



OPW

Oifig na
nOibreacha Poiblí
Office of Public Works

Nature-based Solutions Catchment Management Plan - Hollyford Co. Tipperary

TECHNICAL ENGINEERING CONSULTANCY SERVICES

DOCUMENT CONTROL SHEET

Project Information:

PROJECT	Nature-based Solutions Catchment Management Plan for Hollyford Co. Tipperary
PROJECT NO.	2416
PROJECT ENGINEER	Lar Mortimer, CASA Section, RMCA Division.
PROJECT SUPERVISOR	Conor Galvin, CASA Section, RMCA Division.
DOCUMENT TITLE	Nature-based Solutions Catchment Management Plan for Hollyford Co. Tipperary – Project Brief

Revision History:

REV	STATUS	AUTHOR(S)	REVIEWED	APPROVED	ISSUE DATE
0.9	Draft	LM	CG	n/a	n/a
1	Final	LM	CG		

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ABBREVIATIONS

AA	Appropriate Assessment
AEP	Annual Exceedance Probability
APSEFR	Area of Potentially Significant Flood Risk
ASSAP	Agricultural Sustainability Support and Advisory Programme
CASA	Climate Adaptation and Strategic Assessment
CBA	Cost Benefit Analysis
CFRAM	Catchment Flood Risk Assessment and Management
DAFM	Department of Agriculture, Food and the Marine
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
FRS	Flood Relief Scheme
FSU	Flood Studies Update
GIS	Geographical Information Systems
HEFS	High-end Future Scenario
HSA	Health and Safety Authority
LA	Local Authority
LAWPRO	Local Authority Water Programme
Lidar	Light Detection and Ranging
MÉRA	Met Éireann ReAnalysis
MRFS	Mid-range Future Scenario
MWS	The Minor Flood Mitigation Works and Coastal Protection Scheme

NIFM	National Indicative Fluvial Mapping
NbS-CM	Nature-based Solutions for Catchment Management
NbS PSI	OPWs Nature Based Solutions – Potential Site Identification Project
NCCRAM	National Climate Change Risk Assessment Methodology
NPWS	National Parks and Wildlife Service
OPW	Office of Public Works
OSi	Ordnance Survey Ireland
PCDs	Physical Catchment Descriptors
PDF	Portable Document Format
PFRA	Preliminary Flood Risk Assessment
PSDP	Project Supervisor Design Process
SGM	Steering Group Meeting
TCC	Tipperary County Council

1 BACKGROUND AND OBJECTIVES

1.1 Introduction

This document constitutes the Project Brief for developing a Nature-based Solutions (NbS) Catchment Management Plan for Hollyford, Co. Tipperary, hereafter referred to as the 'Project'. The **Office of Public Works** (OPW), hereafter referred to as the 'Client', is the Contracting Authority and the Client for the purposes of procuring this Project.

1.2 Project Objectives

The objectives of this project are to:

- Prepare an NbS Catchment Management (NbS-CM) Plan that identifies a suite of NbS in the catchments upstream of Hollyford to reduce flood risk, identify any localised water quality issues and achieve feasible water quality improvements and additional co-benefits.
- Identify suitable funding mechanisms for each type of NbS in the Plan through the Farming for Water European Innovation Partnership, OPW Minor Flood Mitigation Works and Coastal Protection Scheme, and/or other sources of funding.
- Develop guidance on the implementation, construction, and maintenance of a range of NbS measures for use in the implementation of this and future NbS CM projects.
- Quantify the costs (including maintenance) and benefits of the measures in the Plan, including the benefits of flood damage reduction, water quality improvement, habitat creation and any other co-benefits.

1.3 Background

1.3.1 Nature-based Solutions

Nature based solutions are multi-functional measures that aim to protect water resources and address water-related challenges¹. These measures involve techniques that aim to work with natural hydrological and morphological processes, features and characteristics to manage the sources and pathways of floodwaters. These techniques include the restoration, enhancement and alteration of natural features and characteristics, but exclude traditional flood defence engineering that works against or disrupts these natural processes².

¹ European Commission (2015). A guide to support the selection, design and implementation of Natural Water Retention Measures in Europe -Capturing the multiple benefits of nature-based solutions.

² SEPA (2015). Natural Food Management Handbook.

1.3.2 Minor Works Schemes

In 2009, the OPW introduced The Minor Flood Mitigation Works and Coastal Protection Scheme (MWS). The purpose of the scheme is to provide funding to Local Authorities to undertake minor flood mitigation works or studies to address localised flooding and coastal protection problems within their administrative areas. The scheme generally applies where a solution can be readily identified and achieved in a short time frame.

The MWS funds projects costing up to €2 million each and studies up to €300,000 each. For approved projects, the OPW funds 90% of the cost up to €300,000, increasing to 95% for the balance of approved funding between €300,000 and €2 million. The OPW assess applications based on the specific economic, technical social and environmental criteria of the scheme, including a cost benefit ratio.

1.3.3 Farming for Water – Water European Innovation Partnership Project

The Farming for Water (FFW) project, an EIP-AGRI initiative running from 2024 to 2027, aims to improve water quality through collaborative, sustainable agricultural practices. Led by the Local Authority Water Programme (LAWPRO), Teagasc, and Dairy Industry Ireland, the project features €50 million in funding for farmer-implemented actions and €10 million for administration. It brings together farmers, researchers, and policymakers to develop practical, scalable solutions that exceed regulatory requirements.

Agricultural Sustainability Support and Advisory Programme (ASSAP) advisors and LAWPRO work as a two-step partnership where LAWPRO provides the science and ASSAP delivers the face-to-face solutions. Together, they operate on a model of "the right measure in the right place" to protect local water bodies. Hollyford catchment is a nitrogen Area for Action.

1.4 Project Structure

The Client and the Steering Group will direct and guide the Project. The Client will also act as technical advisor in relation to all aspects of the project and shall carry out technical reviews of the project deliverables at key stages. The Consultant shall direct all correspondence to the Client.

The Steering Group will comprise of representatives from the OPW, Tipperary County Council (TCC), LAWPRO and other key stakeholders as deemed necessary by the Client.

Once the NbS – Catchment Management Plan is completed, LAWPRO will progress the project to implementation as a MWS (or similar).

1.5 Scope of Services - Overview

The Consultant shall undertake such studies, analysis, assessments, investigations and other work as necessary to meet the Project Objectives detailed in Section 1.2

Summarised below, is an overview of the scope of services the Consultant shall deliver as part of the Scheme. The sections following the overview provide the detail of the Scope of Services.

i. Data Collection: Identification, collation, preparation and quality review/assessment of all relevant available information.

ii. Stakeholder Engagement: Engaging and consulting with TCC, LAWPRO, landowners and other relevant stakeholders throughout the Project

iii. Nature-based Solutions - Catchment Management Plan: Using OPW-provided opportunity mapping, develop a plan for the catchment to implement NbS measures that may achieve and/or contribute to the project objectives. This plan shall include specific mapped locations and extents of proposed measures as well as detailing their proposed funding mechanism.

iv. Appraisal: Complete Cost Benefit Analysis, including both flood damage reduction, water quality improvement, habitat creation and other benefits, of the NbS – Catchment Management Plan.

v. Environmental Assessment: Identify environmental constraints, along with the level of assessment and planning required for each of the measures identified. Consider WFD, AA, Planning Permission, consents etc.

vi. NbS Implementation Deliverables: Referencing The Natural Flood Management Manual – CIRIA 802 (CIRIA 2022)³, develop an 'NbS for Flood Management Implementation Booklet' containing schematics and construction guidelines for a range of specified NbS as applicable to Ireland.

vii. Funding and Implementation Recommendations: Based on lessons learnt in developing the NbS Catchment Management Plan, the Consultant shall prepare a report detailing recommendations for future funding and implementation of NbS in the catchment for flood risk, water quality, habitat creation and other benefits.

This Project Brief outlines the minimum requirements to achieve the objectives of the Project. In exceptional circumstances, additional work may be required during the Project, subject to approval of the Client. The Consultant shall identify, with appropriate justification, and inform the Client of any additional work that may be necessary to meet the requirements of the Project throughout its duration.

The reimbursable costs for the areas of client-approved additional work outside of the scope of services will be determined in accordance with the hourly rates tendered for time charges as per the Request for Tenders document.

1.6 Project Location

Hollyford is a village in County Tipperary, 20km west of Thurles. The village is located in a valley of the Slieve Felim Mountains. Hollyford is located on Multeen River with three small catchments (3.6km² (west), 7km² (middle) and 6km² (east) which drain from the north-west, north and north-east to the village. Figure 1 provides an overview of Hollyford's location.

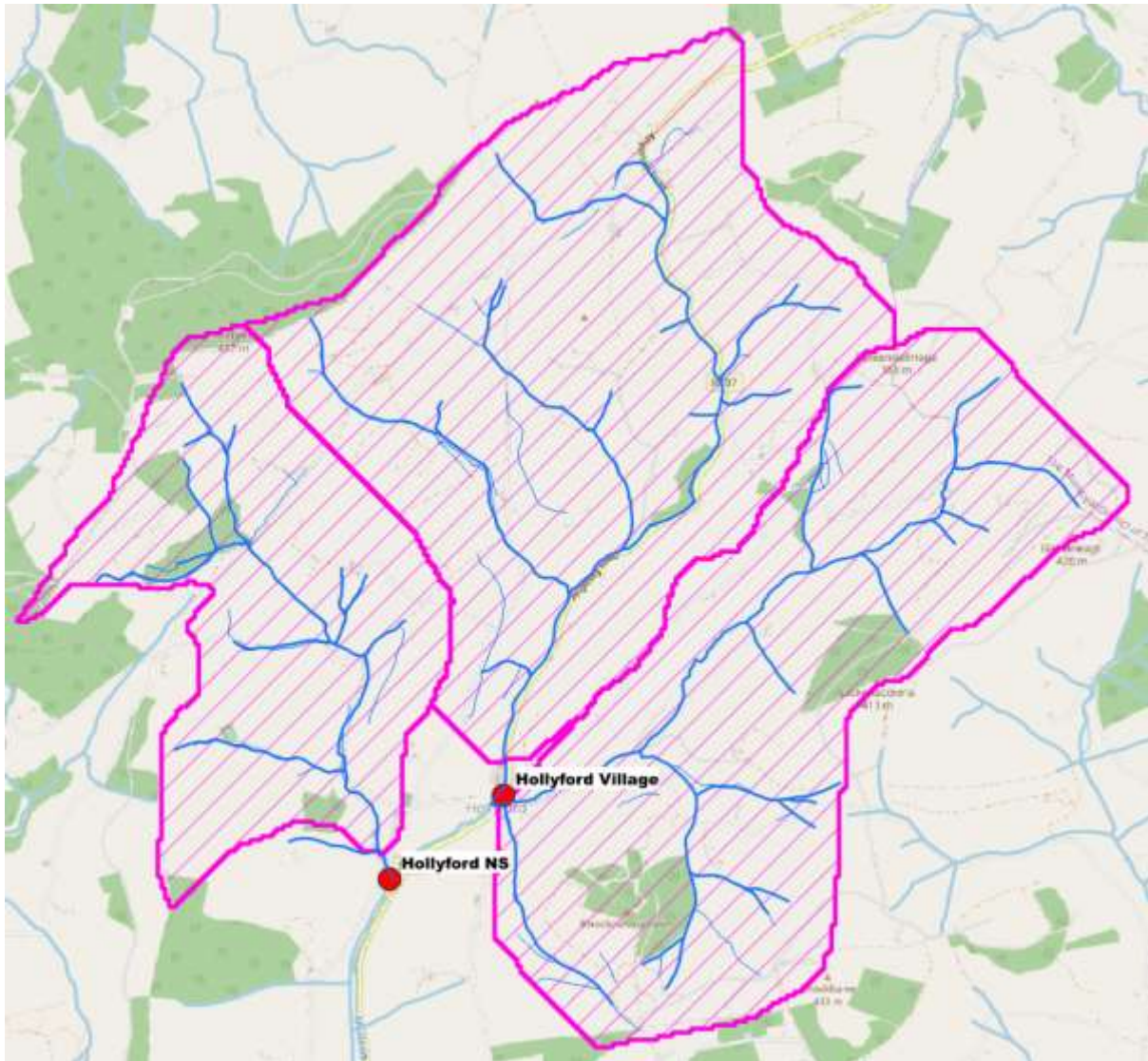


Figure 1: Location Map of Hollyford

1.7 Existing Flood Risk

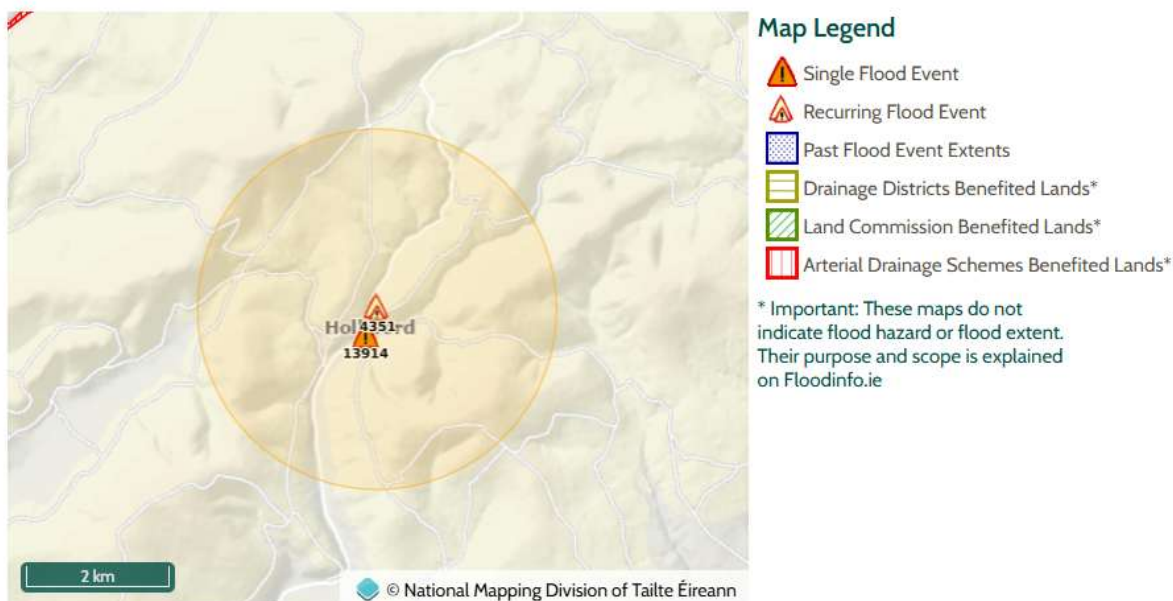
1.7.1 Reported Past Flood Events

Hollyford has historically suffered from flood events. A search of OPW's Past Flood Events database returns two results, as follows.

Past Flood Event Local Area Summary Report



OPW Óifig na nOibríochtaí Poiblí
Office of Public Works



2 Results

Figure 2: Past Flood Event Summary Map

An online search also found another flood event reported by the Irish Independent. The reported events are as follows:

31TH AUGUST 1997

The Tipperary S.R. County Council Report on Flooding in The Cashel Area described the flooding in Hollyford as “... the most extreme storm experienced in this area in living memory and at the height of the storm a raging torrent 600mm (2 feet) flowed down the Main Street in Hollyford.” The storm event for the Cashel Area is reported as 65mm rainfall over a 48-hour duration, with the majority noted to fall between 11:00-11:45. Road surface and culvert repair works were required as a part of the damage caused in Hollyford.

MARCH 1999

An Irish Independent article reported flooding caused from over of bank flow upstream of Hollyford. “Following heavy overnight rain on Monday morning 2nd at approximately 3.30 am, the Miltien River burst its banks at Reafadda on the Nenagh Road and poured down into the village. Luckily a householder heard the noise of the rushing water and alerted their neighbours who used sandbags to prevent the water entering their premises. Some houses were flooded, others were partly flooded. Part of the sawmills were also flooded. On Monday, Tuesday and Wednesday, Co. Council workers were engaged in a clean-up of the area.”

JANUARY 2006

The minutes of a Tipperary County Council on 26th January 2006 report four or five houses and business flood internally after heavy rain.

1.7.2 CFRAM Site Inspection

A Site Inspection completed in 2011, as part of the CFRAM programme found flood risk in Hollyford as follows:

Summary of CFRAM Site Inspection

“Flood risk in Hollyford is in two areas. Downstream area school and house (thatched roof) at risk. House downstream of bridge shown at risk is raised high. Flood water would also flow down the road if out of bank flooding occurred upstream. Second area upstream there is a low point in Hollyford which include the credit union, community hall, shop and houses. Possible risk to timber yard. Other houses adjacent to watercourse are raised up high.”

1.7.3 Preliminary Risk Flood Assessment

In 2023, the third cycle of the OPW Preliminary Flood Risk Assessment (PFRA) was completed. The objective of the PFRA was to define Areas of Potential Significant Flood Risk (APSFR). The results identified that for a 0.1% AEP fluvial flood event there are nine residential and four commercial receptors at risk in Hollyford.

1.8 Project Programme

The Project Programme shall be as per the programme tendered by the Consultant (refer to the Request for Tenders for further detail), and shall accommodate a **two (2) week period** for Client review of all draft/final deliverables and the following considerations:

- i. The Project has an anticipated commencement date of **October 2026**.
- ii. The Steering Group shall hold the first meeting (**Commencement Meeting**) within **three (3) weeks of appointment**.
- iii. The Steering Group shall hold its **second meeting** within **ten (10) weeks of commencement**.
- iv. The Consultant shall undertake a review of existing data and identify any potential data gaps that would hinder fulfilling the requirements of the Project **one (1) week prior to the first Steering Group Meeting**.
- v. The Consultant shall submit the draft NbS – Catchment Management Plan, within **twelve (12) months of the Commencement Date**.

The Consultant shall set out the sequencing of tasks and deliverables in the Project Programme, which will form the basis of stage payments and present the programme in PDF format. The programme shall clearly set out all timelines and dates for all activities and the resources provided to meet the overall programme. The Consultant shall review, and if necessary update, the Project Programme every month showing all amendments, revisions and slippage. The programme will be a key element of Project Management Services.

2 PROJECT MANAGEMENT

2.1 General Management

2.1.1 Project Management

The Consultant, acting on behalf of the Client, shall carry out its duties in accordance with the terms and conditions of the Contract under the direction of the Client.

The performance of the Consultant will be monitored and reviewed by the Client with reference to contractual requirements and general professional standards. The quality and accuracy of all reports and deliverables is the responsibility of the Consultant.

The Consultant will notify the Client as soon as they become aware of:

- Circumstances likely to require change in the agreed scope of works or programme.
- Insurance default.
- Information, access, assistance, etc., that is urgently needed.

The consultant must nominate a Project Manager who will have the ultimate responsibility for the successful delivery of the contract. The nominated Project Manager must be selected from one of the following:

1. Lead Hydrologist/Engineer
2. Lead NbS/Environmental Specialist
3. Lead Stakeholder Facilitator

2.1.2 Steering Group Meetings

The Steering Group will comprise of representatives from the Client, TCC, LAWRPO, the Consultant, and other key stakeholders as deemed necessary by the Client.

The Consultant shall attend, in person, three Steering Group Meetings (SGMs) at the offices of the OPW in Headford, Co. Galway or in the offices of TCC, as decided by the Client. The SGMs are as follows:

- The first SGM (Commencement Meeting) shall include a discussion of the methodology and assessment of NbS potential in the Project catchment.
- The second SGM shall include a discussion on the draft NbS – Catchment Management Plan.

The Consultant's Project Manager shall attend all SGMs.

For each SGM the Consultant shall prepare and submit, **not more than five (5) and not less than three (3) working days** in advance of each meeting, an agenda and all relevant reports, drawings and other material to the SGM .

The Consultant shall minute the SGMs including a summary of actions arising with associated responsibilities and deadlines and submit the minutes to all Steering Group Members for comments and observations **no later than three (3) working days** after the date of the meeting.

2.2 Safety, Health, and Welfare

2.2.1 General and Legal Obligations

Full compliance with the requirements of the Safety, Health and Welfare at Work Act 2005, and its revisions, and with all other safety, health and welfare legislation, regulations, codes of practice and standards, and their revisions, is required from all parties (including sub-consultant's, specialists and contractors) involved in this Project.

The Consultant shall advise the Client on any matters of Health and Safety, particularly in relation to current law, which may have implications for the Client, or require action by, or on behalf of, the Client in connection with the Project.

2.2.2 Hazard and Risk Assessment

Upon appointment, and prior to the Consultant's staff undertaking any of the work described above, the Consultant should prepare, for any activity that forms part of the Project, a Hazard and Risk Assessment and submit a copy of the completed assessment to the Client.

The Consultant shall actively assess and identify hazards, risks and suitable mitigation measures throughout the duration of the Project, and shall update the hazard and risk assessment as and when appropriate, and submit the assessment to the Client and Steering Group Members upon request.

In addition to the Hazard and Risk Assessment, it is the responsibility of the Consultant to identify any other risk assessments required, and to develop Method Statements as deemed necessary. This includes any instances where the Client may request, for any particular activity, a method statement for specific areas of work.

The Consultant shall maintain an up-to-date copy of the Hazard and Risk Assessment and any Method Statements prepared. These shall be submitted to the Client and Steering Group Members upon request.

2.3 Reporting Standards and Quality Assessment

2.3.1 Reporting Standards and Formats

All reports, draft and final, submitted to the Client / Steering Group by the Consultant shall be written in an appropriate technical manner, be detailed and clear, and laid out in a logical structure. The Consultant shall check and proof-read all material (draft and final) prior to submission to eliminate any technical, grammatical or typographical errors.

Draft and final reports and deliverables shall:

- Provide full and comprehensive descriptions of topics covered.

- Detail any assumptions made, including the requirement for the assumption and the justification for the assumption made.
- Support any statements made with relevant discussion and justification.
- Provide (in appendices if necessary) all data and information relevant to the topics covered.

The Consultant shall provide all reports and other documentation in both the editable file format of the item and Portable Document Format (PDF).

2.3.2 Examination of Reports and Deliverables

The Client shall provide observations / comments to the Consultant **within two (2) weeks** of receipt of a draft report / deliverable. These observations/comments will include those of the Steering Group or other external relevant parties if deemed by the Client to be necessary and appropriate.

The Consultant shall review the observations and comments, make any amendments to the report or deliverable necessary to address the comments, and provide a revised report or deliverable to the Client **within two (2) weeks** of receipt of the observations and comments.

2.3.3 Quality Assurance

The Consultant shall operate in full compliance with their in-house quality assurance standards (e.g. ISO equivalent). The Consultant shall check and quality assure all documentation and correspondence before issue to the Client and Steering Group.

All key deliverables and reports (draft and final) shall be checked, approved and signed off by the Consultant's Project Manager. Evidence of same shall be made available on request.

Other relevant project-specific quality assurance requirements are specified within the relevant sections of this project brief.

2.3.4 Digital Data Requirements

Noting the spatial nature of much of the work involved in this Project, and the role of spatial data and GIS, the Consultant shall be required to make extensive use of, and deliver, digital data in undertaking the Project (including spatial and non-spatial datasets).

The Consultant shall provide to the Client all spatial datasets with associated metadata as detailed in, and in the formats specified in OPW's latest Engineering Spatial Data Specification (OPW, 2025)⁴.

⁴ The Office of Public Works (2025) Flood Relief Scheme Engineering Spatial Data Specification. Available at https://assets.gov.ie/static/documents/f3830a1c/Engineering_Spatial_Data_Specification_Final_Rev3.1.pdf

All other (non-spatial) digital deliverables with associated metadata shall be provided/submitted to the Client in a suitable digital format as specified in this project brief, or if not specified, in an editable format that is compatible with the Microsoft Office suite of software.

2.3.5 Version Control

The Consultant shall clearly mark all deliverables and material produced under this Project with a version number, revised for all subsequent iterations.

2.3.6 Copyright and Intellectual Property Rights

The ownership, copyright and intellectual property rights of and in all data, information, drawings, calculations, images, hydraulic model files, reports and other material collated for, prepared during and produced in undertaking this Project shall be vested in the OPW. The exception is where pre-existing ownership or rights exist for the Consultant or a third party, such as in proprietary, commercial computational hydraulics modelling software packages or analytical tools developed and owned by the Consultant prior to commencement of the Project.

These requirements are in addition to, and shall not replace, any conditions in the Conditions of Engagement.

2.3.7 General Data Protection Regulations

In the course of the Project, the Consultant shall be the Processor of personal data, and shall comply at all times throughout the duration of the Project with the requirements of the General Data Protection Regulations (REGULATION (EU) 2016/679) and the Data Protection Act 2018 with any instructions issued by the Client as the Controller of the personal data.

2.4 Data Provision, Collection and Processing

The requirements herein apply throughout the duration of the Project.

It is the Consultant's responsibility to, as far as reasonably possible, identify, collect and log all relevant reports, data or information. The Consultant shall satisfy themselves as to the quality, relevance and appropriate use (or otherwise) of data promptly upon receipt of any reports, data or information.

Upon Commencement, the Consultant shall establish, and subsequently maintain throughout the Project, an Inventory of Datasets that shall identify any information, data, reports or other items (such as those noted herein) that are relevant to the Project, and shall record relevant metadata. The Inventory shall be updated by the Consultant and provided in advance of each SGM (Section 2.1.2).

Any third-party costs associated with the purchase of such data shall, subject to prior agreement, be paid for by the Client.

2.4.1 Level of Detail

The level of detail of the data capture and derivation to be undertaken under this Project should be sufficient to meet the Project Objectives (Section 1.2) and achieve the requirements of the Project as set out herein.

2.4.2 Relevant Datasets

It is the responsibility of the Consultant to identify, search for, request, extract, scan and digitise (if necessary), derive, copy (if necessary), review, quality control, format (if necessary), interpret and make use of (as relevant) all relevant information and datasets that may aid the Project, including, but not necessarily limited to:

- **Hydrometric Data:** The Consultant shall collate all hydrometric data deemed relevant to the hydrological analysis. This shall include observed fluvial water levels and flows, flow gauging's and rating curves (stage-discharge relationships) and tidal level data. The Consultant shall obtain the majority of such data from the OPW and Environmental Protection Agency (EPA).
- **Historic Flood Data:** In this context, historic flood data means information on floods that were not measured by conventional hydrometric gauges, including date and time of flooding, flood extents, levels, depths, causes or mechanisms, damages, etc. This data may be extracted from verbal or written reports about the flooding or may be deduced from trash marks or data recorded by local residents. Sources of data might include, but not necessarily be limited to, LAs and the EPA, newspaper reports, verbal reports, and online sources of historic flooding.

The OPW has collated a national web-based database of past flood information including press articles, photographs and reports relating to past floods. This database is not a comprehensive catalogue of all past (fluvial/tidal) flood events in Ireland; data was provided by source bodies from their records at their discretion. Data is currently available to view and download on www.floodinfo.ie. Data relating recent events, where it is not yet in www.floodinfo.ie, is available on request from the OPW. The OPW will provide the appointed Consultants with GIS data for past flood events on request.

- **Meteorological Data:** The Consultant shall source meteorological data, as required, from point locations that include both Synoptic Station Data (rainfall, air pressure, wind speed and direction, temperature and potential evapotranspiration) and daily rainfall gauging station data. The Consultant shall also collect gridded meteorological data such as the gridded daily rainfall dataset and the MÉRA reanalysis dataset. Other meteorological information from other networks may be relevant depending on the location of the study, for example the Transport Infrastructure Ireland (TII) network of rain weather stations. The rainfall depth-duration-frequency data generated by Met Eireannis available from Met Eireann's website www.met.ie.
- **Flood Studies Update Physical Catchment Descriptors:** The Consultant will be provided upon commencement of the Project with the FSU Physical Catchment Descriptors (PCDs) for both gauged and ungauged locations for the study area in GIS format .
- **Catchment Boundaries:** Upon commencement of the Project, the Consultant will be of provided with the available Catchment Boundary data for the study area in GIS format.

- **River Network Mapping:** The Consultant shall download the current “OSi Geometric River Network” in GIS format, available from the EPA at <http://gis.epa.ie/GetData/Download>.
- **Land-Use Data:** Data on the current and past uses of the land. Such data is likely to be available from the National Land Cover Map (NLC 2018) (published in March 2023). Other relevant data may be available from the LAs or other sources.
- **Land Ownership:** The Consultant shall identify and record all landowners, including through a Property Title Search, occupiers, and holders or beneficiaries of rights in the Hollyford catchments, see Figure 1.
- **Environmental Data:** Previously collected or currently available information, reports, studies, zoning and assessments of environmental status, issues, constraints and impacts. Sources of relevant data may include, but not necessarily be limited to, the National Parks and Wildlife Service (NPWS) (including information available from the NPWS website), Inland Fisheries Ireland (IFI), the EPA and the Local Authority Waters Programme. Using available datasets, the Consultant will be required to identify sensitive habitats or features and other constraints adjacent to, upstream and/or downstream of the NbS Catchment Management Plan area, which could potentially affect, or be affected by the installation of NbS measures (see 3.7). The EPA’s website, www.catchments.ie, provides a comprehensive GIS based data and information resource on Risk, Water Quality, Environmental Pressures, Protected Areas, and Susceptibility.
- **Other Receptor Data:** Data on flood risk receptors, including types and locations, such as property types, utility and transport infrastructure, national monuments and protected structures, hospitals, schools, etc. While the OPW will endeavour to provide national datasets (e.g. PRIME2, GeoDirectory) to the Consultant, the Consultant will be required to fill in any gaps in the information and collect and verify data locally, where appropriate.
- **OPW Nature Based Solutions – Potential Site Identification Data:** The Consultant shall download and use this data as an initial indicator of NbS Potential. The maps offer a useful preliminary indication of NbS suitability at local and catchment level. The national-scale maps are downloadable at data.gov.ie.

2.4.3 OSi Map Information

Ordnance Survey Ireland (OSi) datasets will be made available to the Consultant, on request, at the scales and formats for which the OPW holds a licence.

The OPW holds a copy of the OSi PRIME2 dataset, which is updated on an annual basis, as the OSi is constantly updating and evolving the dataset. A detailed list of current PRIME2 features can be accessed here: <https://www.osi.ie/wp-content/uploads/2018/04/PRIME2-Client-Documentation-Concepts-V-02.4.pdf>. The OPW will provide their most current version of the PRIME2 Buildings Polygon Dataset and other specific PRIME2 data where these datasets may aid analysis.

The Consultant shall display OSi licence and disclaimers on all maps and materials incorporating OSi data.

2.4.4 Licences and Disclaimers

The Consultant may avail of the OPW licences for the above listed datasets, in Sections 2.4.3, as relevant, for use only on this Project. The OPW do not accept any responsibility for errors or omissions in any information or map data provided to the Consultant for this Project.

The Consultant shall ensure that all relevant licences and disclaimers are displayed on all published material where the provided material is used.

3 SCOPE OF SERVICES

The Consultant shall undertake such studies, analyses, assessments, investigations and other work as necessary to meet the Project Objectives (Section 1.2). The services set out within the following sections are applicable throughout the duration of this Project.

3.1 Review of Existing Data

The Consultant shall search for, identify, locate, register, extract, review, quality control, format (if necessary), interpret and (where appropriate) make use of all potentially relevant information that may aid the Project. The review of data shall consider the suitability, quality and accuracy of relevant datasets.

The Consultant shall, immediately upon commencement of the Project:

- Register, review and quality control all information and datasets
- Verify the suitability of the data assessment methodology proposed in their tender submission.
- Identify all potentially relevant information and datasets that may aid the Project.
- Establish, and subsequently maintain throughout the Project, an Inventory of Datasets that shall identify any information, data, reports or other items that are relevant to the Project.

The Consultant shall satisfy themselves as to the quality, suitability and accuracy of data promptly upon receipt of any reports, data or information.

Any data manipulation, processing or derivation required to make data easier to use or read for the purpose of this Project is the responsibility of the Consultant.

3.2 Survey and Other Contract Services

No surveys and other contract services are expected to be required as part of this Project. The procurement of any additional surveys shall be specified by the Consultant and are subject to agreement of the Client.

3.3 Site Visits

In addition to public and stakeholder engagement, the Consultant shall undertake a minimum of **three (3)** site visits, accompanied by the Client, if available, the relevant OPW staff and LA representative to:

- Familiarise themselves with the catchment and identify/investigate the possible locations for NbS measures, including a complete walk over of the upstream catchment area
- Identify such issues as invasive species, absent landowners etc.
- Report on the details and outcomes of the site visits – a deliverable
- Enable a robust initial assessment of potentially viable NbS
- Confirm the proposed NbS –Catchment Management Plan

3.4 Public and Stakeholder Engagement

The Consultant is required to engage and consult with LAWPRO, TCC, Coillte, Department of Agriculture, Food and the Marine (DAFM), NPWS and other identified stakeholders throughout the duration of the Project.

As part of the public engagement requirements for the Project, the Consultant is required to identify and record all landowners, including through a Property Title Search, occupiers, and holders or beneficiaries of rights that may be affected by the construction, operation, and future maintenance of the measures in the NbS – Catchment Management Plan. The Consultant shall engage with relevant landowners to determine the viability of the proposed measures. In the case of a measure spanning multiple landowners' land, agreement is required for all landowners and occupiers for it to be considered a viable measure in the NbS Catchment Management Plan.

Landholder engagement also requires meeting landowners and other affected parties to confirm ownership, right of way, access impacts and compile accommodation works requirements. Throughout the course of the Project, the consultant shall fill a project facilitator role, which will liaise with landowners to inform of the project process, updates at relevant stages and create inclusion between landowners and the project.

LAWPRO will be implementing the NbS-CM plan after project completion and will assist stakeholder and public engagement, however, LAWPRO will not be engaging on behalf of the Consultant. It is the Consultant's responsibility to carry out a thorough engagement process to satisfy themselves as to the feasibility of implementing NbS measures.

3.4.1 Public Engagement Meeting

The consultant shall participate in **three (3)** public engagement meetings held locally to Hollyford. One held at the initial stages of the Project, a second to update the public on progress to date and the third shall be at the draft NbS – Catchment Management Plan stage. The public engagement events will be organised by the Consultant with support from LAWPRO.

The Consultant shall prepare documentation and display material and boards such as maps, drawings and presentations. The Consultant shall also attend at such sessions. The Consultant shall submit a summary report to the Client detailing the events including details of attendance, effectiveness, comments received, etc.

3.5 Hydrological Analysis

The Consultant shall undertake a high-level hydrological analysis as necessary to meet the Project Objectives (Section 1.2). The hydrological analysis shall include an estimation of flows, water levels and extents as necessary to complete the Project and understand flood risk. Understanding flood risk shall also include a review of past flood and extreme events in the catchment.

To complete the high-level hydrological analysis the Consultant may decide to use and build on certain elements of previous studies. Likely useful studies include:

- Suir CFRAMS
- Preliminary Flood Risk Assessment (PFRA)
- FSU Qmed Atlas
- National Indicative Fluvial Mapping (NIFM)

3.6 Potential for Nature-based Solutions Maps

To carry out the Project, the Consultant shall use the OPWs NbS Potential Site Identification (NbS PSI) maps for the catchment.

The NbS PSI maps identify areas that have the potential for the following categories of NbS:

- Runoff reduction
- Floodplain roughening.
- Floodplain Reconnection.
- Wetland Creation & Restoration

3.7 NbS Catchment Management Plan

The Consultant shall deliver an NbS Catchment Management Plan detailing a suite of NbS measures for implementation in the catchment to achieve and/or contribute to the project objectives. The NbS Catchment Management Plan shall be a site-specific implementation plan.

The NbS Catchment Management Plan may include any combination of Measure Group or Specific NbS, as listed in Table 1, or any additional Specific NbS identified by the Consultant.

The Consultant shall:

- Identify NbS measures across the catchment based on individual site constraints.
- Calculate estimated flood storage volume and peak flow reduction for each option.
- Analyse the potential cumulative flood risk reduction affects in the catchment for the Current Scenario, the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS).
- Evaluate possible water quality improvements.
- Evaluate biodiversity gains, carbon sequestration potential etc.
- Evaluate the cost of implementing, list the potential funding sources, and determine maintenance requirements, costs, and the expected life span of each measure.
- Carry out a cost benefit analysis comparing the cost of implementation and maintenance of each measure with avoided flood damages and monetised co-benefits.
- Carry out a cost benefit analysis comparing the cumulative costs with avoided flood damages and monetised co-benefits for the whole catchment.
- Draft templates for third-party landowner and maintenance agreements to secure long-term land access where required.

- Identify potential for individual and cumulative impact of each NbS on the receiving environment including water quality, WFD status and habitats and species of conservation interest. Identify likely planning pathways (if any) and licensing or consenting requirements. (Detailed ecological assessment are not required and will be carried out by LAWPRO as necessary in Phase 2)
- Develop biosecurity protocols for the implementation phase to prevent the spread of invasive species or other diseases such as ash dieback, bovine tuberculosis, crayfish plague etc.
- Develop a material sourcing guidelines. For example, to source local stone, using native timber felled on-site etc. to reduce carbon footprint and costs.
- Create silt and sediment control protocols for the implementation of NbS measures.
- Engage with stakeholders and develop a community engagement plan.
- Provide GIS Shapefiles of each specific NbS measure across the catchment outlining the type of measure, its extent and its location and any other spatial datasets produced during the study.
- Analyse the available delivery routes (funding) for the implementation of NbS measures and recommend those most likely to have the best potential for the catchment.

Measure Group	Specific NbS	NbS PSI Layer
Woodland creation	Catchment woodlands	Runoff reduction
	Floodplain woodlands	Runoff reduction, floodplain roughening
	Riparian woodlands	Runoff reduction, floodplain roughening
Land management	Land and soil management practices	Runoff reduction, floodplain roughening
	Agricultural and upland drainage modifications	Runoff reduction, wetland creation & restoration
	Non-floodplain wetlands	Runoff reduction, wetland creation & restoration
	Overland sediment traps	Runoff reduction
	Replanting of appropriate vegetation e.g. sphagnum moss	Wetland creation & restoration
	Seed inoculation	Wetland creation & restoration
	Cross drains and deflectors (water bars)	Runoff reduction
	Bunds or Bunded Cross slope hedgerows	Runoff reduction
River and floodplain restoration	Paleo-channel restoration	Floodplain reconnection
	River morphology and floodplain restoration	Floodplain reconnection
	Instream structures (e.g. large woody debris)	Floodplain reconnection
	Washlands and offline storage ponds	Floodplain reconnection, floodplain roughening

Table 1: List of NbS Measures linked to the NbS PSI Project

3.7.1 Cost-benefit

In carrying out the cost-benefit analysis (CBA) the Consultant shall apply the benefit criteria set out in ‘Appendix 1 Assessment of Benefit - Coastal and Non-Coastal Flooding - (Not Erosion)⁵’ of the OPW Minor Works Scheme to calculate the flood damage reduction benefits of the measures in the NbS – Catchment Management Plan

In addition to flood damage reduction, the Consultant shall also appraise the other potential benefits of NbS in this Pilot study. To calculate other potential benefits, the Consultant shall apply “Natural flood management benefits estimation method” (Environment Agency, UK, 2025)⁶ in an Irish context.

Maintenance costs and the life span of each measure should be included in the CBA.

3.7.2 Early Stakeholder Engagement

Through early engagement with key landowners in the study area and informed by the landownership search, the Consultant shall identify any actions or measures that should be achievable with relative ease.

3.7.3 Selection of NbS Measures Based On Environmental Constraints

The Consultant shall select and design NbS measures based on practical environmental constraints to ensure real-world viability. A selection philosophy of “the right measure in the right place” should be adopted. To maximise project efficiency and certainty, the Consultant should prioritise pragmatic, low-risk interventions. Measures that trigger complex, lengthy environmental impact assessments should be avoided, as high regulatory hurdles risk project delays and potential rejection. Instead, focus should remain on straightforward, high-success measures.

3.7.4 Funding Streams

As part of the options, the Consultant shall explore all alternative funding streams that would be complementary to that of the Minor Works Scheme. Examples of such routes include, but are not limited to, Farming for Water European Innovation Partnership (EIP) and Forest Type 2- Forests for Water.

3.8 NbS Implementation Guidance Booklet

The Consultant shall prepare a comprehensive Implementation Guidance Booklet to accompany the Catchment Management Plan. The purpose of the booklet shall be to provide practical guidance to

⁵ <https://assets.gov.ie/static/documents/appendix-1-assessment-of-benefit-coastal-and-non-coastal-flooding-not-erosion.pdf>

⁶ <https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/estimating-the-benefits-of-natural-flood-managementh>

the Contracting Authority, landowners, project promoters, local authorities, stakeholders and delivery partners on the implementation, operation and maintenance of the Nature-based Solutions (NbS) measures identified within the study area. The booklet shall be written in a clear and accessible manner while maintaining sufficient technical detail to support future project development and implementation.

The booklet shall be informed by current best practice in natural flood management, catchment restoration and water quality improvement. In particular, the Consultant shall make extensive reference to the principles, methodologies and recommendations contained within the CIRIA C802 guidance and demonstrate how these principles have been applied in the identification, assessment and prioritisation of measures within the catchment. Where alternative guidance, standards or emerging best practice are utilised, the Consultant shall clearly explain the rationale and relevance to the proposed interventions.

The booklet shall include a series of measure-specific implementation factsheets covering all Nature-based Solutions identified through the Catchment Management Plan. These factsheets shall provide practical guidance on the purpose of each measure, site selection criteria, design considerations, expected performance, implementation requirements, maintenance obligations, limitations and potential risks.

The booklet shall identify the conditions under which the measures are most likely to be effective and any constraints relating to topography, hydrology, geology, land use, environmental designations, ownership or operational requirements.

The booklet shall provide guidance on implementation pathways, including statutory approvals, environmental assessments, landowner engagement requirements, funding opportunities and potential delivery mechanisms. Particular attention shall be given to the practical considerations associated with implementing measures on agricultural land and within working landscapes, recognising the importance of securing stakeholder support and long-term stewardship arrangements.

The Consultant shall include guidance on inspection, monitoring, and maintenance requirements for each measure type. The booklet shall also provide guidance on monitoring outcomes associated with flood attenuation, water quality improvement and ecological enhancement.

The booklet shall include high-quality maps, diagrams, photographs, cross-sections and illustrative examples to support understanding and implementation. Relevant case studies from Ireland, the United Kingdom and other comparable jurisdictions shall be included where appropriate to demonstrate successful delivery and lessons learned. The Consultant shall ensure that all graphics are suitable for publication and future use by the Contracting Authority.

The final booklet shall be professionally designed and suitable for both digital and hard-copy publication. The document shall be submitted in editable and PDF formats and shall be capable of being used as a standalone implementation guide independent of the main Catchment Management Plan. The Contracting Authority intends that the booklet will serve as a practical reference document

to support the progression of Nature-based Solutions from strategic planning through to detailed design, funding applications, construction and long-term management.

3.9 Post-Study Review

At the conclusion of the study, the consultant must submit a Post-Study Review. This report should contain, but not be limited to, the following:

- Document the successful elements of the study methodology that should be repeated in future catchment planning, including:
 - Data Sources: Which national or local datasets from e.g. OPW, EPA, Tailte Éireann, GSI etc. were appropriate and easy to integrate.
 - Collaboration: Which consultation methods, agency partnerships (e.g., LAWPRO, OPW) or workshops yielded the best results.
 - Technical Methods: The specific mapping, GIS, or modelling techniques that proved the most effective and reliable.
- Provide an appraisal of what went wrong or what hindered progress during the study, specifically detailing:
 - Data Gaps: Where lack of local data (such as lack of flow gauges, rainfall records) created blind spots or delayed the study.
 - Engagement Timing: Any instances where late engagement with landowners, farmers, or statutory bodies resulted in having to redo desk-based work.
 - Scope and Resourcing: Any areas where the original project brief proved unrealistic or where technical expertise was missing from the core team.