
Report To:	Environment & Regeneration Committee	Date:	14 January 2016
Report By:	Corporate Director Environment, Regeneration & Resources	Report No:	ERC/ENV/IM/15.257
Contact Officer:	Robert Graham	Contact No:	714800
Subject:	Self Certification of Flood Risk and Drainage Impact Assessments		

1.0 PURPOSE

- 1.1 The purpose of this report is to seek approval of the Operational Protocol (Appendix 1) requiring self certification of flood risk and drainage impact assessments prepared for residential developments of more than 5 dwellings and for industrial and commercial developments of more than 250m² under Scottish Planning Policy (SPP) June 2014.
- 1.2 To seek approval of the Flood Risk Assessment and Drainage Impact Assessment Planning Guidance for Developers (Appendix 2) that supersedes the Surface Water Management for Proposed Developments.

2.0 SUMMARY

- 2.1 SPP February 2014 (Paragraphs 254 – 268)(Appendix 3) provides planning guidance on flood risk, which is a material planning consideration for a wide range of sites.
- 2.2 Flood risk and drainage impact assessments are often complex and the review of these assessments for new developments is time consuming and costly in terms of both in-house staff and external consultants.
- 2.3 The introduction of the operational protocol will help streamline the planning application process and avoid the costs associated with an iterative dialogue between the applicant and the Council. It will also enable Officers to be able to focus their attention on discharging the obligations of the Council under the Flood Risk Management (Scotland) Act.
- 2.4 This new operational protocol will reduce the time officers spend assessing these flood risk assessments.
- 2.5 A similar self certification protocol has already been adopted in Glasgow City and South Lanarkshire Council and has been in place for a number of years. It is proving successful by ensuring that those submitting FRA's can be held accountable because of the professional indemnity insurance requirements.

3.0 RECOMMENDATIONS

- 3.1 That the Committee approves the adoption of the Operational Protocol (Appendix 1) and the Flood Risk Assessment and Drainage Impact Assessment Planning Guidance for Developers (Appendix 2).

4.0 BACKGROUND

- 4.1 The SPP principles for managing flood risk and drainage are:
- a precautionary approach to flood risk from all sources, including coastal, water course, surface, groundwater, reservoirs and drainage systems, taking account of the predicted effects of climate change.
 - flood avoidance
 - flood reduction
 - avoidance of increased surface water flooding
- To achieve this, the planning system should prevent developments which would have a significant probability of being affected by flooding or would increase the probability of flooding elsewhere.
- 4.2 SPP February 2014 (Paragraphs 254 – 268) provides planning guidance on flood risk, which is a material planning consideration for a wide range of sites.
- 4.3 On 27 January 2004 the Economic Regeneration Committee approved the Surface Water Management Guidelines for Proposed Developments, these were based on Scottish Planning Policy 7 (SPP7) which has since been superseded twice by Scottish Planning Policy February 2010 and then by Scottish Planning Policy June 2014.
- 4.4 Flood risk and drainage impact assessments are often complex studies and have the potential to delay the determination of planning applications due to an iterative dialogue between the applicant and the Council.
- 4.5 The review of complex flood risk and drainage impact assessments by Council Officers within the Flood Risk Management team distracts from the delivery of statutory actions required under the Flood Risk Management (Scotland) Act. It is essential that the responsibilities of this Act on the Council are effectively discharged and the timescales set by this legislation are met.
- 4.6 The Operational Protocol will move to the self certification of flood risk and drainage impact assessments for residential developments of more than 5 dwellings and for industrial and commercial developments of more than 250m².
- 4.7 The introduction of the Operational Protocol will help streamline the planning application process and avoid the costs associated with an iterative dialogue between the applicant and the Council.
- 4.8 The introduction of the Operational Protocol will be promoted on the Council's web site.
- 4.9 Any Applicant or Agent submitting a flood risk or drainage impact assessment for any residential development of more than 5 dwellings and for industrial and commercial developments of more than 250m² without an Independent Check Certificate would be notified of the Operational Protocol and required to provide self certification in the form set out by the Council guidance.
- 4.10 The Operational Protocol will not be extended to smaller developments.
- 4.11 By adopting this Operational Protocol, Officers within in Environmental and Commercial Services will be able to focus their attention on discharging the obligations of the Council under the Flood Risk Management (Scotland) Act.

5.0 PROPOSALS

- 5.1 That the Committee approve the change in Operational Protocol.

6.0 IMPLICATIONS

Finance:

- 6.1 The self certification process reduces the financial risk to the Council through an independent check being undertaken by a suitably qualified consultant backed by professional indemnity insurance. Where a flood risk or drainage impact assessment incorrectly predicts future scenarios, the Council

is currently exposed to indirect costs through the requirement to respond to and manage flood events including the potential requirement to undertake remedial works.

6.3	Cost Centre	Budget Heading	Budget Years	Proposed spend this report (£000s)	Virement from	Other comments
					n/a	

Legal

6.3 There are no legal implications arising from this report.

Human Resources

6.4 The Protocol does not have any personnel issues.

Equalities

6.5 There are no equalities implications arising from this report.

Repopulation

6.6 Flooding events is an influencing factor in the perception which people have of the area and therefore it is important that the Council optimises its limited resources to reduce flooding, as such the focus of the Flooding Officers to dealing with flooding events within Inverclyde will have a positive benefit to the Council's Repopulation Strategy.

7.0 CONSULTATIONS

7.1 The Chief Financial Officer has been consulted on the contents of this report.

7.2 The Head of Regeneration and Planning has been consulted on the contents of this report.

7.3 The Head of Legal and Property Services has been consulted on the contents of this report.

7.4 The Head of Organisational Development, HR and Communications has been consulted on the contents of this report.

8.0 LIST OF BACKGROUND PAPERS

8.1 None.

Appendix 1

Scottish Planning Policy (SPP) June 2014 (Paragraphs 254 – 268)
Operational Protocol

1. INTRODUCTION

This Operational Protocol sets out the procedures to be followed on receipt of a Flood Risk Assessment or Drainage Impact Assessment in support of an Application for Planning Permission in Principle or an Application for Planning Permission for residential developments of more than 5 dwellings and for industrial and commercial developments of more than 250m².

2. POLICY CONTEXT

SPP June 2014 (Paragraphs 254 – 268) provides planning guidance on flood risk, which is a material planning consideration for a wide range of sites.

3. STANDARD OF ASSESSMENT

The required standard of Flood Risk Assessment and Drainage Impact Assessment to meet the policy requirements established by SPP June 2014 is set out in the Flood Risk Assessment and Drainage Impact Assessment Planning Guidance for Developers guidance developed by Inverclyde Council.

4. OPERATION OF SELF-CERTIFICATION

The Flood Risk Assessment and Drainage Impact Assessment: Planning Guidance for Developers published by Inverclyde Council requires any Flood Risk Assessment or Drainage Impact Assessment for residential developments of more than 5 dwellings and for industrial and commercial developments of more than 250m² to be accompanied by an Independent Check Certificate.

In the event that a Flood Risk Assessment or Drainage Impact Assessment for a qualifying development is submitted without an Independent Check Certificate, this requirement will be notified to the Agent for the Application as soon as practical.

Appendix 2

Flood Risk Assessment and Drainage Impact Assessment: Planning Guidance for Developers
December 2015

Flood Risk Assessment and Drainage **Impact Assessment:**

Planning Guidance for Developers



Inverclyde
council

Environmental and Commercial Services
Municipal Buildings
Clyde Square
GREENOCK
PA15 1LZ

December 2015

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1. Introduction

This guidance has been produced by Inverclyde Council to assist developers and consulting engineers produce Flood Risk Assessments (FRA's) and Drainage Impact Assessments (DIA's). In an attempt to reduce the amount of flooding which affects new developments, national policies and the Local Development Plan (LDP) now require additional information and evidence, including FRA and DIA, to accompany planning applications. By following this guidance it is anticipated that submitted assessments will be comprehensive, clear and concise.

Inverclyde Council now operate a mandatory self certification scheme for any residential development comprising more than 5 dwelling and for industrial or commercial developments of more than 250m². The scheme requirements are set out in Section 4.

2. Flood Risk Assessments

2.1. Background

Currently a FRA has to be submitted along with a planning application depending on the location, size and type of development. Under new guidance from Inverclyde Council an assessment is now required for any residential development comprising more than 5 dwelling and for industrial or commercial developments of more than 250m². Any development identified by Inverclyde Council to be in a sensitive location will also require an assessment.

A key requirement for a FRA is that it must consider all sources of flooding and demonstrate how flood mitigation methods will be managed. The FRA will be required to certify that any flood risk associated with the development can be managed now and in the future, taking into account climate change and illustrate how the development will not increase the risk of flooding elsewhere. The FRA should be produced under the direction of a member of the relevant chartered professional institution with experience of flood risk assessment and management.

2.2. Content

It is essential that FRA's are completed to a highly proficient standard, contain only relevant information and cover all site specific issues.

The detail and technical complexity of a FRA will reflect the scale and potential significance of the study but, in all cases, whenever a FRA is undertaken for any location, the resulting report should address, as a minimum, the following requirements:

- Base Data Requirements;
- Methodology used in carrying out the assessment;
- Hydrological methods used in the assessment;
- Conclusions.

There are a number of professional guidelines produced by recognised bodies which are designed as a reference for the implementation of good practice in the assessment of flood risk. See Appendix A for details.

2.3. Base Data Requirements

The report should include:

- Geo-referenced location plans;
- Proximity to nearest watercourse;
- Plan of site illustrating Ordnance Datum levels to a recognised scale;
- Good use of photographs illustrating important features such as culverts etc;
- If appropriate, information of current flood alleviation measures including the level of protection and condition;
- Identification of the ownership of any water related structures and assessment of their condition;
- Information of past flood events; photographs, levels, trends;
- Clear drawings, plans and maps to a recognised scale relevant to the site;

2.4. Methodology used in carrying out the assessment.

When completing a FRA, the methodology followed should be in line with industry standards and best practice. This includes:

- A summary of the type or source of any present flooding risk;
- All technical records and datasets derived from the Flood Estimation Handbook;
- Details of flood mitigation methods, the proposals and the effects of the planned solution;
- All data must be reported against relevant standards set by SEPA, Scottish Water and Inverclyde Council policy;

Note: Any solutions or flood prevention measures should include sustainable drainage systems.

2.5. Hydrological methods used in the assessment.

To ensure a complete FRA, the reporting of any modelling study is compulsory and should address important issues to an appropriate level of detail.

In the event that hydrological and/or hydraulic modelling is required it is important to ensure that the appropriate method has been chosen and explained in the FRA, justifying how the chosen model will accurately reflect the complexity of the hydrological processes.

All modelling should be completed using recognised industry software to determine design water levels and a sensitivity analysis undertaken to determine the sensitivity of design water levels with regards to the key model parameters. (e.g. design flow and roughness).

The FRA should determine the appropriate design flows and levels of any potential flooding in or around the proposed site including a flooding assessment of all watercourses, drains or sewers which are proposed or exist on the development.

The report must demonstrate that the development will not be affected by a storm event of the appropriate rainfall return period detailed in the Local Plan and SPP June 2014 (Paragraphs 254 – 268). It must also illustrate that there shall be no adverse effect on any watercourse and that

flooding will not be increased in the surrounding area upstream and downstream as a result of the development.

Each FRA should be unique to the site it describes. The length and complexity lies with the author however, where appropriate, additional details may include:

- A plan and description of any structures that may influence local hydraulics. This will include bridges and pipes/ducts crossing the watercourses together with culverts, screens, embankments or walls, overgrown or collapsing channels and their likelihood of choking with debris;
- All culverts, detailing condition and capacity;
- Any property and/or environment that will be affected by various degrees of flooding;
- An assessment of the return periods or probabilities including any observed trends and the extent and depth of floods for the location and, if appropriate, routes and speed of water-flow. At this stage, best estimates, based on the most up-to-date findings, should also be made of climate change impacts on probabilities;
- An estimation of the volume of water which would be displaced from the site during various flood events both during and following development of the site;
- Brief assessment/summary on the impact on river or coastal ecology, if applicable.
- More important issues should be included in a separate EIA (Environmental Impact Assessment);
- An assessment of the potential impact of any development on fluvial or coastal morphology and on the likely longer-term stability and sustainability;
- An assessment of the capacity of any drains or sewers, existing or proposed, on the site during various flood events and mitigation measures if required;
- Taking into account projected climate change, details illustrating how the development meets an acceptable standard of flood protection for the design life of the development.

2.6. Conclusions

The conclusions should include a summary of the findings detailing any recommendations that have been made. The report should also indicate how all flood risks have been identified and appropriately mitigated. The plans of the development should clearly take cognisance of these conclusions.

2.7. FRA Check list

- ✓ The development will not be at risk or susceptible to damage due to flooding within the parameters set in the Local Plan and SPP June 2014;
- ✓ Normal operation of the development will not be susceptible to disruption as a result of flooding from the appropriate event;
- ✓ Safe access to and from the development will be possible during the appropriate design flood event;
- ✓ The development will not increase flood risk anywhere else;
- ✓ The development will provide for safe access for maintenance of watercourses or maintenance and operation of flood defences by the Inverclyde Council;
- ✓ The development will not lead to the degradation of the environment;
- ✓ The development will meet all the outlined criteria for its entire lifetime including consideration for climate change.

To complete a comprehensive assessment the developer must:

- Be aware of all the relevant planning policy and legislation;
- Complete technically accurate calculations;
- Follow professional guidelines and procedures;
- Certify that flooding will not pose a risk to the development;
- Complete the required Compliance and Independent Check Certificate;
- Submit evidence of appropriate Professional Indemnity insurance.

3. Drainage Impact Assessment (DIA)

3.1. Background

A DIA is a report, prepared by the developer, demonstrating the drainage issues relevant to a proposal and the suitable means of providing drainage. Due to the increase of impermeable area, action is required to deal with the reduction in storage, therefore any proposed drainage infrastructure should look to protect the site from flooding and also remove all waste effluent.

Drainage design is a complex process so it is important that all drainage matters are considered at an early stage in the design process. It is therefore required that a DIA is submitted with the first planning application, whether planning application or application in principle, for any development which requires waste or surface water to be drained. It is also recommended that a pre-application meeting takes place for larger schemes and, when located in sensitive areas, discuss plans for the site and any potential drainage issues. Sewers for Scotland - 2nd edition, also states that “for all developments at an early stage before a DIA is submitted, the developer should consult with Scottish Water on appropriate SUD’s (sustainable urban drainage) system design and the practical aspects of servicing the development.”¹

¹ *Sewers for Scotland 2nd Edition, Page 5, General Principles and Guidance 10*

3.2. Content

A Drainage Impact Assessment will be required to be submitted for any residential development comprising more than 5 dwelling and for industrial or commercial developments of more than 250m². Any development identified by Inverclyde Council to be in a sensitive location will also require an assessment. The submitted DIA is required to meet the following basic requirements and any additional site specific requirements specified by Inverclyde Council.

Requirements may include:

- An examination of the current and historical drainage patterns;
- A concept drawing of the development;
- An outline drawing of how the drainage design provides sustainable drainage techniques in accordance with recognised design manuals;
- Details of the site drainage patterns including all watercourses crossing the site;
- The soil classification of the site;
- Evidence of subsoil porosity tests including where possible at the location of any intended infiltration device and the proximity of the winter water table;
- Calculations showing that post development peak run-off volumes do not exceed that for pre-development for the critical rainfall event;

- Demonstration that the drainage solution selected will ensure that properties on and off the proposed site are not at risk of flooding from the appropriate rainfall return period relevant to the categories of development specified in the Local Plan INF4– Reducing Flood Risk, INF5-Sustainable Urban Drainage Systems and Sewers for Scotland 2nd edition;
- Details of the accountable body responsible for vesting and maintenance for individual aspects of the drainage proposals and confirmation in writing that these bodies will vest/adopt the system;
- Wastewater drainage proposals and confirmation in writing that they will vest in Scottish Water.

In line with Flood Risk Assessments there are a number of professional guidelines produced by recognised bodies which are designed as a reference for the implementation of good practice when completing a Drainage Impact Assessment. See Appendix B for details.

3.3. Surface Water Drainage

The DIA should demonstrate that the surface water drainage system takes account of SUDS principles in accordance with current legislation and guidelines such as Design Manuals for Scotland and Northern Ireland and the specification set out within Sewers for Scotland 2nd Edition. The SUDS principles must also conform, as a minimum, to the basic level of treatment control outlined within the General Binding Rules of the Water Environment (Controlled Activities) (Scotland) Regulations 2011(as amended) and be approved by SEPA and or Scottish Water.

The DIA should demonstrate, using up to date techniques, that the rate and volume of surface water runoff from the post-development situation does not exceed the greenfield surface water runoff from the existing site. The design storm used for the pre-development calculation shall be **M₂ – 60 (1 in 2 yr, 60 minute storm)**. Attenuation or other limiting methods shall be provided to comply with this. More importantly, the proposed method used for drainage should ensure that there is no increase to the probability of flooding within the receiving watercourse and local area, upstream or downstream from the site. All surface water drainage within or out with the site will be designed to accommodate a **M₃₀ – 60 (1 in 30 yr, 60 minute storm)**. Additionally, surface water runoff should be managed to minimise pollutants reaching the receiving watercourses. Further guidance may be obtained from SEPA. The requirements for drainage should be taken into account when determining the overall layout of the development. For large developments where there is an intention to separate the development into zones, which are to be constructed at different stages, or by different developers, it is a requirement that a drainage master plan covering the whole area of development be submitted.

The difference between the 1 in 30 yr and the 1 in 200 year (plus 20% uplift for the predicted effects of climate change) post development critical storms for the application site is to be accommodated within the application site without the detriment to properties, within or out with the application site.

On development sites where surface water run-off is received from adjacent higher ground, it will also be necessary for applicants to demonstrate that this additional volume of storm water has been considered.

In the event of a design exceedance, the DIA should give an assessment and consideration of the flood flow route for the appropriate return period flood event and should show that there will be no detriment to land or property as a result of overland flow caused by the development. The **finished floor levels** of dwellings adjacent to flooded areas must be a minimum of **0.6m above**

the high water level or 1.0m above the high water level when the application site is adjacent to a watercourse.

3.4. Wastewater Drainage

Where the development will lead to the production of wastewater, a DIA must include a section on wastewater drainage. The assessment should examine the availability of public sewers to carry wastewater from the development and should include copies of all correspondence with Scottish Water including their approval in principle to connect to the local network.

Any discharge to existing networks should not increase the occurrence of flooding or surcharging to the existing sewer network. Consideration should also be given for the potential for effluent to discharge during severe storm events into adjacent watercourses via combined sewer overflows and the impact this may have on the receiving watercourse. The DIA should also address what measures are in place to ensure that during construction there will be no cross connections leading to contamination of surface water sewers.

3.5. Approvals

Throughout the planning process the DIA will form the basis of statutory consultation with the appropriate bodies:

- Scottish Water (drainage connection consent);
- Inverclyde Council (planning permission and road construction consent);
- Scottish Environment Protection Agency (CAR licences/conditional prohibition notice).

3.6. Building Control

Inverclyde Council, as a building standards authority, must be satisfied that adequate provision has been made for drainage and flood risk. Any proposed scheme should be designed and constructed to meet the technical standards for compliance with the Building Standards (Scotland) Regulations 2003.

3.7. Integrated Infrastructure

Inverclyde Council wishes to promote the most effective use of space in the delivery of necessary infrastructure within a development. Where appropriate, Inverclyde Council will consider a departure from normal vesting standards used for SUDS. Such a departure will, however, require to be discussed in detail at an early stage.

3.8. Drainage Impact Assessment Check List

- ✓ Any proposed drainage designs must, to a minimum, conform to the relevant specifications outlined in Sewers for Scotland-2nd Edition and must also comply with General Binding Rules issued by SEPA;
- ✓ The proposals must address the cumulative impact on infrastructure capacity of incremental growth of impermeable surfaces by not increasing the quantity and rate of surface water run-off from any site;
- ✓ Any flows that are to be discharged to a watercourse must have the appropriate permission from SEPA and Inverclyde Council;
- ✓ Submissions must include information on foul and surface water drainage and must show that Scottish Water and the appropriate authorities have been consulted.
- ✓ For large developments where there is an intention to separate the development into zones, which are to be constructed at different stages, or by different developers, a drainage master plan covering the whole area of development is submitted.

A Drainage Impact Assessment should be undertaken by a competent professional. It is recommended that a DIA should be carried out under the direction of a member of the relevant chartered professional institution, with experience of drainage impact assessment and management.

4. Planning Requirements

4.1. Compliance Certificate Requirements

Inverclyde Council requires the applicant or the suitably qualified agent to certify that the Flood Risk Assessment and/or Drainage Impact Assessments have been carried out in accordance with this guidance, relevant documents and legislation (See Appendix A and B), using the Assessment Compliance Certificate (Appendix C).

Inverclyde Council also requires that Professional Indemnity Insurance is maintained for the level of five million pounds (£5,000,000) for each and every claim. Evidence will take the form of a copy of the insurance policy, certificate of insurance and evidence that all premiums are paid and up to date for a minimum of 10 years.

The Council will give consideration to a lower limit on professional indemnity insurance on the following basis:-

1. Professional indemnity insurance of one million pounds (£1,000,000).

Will be considered for a development site of no greater than 5 dwelling houses where there are no watercourses within or immediately adjacent to the site and/or any SuDS ponds or basin are deemed to be at no risk to any properties within or out with the development.

Site Development value should also be less than one million pounds (£1,000,000).

2. Professional indemnity insurance of a minimum of three million pounds (£3,000,000).

Will be considered for a development site of no greater than 5 dwelling houses where there is a watercourses within or immediately adjacent to the site and/or any SuDS ponds or basin are deemed to be at no risk to any properties within or out with the development.

Site Development value should also be less than three million pounds (£3,000,000).

4.2. Independent Check Certificate

It is a requirement that all submitted assessments are verified by an independent check process. This secondary check must be completed by an organisation which is entirely independent from the author. The Independent Check Certificate (Appendix D) must be completed by a competent professional who is a member of the relevant chartered professional institution, or equivalent, with experience of flood risk and drainage impact assessment and management.

The independent check shall confirm that the correct methodology and procedures have been followed and that all risks have been accounted for. It is the responsibility of the author to ensure that all detailed calculations and computations are technically accurate. The independent checker shall not be responsible for checking calculations.

4.3. SSP June 2014 (Paras 254 – 268) Operational Protocol

Any Applicant or Agent submitting a flood risk or drainage impact assessment for any residential development of more than 5 dwellings and for industrial and commercial developments of more than 250m² without an Independent Check Certificate would be notified of the operational protocol and required to provide self certification in the form set out by the Council guidance.

5. Appendix A

Flood Risk Assessment Reference Documents

- Flood Risk Management (Scotland) Act 2009
- Delivering Sustainable Flood Risk Management (Scottish Government, 2011)
- Surface Water Management Planning Guidance (Scottish Government, 2013).
- Scottish Planning Policy 2014 (Paragraphs 254 – 268);
- Planning Advice Note 51: Planning, Environmental Protection and Regulation;
- Planning Advice Note 61: Planning and Sustainable Urban Drainage Systems;
- Planning Advice Note 69: Planning and Building Standards Advice on Flooding;
- Planning Advice Note 79: Water and Drainage;
- Scottish Environment Protection Agency – Technical Flood Risk Guidance for Stakeholders;
- Scottish Environment Protection Agency – Flood Risk Assessment checklist;
- Scottish Environment Protection Agency Policy No 22: Flood Risk Assessment Strategy;
- Scottish Environment Protection Agency Policy No 26: Policy on the Culverting of Watercourses;
- Scottish Environment Protection Agency Policy No 41: Development at Risk of Flooding: Advice and Consultation;
- Scottish Environment Protection Agency Water Environment (Controlled Activities) (Scotland) Regulations 2011(as amended);
- CIRIA C697: The SUDS Manual;
- CIRIA C698: Site Handbook for the Construction of SUDS;
- CIRIA C624: Development and Flood Risk- Guidance for the Construction Industry;
- CIRIA R168: Culvert Design Manual;

And to such other documents, statutory guidance and/or legislation that are in force at the date of submission.

6. Appendix B

Drainage Impact Assessment Reference Documents

- Sustainable Urban Drainage Systems. Design manual for Scotland and Northern Ireland CIRIA Report C521, London ;
- Planning and Sustainable Urban Drainage Systems Planning Advice Note PAN 61, The Scottish Executive, 2001;
- Scottish Planning Policy 2014 (Paragraphs 254 – 268);
- Ponds, pools and lochans- Guidance on good practice in the management and creation of small waterbodies in Scotland SEPA;
- Disposal of Sewage Where No Mains Drainage is Available: PPG4, SEPA;
- Safety at Inland Water Sites RoSPA, Birmingham;
- Control of Water Pollution From Construction Sites - Guidance For Constructors And Contractors CIRIA Report 532, London;
- Working at Construction and Demolition Sites: PPG6, SEPA;
- Sewers for Scotland – 2nd Edition WRc, Nov 2007;
- The Wallingford Procedure UK Edition, Wallingford;
- The Wallingford Procedure Europe Edition, Wallingford;
- Flood Estimation Handbook, Centre for Ecology and Hydrology, Wallingford;
- BRE Digest 365, Building Research Establishment;
- Scope For Control of Urban Runoff CIRIA Report 123, London;
- Infiltration Drainage Manual of Good Practice CIRIA Report 156, London;
- Flood Studies Report, NERC, London;
- Manual of River Restoration Techniques River Restoration Centre;
- Natural Heritage National Planning Policy Guidance NPPG 14;
- Watercourses in the community SEPA;
- Culverting, an agenda for action SEPA;
- Returning Watercourses to the community ICE;
- Planning and Building Standards Advice on Flooding, Planning Advice Note 69, The Scottish Executive, 2004.

7. Appendix C

Assessment Compliance Certificate

I certify that all reasonable skill, care and attention to be expected of a qualified and experienced professional in this field has been exercised in carrying out the attached Flood Risk Assessment / Drainage Impact Assessment* (delete if applicable). The report/s have been prepared for the below named development in accordance with the reporting requirements issued by Inverclyde Council.

Name of Development _____

Address of Development _____

Name of Developer _____

Planning Application No. _____

Name and Address of
Organisation preparing this
Assessment _____

Signed _____

Name _____

Position Held _____

Engineering Qualification of
person responsible for preparing
this Assessment _____ (1)

Date _____

Note: 1 – C.Eng from an appropriate Chartered Engineering Institution.

8. Appendix D

Independent Check Certificate

I certify that all reasonable skill, care and attention to be expected of a qualified and experienced professional in this field has been exercised in checking the attached Flood Risk Assessment / Drainage Impact Assessment* (delete if applicable) for the below named development.

Name of Development	_____
Address of Development	_____ _____ _____
Name of Developer Name and Address of Organisation providing check	_____ _____ (1)
Signed	_____
Name	_____
Position Held	_____ _____
Engineering Qualification of person responsible for checking this Assessment	_____ (2)
Date	_____

Note: 1 - Organisation to be totally independent of original designer/design organisation.
2 - C.Eng from an appropriate Chartered Engineering Institution.

Managing Flood Risk and Drainage

NPF Context

254. NPF3 supports a catchment-scale approach to sustainable flood risk management. The spatial strategy aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Flooding can impact on people and businesses. Climate change will increase the risk of flooding in some parts of the country. Planning can play an important part in reducing the vulnerability of existing and future development to flooding.

Policy Principles

255. The planning system should promote:

- a precautionary approach to **flood risk** from all sources, including coastal, water course (fluvial), surface water (**pluvial**), groundwater, reservoirs and drainage systems (sewers and culverts), taking account of the predicted effects of climate change;
- **flood** avoidance: by safeguarding flood storage and conveying capacity, and locating development away from **functional flood plains** and medium to high risk areas;
- flood reduction: assessing flood risk and, where appropriate, undertaking natural and structural flood management measures, including flood protection, restoring natural features and characteristics, enhancing flood storage capacity, avoiding the construction of new culverts and opening existing culverts where possible; and
- avoidance of increased surface water flooding through requirements for Sustainable Drainage Systems (SuDS) and minimising the area of impermeable surface.

256. To achieve this the planning system should prevent development which would have a significant probability of being affected by flooding or would increase the probability of flooding elsewhere. Piecemeal reduction of the functional floodplain should be avoided given the cumulative effects of reducing storage capacity.

257. Alterations and small-scale extensions to existing buildings are outwith the scope of this policy, provided that they would not have a significant effect on the storage capacity of the functional floodplain or local flooding problems.

Key Documents

- [Flood Risk Management \(Scotland\) Act 2009](#)
- [Updated Planning Advice Note on Flooding](#)
- [Delivering Sustainable Flood Risk Management](#) (Scottish Government, 2011).
- [Surface Water Management Planning Guidance](#) (Scottish Government, 2013).

Delivery

258. Planning authorities should have regard to the probability of flooding from all sources and take flood risk into account when preparing development plans and determining planning applications. The calculated probability of flooding should be regarded as a best estimate and not a precise forecast. Authorities should avoid giving any indication that a grant of planning permission implies the absence of flood risk.

259. Developers should take into account flood risk and the ability of future occupiers to insure development before committing themselves to a site or project, as applicants and occupiers have ultimate responsibility for safeguarding their property.

Development Planning

260. Plans should use [strategic flood risk assessment](#) (SFRA) to inform choices about the location of development and policies for flood risk management. They should have regard to the flood maps prepared by Scottish Environment Protection Agency (SEPA), and take account of finalised and approved Flood Risk Management Strategies and Plans and River Basin Management Plans.

261. Strategic and local development plans should address any significant cross boundary flooding issues. This may include identifying major areas of the [flood plain](#) and storage capacity which should be protected from inappropriate development, major flood protection scheme requirements or proposals, and relevant drainage capacity issues.

262. Local development plans should protect land with the potential to contribute to managing flood risk, for instance through natural flood management, managed coastal realignment, [washland](#) or green infrastructure creation, or as part of a scheme to manage flood risk.

263. Local development plans should use the following flood risk framework to guide development. This sets out three categories of coastal and watercourse flood risk, together with guidance on surface water flooding, and the appropriate planning approach for each (the annual probabilities referred to in the framework relate to the land at the time a plan is being prepared or a planning application is made):

- **Little or No Risk** – annual probability of coastal or [watercourse](#) flooding is less than 0.1% (1:1000 years)
 - – No constraints due to coastal or watercourse flooding.
- **Low to Medium Risk – annual probability of coastal or watercourse flooding is between 0.1% and 0.5% (1:1000 to 1:200 years)**
 - Suitable for most development. A flood risk assessment may be required at the upper end of the probability range (i.e. close to 0.5%), and for [essential infrastructure](#) and the [most vulnerable uses](#). Water resistant materials and construction may be required.
 - Generally not suitable for civil infrastructure. Where civil infrastructure must be located in these areas or is being substantially extended, it should be designed to be capable of remaining operational and accessible during extreme flood events.
- **Medium to High Risk – annual probability of coastal or watercourse flooding is greater than 0.5% (1:200 years)**
 - May be suitable for:
 - residential, institutional, commercial and industrial development within built-up areas provided flood protection measures to the appropriate standard

- already exist and are maintained, are under construction, or are a planned measure in a current flood risk management plan;
- essential infrastructure within built-up areas, designed and constructed to remain operational during floods and not impede water flow;
- some recreational, sport, amenity and nature conservation uses, provided appropriate evacuation procedures are in place; and
- job-related accommodation, e.g. for caretakers or operational staff.
- Generally not suitable for:
 - civil infrastructure and the most vulnerable uses;
 - additional development in undeveloped and sparsely developed areas, unless a location is essential for operational reasons, e.g. for navigation and water-based recreation, agriculture, transport or utilities infrastructure (which should be designed and constructed to be operational during floods and not impede water flow), and an alternative, lower risk location is not available; and
 - new caravan and camping sites.
- Where built development is permitted, measures to protect against or manage flood risk will be required and any loss of flood storage capacity mitigated to achieve a neutral or better outcome.
- Water-resistant materials and construction should be used where appropriate. Elevated buildings on structures such as stilts are unlikely to be acceptable.

Surface Water Flooding

- Infrastructure and buildings should generally be designed to be free from surface water flooding in rainfall events where the annual probability of occurrence is greater than 0.5% (1:200 years).
- Surface water drainage measures should have a neutral or better effect on the risk of flooding both on and off the site, taking account of rain falling on the site and run-off from adjacent areas.

Development Management

264. It is not possible to plan for development solely according to the calculated probability of flooding. In applying the risk framework to proposed development, the following should therefore be taken into account:

- the characteristics of the site;
- the design and use of the proposed development;
- the size of the area likely to flood;
- depth of flood water, likely flow rate and path, and rate of rise and duration;
- the vulnerability and risk of wave action for coastal sites;
- committed and existing flood protection methods: extent, standard and maintenance regime;
- the effects of climate change, including an [allowance for freeboard](#);
- surface water run-off from adjoining land;
- culverted watercourses, drains and field drainage;
- cumulative effects, especially the loss of storage capacity;
- cross-boundary effects and the need for consultation with adjacent authorities;
- effects of flood on access including by emergency services; and
- effects of flood on proposed open spaces including gardens.

265. Land raising should only be considered in exceptional circumstances, where it is shown to have a neutral or better impact on flood risk outside the raised area. Compensatory storage may be required.

266. The flood risk framework set out above should be applied to development management decisions. Flood Risk Assessments (FRA) should be required for development in the medium to high category of flood risk, and may be required in the low to medium category in the circumstances described in the framework above, or where other factors indicate heightened risk. FRA will generally be required for applications within areas identified at high or medium likelihood of flooding/flood risk in SEPA's flood maps.

267. Drainage Assessments, proportionate to the development proposal and covering both surface and foul water, will be required for areas where drainage is already constrained or otherwise problematic, or if there would be off-site effects.

268. Proposed arrangements for SuDS should be adequate for the development and appropriate long-term maintenance arrangements should be put in place.