

SCOPING REPORT

FOR CONSULTATION

STRATEGIC ENVIRONMENTAL ASSESSMENT & HABITATS DIRECTIVE ARTICLE 6 ASSESSMENT

ARTERIAL DRAINAGE MAINTENANCE 2009 - 2015 & HIGH RISK CHANNEL DESIGNATION 2009 – 2015

PART I STRATEGIC ENVIRONMENTAL ASSESSMENT

**ENVIRONMENT SECTION
ENGINEERING SERVICES
OFFICE OF PUBLIC WORKS**

SEPTEMBER 2009

Executive Summary

For the activities assessed in this SEA, there is no existing overarching plan / programme which is directly applicable to the concept of carrying out an SEA. However, these are activities ongoing in the State which have been deemed appropriate for an SEA. Accordingly, for this SEA, the Plan is not a separate document formulated from a statutory requirement such as a County Development Plan (CDP) but is in effect a statement of the ongoing annual statutory activities bundled into a six year period 2009 – 2015. The 2009 – 2015 timescale has been adopted to facilitate future more effective coordination with the RBMP and CFRAMS.

This SEA incorporates two sets of activities:

1. Statutory Arterial Drainage Maintenance which entails the maintenance of completed Arterial Drainage Schemes and completed Flood Relief Schemes.
2. High Risk Channel Designation is a process emanating from the Report of the Flood Policy Review Group. Based on clear prioritisation criteria, rivers, channels and defence assets will be designated as priorities for maintenance and these will be the responsibility of the OPW.

In regard to Arterial Drainage Maintenance, it's envisaged that the SEA process will aid in formalising an overarching and strategic environmental framework to the ongoing drainage maintenance activities that will assist continuous improvements in environmental performance.

For Designation, the execution of this SEA is to establish an overall environmental framework for the High Risk Channel Designation process, whereby future work packages for Designation as developed will be guided by the same.

The SEA component is contained in Part I of this report and combined with the Habitats Directive Assessment in Part II, will again aid in setting up a framework to help achieve full compliance with the Habitats Directive in an effective and efficient manner.

The first step in the SEA process is Screening, and following consultations with the EPA, it was decided that an SEA would be required for Arterial Drainage Maintenance.

This Scoping Report is the next step in the process and this document sets-out an initial scope of the works involved for the Environmental Assessment. All comments received during this scoping consultation phase will be considered.

Please send all comments on the scope of the Strategic Environmental Assessment for Arterial Drainage Maintenance and High Risk Channel Designation to the following:

Environment Section
Office of Public Works
Main Street
Headford
Co. Galway
t: +353 (0)93 354 56
f: +353 (0)93 35631
email: info@opw.ie

The next stage will be the development of an Environmental Report. This will entail widespread consultation with a diversity of stakeholders and will again offer further opportunities to comment.

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1 Plan

1.1 New Plan

There is no existing overarching plan / programme which is directly applicable to the concept of carrying out an SEA. However, there are activities ongoing in the State in respect of Arterial Drainage Maintenance and in screening consultations with the EPA, it has been deemed appropriate for an SEA to be carried out on these activities. Accordingly, for this SEA, the Plan is not a separate document formulated from a statutory requirement such as a County Development Plan (CDP), River Basin Management Plan (RBMP) or Catchment Flood Risk Assessment & Management Study (CFRAMS) but is in effect a statement of the ongoing annual statutory activities bundled into a six year period 2009 – 2015.

1.2 Timescale

The 2009 – 2015 timescale has been adopted to facilitate future more effective coordination with the RBMP and CFRAMS. Both these plans will be reviewed in 2015 in accordance with the WFD and Flood Directives respectively, both are carrying out their individual SEAs, and with both sets of plans being managed at an RBD scale, it is envisaged that opportunities to form more synergies will arise in 2015 which may subsume or alter the scope of many other water sector SEAs such as this SEA. In the event that the activities covered in this SEA are not subsumed in to the RBMP and CFRAM framework, it is envisaged that a further SEA will be carried out on these activities for 2016 – 2021 to align with the RBD management process.

1.3 Plan Elements

The Plan entails two sets of activities.

1.3.1 Arterial Drainage Maintenance 2009 - 2015

Statutory Arterial Drainage Maintenance entails the maintenance of completed Arterial Drainage Schemes and completed Flood Relief Schemes. The OPW are responsible for the maintenance of 11,500km of channel, 730km of embankments, some 18,500 bridges and 750 ancillary structures such as sluice gates, pumping stations and tidal barrages.

The majority of Arterial Drainage Maintenance works is on channel maintenance with the average channel requiring maintenance every four to six years. While this varies, with some channels requiring maintenance annually and others only requiring maintenance every twenty years, circa 2000km of channels are maintained annually and nearly all of the 11,500km of channels will have been maintained at least once over the plan cycle of six years. Accordingly, the plan in terms of this SEA, is to apply to all the 11,500km of Arterial Drainage Channels. Of the 750km of Embankments, the frequency of maintenance tends to be more variable than that for channels with Embankments scheduled for maintenance works as the need arises. To date there have been thirteen Flood Relief Schemes carried by the OPW and statutory Arterial Drainage Maintenance includes the maintenance of these schemes. In respect of the various bridges and structures, a relatively small number are maintained annually i.e. circa 170 bridges and 30 other structures which are restricted to the most critical structures. Note that a portion of the 18,500 bridges are road bridges where the Local Authorities are responsible for the structural integrity, hence OPW Maintenance operations typically exclude bridge deck or arch repair works on road bridges.

Figure 1 Catchments Maintained by the Office of Public Works

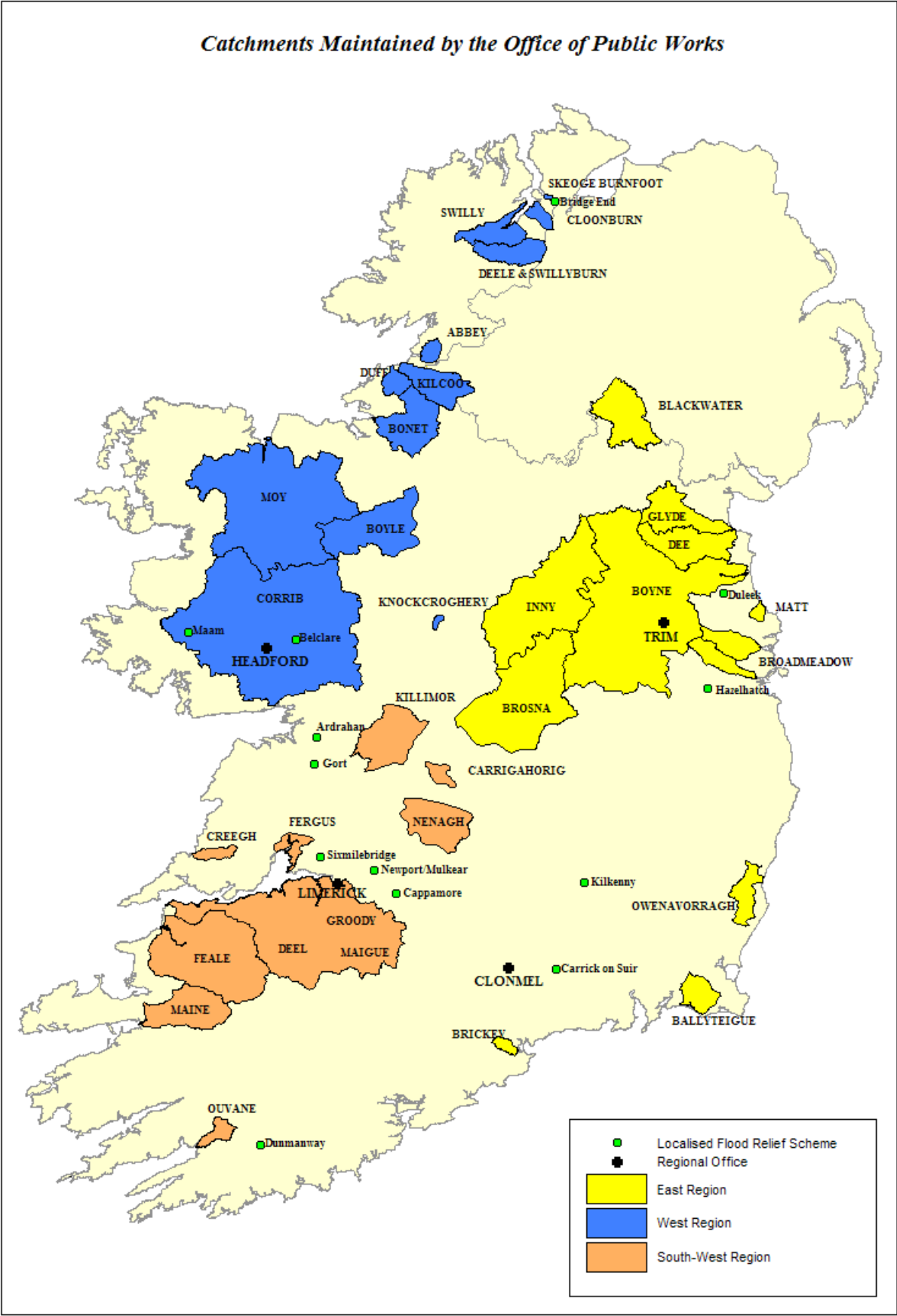


Table 1 Arterial Drainage Schemes, Estuarine Embankment Schemes and Flood Relief Schemes.

Arterial Drainage Scheme	OPW Region	RBD
Abbey	West	North Western
Ballyteigue/Kilmore	South East	South Eastern
Blackwater	East	Neagh-Bann
Bonet	West	Western
Boyle	West	Shannon
Boyne	East	Eastern
Brickey	South East	South Eastern
Broadmeadow & Ward	East	Eastern
Brosna	East	Shannon
Burnfoot/Skeoge	West	North Western
Carrigahorig	South West	Shannon
Clareen	South West	Shannon
Cloonburn	West	North Western
Corrib Clare	West	Western
Corrib Headford	West	Western
Corrib Mask/Robe	West	Western
Creegh	South West	Shannon
Deel	South West	Shannon
Deele & Swillyburn	West	Shannon
Duff	West	Western
Feale	South West	Shannon
Glyde & Dee	East	Neagh Bann
Groody	South West	Shannon
Inny	East	Shannon
Kilcoo	West	North Western
Killimor/Cappagh	South West	Shannon
Knockcroghery	West	Shannon
Maigne	South West	Shannon
Maine	South West	South Western
Matt	East	Eastern
Moy	West	Western
Nenagh	South West	Shannon
Owenavorrigh	South East	South Eastern
Owvane	South West	South Western
Estuarine Embankment Schemes	OPW Region	RBD
Fergus	South West	Shannon
Owenogarney	South West	Shannon
Shannon	South West	Shannon
Swilly etc.	West	North Western
Flood Relief Schemes	OPW Region	RBD
Belclare	West	Western

Bridge End	West	North Western
Cappaghmore	SouthWest	Shannon
Carrick-on-Suir	East	South Eastern
Lacken - Ardahan	West	Western
Duleek	East	Eastern
Dunmanway	SouthWest	South Western
Gort	South West	Shannon
Hazelhatch	East	Eastern
Kilkenny	East	South Eastern
Maam	West	Western
Newport/Mulkear	SouthWest	Shannon
Sixmilebridge	South West	Shannon

1.3.2 High Risk Channel Designation 2009 - 2015

The Report of the Flood Policy Review Group, which was adopted by Government in 2004, sets out the new national policy on flood risk management. It identified that there are a substantial number of watercourses for which no State authority currently has legislative responsibility from a flood management point of view and the lack of maintenance of watercourses with associated defences & structures was identified as a potential major cause of flooding or influence on flood processes. It recommended that a system be put in place to designate high risk rivers, channels and defence assets for maintenance, based on clear priorities. It also recommended that an asset register be developed to aid in identifying and prioritising watercourses and structures for designation known as High Risk Channel Designation. It is intended that this approach will ensure that those channels where a lack of maintenance could cause significant flood risk are not left to degrade. The Designation process is intended only to be applicable to watercourses or defences that pose a potentially significant flood risk, or that are of strategic importance. OPW are identified as the lead agency, supported by a number of other public bodies for implementation.

OPW are now commencing the development of this High Risk Channel Designation process and this has being divided into a work programme of fifteen work packages as in Table 2. This new process of Designation will be rolled out in a number of smaller more focussed work packages over the coming years hence, there is no existing overarching plan / programme which is directly applicable to the concept of carrying out an SEA. However, there are similarities between Designation and Arterial Drainage Maintenance activities, hence Designation is being combined with existing Arterial Drainage Maintenance activities for the purpose of this strategic level of environmental assessment. The construction stages of future Designation projects will typically be carried by the Local Authority or OPW's Arterial Drainage Maintenance staff. It's envisaged that the initial works will be similar in scope to ongoing Arterial Drainage Maintenance although the works will be in areas where little or no maintenance was carried out previously, hence the initial works will be of a heavier scale works. Any ongoing maintenance works on the designated areas will then be very similar in nature to current Arterial Drainage Maintenance works. The execution of this SEA is to establish an overall environmental framework for the Designation process, whereby future work packages for High Risk Channel Designation as developed will be guided by the same.

Table 2: High Risk Channel Designation Work Programme.

Work Package	Description
WP10.01	Develop a system to identify candidate channels and defence structures for designation. This system will use available or readily collectable information, will be demand driven, and will include measures to avoid negative behaviour patterns, displacement of existing maintenance expenditure and waste.
WP10.02	Liaise with stakeholders to develop codes of practice for riparian owners and others to identify appropriate maintenance works, technology, timing and frequency so that effective maintenance may be carried out without a heavy administrative burden.
WP10.03	Develop institutions to allow riparian owners to carry out appropriate maintenance in line with defined and codified rights and duties, taking into account environmental, planning and other relevant issues.
WP10.04	Develop methods for identifying the appropriate maintenance to carry out.
WP10.05	Develop information resources and training for people involved in the identification of maintenance, design of maintenance, prioritisation, and in the various skills required to carry out maintenance safely, at reasonable cost and without damaging the environment.
WP10.06	Identify the staff requirement for administration, management, and operations.
WP10.07	Identify the financial requirements for Designation and how these will be provided.
WP10.08	Develop a cost benefit system for the assessment of proposed maintenance
WP10.09	Develop a prioritisation system for the prioritisation of proposed maintenance.
WP10.10	Develop a system to ensure that costs are shared equitably between the community and direct beneficiaries.
WP10.11	Identify required plant and materials.
WP10.12	Measure output and develop Key Performance Indicators (KPIs) for productivity.
WP10.13	Develop codes of practice for environmental protection.
WP10.14	Develop codes of practice for protection of heritage.
WP10.15	Develop indicators of costs, benefits, risk mitigation and residual risk for maintenance works to ensure that they remain sustainable for the future. The real cost of maintenance works, together with the most likely cost of the residual risk must be less than the combined benefits of the works.

1.4 Plan Exclusions

This SEA is not intended to directly consider the following related activities:

- New Arterial Drainage Schemes - while there are currently no OPW proposals for any new large scale catchment wide Arterial Drainage Scheme, if the case arises, any new Scheme will progress through it own due process for environmental legislative compliance.
- CFRAMS - will be carrying out their individual SEAs as stated in Section 1 which will incorporate all their associated recommendations for Flood Risk Management in that catchment.
- New Flood Relief Schemes – carried out under the Arterial Drainage Acts 1945-1995 which entail aspects such as public exhibition and Ministerial approval. Modern Flood Relief

Schemes typically involve relatively large scale engineering construction, generally within the confines of an urban area and designed to specific criteria such as 1 in 100year flood protection.

- Drainage Districts – channel maintenance works on the various Drainage Districts by Local Authorities or Drainage Boards.

1.5 Drainage Districts

As explained in the Section 1.4, Drainage Districts are not a component of this SEA but there are OPW functions in respect of these. It is noteworthy that the Local Authority Drainage District functions, combined with OPW Arterial Drainage Maintenance and proposed Designation functions, form the vast majority of statutory river maintenance functions in the State for flood relief and drainage purposes. ESB and Waterways Ireland also carry out some channel and structure maintenance works for other purposes.

Drainage Districts have a long history with many drainage improvement schemes carried out under a range of drainage legislation between 1842 and 1928. These works were typically on localised areas of river catchments and several hundred of these minor schemes were carried out, with Local Authorities having statutory maintenance responsibility for them. Some of these schemes have since been subsumed into Arterial Drainage Schemes carried out under the 1945 Arterial Drainage Act but circa 172 of these schemes remain standalone and became known as Drainage Districts (DDs). Maintenance responsibility for DDs resides with the Local Authorities with the OPW having a policing role with duties to inspect the condition of the Drainage Districts and obligations for Local Authorities to return annual reports on them. While the OPW have no statutory duty to maintain these DDs, state assistance is sometimes given to Local Authorities in dealing with emergency flooding issues in the form of OPW joint funding for investigations or in some cases, OPW assistance on maintenance or in constructing flood relief measures.

2. Description of Arterial Drainage Maintenance & Flood Risk Designation.

2.1 Background

Ireland by its nature is liable to flooding and drainage problems principally due to the fact that the country has a relatively low-lying interior surrounded by coastal highlands. Many major rivers are sluggish in character and this coupled with our relatively high rainfall inevitably leads to chronic drainage problems. Accordingly, drainage works have a long history in Ireland stretching back to the mid 19th century. Improvement schemes were carried out under the 1842 Arterial Drainage Act on localised areas of river catchments. Several hundred of these minor schemes were carried out, with Local Authorities having statutory maintenance responsibility for them. Some of these schemes have since been subsumed into Arterial Drainage Schemes carried out under the 1945 Arterial Drainage Act.

The Office of Public Works is the body through which Central Government exercises its statutory responsibilities in respect of river drainage and flood relief. It derives its statutory authority from the Arterial Drainage Acts, 1945 and 1995.

The '1945 Act' Arterial Drainage Schemes differed from the historical schemes in that they dealt with the total river catchment rather than on a localised piecemeal basis. The 1945 Act was then amended in 1995 in response to serious urban and localised flooding problems. Since the 1995 Amendment Act, the OPW has embarked on a programme of Flood Relief Schemes. While these are not catchment based, regard is had of the downstream effect. Typically these schemes address urban flooding but also address some localised rural areas where dwellings or infrastructure is

subjected to flood damage.

2.2 Extent of Schemes

Between 1948 and 1995 the OPW completed Arterial Drainage Schemes on thirty-four river catchments:

- Fourteen were on major catchments i.e. >40,000Ha,
- Five were on minor catchments i.e. 10 - 40,000Ha
- Fifteen were on small catchments i.e. <10,000Ha.

The combined catchment areas account for some 30% of Ireland land area. In total, 253,000Ha of lands benefited from these schemes. In the same period, five Estuarine Embankment Drainage Schemes were carried out with four in the Shannon estuary region and one in the Swilly region Co. Donegal. Some 10,000Ha of land benefited from these embankment schemes.

To date under the 1995 Amendment Act, thirteen Flood Relief Schemes have been completed with a number currently at design stage.

2.3 Scheme Design Objective

Schemes carried out under the 1945 Act were generally designed to allow protection for a minimum of the three-year flood event in addition to creating an outfall for drainage of the adjoining lands. Where the creation of an outfall dictated the design bed levels, greater protection than the three-year flood event would have been achieved as a consequence.

In the case of modern urban flood relief schemes, flood protection for a 100 to 200 year flood event would be the design objective.

2.4 Statutory Requirement

Maintenance works are carried out in fulfilment of the statutory requirement under the Arterial Drainage Act, 1945. This requires :

- Scheme channels, embankments and associated structures to be maintained in “proper repair and effective condition”.
- Provision of flood alleviation and an outfall for drainage from agricultural lands, urban areas, bog developments, forestry and amenities in accordance with the scheme design standards.
- Maintenance of urban flood defences in accordance with scheme design standards.

Failure to comply with these obligations would be contrary to the Drainage Acts and could lead to compensatory claims for damage to the benefiting lands. All of the completed Arterial Drainage and Estuarine Embankment Schemes are now maintained under the statutory obligation.

2.5 Extent of Operations

Headquarters for the OPW is 51 St. Stephens Green, Dublin 2 with four Drainage Maintenance Regions managing the maintenance programme:

East Region, Trim, Co. Meath
West Region, Headford, Co. Galway
South West Region, Mungret, Co. Limerick
South East Region (new smaller region formed in 2008).

The annual maintenance budget is circa €17 Million. The OPW maintain their own transport and excavator fleet and other specialised equipment such as weed cutting boats. The operations are carried out by a trained direct labour work force numbering circa 300. OPW direct labour staff uses

a fleet of approximately seventy hydraulic excavators nationwide to execute the maintenance programme.

2.6 Channel maintenance works

Channel maintenance operations normally involves removing the build up of foreign or natural material that impedes the free flow of water. Predominately this consists of the removal of water-entrained silt and associated vegetation from the bed of the channel by suitably rigged hydraulic excavators. Restrictions in channels due to bank slippage or damage would be regraded to the original profile. Channel breaches due to bank erosion would be resolved by reprofiling the bank in-situ or in some cases by importing protection material such as rock armour or log poles. In addition, other larger vegetation such as trees, which impinge on channel capacity are either removed in whole or impingement is reduced by selective removal of lower branches. The material removed in the maintenance operations is normally spread along the bank or on top of existing spoil heaps where present. In most cases, no alterations to the bank are required and in some cases the channel is not disturbed at all if no build up of material is present.

Some channels are steep and fast flowing, which are subject to flash floods, bank erosion and rapid movement of bed gravel. However, 60 – 70% of scheme channels are of gentle longitudinal gradient and subject to relatively rapid deposition of silt, especially those that are subject to prolific growth of instream vegetation. The steeper sections of channel normally require relatively little maintenance works. The majority of maintenance works are on smaller lower lying channels with 90% of works in channels with a base width of less than three metres. The average channel requires maintenance every four to six years. Channels with prolific weed growth may require maintenance annually particularly where downstream urban bridges are at risk of being blocked due to a flow of decaying vegetation in Autumn. Conversely, some channels may only require maintenance every twenty years due to the self cleaning characteristics of the channel.

2.7 Other maintenance works

A number of channels have an annual prolific growth of aquatic plants but are too wide or the bank conditions are too unstable to allow maintenance by way of excavators. Weed cutting boats are engaged in these cases or where a particular channel requires to be cleared of vegetation but it is not deemed necessary to remove silt or other heavy material. In all, approximately 90km of channel are cleaned annually by four weed cutting boats, operating on a seasonal basis, with the majority of the works concentrated in the West of Ireland.

Most embankment schemes are tidal in nature hence they tend to be located at estuaries. The foremost inland embankment scheme is the Annagh Embankments on the Inny Drainage Scheme. The frequency of maintenance for embankments tends to be more variable than that for channels. Embankments are scheduled for works when it is deemed that the structure is in need of repair to maintain an effective condition. Repair works normally take the form of topping up clay embankments to design height and structural strengthening by importing rock/soil material or utilising in-situ material.

Included within the bridges on maintainable arterial drainage schemes are structures ranging from concrete pipe culverts, timber bog access ramparts through to concrete or masonry structures. Repair/replacement works are carried out on approximately 170 bridges per annum and are restricted to the most critical structures. Repair works are normally carried out with a similar material as that of the structure in question with the exception of the wooden structures that tend to be substantially deteriorated and are replaced by concrete structures.

Ancillary structures such as sluice gates, tidal barrages and pumping stations are repaired or replaced as necessary to maintain their respective operating function.

2.8 Flood Relief Scheme Maintenance

Flood Relief Schemes completed since the Arterial Drainage (Amendment) Act, 1995 also have a statutory maintenance requirement. The requirement for maintenance is identified at Regional level on an annual basis and included in the Annual Arterial Drainage Maintenance Programme. Maintenance cycles vary depending on the characteristics of the Flood Relief Scheme. Original scheme works that included durable structural works such as new embankments, retaining walls or hard bank reinforcement typically require little or no maintenance while some flood relief scheme channels require periodic silt removal or riparian vegetation management to maintain the designed channel capacity through the urban area.

2.9 High Risk Channel Designation

2.9.1 Legislation

As stipulated in the National Flood Policy, the recommendation is to Designate high-risk channels and give permissive powers of maintenance to the central authority (OPW). No legislation currently exists which directly enacts High Risk Channel Designation. Currently, the possibility of Designating watercourses and associated structures under the Arterial Drainage Amendment Act, 1995 is being considered using the River Tolka (Dublin) as a trial. While works were previously carried out on the Tolka by OPW as agents on behalf of the relevant Local Authorities, the longterm maintenance of the Tolka will be bought forward as a Designation type scheme under the existing legislation. In addition, legislative amendments to the Arterial Drainage Acts are currently being developed by OPW which will explicitly incorporate Designation in addition to other requirements for implementation of the EU Floods Directive.

Existing legislation also provides mechanisms for other bodies to carry out watercourse improvement and maintenance works, e.g. a Local Authority may carry out works under the Local Authorities (Works) Act, 1949 for a number of purposes including to prevent or repair damage from flooding. The possible role of this legislation will be considered as part of the development of the Designation process, albeit the environmental framework devised through this SEA process will apply irrespective of what legislative mechanisms is used in the future.

2.9.2 Typical Projects

The High Risk Channel Designation process is at development stage and while there has been no formal Designations under this approach, there are a number of localised flood alleviation projects completed which would be of a similar nature as envisaged for Designation. Examples are as follows:

Ballybofey, Co. Donegal

- Flooding threat to the structural integrity of Corlecky Bridge on the R253 roadway between Ballybofey and Glenties due to excessive channel scouring and damming effect on the roadbridge.
- On behalf of Donegal County Council, OPW carried out channel improvement works such as reprofiling and bank strengthening and bridge underpinning. Channel and bridge capacity substantially increased for high flood situation.
- Works completed in 2008.

Oranmore, Co. Galway

- Flooding threat to new housing at Moneymore from a small tributary partly canalised as part

- of the housing development.
- OPW in conjunction with Galway County Council completed channel works such as silt and vegetation clearance. The flood risk to the adjoining houses is significantly reduced when the channel is maintained at reasonable conveyance capacity.
- Works completed in 2008.

Abbeylara, Co. Longford.

- Flooding to parts of Abbeylarra village from a small stream that flows into the River Inny.
- OPW in conjunction with Longford County Council completed channel works such as deepening the channel, selective regrading, silt and vegetation clearance and bridge replacement / underpinning. The flood risk to Abbeylarra has been significantly reduced, however periodic flooding of lands adjacent to the river will still occur in the future.
- Works completed in 2008.

Mountrath, Co. Laois.

- Flooding to parts of Mountrath town from the Whitehorse River.
- Laois County Council with assistance from OPW completed flood alleviation works along the river including localised widening and removing of instream obstructions. The Flood risk to Mountrath was significantly reduced.
- Works completed in 2008.

Kilmaine, Co. Mayo.

- Peak flood level of adjoining Clyard & Thomastown Turloughs flooding the N84 roadway between Galway and Castlebar.
- Culvert inserted across agricultural lands to divert the peak Turlough flow to an existing arterially drained channel to prevent the road flooding.
- Works completed in 2007.

High Risk Designation projects will differ from Flood Relief Schemes in that they will be a smaller scale, with less hard engineering such as new retaining walls, and will not necessarily include detailed hydraulic calculations to comply with strict design criteria. Designation type projects are intended to reduce the flood risk to an acceptable level of risk and not required to achieve any specific design criteria such as a 1 in 100year flood which is typical for the large scale Flood Relief Schemes. Many of the projects carried out to date and under investigation have required or will require small scale channel conveyance improvement works combined with more typical maintenance type works.

2.9.3 Environmental Standards

In respect of environmental protection, it is envisaged that the environmental measures in place for Arterial Drainage Maintenance activities will be adopted by any new Designation project. Additionally, as Designation projects will involve some element of new works, it is envisaged that there will initially be some form of Ecological Assessment or Appropriate Assessment to identify and mitigate any site specific environmental sensitivities.

In parallel to the environmental protection measures, development of the High Risk Channel Designation process will need to consider compliance with Planning & Development legislation. As part of this SEA, a framework of how Designation projects will comply with planning permission requirements will be set out.

2.9.4 Designation Criteria

The potential commitment of resources to a maintenance programme for a channel or defence asset needs to be justified and hence be subjected to prioritisation criteria as will be the case for capital works schemes. In addition to the standard approach above, strategically important channels or instances where flooding may cause losses of particular significance to a specific location/community, may require to be designated independently of standard criteria.

The Report of the Flood Policy Review Group sets out the criteria for high risk channel designation which are in effect the same criteria as already used for Flood Relief Schemes as follows:

- Risk to Life
- Environmental Impact
- Extent of Properties (Residential & Commercial)/ Infrastructure affected
- Economic benefit

3 Introduction to Strategic Environmental Assessment

The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004). The latter regulations relate only to land use plans such as county development plans, local area plans or regional planning guidelines. This SEA is within the water management sector, thus S.I. 435/2004 is the most applicable national legislation.

The overall objective of the SEA Directive is to: *“to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment”*. The Directive provides a systematic method to consider likely effects on the environment and ensures environmental considerations are addressed as early as possible and in balance with technical and economic factors. It also requires the delivery of multiple objectives and stakeholder inclusion.

4 Screening Stage

In 2006, the OPW carried out an in-house initial screening of the Annual Arterial Drainage Maintenance Works Programme which is summarised as follows:

4.1 Annual Arterial Drainage Maintenance Works Programme

The functions of the OPW are managed under seven Business Units with Engineering Services being one of those units. The Arterial Drainage Maintenance Service is a section within this Business Unit and its primary function is to implement the OPW's obligations in regard to arterial drainage maintenance. A programme of works is prepared annually by each of the Regional Offices which lists by Scheme, the channels, embankments, bridges, sluices and other structures on which maintenance works are proposed for the year. These targets form the Annual Drainage Maintenance Works Programme which is presented in the the Engineering Services Annual Business Plan.

Appendix 1 shows single page extracts from the following documents:

- Engineering Services Business Plan 2009 - West Region's Annual Drainage Maintenance Work Programme Summary.
- West Region's Annual Drainage Maintenance Work Programme 2009.

4.2 Screening Decision Tree

With reference to Scott & Marsden (2003), in applying the decision tree for the pre-screening check, the following was interpreted:

Step 1

- A) *Is the P/P subject to preparation and/or adoption by a national, regional or local authority?*
or
B) *Preparation by an authority for adoption through a legislative procedure by Parliament or Government?*
- A) The Works Programme is included in the Engineering Services Annual Business Plan which is adopted by the OPWs Management Advisory Committee which includes the Commissioners and Chairman. However, the Annual Drainage Maintenance Works Programme is not adopted as an individual plan or programme.
- B) The Maintenance Programme is not prepared for adoption through a legislative procedure by Government.

Notwithstanding the fact that it could be interpreted that the Annual Maintenance Programme could be screened out in Step 1, in the interest of clarification, Step 2 was also reviewed as follows:

Step 2

- A) *Is the P/P required by legislative, regulatory or administrative provisions?*
- A) There is a legislative obligation for the OPW to carry out drainage maintenance works but there is no known specific legislative or regulatory requirement to draw up an annual programme of works. The criteria of an *administrative provision* is of a less defined nature but is interpreted as encompassing any formal administrative requirements prescribed by other adopted policy or strategies. The formulation of the Annual Drainage Maintenance Works Programme has no formal administrative requirement but in essence, is a project management tool that has been developed within the Arterial Drainage Maintenance Section over time. Maintenance operations are generally of a cyclic nature and the programme's primary function is to set-out and track operational progress. In more recent years, the detailed listing of channels scheduled for maintenance are being presented with environmental information such as flagging the presence of SACs, SPAs or NHAs. This is both to facilitate more informed discussions with environmental stakeholders and make available this information to operational staff.

4.3 Screening Conclusion

Note: There was a requirement to prepare an annual programme under section 37 (c - h) of the Arterial Drainage Act, 1945; this was repealed in the 1995 Amendment Act. The main purpose of these subsections was the recovery of costs from local authorities.

The initial conclusion by this in-house Screening was that an SEA is not required for the Annual Drainage Maintenance Works Programme 2006 and it was envisaged that this decision would also be applicable to future Annual Drainage Maintenance Works Programmes. However, there have

been a series of consultations between EPA and OPW over the intervening years in respect of SEA requirements for the roll out of the national CFRAMS programme and broader flood risk management functions. For the Arterial Drainage Maintenance activities, EPA opinion is that these works would meet the criteria for Likely Significant Impact as defined in the legislation particularly as this programme of activities may have significant effects on nature conservation and on fisheries or marine life. Having regard to the EPA's opinion in respect of likely environmental impact, OPW propose to conduct an SEA for the Arterial Drainage Maintenance activities. In addition, draft Guidance on Appropriate Assessment currently being developed by DEHLG, recommend adopting a precautionary approach to SEA Screening and advise for an SEA to be carried out where an Appropriate Assessment is required, irrespective of whether the SEA would not otherwise be required.

OPW have commenced the roll out of the national CFRAMS programme and these holistic management plans will be conducting an SEA. However, in recognition that it will take a number of years before substantial coverage of the State is achieved by a series of CFRAMS, it is proposed to proceed with an SEA for the Drainage maintenance and Designation activities alone. This position will be reviewed in 2015. It is envisaged that this SEA process will assist in formalising an overarching and strategic environmental framework to both the ongoing drainage maintenance and Designation activities and assist in the ongoing improvements in environmental performance.

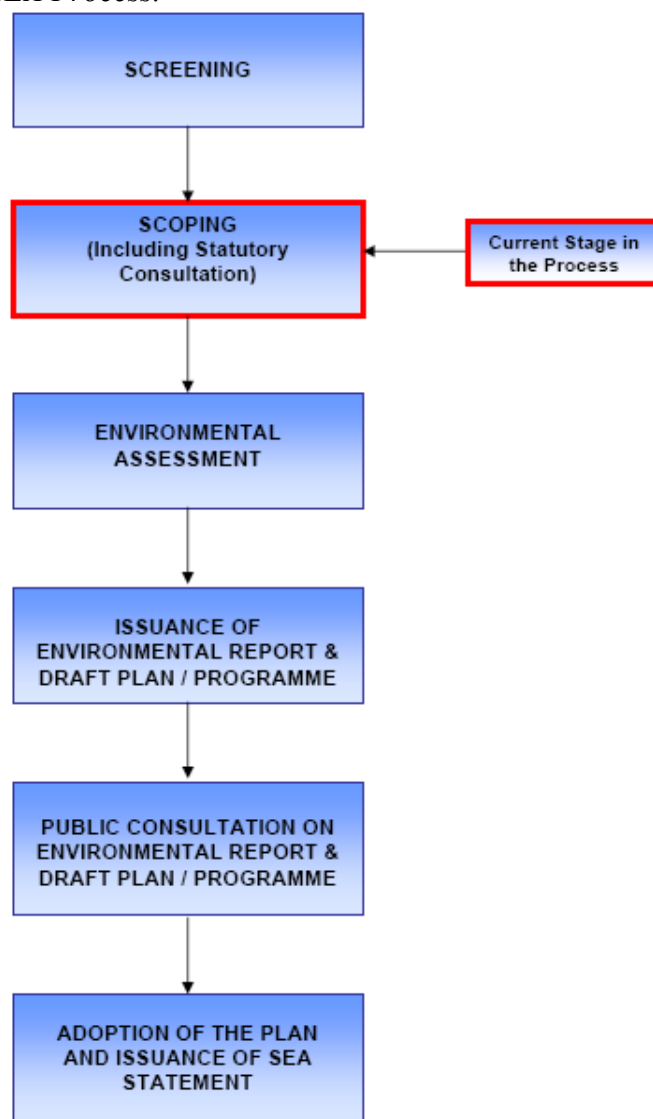
5 Scoping

5.1 Scoping Consultation

The SEA process comprises the six main stages as shown in Figure 2 and the process is now at Scoping stage. In accordance with the Environmental Assessment of Certain Plans and Programme Regulations 2004, the competent authority preparing the plan or programme is required to consult with the environmental authorities on the scope and level of detail of the information to be included in the Environmental Report. All three of the designated environmental authorities will be consulted with as part of this scoping process as follows:

- Environmental Protection Agency (EPA);
- Department of Environment, Heritage and Local Government (DEHLG); and
- Department of Communications, Energy and Natural Resources (DCENR) (formerly Department of Communications, Marine and Natural Resources).

Figure 2: Overview of SEA Process.



5.2 Feedback on Scoping

The purpose of this report is to describe the environmental characteristics and present the initial understanding of the key environmental issues relating to the the maintenance of watercourses and their associated embankments, bridges, sluices and other related structures in Ireland. It proposes a framework of environmental objectives to inform the identification and assessment of maintenance options. This will develop as the SEA process progresses and will be further informed by the views and knowledge of the external stakeholders and the general public through the various SEA stages.

Comments are invited on the scope and level of detail to be included in the future Environmental Report. Comments can be emailed to info@opw.ie and mark for the attention of Environment Section or alternatively can be posted directly to:

Environment Section
Office Public Works
Main Street,
Headford,
Co. Galway Tel 093 35456

6. Plan Relationship

As part of the SEA process the relationship of the Drainage Maintenance operations and the proposed Designation process is to be outlined with regard to other plans and programmes. Table 5 summarises the legislation, policies and plans/programmes adopted at European Union, National or Regional level, which would be expected to influence or be influenced by the Arterial Drainage Maintenance activities or the proposed Designation process.

Topic	Scale	Title
Flora, Fauna and Biodiversity	European	EU Biodiversity Action Plan – Halting the loss of Biodiversity by 2010.
		EU Birds Directive (EC/79/409)
		EU Freshwater Fish Directive (78/659/EEC)
	National	The National Biodiversity Plan (2002)
		The Wildlife Act 1976 - 2000
		European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006.
		European Communities (Natural Habitats) Regulations, 1997 - 1998
		Flora Protection Order 1999
		Quality of Salmonid Waters Regulations 1988
		Natura 2000 Site Conservation Management Plans (some at draft stage)
		National Eel Stock Recovery Plan 2008
	Regional / Local	Freshwater Pearl Mussel Sub-basin Management Plans (at draft stage)
Population and Human Health		
Water	European	EU Water Framework Directive (2000/60/EC)
		EU Floods Directive (2007/60/EC)
	National	European Communities (Water Policy) Regulations (SI 722 of 2003)
		Arterial Drainage Acts, 1945 - 1995
		National Flood Policy 2004
		River Basin Management Plans 2009 – 2015 (at draft stage)
		Catchment Flood Risk Assessment & Management Studies (pilot studies at draft stage)

Air and Climate	European	Adapting to climate change in Europe – options for EU action {SEC(2007) 849}
	National	National Climate Change Strategy 2007-2012
Cultural Heritage (Architectural and Archaeological Heritage)	National	National Heritage Plan 2002-2007
	Regional / Local	County Development Plans & Local Area Plans (for Designation process information)
Landscape	Regional / Local	County Development Plans & Local Area Plans (for Designation process information)
Material Assets		
Soil and Land Use	European	EU Common Agricultural Policy
Sustainable Development	European	SEA Directive (2001/42/EC)
	National	European Communities (Environmental Assessment of Certain Plans and Programmes Regulations 2004

Table 5 Summary of the relevant legislation, policies and plans/programmes

7 Environmental Baseline

In line with the SEA Directive, an environmental baseline will be compiled. This will include: a description of the environment at present and a description of the expected evolution of the environment should Arterial Drainage Maintenance or Designation not be implemented.

7.1 Current State of the Environment

The Environmental Report will expand on the existing information and contain a full description of the Environmental Baseline data. Below is a non-exhaustive list of the information sources that will be used to compile the environmental baseline:

- Water Framework Directive
- National Parks & Wildlife Service database (e.g. protected habitats and species);
- Central and Regional Fisheries Boards;;
- EPA databases (e.g. groundwater and surface water quality, air quality, etc.);
- EPA 2008 State of the Environment Report;
- EPA ENVision (Environmental Mapping / Geographical Information System);
- Corine and Landcover Land Use Databases;
- Birdwatch Ireland databases;
- Status of EU Protected Habitats and Species in Ireland report;
- Geographical Survey of Ireland (GSI) mapping, including groundwater maps;

Other sources that may be referred to (although it is envisaged that limited data will be relevant) includes:

- Central Statistics Office database, including census data;
- Teagasc soil information;
- Office of Public Works;
- Record of Monuments and Places;
- County Development Plans;
- Discovery Ireland Programme;

The current state of the environment will be described using the most recent and up to date environmental data, information and report.

Where data gaps are found for particular aspects of the current state of the environment, the significance of these data gaps should be clearly stated. In addition, it should be stated whether these gaps can be reasonably and realistically addressed during the SEA process.

The overall effects of non-implementation of both Arterial Drainage Maintenance and designation will be discussed, taking into consideration environmental and socio-economic effects.

7.2 Preliminary Baseline

Included in this report is a preliminary discussion of the environmental baseline. The preliminary baseline has been divided by topic into the issues requiring assessment under the SEA legislation.

7.2.1 Flora, Fauna and Biodiversity

Urban growth in Ireland has accelerated in recent years with the increased development and expansion of city and town limits into the countryside. Artificial land cover throughout Ireland remains relatively low.

Ireland contains a variety of terrestrial, wetland, freshwater, estuarine and coastal habitats which support a range of species; many of which are of particular conservation concern. Much of the potential biodiversity within the country is located outside designated sites for nature conservation; which comprise approximately 20% of the county. The National Biodiversity Plan (Department of Arts, Heritage, Gaeltacht and the Islands, 2002) highlights that standing and flowing waters and associated wetlands – the inland water ecosystems – are of special importance for biological diversity in Ireland.

Throughout the island of Ireland there has been a decline in many of the native species through habitat loss, competition, development and agriculture. Irish and European legislation protect some of these species. There are eighteen species of plant or animal recorded as endangered, 52 recorded as vulnerable, 75 recorded as rare and 8 classed as intermediate (www.epa.ie/).

EPAs 2008, State of the Environment Report states that many of Ireland's most important habitats afforded protection under the EU Habitats Directive are assessed as having bad conservation status, including dune systems, raised and blanket bogs, natural grasslands and woodlands. Certain species, particularly those of wetland and aquatic environments, such as the Atlantic salmon, the Otter and Freshwater pearl mussel, are considered to be of poor conservation status.

Ireland has designated sites and species of conservation value and/or concern in an effort to protect its biodiversity resource. The designated conservation areas contain habitats or species of national

or international conservation importance. There are four types of designation considered in this report; Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and Ramsar sites. Special Areas of Conservation (SACs) are protected under the European Union (EU) Habitats Directive (92/43/EEC) and Special Protection Areas (SPAs) are designated under the EU Birds Directive (79/409/EEC), and together these form the backbone of the Natura 2000 network. Ramsar sites are wetland of international importance designated under the Ramsar Convention, an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Natural Heritage Areas (NHAs), are protected under the Wildlife Act 1976 (as amended 2000). NHAs are areas considered important for the habitats present or which hold species of plants and animals whose habitat needs protection.

There are currently 424 SACs and 135 SPAs within the state. These Natura 2000 sites will be discussed in greater detail in Part II of this document – Habitats Directive Article 6 Assessment.

The state also has over 1287 Natural Heritage Areas (NHAs) and proposed NHAs of national importance covering approximately 923,563 hectares, and 175 with drainage operations. These are areas considered important for the habitats present or which hold species of plants and animals whose habitat needs protection. The Wildlife Acts, 1976 and 2000, introduced a requirement for the OPW to avoid adverse effects on National Heritage Areas, Nature reserves or Refuges in planning new Arterial Drainage Schemes.

There are 45 Ramsar sites in the state covering 66,994 hectares. These sites are in large covered by the Natura 2000 network, and are therefore not addressed separately in this study.

In addition, the the designated sites, a range of species are protected under the Wildlife Acts 1976 and 2000, the Flora Protection Order 1999, and under Annex IV of the Habitats Directive for certain species both inside and outside the Natura 2000 Sites.

Further information on biodiversity, flora and fauna in Ireland will be obtained from the National Parks and Wildlife Service (NPWS) database, information gathered under the National Platform for Biodiversity Research and Environmental Protection Agency.

7.2.2 Population and Human Health

The 2006 census indicated that Ireland has an overall population of 4,239,848. This is a country wide increase of over 320,000 from 2002. The rapid growth in population in recent years, linked to increased immigration during the boom years, presented a significant pressure for increased development of low-density residential housing and associated community facilities and infrastructure.

There are currently over 345 health services facilities in Ireland. This includes hospitals, health clinics, nursing homes. These are well dispersed throughout the country and many are likely to be located in low-lying areas. Flooding is recognised as having moderate to severe adverse effects on human health.

Baseline information on population will be gathered from the most recent censuses carried out in Ireland.

7.2.3 Water

All rivers, lakes, estuaries and coastal waters and groundwater in Ireland must achieve a standard of

'good ecological status' (GES) by 2015 under the terms of the EU Water Framework Directive (WFD). The various River Basin District (RBD) projects are currently developing a programme of measures to facilitate achievement of these targets. These will be reported in River Basin Management Plans (RBMP) to be adopted in late 2009.

Initial assessments indicate that 64% of river, 64% of lake, 53% of estuarine/transitional, 27% of coastal water bodies and 62% of groundwaters within Ireland are either at risk or probably at risk of failing to meet this target as shown on Figure 3. Significant pressures identified include diffuse and point source pollution, abstractions, and most relevant to drainage maintenance, structural or morphological alterations. Structural changes affect 89% of lakes, 30% of rivers and 70% of estuarine water. Currently, 36 waterbodies are classed as potential Heavily Modified Water Bodies (HMWBs) under the WFD because of major physical alterations. Therefore, these need to achieve an alternative, less stringent, standard of 'good ecological potential' (GEP).

Existing EPA monitoring data for the country indicates that current fresh water quality is generally good with some exceptions.

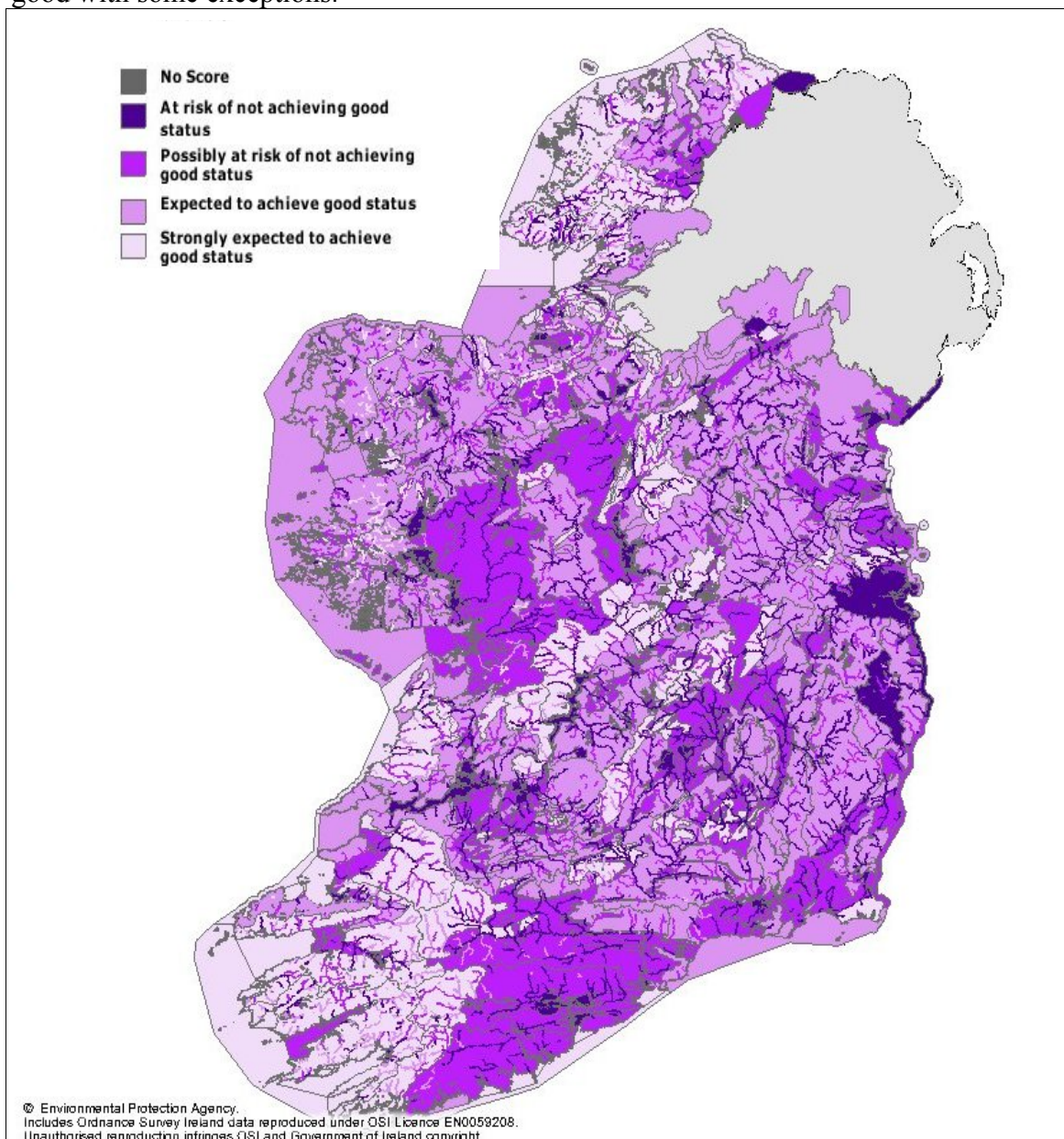


Figure 3 – Classification of water bodies under the WFD (Source: EPA)

7.2.4 Air and Climate

Air quality is monitored at various points around the country and there are a number of national and local objectives to improve air quality and noise levels. Current monitoring results from the EPA indicate that in general air quality in Ireland is good. Emissions of pollutants from road traffic are one of the main threats to air quality in Ireland. Significant reduction of nitrogen oxides from road transport is required if Ireland is to meet its commitments under the National Emissions Ceiling (NEC) Directive by 2010.

However as air quality and noise levels will not influence or be affected by the recommendations of this study, further consideration will not be given to potential issues.

Future changes in climate and associated impacts on river flows and tide levels are likely to change the frequency, extent, distribution and pattern of flooding in the future. This study will consider the influence of future climate changes on flooding and the provision of outfall for the drainage of agricultural land.

7.2.5 Cultural Heritage (Architectural and Archaeological Heritage)

From the earliest known periods of human settlement on the island, rivers have provided sources of food and communication, while also historically demarcating territories. Fording points, bridges, ferries and settlements on Irish rivers have evolved over time, and because of their unique environments they often preserve archaeological remains (such as wood and other organic materials) much better than would be found on 'dry' sites. Also, tributaries of main watercourses have been used, and modified, to provide power to industrial sites giving rise to industrial archaeological sites (e.g. mills), drinking water to adjacent settlements and infrastructure for canals.

Archaeological conservation in Ireland is dealt with by the National Monuments section of the DEHLG operating under the National Monuments Acts, 1930 - 1994, with two sections, the Archaeological Survey of Ireland and the Archaeological Archive being the primary producers and managers of data. The Register of Sites and Places / Sites and Monuments Record comprise some one hundred and forty thousand protected archaeological sites throughout Ireland. In addition, there are over eight hundred major archaeological monuments in state ownership or state guardianship under the National Monument Acts. These archaeological sites which are shown on Figure 4 include burial grounds, standing stones, fulachta fiadh, ring forts, souterrains, medieval churches, tower houses, water-powered mills etc. Many of these structures may be located within and adjacent to arterial drainage schemes. However many of these features would have been removed during the excavations of the original schemes which involved hard engineering works. Therefore the likelihood of maintenance having any effect would be quite low. This would be more applicable though to channel designation.

The built heritage of Ireland, within its cities, towns and villages, is also of significant value; with many buildings and structures of architectural, historical, archaeological, artistic, cultural, scientific, social or technical importance. Many of these are designated as 'Protected Structures' which positively recognises their importance, provides protection against adverse impacts and potentially provides access to grant aid for conservation works. Many of these sites are likely to be located in low-lying areas.

Specific areas of particular significance to the built heritage of Ireland are protected as Architectural Conservation Areas under the Planning & Development Act 2000.

Information on the historic environment within Ireland will be obtained from the Register of Sites and Places / Sites and Monuments Record. These will be considered for any designation projects. Other sources of historic records will also be considered for applicability.

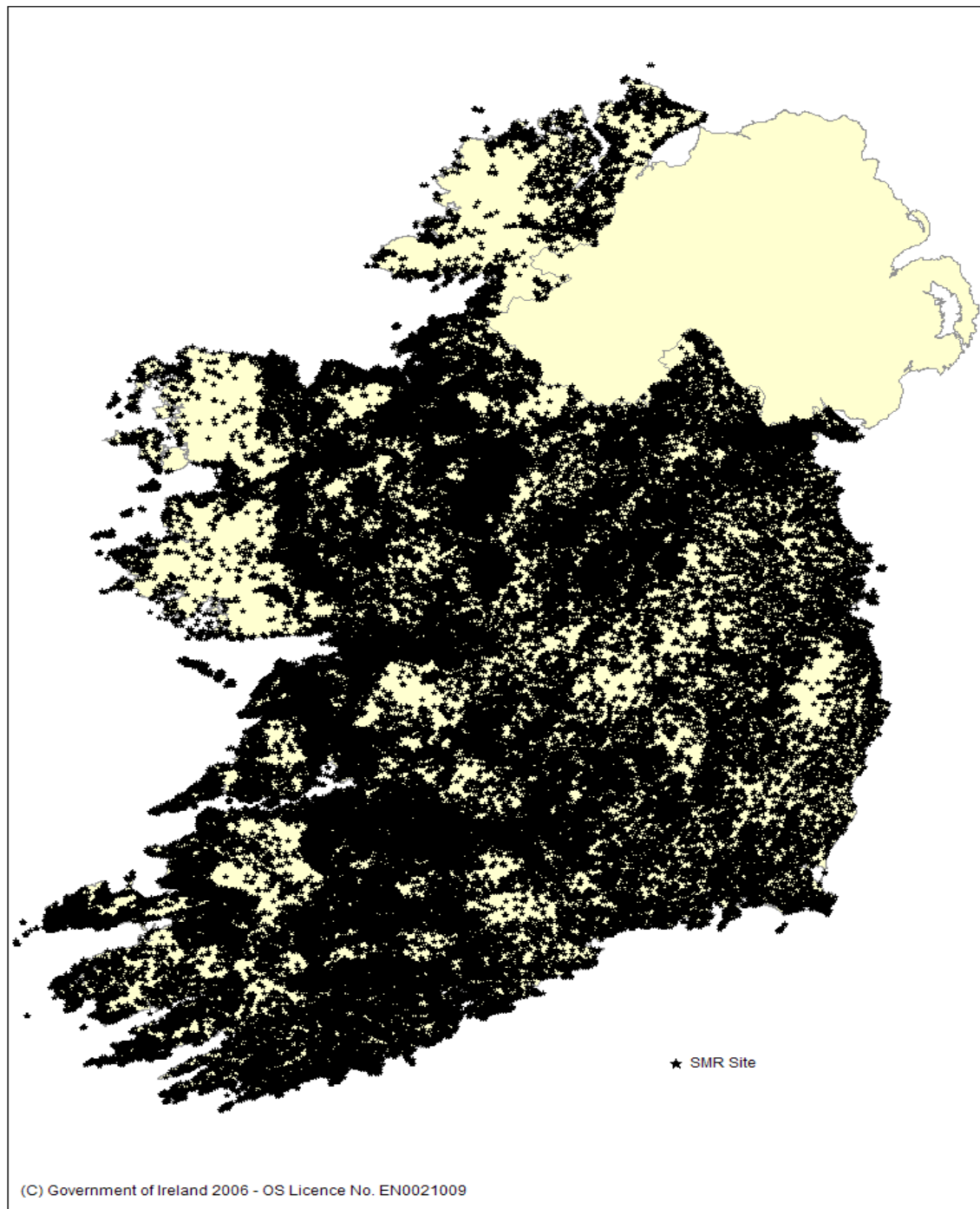


Fig 4 : Sites & Monuments Records (SMR) locations in Ireland

7.2.6 Landscape

The Landscape Character Assessments and Development Plans for the counties within the bounds of designation projects will be consulted to determine the landscape designations for those areas and whether there are any landscapes or views requiring special conservation or consideration.

However due to the nature of maintenance operations it is not envisaged that landscapes would be a major concern, however this will be considered for designation projects..

7.2.7 Material Assets

Many urban areas in Ireland have industries centred on rivers or the coastline. Agriculture is widespread, with livestock grazing, milk and meat processing. Though much of the land area is agricultural, there are also significant areas of forestry and peatlands which are used as fuel. Ireland boasts scenic landscapes and offers great opportunities for fishing and boating, which attract many tourists. Many waterways have significant infrastructure in sluice gates and weirs controlling the water levels.

Arterial drainage schemes and drainage districts improved very extensive areas of land for agriculture. The continued productivity of these lands is dependant on maintenance of these drainage works and significant economic, strategic and social benefits accrue from the continued operation of these schemes.

7.2.8 Soil and Land Use

Information on soils in Ireland will be gathered from the Geological Survey of Ireland and Teagasc databases (Ireland. In addition, OSI data, aerial mapping, land use mapping, Corine and LC 2000 data will be used to examine land cover.

7.2.9 Interrelationships

In accordance with the SEA Directive, the inter-relationship between the SEA environmental topics must be taken into account. Table 6 highlights the potential inter-relationships between the SEA topics. These potential interactions will be taken into account in the assessment of scenarios / alternatives.

Table 6: Potential Inter-Relationships Between SEA Topics

Biodiversity, Flora & Fauna	√							
Population & Human Health	√	√						
Soils/ Geology	√	√	√					
Water	√	√	√	√				
Air & Climatic	√	√	√	√	√			
Material Assets	√	√	√	√	X	√		
Cultural Heritage	X	√	√	√	X	√	√	
Landscape	X	√	√	√	√	√	√	√
	Biodiversity, Flora & Fauna	Population & Human Health	Soils/ Geology	Water	Air & Climatic	Material Assets	Cultural Heritage	Landscape

√ = interrelationship Anticipated

X = no interrelationship anticipated

8 Key Environmental Issues

8.1 Scope of the Plan

8.1.1 Geographic Scope

Arterial Drainage Schemes were completed on thirty four river catchments around Ireland. In total 253,00hectares of land benefited from these schemes. To date under the 1995 Amendment Act, thirteen Flood Relief Schemes have been completed.

This assessment will primarily focus on these areas, however designation projects will include additional areas.

8.1.2 Temporal Scope

This SEA will cover the period from 2009 up to 2015, and will be reviewed after five years. In line with the SEA Directive, short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects) will be considered during the assessment.

8.2 Scoping of Strategic Environmental Topics.

In accordance with S.I. 435 of 2004 (SEA Regulations, Ireland) consideration has been given to whether the environmental effects, both positive and negative, of the arterial drainage maintenance and designation projects are likely to be significant. A summary of the conclusions is listed in Table 7, below.

Table 7: *Key Environmental Issues*

Biodiversity, Flora & Fauna	<ul style="list-style-type: none">● Effects on protected areas (SACs, SPAs, NHAs)● Effects on protected flora, fauna (including bird species) and habitats.● Effects on Fresh water Pearl Mussel protected areas● Effects of maintenance operations on salmonids, other protected fish and shellfish species● Effects on sensitive habitats (i.e. peatlands, limestone habitats)● Potential introduction or spread of invasive species● Protecting and enhancing biodiversity as a whole on national, regional and local level.● Potential for interaction with Habitats Directive, i.e Article 6
Population & Human Health	<ul style="list-style-type: none">● Recreational use of water related tourism (e.g. bathing, fishing, navigation)● Commercial and agricultural activities with an influence on water.● Flooding from increase in development in flood-sensitive areas● Effects on drinking water abstraction (surface and groundwater)● Effects on overall water quality● Effects from invasive species
Water	<ul style="list-style-type: none">● Pressures and impacts on ecological status of water bodies● Morphological impacts on water bodies● Effects on lakes, ponds, standing waters and other wetlands including peatlands● Protection of areas of fluvial or coastal flood risk● Impacts on water supply (including potable) and water conservation● Potential to improve water body status, including heavily modified and artificial water bodies
Air and	<ul style="list-style-type: none">● Change in greenhouse gas emissions from plant and machinery.

Climate	<ul style="list-style-type: none"> ● Climatic change mitigation and adaptation, including effects from severe weather events ● Flooding
Cultural, Architectural and Archaeological Heritage	<ul style="list-style-type: none"> ● Nationally designated sites within 10m of waterbodies ● Effects on water based archaeological features ● Effects on cultural heritage features in the vicinity of floodplains and/or watercourses (i.e. mills, mill races and bridges) ● Effects on historic ford crossings ● Effects on industrial archaeology (e.g. canals)
Landscapes	<ul style="list-style-type: none"> ● Effects on gardens and designated landscapes ● Effects on general landscape as well as riverscapes, lakescapes and seascapes.
Material Assets	<ul style="list-style-type: none"> ● Protection of State investment in drainage of agricultural land for food production under the 1945 Arterial Drainage Act. ● Protection of water related assets including: <ul style="list-style-type: none"> ○ canals and hydro; ○ flood defences to protect houses, roads, etc; ○ groundwater sources; and ○ WWTWs and drainage ● Change in land use based on risk to water quality, quantity and flooding thus reducing value of land either by limiting development potential or requiring a change in land use.
Geology, Soils and Landuse	<ul style="list-style-type: none"> ● Erosion and influence on land use practices ● Effects on geomorphology (i.e. river channels) ● Effects of discharges on receiving aquatic sediments

9. Measures to prevent or reduce effects

A dedicated Environment Section was established within the Drainage Maintenance Service in 2003 to ensure the long-term integration of environmental protection and drainage maintenance. For Drainage Maintenance activities, there are a whole series of measures in place to minimise any negative significant environmental impacts and in many cases to effect a positive impact. This is an ongoing process supported by a range of research and implemented through a suite of Environmental Management Protocols and Standard Operating Procedures. It is envisaged that the proposed Designation process will incorporate all the environmental measures as applicable to the type of project. An overview of the environmental good practice measures are as follows:

9.1 Environmental Management Protocol & Standard Operating Procedures

A set of Environmental Management Protocols were formally introduced nationally in May 2009 which sets out how regional management staff manage a range of aspects ranging from environmental stakeholder consultations, forward planning for Natura 2000 Site assessments, national recording of relevant conservation data, the approach to a range of protected species such as Crayfish, Lamprey, Otter etc through to the approach to Invasive species.

A number of Standard Operating Procedures (SOPs) have been used in operations for some years but in May 2009, a full suite of all SOPs were introduced nationally in a folder format to be used by all operational staff on-site. SOPs set out actions which are to eliminate or substantially reduce impacts to identified protected species and their associated habitats. They cover the approach to be

taken for a number of aspects such as machine washing for Invasive species through to observing the spoil for Crayfish or Lamprey.

9.2 Liaison with Statutory Bodies

In light of the fact that Drainage Works are predominately within inland waters, the Regional Fisheries Boards (RFBs), the Central Fisheries Board (CFB) and the National Parks & Wildlife Service (NPWS) are seen as the primary statutory body stakeholders. Over the years, working relationships have been established with these stakeholders.

Regional management now have the opportunity to review the annual works programme and operational staff have developed open on-site communications with many of the Fishery Officers, Rangers and District Conservation Officers, which will integrate a deeper understanding of practical environmental protection within maintenance works.

Observations or comments on practical measures to either mitigate possible environmental impacts or exploit enhancement opportunities are integrated into the maintenance works. While the current communication framework offers adequate positive interaction, it is intended to continuously develop improved consultation protocols at all staff levels with both the Fisheries Boards and National Parks and Wildlife Service.

9.3 Broader Stakeholder Interaction

The OPW are active members in a variety of multi-agency forums and working groups where ongoing consultations with a host of stakeholders is standard practice to assist with implementation of a range of environmental requirements. Some of these forums include the following:

- All seven River Basin District Management Groups/Technical Councils.
- National Freshwater Morphology Programmes of Measures Study (now completed)
- National Heavily Modified Water Bodies Programmes of Measures Study (now completed)
- National Conservation Working Group
- Interdepartmental Steering Group for National Biodiversity Plan.
- Alien Species Task Force.

OPW maintain some international presence to ensure that there is an understanding of how these agendas are being progressed outside Ireland. OPW presence at foreign conferences on aspects such as Hydromorphology is common, there is contact with the European River Restoration Centre as well as with the River Agency Northern Ireland.

OPW also work with a number of ecological consultants as engaged for the various research and assessments required. In more recent years, OPW now work with some NGOs such as Birdwatch Ireland since 2006 and some research with Bat Conservation Ireland in 2008.

9.4 Environmental Research

There is a significant amount of research on the Annex I Habitats and Annex II Species ongoing which is in fulfillment of a centralised research strategy published as “*Screening of Natura 2000 Sites for Impacts of Arterial Drainage Maintenance Operations. ISSN 1649-9840. Series of Ecological Assessments on Arterial Drainage Maintenance. No. 1.*” This research strategy document and all the resulting assessments are being published under International Standard Series Number ISSN 1649-9840 in a series of individual publications. This research is in respect of the Natura 2000 Sites and is covered in more detail in Part II of this Scoping Report.

9.5 Environmental River Enhancement Programme 2008-2012

The Arterial Drainage Maintenance Service of Engineering Services, OPW is carrying out a five year Environmental River Enhancement Programme. The enhancement works consist of both Capital Enhancement and Enhanced Maintenance. These works will focus on river corridor

improvements to salmonid channels with specific actions on 100 kilometres of scheme channel per annum, with pre and post measurement of biodiversity taking place on the channels in the relevant sub-catchments scheduled to benefit from these works. The identification of these channels, the carrying out of biodiversity assessments, the preparation of a five year programme of work and post biodiversity change assessments forms part of the work programme to be delivered by the service provider i.e. Central Fisheries Board. It also involves making the assessment data available in a form that will allow completion of Hydromorphological assessments.

The enhancement works are being carried out using OPW staff and machinery with the CFB's staff working alongside OPW supervisory staff. All materials required for the construction of instream structures, gravel and fencing is being supplied by OPW.

9.6 Environmental Training

As a component to the EREP, the CFB will also be continuing the development and delivery of a new environmental training programme for all staff, continued auditing and implementation of the Environmental Drainage Maintenance Guidance Notes (Ten Steps to Environmentally Friendly Maintenance), and an element of continued scientific studies on Lamprey & Crayfish.

9.6.1 Environmental Drainage Maintenance

Emanating from the EDM programme, an environmentally friendly approach to maintenance was formulated which embraces ten alterations to work practices. As a first stage of implementing this change, all frontline machine operational staff received formal training from the CFB. As an ongoing process, the CFB audit the standard of implementation and carry out site visits to assist with on-site coaching and training of frontline staff where practical examples of implementing the work practices can be discussed and demonstrated. In tandem, OPW environmental staff conduct site visits to frontline staff nationwide to again assist with on-site coaching and auditing the standard of implementation.

As part of the EREP, a 2nd phase of environmental training is to be developed over the coming year with the CFB and will be delivered to all staff in 2010. Other environmental training also takes place as deemed beneficial. In 2008, the majority of operational staff were trained in Otter Awareness delivered by Dept of Zoology, Trinity College Dublin. This training consisted of five hours duration consisting of a lecture followed by a site visit.

9.7 Geographical Information Systems (GIS)

GIS systems are now a significant tool to manage both the existing and future environmental information and to this effect, the Drainage Maintenance Service has recently digitised the original drainage scheme maps. GIS systems allow the rapid and accurate transfer of geographical environmental data and it is hoped to contain all maintenance work programmes, fishery information such as spawning reaches, environmentally designated areas e.g. SACs, other sensitive sites such as habitats of protected species and general habitat information in this format

9.8 Ecological Assessments

In respect of Arterial drainage maintenance operations, there is a process been implemented for Natura 2000 Site Assessments and this is covered in more detail in Part II of this Scoping Report.

Flood Risk Designation process is at development stage and while there has been no formal Designations under this approach, there are a number of localised flood alleviation projects completed or underway which would be of a similar nature as envisaged for Designation. Recent practice for any new localised flood alleviation projects is to carry out an Appropriate Assessment if

the works overlap with a Natura 2000 Site or an Ecological Assessment if the works are not within a Natura 2000 Site but still need to have regard to the broader protected habitats and species such as Annex IV species, Wildlife Acts or Flora protection Order.

9.9 Environmental Impact Assessments

European Communities (Environmental Impact Assessment) Regulations, 1989 to 2006 transposes the EIA requirements. The most applicable class of development relevant to Drainage Maintenance and Designation projects is in respect of Canalisation. The thresholds are where canalisation and flood relief works, where the immediate contributing sub-catchment would exceed 1,000 hectares or where more than 20 hectares of wetland would be affected or where the length of river channel on which works are proposed would be greater than 2 km.

Arterial drainage maintenance works are considered to be sub-Environmental Impact Assessment threshold as the operations are maintaining the river corridor but are not canalising any new lengths. For Designation projects, it is foreseen that the size and scale of the works will be sub-threshold EIA. However, proposed Designation projects will consider the EIA thresholds and any project exceeding qualifying will be subject to an EIA. In the absence of an EIA, an Ecological Assessment will be carried out as described in Section 9.8.

9.10 Planning & Development

While there is an extensive range of Planning and Development legislation, the most applicable current legislation is the Planning and Development Regulations, 2001. This legislation exempts from planning permission, works under an Arterial Drainage Scheme. These drainage works and the associated maintenance, forming part of a scheme have been confirmed by a Minister and have gone through a public exhibition process in accordance with the Arterial Drainage Acts 1945 and 1995.

For proposed High Risk Channel Designation projects, each specific project will require consideration of the requirements for compliance with the Planning and Development Act, 2000 as amended, and associated regulations. Pending changes to legislation, Designation projects of an urgent nature may be carried out on a once off basis by agreement with affected landowners and statutory stakeholders or under the provisions of Part VIII of the Planning and Development Regulations, 2001 and the Local Authorities (Works) Act, 1949. Larger scale projects will be carried out under the Arterial Drainage Acts, 1945 and 1995. Works carried out by agreement will involve upkeep, maintenance and repair only. Works using Part VIII procedures must be under the threshold for an EIS, as works above the threshold would fall under the Strategic Infrastructure Act, 2006.

It is the clear intent of the Flood Policy that designation would lead to ongoing maintenance, therefore it is proposed that necessary legislative changes are made, and that future designation would be made under new powers, including absorption of prior works.

10 Environmental Objectives

Table 8: Environmental Objectives

Objective	Sub-objective	Aspirational sub-objective (if appropriate)	Target (Minimum)	Indicator	SEA Topic
For ongoing Arterial Drainage Maintenance activities & new Designation projects					
Support the achievement of good ecological status/potential (GES/GEP) under the WFD.	Maintain existing and where feasible, enhance natural fluvial processes in support of proposed WFD measures.	Support other relevant proposed WFD measures to improve ecological quality in surface and ground waters.	Measurable contributions to achievement of GES / GEP by 2015 through environmental drainage maintenance measures and enhancement measures.	Numbers of water bodies at risk of achieving GES/GEP from Hydromorphology.	Water (Hydromorphology)
Protect the flora and fauna within the river, river corridor and along machine and vehicular access points and where possible enhance biodiversity.	Avoid damage to internationally and nationally designates sites of nature conservation importance.	Assist in the achievement of conservation objectives of internationally and nationally designated sites of nature conservation importance.	No detrimental effects on designated sites and where possible, an improvement in conservation status.	Reported conservation status and levels of damage to designated sites.	Flora, Fauna & Biodiversity
	Avoid damage to habitats supporting legally protected species and other known species of conservation concern	Create suitable conditions to support species of conservation concern and where possible enhance.	No decrease in existing populations sizes and/or areas of suitable habitat for target species	Reported changes in population sizes and/or areas of suitable habitat maintained or created for target species	
	Protect existing riverine and wetland habitats to maintain naturally functioning ecosystems	Protect and where possible enhance areas of riverine habitat to improve biodiversity and	Protection or enhancement of existing habitats.	Area of habitat/ length of river & river corridor enhanced. Measure of biodiversity gain and positive	

Objective	Sub-objective	Aspirational sub-objective (if appropriate)	Target (Minimum)	Indicator	SEA Topic
		hydromorphological condition.		hydromorphological change.	
Protect and where possible enhance fisheries within the Arterially Drained catchments, Flood Relief Scheme channels and Designated channels.	Maintain existing habitat supporting salmonid fisheries and carry out enhancement where possible.		No decrease and where possible increase the area of salmonid habitat and reduction in barriers to upstream migration.	Areas of suitable habitat supporting salmonid fisheries. CFB assessments on biodiversity and hydromorphological improvements following river enhancement works.	Flora, Fauna and Biodiversity (Fisheries)
	Expand salmonid habitat where feasible due to barrier removal.			Length of salmonid habitat opened due to barrier removal.	
	Ensure no adverse effects on commercial shell fisheries		No deterioration in existing EPA classification due to upstream works.	EPA classification of shellfish waters	
Protect existing waterside access for recreational and community facilities during Scheme Maintenance and Designation operations.		Improve level of waterside access for recreational and community facilities during new Designation projects.	Main existing historical machine access routes along waterways.	Level of complaints/compliments from Community Councils and concerned residents or their spokespersons	Material Assets (Tourism & Recreation)
Avoid damage to the function and quality of the soil resource.	Maintain soil quality and function. For productivity on agricultural lands.		Completion of Annual Maintenance and Designation works .	Length of Channel maintained and No. of Designation projects carried out annually.	Soil & Landuse
Protect public health,	Maintain the level of	Mitigate flood risk in	Reduction in number of	Level and frequency of	Population & Human

Objective	Sub-objective	Aspirational sub-objective (if appropriate)	Target (Minimum)	Indicator	SEA Topic
safety and employment (including physical, psychological and economic aspects of flooding).	flood protection provided under the original Arterial Drainage Schemes & Flood Relief Schemes.	other areas through channel & embankment Designation.	people and properties at risk from flooding.	flooding in drained catchments and flood relief schemes.	Health
Reduce vulnerability to the impacts of climate change and maintain flexibility for future responses.	Frequency and level of flooding on Arterial Drained catchments, Flood Relief Schemes and on Designated channels and embankments.		Designed Flood Relief Schemes to provide protection up to the 1 in 100 year event. Arterial Drainage Schemes to provide protection up min. 1 in 3 year event.		Air and Climate
Support economic activities without conflicting the environmental objectives.	Maintain lands available for economic activity and no change as to render existing economic activity unviable..		Maintain benefiting lands to current economic activity potential.	Change in landuse of Benefiting lands.	Material Assets
Through advice and guidance to Local Authorities, reduce inappropriate floodplain.			Reduce numbers of new properties/developments/infrastructure at risk from flooding.	Reports of flooding of newly constructed developments (Flood Hazard Mapping database).	
Mitigate the risk of flooding to existing developments, infrastructure and material assets.			Reduction in the level of flood risk to developments, infrastructure and material assets.	Lists of channel/embankment maintenance and Designation works carried out to mitigate flood risk.	

Objective	Sub-objective	Aspirational sub-objective (if appropriate)	Target (Minimum)	Indicator	SEA Topic
For new Designation projects only					
Protect and where possible enhance landscape character and visual amenity for new Designation projects.	Protect the character of designated landscape protection areas such as Scenic Views and Scenic Routes within urban and rural areas.	Contribute to the development of attractive, accessible and safe waterway corridors of designated landscape areas.		Length of waterway corridor maintaining landscape designation post Designation works.	Landscape
Protect known features of cultural heritage.	Protect architectural buildings and structures listed on the Record of Protected Structures (RPS) and designated areas of architectural importance such as Architectural Conservation Areas (ACAs).		Reduction in the numbers of listed architectural buildings and structures listed on the RPS and ACA's at risk from flooding.	Numbers of architectural buildings and structures listed on the RPS and ACAs at risk from flooding.	Cultural Heritage (Architectural and Archaeological Heritage)
	Protect archaeological features listed on the Record of Monuments and Places (RMP) or other listed National Monument and Archaeological Sites which are at risk from flooding.		Reduction in the numbers of listed archaeological features at risk from flooding.	Numbers of archaeological features at risk from flooding.	

11 Alternatives

11.1 Alternative Management Options

Table 9 sets out the alternative channel management measures that will be considered in respect of existing Arterial drainage Maintenance activities and the future High Risk Channel Designation.

Table 9: Alternative Management Options

Management Option	Potential Measures	Sustainability (see 11.2 below)
1. Do nothing scenario	Revoke statutory requirement and cease channel, embankments and associated structures maintenance activities. Designation works not carried out.	- -
2. Do absolute minimum	Revoke statutory requirement and carry out channel, embankments and associated structures maintenance on a reactive basis. Ad-hoc Designation works on a reactive basis.	-
3. Continue statutory maintenance	Continue statutory maintenance of all channels, embankments and associated structures. Implement a criteria based Designation process as per Flood Policy.	- / +
4. Proactive approach to mitigate flood risk	Continue statutory maintenance of channels, embankments and associated structures. Propose a series of Designation for channels or defences of strategic importance.	+
5. Proactive approach to mitigate flood risk with heightened environmental enhancement.	Continue statutory maintenance of channels, embankments and associated structures. Integrate environmental enhancement opportunities. Propose a series of Designation for channels or defences of strategic importance. Integrate environmental enhancement opportunities.	++

- - *Very negative*; - *Negative*; -/+ *Negligible*; + *Positive*; ++ *Very Positive*;

11.2 Sustainability

In accordance with the three pillars of sustainable development, the overall aim is to produce a plan of activities which are sustainable i.e.

- Economically viable
- Socially acceptable
- Environmentally appropriate

Having regard to the Environmental Objectives, Table 11 entails an appraisal of the overall sustainability for each alternative management option summarised as follows:.

- Option 1 and 2; Entail little or no maintenance works which would contravene current drainage legislation. In some cases this would have an environmental benefit, other cases would have an environmental negative impact. State expenditure for river maintenance would reduce but economic losses would increase due to land productivity and flood related issues. It would be socially unacceptable to the agricultural sector and other parties effected by the increased flood risk issues.
- Options 3 and 4: Is upholding the statutory drainage requirement, will largely hold the environment at current status, is a cost effective expenditure by the State and is socially

acceptable to the agricultural sector and relevant flood prone parties.

- Option 5: Is upholding the statutory requirement, will aim to create more positive environmental impacts, can be executed in a cost effective way by the State and would be socially acceptable to many sectors.

12. Consultation

External consultation is a key part of the SEA process and consultation is to be undertaken to ensure the knowledge, experience and views of stakeholders and the general public are taken into account in accordance with statutory consultation requirement under the SEA Regulations.

As described in Section 3, the three environmental authorities will be consulted for Scoping. At the next stage, the draft Environmental Report will be consulted on a very broad basis including all stakeholders as listed in Table 10. This table entails five broad categories of stakeholder with the reasoning for including the same as follows:

- The environmental authorities - are the primary statutory bodies for environmental protection and conservation.
- Other Statutory Authorities – are statutory bodies whom have an interest in river maintenance type operations and may wish to input into this SEA process.
- River Basin District offices – can assist to ensure that the SEA produces a framework to integrate with the Water Framework Directive implementation.
- Fisheries Boards – can inform the SEA process to ensure it has regard to the need of fisheries. This includes the Loughs Agency whom have fisheries functions in some catchments in Southern Ireland.
- Non Government Organisations – includes a range of NGOs all of which have shown some form of interest in drainage maintenance type activities over the last number of years whether by direct contact with OPW or through other environmental forums.
- All Local Authorities – will have an interest particularly in the Designation process being developed as in the future Local Authorities will be able to apply to OPW for certain channels or flood defenses to be Designated.

Table 10 – Scoping & Environmental Report Stakeholders

Environmental Authorities
Environmental Protection Agency (EPA)
Department of Communications, Energy and Natural Resources (DCENR)
Department of the Environment, Heritage and Local Government (DEHLG)

Table 11 – Environmental Report Stakeholders

Other Statutory Authorities	Town Councils
Department of Agriculture & Food	Ardee Town Council
Forest Service	Arklow Town Council
Waterways Ireland	Athlone Town Council
Heritage Council	Athy Town Council
	Balbriggan Town Council

RBD Offices	Town Councils (cont'd)
North Western RBD	Ballina Town Council
Neagh Bann RBD	Ballinasloe Town Council
Western RBD	Ballybay Town Council
Shannon RBD	Ballyshannon Town Council
Eastern RBD	Bandon Town Council,
South Eastern RBD	Bantry Town Council
South Western RBD	Belturbet Town Council
	Birr Town Council
Fisheries	Boyle Town Council
Central Fisheries Board	Bray Town Council
Eastern Regional Fisheries Board	Buncrana Town Council
North Western Regional Fisheries Board	Bundoran Town Council
Northern Regional Fisheries Board	Carlow Town Council
Shannon Regional Fisheries Board	Carrickmacross Town Council
South Western Regional Fisheries Board	Carrick-on-Suir Town Council
Southern Regional Fisheries Board	Cashel Town Council
Western Regional Fisheries Board	Castlebar Town Council
Loughs Agency, Northern Ireland	Castleblaney Town Council
	Cavan Town Council
NGOs	Ceannanas Mor (Kells) Town Council
Sustainable Water Network (SWAN)	Clonakilty Town Council
Birdwatch Ireland	Clones Town Council
Bat Conservation Ireland	Cobh Town Council
Irish Farmers Association	Cootehill Town Council,
An Taisce	Droichead Nua (Newbridge) Town Council
Irish Wildlife Trust	Dundalk Town Council
Coastwatch	Dungarvan Town Council
Inland Waterways Association of Ireland	Edenderry Town Council
Friends of the Irish Environment	Ennis Town Council
	Enniscorthy Town Council
County Councils	Fermoy Town Council
Carlow County Council	Gorey Town Council
Cavan County Council	Granard Town Council
Clare County Council	Greystones Town Council
Cork County Council	Kilkee Town Council

Donegal County Council	Town Councils (cont'd)
Dunlaoghaire / Rathdown County Council	Killarney Town Council
Fingal County Council	Kilrush Town Council
Galway County Council	Kinsale Town Council
Kerry County Council	Leixlip Town Council
Kildare County Council	Letterkenny Town Council
Kilkenny County Council	Lismore Town Council
Laois County Council	Listowel Town Council
Leitrim County Council	Longford Town Council
Limerick County Council	Loughrea Town Council
Longford County Council	Macroom Town Council
Louth County Council	Mallow Town Council
Mayo County Council	Middleton Town Council
Meath County Council	Monaghan Town Council
Monaghan County Council	Mountmellick Town Council
North Tipperary County Council	Muinebheag Town Council
Offaly County Council	Mullingar Town Council,
Roscommon County Council	Naas Town Council
Sligo County Council	Navan Town Council
South Dublin County Council	Nenagh Town Council
South Tipperary County Council	New Ross Town Council
Waterford County Council	Passage West Town Council
Westmeath County Council	Shannon Town Council
Wexford County Council	Skibbereen Town Council
Wicklow County Council	Templemore Town Council
	Thurles Town Council
City Councils	Tipperary Town Council
Cork City Council	Tralee Town Council
Dublin City Council	Tramore Town Council
Galway City Council	Trim Town Council
Limerick City Council	Tuam Town Council
Waterford City Council	Tullamore Town Council
	Westport Town Council
Borough Councils	Wicklow Town Council
Clonmel Borough Council	Youghal Town Council
Drogheda Borough Council	

Kilkenny Borough Council	
Sligo Borough Council	
Wexford Borough Council	

In recognition that there are a large number of stakeholders, and in the interest of minimising paper use, consultation with the above stakeholders will consist of notification by letter of the draft Environmental Report being available on the OPW website www.opw.ie. Hard copies of the report can be supplied where requested.

In addition to the direct notification with the above stakeholders, the consultation request on the draft Environmental Report will be publicised through the national newspapers offering relevant information sources and contact details to the wider public.

ARTERIAL DRAINAGE MAINTENANCE 2009 - 2015
(FOR COMPLETED ARTERIAL DRAINAGE SCHEMES & FLOOD RELIEF SCHEMES)
&
HIGH RISK CHANNEL DESIGNATION 2009 – 2015
(FOR FLOOD RISK CHANNELS & FLOOD DEFENCES)

PART II
HABITATS DIRECTIVE ARTICLE 6 ASSESSMENT

1 Article 6

The Habitats Directive Assessment (HDA) is a requirement of the EU Habitats Directive (92/43/EEC) as transposed into Irish law through the European Communities (Natural Habitats) Regulations, 1997. In accordance with EC 2000, Article 6 is a key part of the Habitats Directive and it sets out the framework for site conservation and protection, and includes proactive, preventive and procedural requirements. It is relevant to SPAs under the Birds Directive 79/409/EEC and SACs under the Habitats Directive 92/43/EEC. The framework is a key means of achieving the principle of environmental integration and ultimately sustainable development.

The purpose of the HDA is to determine whether a plan or project is likely to have a significant effect on a Natura 2000 site in respect of its conservation objectives. Note that the phrase '*Appropriate Assessment*' refers to a stage in the sequence under Habitats Assessment, and is sometimes used more loosely to refer to the whole process set out under Articles 6(3) and 6(4) of the Habitats Directive. Therefore for this SEA the term '*Habitats Directive Assessment*' will be used, not '*Appropriate Assessment*'.

1.1 Article 6 Guidance

The publication EC 2007 is the latest EU Article 6 guidance which covers Article 6(4) and gives clarification of the concepts of alternative solutions, reasons of overriding public interest and compensatory measures. The European Commission guidance EC 2000 has expanded a number of interpretations in respect of Article 6 with the following paragraphs showing some of the more relevant extracts:

1.1.1 Article 6(1)

Member States can establish management plans which superimpose themselves on the other categories of measures. They are not always necessary but, if they are used, they should take into account the characteristics specific to each site and all foreseen activities. They may be stand-alone documents or incorporated into other development plans when those exist.

For Natura Sites, Member States are required to use the appropriate statutory, administrative or contractual measures. These measures shall take into account socioeconomic requirements according to Article 2(3). They have to (a) correspond to the ecological requirements of habitats of Annex I and species of Annex II present on the sites and (b) fulfil the general objective of the directive to maintain or restore at a favourable conservation status the natural habitats and the species of fauna and flora of Community interest.

1.1.2 Article 6(2)

Member States are required to take preventive measures to avoid deterioration and disturbances connected with a predictable event. These measures apply only to the species and habitats for which the sites have been designated, and should also be implemented, if necessary, outside the sites.

Deterioration or disturbance is assessed against the conservation status of species and habitats concerned. At a site level, the maintenance of the favourable conservation status has to be evaluated against the initial conditions provided in the Natura 2000 standard data forms when the site was proposed for selection or designation, according to the contribution of the site to the ecological coherence of the network. This notion should be interpreted in a dynamic way according to the evolution of the conservation status of the habitat or of the species.

1.1.3 Article 6(3) & 6(4)

Article 6(3) and (4) set out the circumstances within which plans and projects with negative effects may or may not be allowed. Activities not falling within the scope of Article 6(3) will still have to be compatible with the provisions of Article 6(1) — or, in the case of SPAs, Article 4(1) and (2) of Directive 79/409/EEC — and 6(2) of Directive 92/43/EEC.

The notion of what is ‘significant’ needs to be interpreted objectively. At the same time, the significance of effects should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site’s conservation objectives. The procedure of Article 6(3) and (4) is triggered not by a certainty but by a likelihood of significant effects, arising not only from plans or projects located within but also outside a protected site. The competent national authorities are those entitled to give an authorisation or consent to a plan or project.

2 Stages of Habitats Direct Assessment

The stages of a Habitats assessment are outlined in the European Commission guidance EC, 2002. There are four stages as follows:

2.1 Stage I Screening

The first stage is to determine if the plan/programme is directly connected with or necessary to the site management for nature conservation. If the answer is no, as is the case with this Plan, it must be determined if the plan/programme is likely to have significant effects on a Natura 2000 site. If the answer is yes, then the assessment advances to Stage 2.

2.2 Stage II Appropriate Assessment (AA)

The second stage is to determine if the plan/programme will adversely affect the integrity of the Natura 2000 site. It involves a more detailed assessment of the habitats and species within these sites, and an assessment of the significance of impacts on their conservation status. This assessment is carried out in the context of the work carried out under Articles 6(1) and 6(2) for the site, and relates to the habitats and species for which the site was designated. An assessment of cumulative impacts (both from the plan/programme objectives, and other policies, plans and programmes) should be carried out, and mitigation measures proposed for potential impacts. If it can be concluded that no adverse impacts are found on the integrity of the site, the plan/programme may proceed for approval. If not, then the assessment advances to Stage 3.

2.3 Stage III Assessment of Alternative solutions

Stage 3 involves the identification of alternative solutions following a review of the outcomes of Stage 2. Alternative solutions should be developed, and Stage 1 and Stage 2 assessments completed for these alternatives. If there are no alternative solutions identified, then the assessment advances to Stage 4.

2.4 Stage IV Assessment where no alternative solutions exist and adverse impacts remain

Stage 4 assessment examines whether there are human health/safety/environmental reasons for non-priority habitats or imperative reasons of overriding public interest (IROPI) for priority habitats. For the plan/programme to proceed then answer must be yes, then compensatory measures need to be developed and notified to the European Commission, before the plan/programme can proceed. If not, then the plan/programme may not proceed.

3 Requirements for Habitat Directive Assessment

3.1 Arterial Drainage Maintenance

Works under the Arterial Drainage Acts, 1945 & 1995, are contained in the Second Schedule Habitats Regulations 1997, hence activities under the Drainage Acts are to comply with Section 31 Habitats Regulations. In accordance with Section 31, *“Where an operation or activity to which any of the enactments set out in Part I of the Second Schedule applies is neither directly connected with nor necessary to the management of a European site but likely to have a significant effect thereon, either individually or in combination with other operations or activities, and such operation or activity is to be undertaken by, or requires the concurrence, consent or approval (however expressed in the enactment) of any Minister of the Government, then that Minister shall ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken”*. Accordingly, Arterial Drainage Maintenance operations require the completion of a HDA when they are located within or where they could effect a Natura 2000 Site.

3.2 High Risk Channel Designation

As referred to in Section 2.9.1 of this report, no legislation currently exists which directly enacts High Risk Channel Designation. Any future amendments to the Arterial Drainage Acts to facilitate Designation will be in effect under the Second Schedule Habitats Regulations 1997. Alternatively, cases may arise where other legislation such as Local Authorities (Works) Act, 1949 is utilised for Designation type projects. In this case, there are a number of sections within the Habitat Regulations which can apply depending on the nature and scale of the project. Irrespective, all relevant legislation sections require a HDA in effect identical to as quoted in Section 4.1 above. It is envisaged that any Designation project either within, or where they could effect a Natura 2000 Site will complete a HDA.

4 OPW Natura 2000 Sites Research

The Natura 2000 network has been screened for the impacts of Arterial Drainage Maintenance operations and a research strategy has been developed. This is published in OPW 2007 known as the Screening Report. This research strategy was in recognition that statutory drainage maintenance operations are an ongoing activity across the state and overlap with many Natura 2000 Sites to varying degrees, resulting in a possible requirement for multiple individual environmental assessments for the same conservation aspects. The strategy sets out a strategic and reasonable practical approach that can be followed by the OPW. The objective is to target resources on a more focused list of environmental assessments through a coordinated nationwide approach to gather understanding on a range of conservation aspects. The research strategy is implemented through the form of targeted Ecological Impact Assessments (EcIA).

All the EcIAs are being published as part of a series i.e. International Standard Series Number ISSN 1649-9840, *A Series of Ecological Assessments on Arterial Drainage Maintenance*. Each publication is sent to the major Irish and UK University Libraries which will facilitate access to this research by other European member states and is also published on www.opw.ie.

In accordance with Screening Report, conservation aspects have been sub-divided into three categories:

- Category I Realistic possibility that a significant effect could occur.
- Category II Requires more detailed analysis to decide if impact is either possibly significant or highly unlikely.
- Category III Significant impact is highly unlikely.

	SACs	SPAs
• <i>Category I</i> ;	11No. Species & 9No. Habitats.	1No. species
• <i>Category II</i> ;	2No. Species & 20No. Habitats.	32No. species
• <i>Category III</i> ;	6No. Species & 18No. Habitats.	24No. species

Emanating from the recommendations from the Screening Report, Category I conservation aspects were scheduled for an EcIA. The following EcIAs have been completed to date:

Issue No.	EcIA Title	Date
2	Raised Bogs & Associated Habitats	05/07
3	Salmon	05/07
4	Otter	03/07
5	Floating River Vegetation	06/07
6	Birds on Riparian habitats	09/07
7	Freshwater Pearl Mussels	12/07
8	Turloughs	02/08
9	Lamprey	12/08
10	Crayfish	05/09
11	Fens & Whorl Snails	05/09
12	Kingfisher (2008 – 2009 project)	End '09
13	Over wintering Birds & Disturbance (2010 – 2011 project)	End '11

Category II species & habitats require further analysis which will be carried out by an ecological contract. Its proposed to commence this research in 2010 subject to budgets.

5 Relevant Natura 2000 Sites

The designation process of SACs and SPAs commenced in Ireland in the mid 1990's and 1980's respectively. The national programme of Arterial Drainage Schemes commenced in 1948 with the larger schemes and finished in 1995 with the completion of one of the smallest schemes. In terms of the area of catchments, 99% of the national arterial drainage scheme programme was completed by 1990. Accordingly, effectively all Natura 2000 designations are of conservation aspects in a post drainage scheme environment.

SACs:

At present there are 424 SACs within the state covering 1,349,945 hectares and 68 sites overlap with arterial drainage channels. There are a total of 83No. conservation aspects protected by the SAC network and 66No. of these are encapsulated within the 68 relevant SACs.

SPAs:

There are 135 SPA sites within the state covering 292,728 hectares and 22 sites overlap with arterial drainage channels. Overall, 22No. Annex I and 35No. Migratory species are occurring within the 22 relevant SPAs.

A significant volume of screening type information in respect of the overlap between Arterial Drainage Channels and relevant SACs and SPAs has previously been compiled by OPW for the Screening Report (OPW, 2007). This includes the identification of each relevant Natura 2000 Site, the relevant Arterial Drainage Scheme, the numbers of channels that overlap each site and the conservation aspects for each site. This information will be updated for the Environmental Report and will be useful information to assist in assessing the key environmental issues.

6 European Commission and Ireland's infringement

As the HDA requirement is driven by European legislation, it is useful to draw on relevant experience of the Commission. While there are a number of infringement cases against Ireland by the European Commission in respect of various of environmental directives, OPW have only been involved in one case. Case C-418/04 is primarily in respect of the Birds Directive and as one component, OPW were deemed not to have complied by carrying out arterial drainage maintenance works on Glen Lough SPA 004045 in 1997 without having carried out a HDA. In the interim, OPW have carried out restoration works to the wetland area and have commenced longterm hydrometric monitoring.

This case has advanced through the European Court of Justice and is currently at the stage of Letter of Formal Notice under Article 228 to invoke fines against Ireland. The Letter of Formal Notice has cited the nine primary issues from the original case, one of which is Drainage & Glen Lough. Eight of the reasons are further expanded upon but Drainage & Glen Lough is not referred to in the supporting text.

7 Framework for Habitats Directive Assessment

7.1 Current Approach

In 2009, OPW introduced an assessment procedure for arterial drainage maintenance works in Natura 2000 Sites. This involves the completion of an Assessment of Significance form by an ecological consultant for each SAC and SPA, on which works were proposed. For 2009, maintenance works overlapped with 39 individual Natura Sites. Eight of the sites were of similar scale for both the SAC and SPA designations hence a single SAC / SPA combined assessment was carried out for these sites. In total, 30 Assessments of Significance were produced encapsulating the 39 Natura 2000 sites. It's expected that this number of Natura 2000 sites would be typical for the annual arterial drainage maintenance work programme with maintenance operations in many of the Natura 2000 sites every year.

This assessment of significance is effectively a Stage I screening assessment. The process includes conducting a desktop assessment of each site utilising all readily available information such as the findings from the OPW EcIAs, NPWS/ Fisheries conservation information, combined with the ecologists own findings and expert judgment emanating from the pre-works site visits. 25% of the sites are selected for assessment for both pre and post drainage maintenance operations. This allows the ecological consultant to gain understanding of typical ongoing maintenance operations in Natura 2000 Sites and to identify and monitor mitigation and enhancement measures. Sites for survey are selected on the basis of a national geographical spread and to cover a diversity of the relevant conservation aspects.

OPW are currently in the process of forwarding these Assessments of Significance to NPWS regional management and will be attaining feedback from NPWS on the success of this approach as 2009 progresses. The post maintenance inspection findings by the Ecological Consultant will be reported upon before the end 2009. This report is to collate independent opinion on confirmation that mitigating measures were effectively implemented, that the expected absence or presence of impacts was correctly assessed and assist to identify any refinements to the process to further improve the same for the future. This is an evolving process and lessons learnt from 2009 will be brought forward to 2010 works programme.

7.2 Future Approach

The medium term objective for Drainage Maintenance and Designation is to set up a framework which will achieve full compliance with the HDA in an effective and efficient manner. With regard to the experience from the 2009 Assessment of Significance process the following is a draft outline of a future HDA approach and the main issues to be considered:

- Many Natura 2000 Sites can be screened out at Stage I where the Assessment of Significance process is in a position to conclude that there is unlikely to be a significant effect on the site's conservation aspects due to the proposed drainage maintenance works, particularly when best practice measures are applied to the operations.
- A number of larger SACs e.g. Lower Shannon, Corrib, Boyne and Moy have multiple conservation aspects, in many cases quite localised within the site itself. Where specific conservation knowledge is known, typically the impacts can be described as not significant particularly when best practice measures are applied to the operations. However, a lack of site wide information on habitats/species locations makes it difficult for the impact to be fully assessed at Stage I i.e. Assessment of Significance process. The next stage in accordance with the HDA is a more detailed Appropriate Assessment type study but the necessity of this would be partly dependent on the presence or absence of a Conservation Management Plan. Options that could be explored on how to most effectively address this data gap and achieve efficient HDA compliance are discussed in Section 8.
- A number of Natura 2000 sites compose of water dependent habitats such as Raised Bogs, Fens and associated habitats. Emanating from the relevant EcIAs and ecological site visits, the Assessment of Significance process can typically conclude that the short term drainage maintenance impacts are unlikely to be significant. However, the Assessment of Significance conclusion is indeterminate as it is not known if arterial drainage schemes, sometimes completed decades ago, are having a continued effect on the hydrology of the habitat. Similar to the large SACs, the next stage in accordance with the HDA is a more detailed Appropriate Assessment type study. Again, the necessity of this would be partly dependent on the presence or absence of a Conservation Management Plan and this is discussed in Section 8. In addition, in this category of wetland habitat SAC, the lack of longterm data may always present a difficulty for the Appropriate Assessment even if a Conservation Management Plan was available. Its envisaged one source of information is expert opinion by NPWS to establish if there is ongoing ecological decline of the habitat and judgement on if the drainage channel is a contributing factor by affecting the hydrological regime. In tandem, OPW engineering staff will assess for the presence of a water level control such as a bridge floor that would act as a limit on the hydrology or where deemed warranted, insert an alternative reference datum or level control structure. In addition, the benefit of setting up longer-term research on a selection of sites also needs to be considered. It is envisaged that parallel to this SEA process, these aspects in respect of Bogs, Fens and Turloughs will be progressed by OPW in consultation with NPWS, to assist in developing an effective environmental framework by the end of the SEA process.
- To date, Stages III or IV i.e. Alternative Solutions or Compensatory Measures have not been formally used within Drainage Maintenance or Flood Relief projects. It is not envisaged that these mechanisms would be necessary for historical drainage maintenance operations or for the scale of the new Designation projects unless in some unforeseen exceptional circumstances.

8 Conservation Management Plans

8.1 Current Status

Conservation management plans typically include descriptive information about a site, includes habitats maps of the site and a management framework which outlines objectives and strategies. It is a goal of NPWS to draw up conservation management plans for all SACs and SPAs and there are currently circa 45 plans for SACs at draft stage on the website www.npws.ie. Of these 45 plans, two sites overlap with Drainage Maintenance operations i.e. SAC 000647 Kilcarren-Firville Bog and SAC 002164 Lough Golagh & Breesy Hill.

In accordance with EC, 2000, the habitats Directive enshrines the subsidiarity principle and as such lets a large margin of manoeuvre to the Member States for the practical implementation of specific measures related to the various sites of the Natura 2000 network. In any case, the Member States are free to choose the appropriate way they wish to implement the practical measures, provided the latter serve the general purpose of the directive.

8.2 Potential Role

The ideal context for the consideration of the impacts of arterial drainage maintenance is under Article 6(1) of the Habitats Directive under which specific conservation measures are set out under some form of management plan, which would inform the HDA process. The conservation measures are required to take account of economic, social, and cultural requirements, and regional and local characteristics, in line with Article 2(3) of the Habitats. This will have some applicability to drainage maintenance functions which maintain many existing agricultural and extractive activities, infrastructure of national, regional and local importance and protects against flooding of land and property. In the absence of management plans under this section and as an interim measure, it is necessary, although less desirable from OPW's perspective, that arterial drainage maintenance proposals be considered under Article 6(3).

Conservation management plans have potential to act as an efficient framework to integrate the site's conservation objectives with the ongoing human activities including statutory drainage maintenance, land management practices, amenity use, necessary ecological research and monitoring etc. There may be options to apply many HDA requirements at the time of the development of these Management Plans for existing and reasonably foreseeable activities. Alternatively, the ecological information developed to produce the plan would assist OPW in completing a more informed Stage I screening exercise, which if shows there was unlikely significant effect, would remove the requirement for Stage II Appropriate Assessment.

Designation projects are generally new proposals and are most likely to require consideration under Article 6(3) and in some exceptional circumstances, the use of Article 6(4).

Holistic type Conservation Management Plans have potential to streamline the need for various authorities including OPW, in conducting multiple Appropriate Assessments at different times. In a national context, they could enable better preparation of projects to minimise negative impacts and could prove to be the most efficient way that Ireland could demonstrate full compliance with Habitat & Birds Directives. The role of these plans will require consideration as to how they could dovetail with an HDA framework for Drainage Maintenance and to a lesser extent, Designation projects.

8.3 Sectoral Appropriate Assessments

While it is recognised that there will always be a requirement for more species/habitats knowledge, from the 2009 Assessment of Significance process, it can be judged that gaps in site specific species

and habitats knowledge and to a lesser extent, broader scientific understanding, are factors that will hamper HDA compliance for national drainage maintenance works. One option is for OPW to consider a more detailed Appropriate Assessment type study in isolation, to address all foreseeable drainage maintenance operations for a number of years for each relevant Natura 2000 site. This would most likely entail a large scale environmental assessment with much of the habitat and species information developed being of relevance to many public and private sector bodies. It is envisaged that the cost for this scale of study may be prohibitive and it is proposed that options should be explored to try and address this data gap. One scenario is a series of site specific research projects carried out in partnership between NPWS and all other benefiting public authorities including OPW, where the ecological information gathered would inform the future Conservation Management Plans.

8.4 Memorandum Of Understanding

It is recognised that holistic plans such as Site Conservation Management Plans will take significant resources to develop, particularly if they are to engage widespread consultation and “buy-in” from all stakeholders. In the current economic climate, it is not envisaged that NPWS will have sufficient resources to achieve this work in the near future. An alternative option is for OPW and NPWS to develop a “Memorandum Of Understanding” (or Service Level Agreement) between the two organisations. This would set out some form of a road map as to how Ireland is on target to achieve full HDA compliance for a range of flood risk management activities. As an interim measure, this method has potential to address a number of uncertainties, promote a partnership approach to research and monitoring and make the process more transparent which would be beneficial for future reporting to the EU Commission.

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Appendix 1 (Sample Assessment Form)

ASSESSMENT OF SIGNIFICANCE OF IMPACT OF STATUTORY ARTERIAL DRAINAGE MAINTENANCE ON NATURA 2000 SITES



SAC/ SPA Site: _____

CONSERVATION ASPECTS OF SAC

Annex I Habitats:		Annex II Species:	
Priority Habitats:	Non-priority Habitats:	Fauna	Flora

SPECIES OCCURRING IN SPA

Annex I Birds	BoCCI Red List	BoCCI Amber List	FPO Species	Other

MAINTENANCE DETAILS

Region: _____ Drainage Scheme: _____

Relevant Channels:

Channel	Section	Scheme	Chainage		Year of Last Maintenance	Machine No.	Maintenance Details					
			From	To			A	B	C	D	E	F

Maintenance Details Guide

A = Silt / Vegetation Management

B = Aquatic Vegetation Cutting

C = Bank Protection

D = Bush Cutting / Branch Trimming

E = Tree Cutting

F = Bridge / Structure Repairs

Assessment of Significance

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.

**Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:
size and scale; distance from the Natura 2000 site or key features of the site; emissions (disposal of spoil); excavation requirements; transportation requirements; duration of works; other.**

**Describe any likely changes to the site arising as a result of:
reduction of habitat area; disturbance to key species; habitat or species fragmentation; reduction in species density; changes in key indicators of conservation value (water quality etc); climate change.**

**Describe any likely impacts on the Natura 2000 site as a whole in terms of :
interference with the key relationships that define the structure of the site**

**Provide indicators of significance as a result of the identification of effects set out above in terms of:
loss; fragmentation; disruption; disturbance; changes to key elements of the site (water quality etc)**

**Describe from the above those elements of the project or plan, or combination of elements, where the
above impacts are likely to be significant or where the scale or magnitude of impacts is not known.**

Relevant Best Practice

Statement of Significance of Impact

<i>Assessment carried out by</i>	
<i>Sources of Data</i>	
<i>Level of Assessment completed</i>	
<i>Where full results can be accessed</i>	
<i>Ecologist</i>	
<i>Selected for pre / post assessment</i>	

Appendix 2 (Screening Extracts)

Extract from:

Engineering Services Business Plan – West Region's Annual Drainage Maintenance Work Programme Summary

Main Channels

Scheme	1st. Qtr. (m)	2nd. Qtr. (m)	3rd. Qtr. (m)	4th. Qtr. (m)	Total (m)
Corrib / Clare	0	1,169	0	0	1,169
Corrib / Headford	3,737	1,393	0	3,737	8,867
Corrib/Mask	0	1,169	308	0	1,477
Moy	2,900	2,780	3,550	2,900	12,130
Bonnet	0	0	0	0	0
Boyle	0	0	0	4,243	4,243
Donegal Group	8,916	3,292	4,800	7,600	24,608
Total	15,553	9,804	8,658	18,479	52,494

Minor Channels

Scheme	1st Qtr (m)	2nd Qtr (m)	3rd Qtr (m)	4th Qtr (m)	Total (m)
Corrib / Clare	43,180	44,899	50,499	32,318	170,896
Corrib / Headford	11,640	10,851	4,932	22,503	49,927
Corrib / Mask	9,684	8,371	6,566	9,684	34,305
Moy	44,958	35,712	40,330	44,196	165,196
Bonnet	914	5,029	3,511	1,536	10,991
Boyle	14,566	10,715	13,753	6,895	45,928
Donegal Group	15,000	0	0	13,600	28,600
Total	139,944	115,577	119,591	130,732	505,843

Extract from:

West Region's Annual Drainage Maintenance Works Programme 2009

<i>Scheme</i>		<i>Corrib Clare</i>		<i>Machine/Gang</i>		<i>5/154</i>		<i>Short Reach</i>		
ID	CHANNEL	Section	Remarks	A B C D E F	From	To	SAC	NHA	SPA	Last Mts
338	C3/32/3			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	740				21/01/2009
339	C3/32/4			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	780				14/01/2009
344	C3/32/8			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	1,320				28/01/2009
347	C3/32/10			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	800				25/02/2009
348	C3/32/10/1	2		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	3,150				18/02/2009
404	C3/35/11	4		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	10,120	297	247		18/08/2004
264	C3/18	3		<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			297			27/05/2009
273	C3/18/2	2		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	3,680				10/08/2009
4450	C3/18/1		Proposed- Replace UB 5&UB6	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	3,940	10,150				27/05/2009
4451	C3/18/1/2		Proposed-replace UB 1@120	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	0	5,770				
4452	C3/18/1/2/1		Proposed- Replace UB 1:770	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	0	780				
4453	C3/18/1/5		Proposed-repai UB 1@35	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	0	1,470				24/08/2009
4454	C3/18/1/6		Proposed - Repair UB @520	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	0	1,100				
4456	C3/18/1/5/1		Proposed	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	370	504			10/08/2009
269	C3/18/1/1			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						26/09/2007
270	F.1043			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>						08/09/2004
2911	ED @ Ballyglunin			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	347	297			03/11/2004
80	C3/8	3		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			297			18/10/2008
81	C3/8	4		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			297			
354	C3/32/13/1			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	952				13/05/2009
367	C3/35	8	40% weed bucket	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	17,558	21,493	297	247		27/05/2009
368	C3/35	9	40% weed bucket	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	21,493	23,148	297			15/04/2009
<i>Scheme</i>		<i>Corrib Clare</i>		<i>Machine/Gang</i>		<i>5/184</i>		<i>Short Reach</i>		
ID	CHANNEL	Section	Remarks	A B C D E F	From	To	SAC	NHA	SPA	Last Mts
108	F.242			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0	440	297			12/01/2001

Sample map from West Region's Annual Drainage Maintenance Works programme '09

