THE CITY OF EDINBURGH COUNCIL

PLANNING AND TRANSPORT

DEVELOPMENT CONTROL

FLOOD RISK AND SURFACE WATER MANAGEMENT PLAN REQUIREMENTS

FLOOD PREVENTION

Flood Prevention
Place
Planning and Transport
Waverley Court
4 East Market Street
EDINBURGH
EH8 8BG

Date: November 2019

Version 3: November 2019

DOCUMENT CONTROL

VERSION	STATUS	DATE	PRODUCED BY	AUTHORISED BY
1	First Issue	March 2017	JW	TD
2	Published	May 2017	JW	TD
3	Published	November 2019	JW	GMcO

REVISION

VERSION	Amendment	Changed by	DATE	NUMBER

CONTENTS

FLOOD RISK AND SURFACE WATER MANAGEMENT PLAN REQUIREMENTS

1. INTRODUCTION

1.1 The City of Edinburgh Council (CEC) is the Planning Authority and has statutory duties under the Flood Risk Management (Scotland) Act 2009 to reduce the risk of flooding. As part of these duties CEC must not permit development which has the potential to increase flood risk.

This document outlines the requirements of CEC and includes a pro-forma for Self-Certification and independent checking organisation.

1.2 This document has been prepared to reflect updates to best practice noted within CIRIA C753 The SuDS Manual and Sewers for Scotland.

2. SCOPE

2.1 The fundamental objective of these Requirements is to ensure that flood risk is adequately considered in the determination of planning applications.

2.2 These Requirements demonstrate that the City of Edinburgh Council has taken measures to ensure that flood risk is adequately managed and that evidence is provided

2.3 Compliance with these Requirements does not in any way modify or reduce the responsibilities of any party for the work carried out or the legal responsibility of professional engineers.

2.4 The procedures described in this document are to be applied to the designs of all new local and major developments.

2.5 Householder applications are requested to follow the principles of this document which assessing flood risk and undertaking surface water management however they are not required to complete the self-certification declarations when submitted a planning application.

2.6 If during the detailed design any refinements or changes made will affect potential flood risk the proposals must be resubmitted to the Council's Flood Prevention Team for consideration and it may be necessary to re-certify. For example changing a road gradient / crossfall or relocating a manhole could result in significant changes to perceived flooding.

3. DEFINITIONS

3.1 The following definitions will apply throughout this document.

"SuDS"

Sustainable Drainage Systems, abbreviated to SuDS, are designed to maximise the benefits we can secure from surface water management. These benefits seek to mimic the natural drainage of the catchment and uphold the four pillars of SuDS; water quality, water quantity, biodiversity and amenity.

"Flood Risk"

Flood Risk can be defined a low, medium, and high at defined return periods of event. An area of high flood risk during shorter return periods is likely to flood more often. The flood risk categorisation for an area are shown on the SEPA website at: http://www.sepa.org.uk/environment/water/flooding/flood-maps

"Surface Water Management Plan"

A Surface Water Management Plan (SWMP) is a document which summarises the existing arrangement of surface water drainage on a proposed development site, a brief description of the proposed development and how it will be drained once complete. Details of attenuation and treatment must be included together with plans showing the ultimate discharge point including approval from the sewer operator (if applicable).

"Flood Risk Assessment"

A Flood Risk Assessment (FRA) assesses the risk of flooding from all flooding mechanisms, the identification of flood existing and proposed mitigation measures. It should consider the risk of flooding from groundwater, coastal, pluvial (surface water), fluvial (watercourse), infrastructure failure and other potential sources of flooding. Allowances should be made to include the impact of climate change. Assessment should also be made to replicate partial blockage of river structures such as bridges and culverts.

FRAs must examine a development in relation to the 1:200 year (0.5% annual exceedence probability) flood event with allowance for climate change. Civil and Critical Infrastructure (as defined under Scottish Planning Policy) must be assessed for a 1:1000 year (0.1% AEP) event with allowance for climate change.

"Climate Change"

Climate change is to be included into FRA and SWMP calculations. SWMP calculations must include a climate change allowance in accordance with the latest version of Sewers for Scotland. Flood Risk Assessments should follow the guidance in SEPA's Technical Flood Risk Guidance for Stakeholders (SS-NFR-P002) and SEPA's Climate change allowances for flood risk assessment in land use planning (LUPS-CC1).

"Positively Drained Area"

When determining the allowable surface water discharge rate from a proposed site then the positively drained area must be used. This is the total development area that is served by the drainage system. It is the difference between the total site area and the significant public open space.

"Designer"

The firm of Consulting Engineers or other organisation responsible for the design, and shall also apply to the organisation responsible for the assessment where appropriate.

"Checker"

The firm of Consulting Engineers, or other organisation, responsible for undertaking the independent check of the design or assessment.

"Design Team"

The Group of Engineers responsible for the design or assessment. It may comprise an appropriate mix of specialists under the direction of a Design Team Leader.

"Check Team"

The Group of Engineers responsible for the independent check of the design or assessment. It may comprise an appropriate mix of specialists under the direction of a Check Team Leader.

4. THE DEPARTMENT'S ROLE

4.1 The role of the Flood Prevention Department will be:

4.1.1 To examine Planning Applications with respect to Flood Risk and Surface Water Management across the Council area.

4.1.2 To determine whether Flood Risk and Surface Water Management has been adequately addressed in the design documents supplied in support of the Planning Application.

4.1.3 To be available for consultation by the Design Team or Check Team.

4.1.4 To receive from the Designer, certificates of compliance with the Requirements.

4.1.5 To provide a consultation response to the CEC Planning Department where appropriate.

4.2 The Flood Prevention Department will not check the calculations nor their translation.

4.3 Additionally, the Flood Prevention Department will have a policy role in the context of applying special parameters such as:-

4.3.1 Any extra criteria suggested for a particular problem and/or any proposed departure from current standards.

Decisions on these questions will be given over the signature of the Structures and Flood Prevention Manager or Senior Engineer. It will be the responsibility of the CEC Planning Department to ensure that these decisions are recorded in the Planning Decision document as appropriate. Rulings given for a particular scheme are not to be applied to another scheme without the prior agreement of the Structures and Flood Prevention Manager or Senior Engineer.

5. SURFACE WATER MANAGEMENT PLANS (SWMPs)

5.1 Surface Water Management Plans are required for all applications. The purpose of the Surface Water Management Plan is to enable the Flood Prevention Department to be satisfied, before recommending an application for approval that the following criteria have been met:

5.1.1 The applicant has provided a drainage layout which shows the proposed drainage network and the location of the connection into either the public sewer network or discharge to a watercourse.

The manhole references must cross-reference those used in the calculations noted in paragraph 5.1.6 below.

5.1.2 The proposed discharge rate from a development site is in accordance with CEC requirements. CEC require a discharge rate to be no greater than the lesser of:

- 1:2 year greenfield runoff rate
- 4.5 l/s/ha of impermeable or positively drained area

In order to attain these flow rates surface water should be attenuated within the development boundary. Should overland flows result as part of the drainage strategy then these must also be retained within the property boundary up to the 1:200 year plus 40% climate event.

Example discharge rate calculation: Should the development be 2.0 ha in total with an impermeable area of 1.2 ha then the maximum allowable discharge rate would be 5.4 l/s during a 1:200 year plus 40% climate change event.

Should the site be small and the application of the 4.5 l/s/ha condition leads to a discharge rate of less than 3 l/s then CEC would request that a Hydrobrake of minimum 75mm diameter is used which can pass ~3.0 l/s at 1.0m head. CEC will not accept flow control devices which are less than 75mm in diameter as they pose an increased blockage and maintenance risk.

5.1.3 It is not acceptable to treat a mere reduction or “betterment” of current flows from a site as satisfying paragraph 5.1.2 above. The only exception of compliance with discharge rates noted in 5.1.2 above is that all existing roofs and walls are retained and there is no additional positively drained area contributing to the surface water drainage network.

5.1.4 If a soakaway is proposed then the adequacy of soil (ground investigations) and other investigations (i.e. porosity tests) will be required to demonstrate that a 1:200 year plus 40% climate change event can be accommodated without posing a flood risk to property and that it can drain in a suitable time to accommodate successive events. Dry pedestrian access must be maintained at all times.

5.1.5 Pre-development and post-development flow path diagrams must be identified on separate drawings. This can be achieved by taking the existing site survey and over-marking arrows to denote falls and then completing the same with the post-development arrangement. This should include runoff from outwith the site, from unpaved areas within the site, and from paved areas in events which exceed the capacity of the drainage system. Simply submitted an un-annotated topographical survey is not sufficient.

The purpose of these drawings is twofold. Firstly to understand if there is any significant re-direction of surface flows to surrounding land and secondly to identify if surface water will flow towards property entrances.

5.1.6 Calculations either by hydraulic modelling software or by hand. If using software outputs for all underground pipework including rainfall data, manhole and pipe schedules (to mAOD), pipe surcharge report for all underground pipe connections must be included. The manholes in the calculation should be cross-referenced to the drainage drawing to enable interpretation. The results should include the 30yr and 200 yr plus climate change results. (If development is classed as civil or critical infrastructure the 1:1000 plus climate change event should also be included). Should the model identify flooding in the system then drawings will be required to indicate where exceedance flow will be directed, to what depth it will pond and how this relates to floor levels in nearby properties, how it will be contained within the site and lastly how it will be drained once the event has subsided. Dry pedestrian access must be maintained at all times during events up to the 1:200 year plus climate change. Where flooding is predicted on the road this must be no greater than 300mm depth of ponding to permit access by emergency vehicles.

Should the calculations be undertaken by hand then account must be taken of the staged discharge relationship which applies to orifices and vortex flow control devices. In order to provide a conservative estimate a halved discharge rate must be applied when calculating the required storage volume.

Example discharge calculation: The proposed discharge rate from site is ~3 l/s. If using hand calculations then a discharge rate of 1.5 l/s must be applied across the duration of the storm to take account of storage which has not been accounted for due to varying discharge at varying head. A staged discharge relationship.

5.1.7 Confirmation of the volume of storage provided and that the 1:30 plus 40% climate change event remains below ground and that the 1:200 plus 40% climate change remains on site and does not pose a flood risk to property.

5.1.8 Applications for developments which include Civil Infrastructure must demonstrate that the 1000 year plus 40% climate change event does not pose a flood risk to property or development. Should a site flood during a 1000 year plus 40% climate change event then the 200 year plus 40% climate event flood volume must be retained on site with the remaining volume allowed to discharge unrestricted from site provided it does not pose a flood risk to property.

5.1.9 Confirmation of who will adopt and maintain the surface water network, including any SuDS.

5.1.10 Confirmation of the SuDS treatment train noting which components are included to treat the surface water prior to discharge from site. CEC supports sustainable development and for this reason all surface water discharges require treatment whether discharging to the combined public sewer network or to a watercourse.

5.1.11 If proposing to discharge into the combined public sewer network then confirmation that Scottish Water will accept the flows must be included with the application.

5.2 CEC does not support the use of planning conditions with regard to flood risk or surface water management as there may be issues which cannot be overcome and therefore would go against the planning permission.

5.3 Designers of major or complex developments shall liaise as early as possible with Flood Prevention Unit prior to making a formal submission.

6. FLOOD RISK ASSESSMENTS (FRAs)

6.1 Flood Risk Assessments are required for all applications where there is likely to be a risk of flooding from either coastal, fluvial (watercourse), pluvial (surface water), groundwater, or other sources of flooding. In order to identify if a site is at risk of flooding then the online SEPA Flood Maps should be consulted.

6.2 The Flood Risk Assessment should make a reasoned evaluation of the potential flooding of the proposed development site with respect to the types of flooding listed in the paragraph above.

6.3 FRAs should include a completed SEPA Flood Checklist (SS-NFR-F-001).

6.4 CEC Flood Prevention requires that a development site is not at risk of flooding from a 1:200 plus 40% climate change event. Developments classified as Civil or Critical Infrastructure under Scottish Planning Policy must demonstrate that they are not at flood risk during a 1:1000 year plus 40% climate change event.

6.5 CEC Flood Prevention require a minimum freeboard of 600mm above the peak flood level as noted in SEPA guidance SS-NFR-P-002.

Where applicable a freeboard assessment may be undertaken to demonstrate that a lower freeboard is acceptable using an applicable method. CEC Flood Prevention will not however accept a freeboard of less than 300mm.

6.6 Extensions to existing properties defended by a flood prevention scheme will be allowed to retain the same finished floor level as the rest of the property.

6.7 New developments located behind a flood defence scheme must have their finished floor level at or above the peak flood level including climate change in the watercourse with the required freeboard duly considered.

6.8 Properties which do not achieve the minimum required finished floor to minimise flood risk as noted in the paragraphs immediately above must be flood resilient. This mean use flood resistant and flood resilience building techniques and products in the design.

7. SELF CERTIFICATION / INDEPENDENT CHECKING

7.1 The design for a proposed development must comply with the requirements noted in sections 5 and 6 above. The Designer should sign the Self-Certification Declaration confirming this. The declaration must be signed by a senior member of staff within the Designer's organisation. The senior member of staff must be a Chartered Professional with either the Institution of Civil Engineers (ICE) or the Chartered Institution of Water and Environmental Managers (CIWEM). By signing the declaration they are confirming that in their professional opinion the application conforms to the requirements noted within this document.

7.2 For developments which are classified as Major under Scottish Planning Policy then an independent check of the application will be required. This involves a separate organisation from the Designer undertaking an independent check of the submission. The Checker must complete the appropriate part of the Self-Certification form confirming which part of the submission that they are checking (the SWMP, the FRA, or both). The declaration of the Checker must also be signed by a senior member of staff in the Checker organisation.

Similarly to paragraph 7.1 above, by signing they are confirming that in their professional opinion the applicant conforms to the requirements noted within this document.

7.3 When the design and check of the proposals have been completed and the appropriate certificate(s) (see Annex A) filled in and signed, a copy of each should be sent to the Planning Department for acceptance and, if appropriate, endorsement. All departures from, and aspects not covered by, standards should be agreed prior to submission and must be recorded on the certificates for endorsement by the Structures and Flood Prevention Manager or Senior Engineer.

7.4 All supporting drawings and documents (including revision marks) must be referenced on the signed certificate(s).

7.5 The Designer should compile the SWMP and appropriate certification declaration(s) together with the FRA (if applicable) into one package for Flood Prevention to review. Piecemeal submissions will not be reviewed and this may delay a planning application determination.

8. SUBSEQUENT PROCEDURE

8.1 The Designer will assume responsibility for the design of the permanent works.

8.2 Works cannot commence on-site until the entire procedure is complete, i.e., all relevant certificates contained in Annex A have been endorsed by the Structures and Flood Prevention Manager or Senior Engineer.

8.3 Design and Check Certificates should be submitted at that the same time.

9. HEALTH AND SAFETY FILE

9.1 On completion of the works a separate Health and Safety File for each structure is to be prepared and submitted to the Maintenance Manager prior to adoption.

The Health and Safety File is to be completed in accordance with Construction (Design and Management) Regulations 2015 and shall include all details of as built, operational and maintenance records required. Details of manufacturer's literature etc must be included in the Health and Safety File. A statement setting out problems encountered during construction of the Works and any corrective action undertaken must also be included in the Health and Safety File.

10. ROAD CONSTRUCTION CONSENT

10.1 The Designer must ensure that his design in relation to flooding and drainage is accurately translated into the completed works. The Design must ensure that no changes are made at the Road Construction Consent (RCC) stage which would pose a flood risk to proposed or neighbouring properties or would impact the effectiveness of the design submitted for planning approval.

11. DEVELOPMENT NOT REQUIRING FLOOD PREVENTION APPROVAL

11.1 Where a development is an extension of an existing household development that satisfies the following criteria then no formal consultation is required with CEC Flood Prevention.

- The ground floor finished floor level is at, or above, the previous elevation.
- No additional access points such as doors are being created which could allow surface water to enter the property
- No basement development is being created which has an access to the ground level external to the property (e.g. underground car park).

12. ENQUIRIES

11.1 All technical enquires about this Document should be marked for the attention of the Structures and Flood Prevention Manager and addressed to:

Flood Prevention
Place
Planning and Transport
Waverley Court,
4 East Market Street,
Edinburgh
EH8 8BG

or

flood.planning@edinburgh.gov.uk

ANNEX A

SELF-CERTIFICATION AND INDEPENDENT CHECK DECLARATION CERTIFICATE TEMPLATES

CERTIFICATE A1 – SELF CERTICATION (DESIGNER)

1 We certify that reasonable professional skill and care has been used in the preparation and checking of the Surface Water Management Plan / Flood Risk Assessment (*delete as appropriate*) for the development at ..... (*Name of Development*)..... with a view to securing that:-

i It has been designed and checked in accordance with the most recent City of Edinburgh Council Flood Prevention Requirements.

ii It has been checked for compliance with the relevant Standards in i.

iii details of the ground investigation and the attached interpretative report demonstrating that any soakaways provided are compliant provided *(delete as appropriate)*

iv It has been accurately translated into drawings and documents submitted alongside the planning application (all of which have been checked). The unique numbers and revisions of these drawings are:-

.....

.....

.....

.....

.....

2 Signed .....

Name .....
DESIGN TEAM LEADER

3 Signed .....

Name .....

Professional Qualifications .....

Position Held .....
PRINCIPAL OF ORGANISATION RESPONSIBLE FOR DESIGN

Name of Organisation ……

Date .....

4 Is an independent check required? (Refer to Section 7)
(*Delete as appropriate*) Yes / No

5

This certificate is accepted by the City of Edinburgh Council

Signed	....
Name	....
Position Held	....

CERTIFICATE B1 – INDEPENDENT CHECK DECLARATION

1 We certify that reasonable professional skill and care has been used in the checking of the Surface Water Management Plan / Flood Risk Assessment (*delete as appropriate*) for the development at ..... (*Name of Development*)..... with a view to securing that:-

i It has been designed and checked in accordance with the most recent City of Edinburgh Council Flood Prevention Requirements.

ii It has been checked for compliance with the relevant Standards in i.

iii details of the ground investigation and the attached interpretative report demonstrating that any soakaways provided are compliant provided *(delete as appropriate)*

iv It has been accurately translated into drawings and documents submitted alongside the planning application (all of which have been checked). The unique numbers and revisions of these drawings are:-

.....

.....

.....

.....

.....

2

Signed .....

Name .....

Professional Qualifications .....

Position Held .....
PRINCIPAL OF ORGANISATION RESPONSIBLE FOR CHECKING

Name of Organisation ……

Date .....

3

This certificate is accepted by the City of Edinburgh Council

Signed .....

Name .....

Position Held .....