment and sub-catchment level. This will allow potential cumulative and in-combination effects to be considered in the planning and implementation of drainage activities within individual catchments/ sub-catchments. The proposed activities should be considered along with other relevant existing and where appropriate, future land use changes within catchment/ sub catchment. While we note that flood relief schemes maintained by the local authorities are not covered by the Activities, these should be considered in the context of potential for cumulative environmental effects. This should also be considered in relation to any flood alleviation works proposed arising out of the flood risk management plans. Effective coordination and integration of activities should be undertaken to minimise the potential for adverse environmental impacts. The EPA's Catchment Assessments, on completion, should be consulted and taken into account in preparing annual and multi annual drainage activities.	No action for SEA - future planning of maintenance activity may consider a catchment approach. The SEA has assessed the impact at a catchment level and considered the cumulative impacts of the Flood Risk Management Plans and drainage districts. The Flood Risk Management Plans include maintenance actions for existing flood risk schemes and drainage districts. The concluding remarks are for future integration of planning. No action at present. Added specific reference to EPA Catchment Assessors to activities under mitigation measure M1c.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Contingency arrangements Provisions and associated contingency arrangements should be in place to ensure that any issues relating to water quality arising during implementation are remedied in consultation with the relevant statutory authorities. Criteria should be established with reference to the relevant water quality standards to determine levels which when exceeded will trigger relevant remedial action. Where corrective actions are identified, during implementation, these should be addressed, closed out and documented for any subsequent related reviews/audits. Records should be maintained of any incidents which have potential to impact on water quality/ aquatic ecology including fisheries, along with the remedial measures implemented to resolve the specific incidents, and the effectiveness of the measures introduced. This requirement should also apply to relevant habitats and species.	No change to SEA docs. Training of maintenance staff allows for effective supervision of maintenance works. Research is ongoing through the silt and turbidity monitoring as part of a number of flood relief schemes. The findings will follow through to the need for trigger values for response during maintenance works. Individual incidents are investigated and reported upon and records kept on a case by case basis.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Environmental Management System and Environmental Training The commitment to Environmental Training under Environmental Management System is acknowledged along with the associated Environmental River Enhancement Programme (EREP). It will be important to ensure that this training programme is updated on a regular basis and is provided to all operational staff with a role in implementing the activities. Records of training and records of the outcome of audits on the implementation of the Environmental Drainage Maintenance Guidance Notes should be maintained for each of the 3 regions. The need to ensure that staff and contractors are aware of and provided suitable training on the correct procedures when conducting maintenance activities will be an important aspect in ensuring the effective implementation of the Activities.	The OPW does keep training records for operational staff. No change to SEA docs.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Mitigation Measures We acknowledge the inclusion of the specific mitigation measures recommended in the SEA and the Habitats Directive Appropriate Assessment under "Additional Mitigation Measures in the proposed Activities. These should be implemented alongside and integrated with Environmental Management System operated by the OPW as part of the Activities. The OPW should consider how best to implement the recommendations and mitigation measures proposed within the SEA and AA to ensure environmental sensitivities and vulnerabilities are afforded appropriate protection in the role out of annual and multiannual programmes of activities.	No change to SEA docs. This is a post-SEA role for the OPW through the updated Environmental Drainage Maintenance Guidance in progress. See mitigation measure on monitoring M3g.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Section 5 – Additional Mitigation Measures includes over 30 Mitigation Measures with a number of additional sub measures and multiple details and examples of application of the specific measures. The Mitigation Measures should be reviewed, categorised, prioritised and assigned specific timescales as well as responsibility for delivery. It is noted that, not all the recommended mitigation measures are appropriate for all catchments, and that they are in addition to the current suite of SOPs and Environmental Management Protocols. Where Mitigation Measures refer to specific SOPs/ Protocols already in place, these could be linked to the relevant sub section of Section 3- Environmental Management as appropriate. Where mitigation measures require collaboration with other competent authorities, a mechanism for coordinating these measures effectively should be considered and implemented.	The mitigation measures have been reviewed in detail, both in response to the EPA comments and meeting to ensure effective, achievable mitigation and monitoring. The activities document has been refined. The SEA statement concludes on the implications for the SEA Environmental Report. The SEA is for the activities. Mitigation and monitoring is nationally consistent based upon assessment of impacts at the catchment level. No change proposed to the SEA on precautionary basis to allow any mitigation measure to be applied to any location where necessary or appropriate. Examples of formal collaboration mechanisms include, bi-monthly IFI meetings, DAU consultations. The OPW shall agree a system for coordinating monitoring with the EPA against water quality indicators and hydromorphology.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Planning of maintenance activities We welcome as part of M1g – "Improved planning of maintenance activity", the commitment to incorporate hydromorphological assessments of channel type and conditions, implement invasive species management and control measures, minimise impacts on and enhance conditions for sensitive species and habitats, wetlands, including peatland ecosystems, and provisions for the consideration of aquifer type and status in the activities programme. The challenge will be to ensure these are effectively implemented and monitored over the lifetime of the Activities. The overall commitment to review and update existing operational procedures has the potential to provide the basis for a functional and adaptive Environmental Management System (EMS) for the Activities. This will allow on-going evidence from the monitoring programme of activities and related environmental based monitoring to feed into the overall planning and environmental operating procedures and protocols.	The mitigation measures have been reviewed in detail, both in response to the EPA comments and meeting to ensure all activities, mitigation and monitoring is practical. The activities document has been refined. The updating of the Environmental Procedures is being structured to incorporate integration with development of a formal Environmental Management System.
		Improved SOPs and Environmental Protocols The inclusion of a schematic showing the hierarchy and relationship between the different SOPs and mitigation measures and relevant environmental obligations would be useful to consider in the interests of clarity for regional teams, contractors, stakeholders and the public. Where modifications or updates are proposed to the Environmental Management Protocols, SOPs or to the additional mitigation measures, during implementation, these changes should be documented. Justification should be provided where these differ significantly from the overall emphasis and commitments included in the Activities Programme.	A chart and other details are to be included in the upcoming new Environmental Drainage Maintenance Guidance (in development). The Activities now include fuller references to the procedures which are being updated. The guidance continually evolve and will always learn from evolving best environmental practice as continual improvement in environmental performance. The new guidance will not reduce or significantly change the emphasis or commitments included in the activities.
		Monitoring The Activities should include further details on the proposed environmental monitoring. This should reflect the	Monitoring of the effectiveness of mitigation

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		relevant aspects in the SEA ER including Section 7 – SEA Objectives and Section11 – Recommended Mitigation Measures. We note that the monitoring programme is proposed to cover both pre-maintenance assessment and post maintenance assessment. There is also a need to monitor the implementation and effectiveness of implementation of specific mitigation measures. This should be reflected in the final environmental monitoring programme. Where available, local monitoring should also be used to inform catchment / sub catchment based monitoring and assessments. The results of on-going monitoring should inform the on-going implementation of the Activities. It should also inform any future updates of the Activities. A commitment should be included in the Activities to report on the results of environmental monitoring and any related issues that arise during specific monitoring periods.	measures is included in the mitigation in the activities. The activities have been updated following EPA submission and meeting and subsequent in-house OPW review. Site specific monitoring shall be undertaken in the pilot studies and is now referenced in the activities document. M3d for hydromorphology. M3f for wetlands and peatlands M3g for IFI site specific monitoring Text added to the activities document section 5; "Progress and findings of the monitoring activities over the 2018-2021 period shall be reported and published as part of the next cycle of the Strategic Environmental Assessment of maintenance activities."
		SEA Scoping Submission We attach, for reference purposes, our submission at SEA Scoping Stage. This included recommendations relating to: - communications of activities with stakeholders - consideration for environmental monitoring of biological, hydrological, hydro-morphological/fluvial geomorphological aspects, - Need to coordinate, and integrate CFRAMS and Maintenance Activities where possible - Consideration of cumulative effects / in-combination effects at both local and subcatchment-catchment level. - Greater consideration of hydromorphology and achieving WFD objectives. - How sites other than EREP / IFI restoration project areas will be considered	Scoping stage comments already considered in draft SEA Environment Report.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		The relevant aspects should be reviewed and considered, where appropriate, in finalising the Activities.	
		Implementation The EPA would welcome an opportunity to engage with the OPW, where appropriate, during the on-going role out of the maintenance activities. EPA's on-going monitoring and series of integrated catchment based assessments will be particularly relevant in this regard. Opportunities for collaboration on guidance and research could also be explored.	Not change needed to the SEA documents. OPW shall continue to engage with the EPA catchments teams and national R&D programmes to explore opportunities for collaboration.
		Future Amendments Where amendments to the Activities are proposed, these should be screened for likely significant effects in accordance with the criteria as set out in the SEA Regulations and should be subject to the same method of assessment applied in the "environmental assessment" of the prosed Activities. Future 6 yearly Drainage Activities programmes and any modifications should also be considered in the context of the requirements of the SEA, Habitats Directive and WFD Directives.	No change to SEA. The draft new environmental drainage maintenance guidance does not propose any changes to the activies. They are an evolution of how to undertake the activities. If any activities are to be changed in the future, they will be subject to screening in the context of the SEA Regulations, Habitats Directive and WFD Directive.
		SEA Statement – "Information on the Decision" Following finalisation of the Activities, an SEA Statement should be prepared and sent to any environmental authority consulted during the SEA process.	Noted - no action for SEA.
		Duration The Drainage Activities cover the period 2016- 2021, there would be merits in updating the timescale to reflect the current status of the Activities as appropriate. Where feasible, alignment with the timescales of the RBMP and the CFRAMS FRMPS should be considered. The reference to a "National Plan" in Section 2.5 Process and Stages in Drainage Maintenance should be clarified. The relationship between this Plan and the Multi Annual and Annual Programmes should be described and as appropriate shown in suitable Figure/ schematic. The reference to the relevant national SEA Legislation (S.I. No.435 of 2004 as amended by SI No. 200 of 2011) should also be updated where relevant.	Timescale to be updated to align with RBMP 2018-2021. Figure 1 of the activities shows a schematic of the five year rolling programme. Fig 2-2 of the SEA statement also contains a schematic An additional schematic will be added to the activities and the SEA statement. SEA statement contains references to the SEA legislation.

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		Relationship with Other Plans and Programmes, Policies, Regulations The Activities should also take account of the following additional updated plans / programmes etc. in considering activities over the lifetime of the proposed Maintenance Activities: National Policy / Plans National Planning Framework (adopted) 3rd National Biodiversity Plan River Basin Management Plan for Ireland (now published) Irish Water Strategic Water Services Strategic Plan, Irish Water National Water Resources Plan (in preparation) Forestry and Freshwater Pearl Mussel Plan (in preparation) Regional / Sub Regional The Regional Spatial and Economic Strategies in preparation.	SEA addendum to address each of the additional or updated plans. SEA statement will document this.
		Mitigation Measures M1 (i) in relation to training and on-going awareness of staff when specifying maintenance activities is welcome. Aspects of this should also be extended to contractors to ensure they are suitably trained to fully implement any relevant mitigation measures associated with maintenance activities.	No change to SEA documents. All contractors are to be supervised appropriately by the OPW. The majority of drainage maintenance is conducted by OPW staff.
		M2 - Improved Standard Operating Procedures and Environmental Protocols M2b (relating to updating of SOPs etc.). Updates of SOPs (and associated training / awareness of updates aspects) could be prioritised to ensure relevant procedures where potential significant environmental effects (or more positive environmental outcomes) may arise are prioritised to ensure environmental best practice is promoted for staff and associated contractors employed. The selection of the relevant mitigation measures for individual catchments and maintenance works will be critical to their targeted and effective and implementation. It is noted this will be undertaken for the 6 year and annual maintenance measures There would be merits in providing a guidance note/ selection criteria to assist in the selection of the most appropriate catchment and works specific measures. The commitment to pilot studies to assist in the implementation of mitigation measures is	No change to the SEA. The updated procedures as the new Environmental Drainage Maintenance Guidance are being prioritised and in progress. Site specific monitoring shall be undertaken in the pilot studies and is now referenced in the activities document. M3d for hydromorphology. M3f for wetlands and peatlands

Date Received	Organisation	Description	Where Response Addressed in the Environmental Report and/or Plan
		acknowledged. Relevant key stakeholders and statutory bodies, including where relevant EPA, should be engaged as appropriate in these studies.	M3g for IFI site specific monitoring Relevant statutory stakeholders shall be consulted. Such as EPA, NPWS, IFA.

Offices at
Dublin
Limerick

Registered Office
24 Grove Island
Corbally
Limerick
Ireland

t: +353 (0) 61 345463
e:info@jbaconsulting.ie

JBA Consulting Engineers and Scientists Limited
Registration number 444752

JBA Group Ltd is certified to:
ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

Visit our website
www.jbaconsulting.ie