

# Renfrewshire Council

## Report

**To** Scrutiny Board

**Date** 3 June 2008

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**Subject** Planning Implications of Flooding

### 1.0 Introduction

Renfrewshire has experienced major flood events in 1994, 1999 and most recently in December 2006. Flood events in Renfrewshire are typically characterised by complex interactions between intense rainfall events, watercourses exceeding peak flow capacities, surface water run-off from developed areas, a lack of capacity in the sewerage system and the tidal influence of the Clyde. By its ability to influence the development and use of land, the planning system has a key role to play in flood avoidance and flood alleviation.

### 2.0 Government Guidance: SPP 7

Scottish Government planning policy on flooding is provided by Scottish Planning Policy (SPP) 7: Planning and Flooding (2004). Its main guiding principles are that:

- New development should not take place if it would be at significant risk of flooding from any source or would materially increase the risk of flooding elsewhere.
- Planning authorities must take the probability of flooding from all sources and risks involved into account in the preparation of development plans and in determining planning applications.
- The storage capacity of functional flood plains should be safeguarded from further development. The functional flood plains comprise areas generally subject to an annual probability of flooding greater than a 1:200 year return period event (an annual probability of flooding greater than 0.5%).
- Drainage is a material consideration and the means of draining a development should be assessed.
- Sustainable drainage systems (SUDS) will be required whenever practicable.

### 3.0 The Flood Risk Framework

To assist the assessment of significant risk from fluvial or tidal flooding SPP 7 has provided a Flood Risk Framework. This has three basic categories:

**Little or no risk area** where the return period exceeds 1,000 years (an annual probability of flooding less than 0.1%). In such areas, there are no planning constraints due to flood hazard.

**Low to medium risk area** where the return period is between 200 and 1,000 years (an annual probability of flooding between 0.1% and 0.5 %). Generally not suitable for essential infrastructure, emergency services, fire stations, hospitals.

**Medium to high risk area** where the return period is greater than 200 years (an annual probability of flooding greater than 0.5 %). This category is subdivided into areas already built up and undeveloped areas:-

- **Built up areas** residential institutional commercial and industrial development may be allowed where flood prevention measures are in place or are planned. Land raising may be acceptable; water resistant materials and construction as appropriate.
- **Undeveloped areas** are generally not suitable for development. Exceptions may arise if the location is essential for operational reasons.

**Flood risk maps.** To assist interpretation of the Flood Risk Framework the Scottish Government commissioned SEPA to produce flood risk maps of fluvial and tidal flooding. These were published in November 2006. It has to be emphasised that these maps are primarily of use for strategic purposes and are not suitable for establishing flood risk for individual properties. There are a number of errors in the mapping for Renfrewshire which require to be corrected and it has generally been concluded that in their present form they do not provide sufficiently accurate information at local level on flood risk to properties. The number of residential properties which lie within the 1:200 year footprint for fluvial flooding amounts to 4,784 properties and for coastal flooding, 1,277 properties.

### 4.0 The Glasgow and the Clyde Valley Structure Plan

The Structure Plan sets the strategic policy framework for flood risk assessment and for safeguarding the functional flood plain. The recently approved Third Alteration has provided clarification of the circumstances where land raising might be employed as a flood alleviation measure within the functional flood plain. The option of land raising is important for the implementation of the Structure Plan's regeneration objectives; it allows flexibility for development in high risk areas. The Plan indicates that land raising, with compensatory storage, may be acceptable where it is consistent with:

the need to concentrate development in the priority development and regeneration areas encompassed by the metropolitan Flagship Initiatives;  
the Guiding Principles of Sustainable Development: and,  
the development assessment criteria of Strategic Policy 9.

## **5.0 Renfrewshire Local Plan**

The Local Plan flood policies were prepared in response to flood events that had occurred in Renfrewshire during the 1990s. The Plan represented a first attempt at introducing flood policies into this level of planning in Renfrewshire. The policies were formulated prior to publication of SPP 7. The Local Plan adopted a risk based approach to flooding to reflect the complexity of flood events that occur in Renfrewshire and the uncertainty associated with their spatial extent. The local plan has four key policies which set out:

1. An assessment and consultation procedure and a set of area based and site based indicators of land at risk of flooding;
2. Outline requirements for flood risk assessments;
3. Requirements for sustainable drainage systems (SUDS); and,
4. A set of standards for flood protection (these are consistent with the SPP7 Flood Risk Framework, but include a factor for climate change).

The Planning Department uses its own flood proximity maps, together with in-house engineering/hydrological expertise, for scoping flood risk and requirements for flood risk assessment in new developments. The proximity maps are considered a more appropriate basis to assess the complexity of flooding as it occurs in Renfrewshire than the SEPA flood maps. In comparison with the SEPA flood maps, the proximity maps cover some 14,700 residential properties, almost 18% of all residential properties in the Council area.

## **6.0 Drainage Assessment Guidance**

To assist the promotion of SUDS and the consideration of drainage matters more fully within the planning application process, Drainage Assessment Notes for Guidance were introduced by the Council in 2004. Renfrewshire's Drainage Assessment Guidance provides a comprehensive framework for the consideration of drainage systems, infiltration, groundwater, surface water flow, foul and storm water disposal, SUDS and drainage related flooding issues. It recognises that flood storage, drainage configuration and sustainable drainage devices may well, be crucial to the final design layout. Consequently, there is a need to consider drainage matters at the earliest stage in the design.

The Guidance was produced as a partnership document by the Council as planning, roads and building standards authority in association with Scottish Water and SEPA to assist a co-ordinated approach. The guidance sets out requirements for the preparation and submission of Drainage Assessments in support of planning applications within the Renfrewshire Council area. Drainage assessment is required for the majority of planning applications. The main elements of the guidance are summarised below:

- It provides a background statement on drainage characteristics within the area and explains the regulatory framework.
- The guidance emphasises that drainage assessment is a staged process. Early assessment can assist economic appraisal of drainage design costs by the developer prior to land acquisition.

- It makes clear that an assessment should accompany outline applications or detailed applications where waste or surface water requires to be drained and provides clear advice on requirements for planning submissions, outline and detailed.
- The assessment is intended for use by all regulatory authorities as basis for their consideration of drainage requirements.
- The general presumption is that sustainable drainage systems will be incorporated within any planning application. They should not be dealt with as a condition of planning consent.
- The surface water discharge criterion requires the 25 year run-off associated with a development to be limited to the corresponding 2 year pre-development greenfield value. This is intended to ensure that there will not be more surface water run-off from the site when developed than in its greenfield state and, additionally, the effects of flood water from the 1:200 year storm event will have no detrimental flooding effects both on and off site.

Drainage assessment is now a standard part of the development management process within the department. Where provided as part of a planning application, it contributes to increased efficiency in the regulatory process, reduced delay in decision making and improved design outputs. It has provided the basis for better understanding within the department of the respective roles of planners and engineers and improved communication between them. It has contributed to improved and better integrated working with SEPA and Scottish Water and has complemented improvements to service undertaken by Scottish Water in terms of its service level agreement protocol

Most recently, statutory underpinning has been given to SUDS under the Controlled Activities Regulations (CARs) operated by SEPA. These regulations require SUDS in new development for water quality purposes. Sewers for Scotland 2 (SfS2), Scottish Water's technical manual, has recently clarified the types of SUDS which will be publicly adoptable. Currently, work is underway to update the Drainage Guidance to integrate the SUDS maintenance arrangements introduced by SfS2 and focus on the type of agreements that will be necessary to integrate roads and source control SUDS with adoptable SUDS.

## **7.0 Consultation Arrangements**

Flood Liaison and Advice Groups (FLAGs) have been promoted by SPP 7 as a basis for developing flood expertise and exchanging information, particularly between local authorities, Scottish Water and SEPA. Typically, FLAGs are formed on a catchment basis. Renfrewshire Council chairs the Carts FLAG. Membership comprises engineering and planning representatives from five adjacent local authorities, Scottish Water, SEPA and Scottish Natural Heritage. A Strategic FLAG also operates for the wider Clyde Valley catchment.

In 2005, Scottish Water entered into a service level agreement (SLA) with the planning authority as a means of improving quality, consistency and efficiency in its relationship. Under the SLA agreement, three monthly tripartite meetings between Scottish Water, SEPA and the local authority are held. Discussions contribute to an integrated approach to the resolution of drainage matters at the local level.

In 2006, to assist preparation of the national River Basin Management Plan (RBMP), SEPA established area advisory groups at regional level. Renfrewshire Council participates in the Clyde Area Advisory Group. This facilitates consideration of integrated approaches to water quality improvement and promotion of sustainable flood management.

The above arrangements help ensure new development takes place in a co-ordinated way without detriment to water quality or the environment. These joint working arrangements are consistent with Planning Advice Note (PAN) 79: Water and Drainage which emphasises that it is essential that the planning system interacts effectively with the frameworks for the provision and regulation of water and drainage infrastructure.

## **8.0 Future Prospects: A Catchment Perspective on Sustainable Drainage.**

The urban area is served in large part by historic, foul water drainage systems which were not designed for the demands currently placed upon them, let alone the potential additional impact of climate change. Many of these buried pipes and culverts, often installed in Victorian times, are in poor condition having received limited investment and rarely have a capacity greater than a storm event having a return period of ten years (1:10). The key flooding issue in the urban area, as evidenced in December 2006, relates to the lack of capacity in the sewerage system and local watercourses, exacerbated by overland flow (i.e. surface water which becomes concentrated and flows across land after heavy rainfall).

In recent years, there has been an increasing impetus to adopt catchment based approaches to flood management. This is founded on the need for a holistic view of the urban water drainage system (comprising watercourses, the sewer network and roads drainage) and the promotion of integrated surface water management. The approach recognises that unattenuated (unlimited and uncontrolled) conveyance of extreme rainfall events within buried infrastructure is neither economically feasible nor practical; the future drainage network requires a combination of attenuation and conveyance to suit the developed sub-catchment.

The approach is predicated on the need for joint working and integrated action particularly by the local authority and Scottish Water in their asset management of roads and sewers. The planning process has also a potentially key role to play by ensuring flood risk is fully assessed and managed in new development and that sustainable drainage systems and attenuated storage are provided. The systematic application of planning policy over time has the potential to significantly improve the functioning of the catchment drainage network. By harnessing development industry investment in this way, planning contributes to the cost effectiveness of the catchment based approach to flood management.

The need for a catchment approach has been influenced by the emergence in recent years of sewerage development constraints, caused by the lack of capacity in the combined sewer network to take additional surface water. This has threatened not just potential private sector outputs, but also the Council's social and economic regeneration priorities.

This is exemplified in Shortroods where to expedite development, the Council was required to provide a surface water sewer at a cost in excess of £0.5m. This type of situation underlines the need to develop for a more cost effective and sustainable approach. The

resolution of urban drainage problems raises significant planning issues for urban areas of the future

## **9.0 EU Interreg IIIB Urban Water**

As part of the Interreg IIIB Urban Water Project, Renfrewshire Council, in partnership with Scottish Water and SEPA, has demonstrated the potential financial and environmental benefits of integrated catchment management, using Johnstone as a test bed catchment. The project has had three main outcomes:

- it has tested the potential for integrated watercourse and sewer modelling as a design tool for drainage improvements and flood hazard reduction across the catchment;
- it has investigated the potential of catchment based, non-structural responses to flooding based on attenuated disconnection of surface water from the sewer and watercourse network (i.e. removing surface water from the drainage network and storing remotely during extreme rainfall events); and,
- it has developed a *Water Vision for Johnstone* as a potential mechanism for integrated planning and co-ordinated investment in surface water management.

The Interreg project has demonstrated the benefits of the local authority, Scottish Water and SEPA, each with responsibilities for different parts of the drainage system in urban areas, working together, to assess and manage flood risk taking a long term and strategic approach. The need for a catchment planning mechanism such as the *Water Vision* is considered fundamental in order to define the scale of investment required and to ensure integrated, coordinated and cost effective drainage solutions within urban sub-catchments.

The outcomes of the Interreg project have influenced the Council's response to the Scottish Government's consultation on the Flooding Bill (see report to the Environment and Infrastructure Policy Board, April 2008). The Flooding Bill has been promoted to encourage more sustainable approaches to flood management and to implement the EU Flood Directive which requires the preparation of flood hazard/risk mapping and Flood Risk Management Plans. The Council's response has argued that the integrated modelling and catchment management planning, as demonstrated in the Johnstone catchment, serve as examples of best practice in sustainable drainage and could act as templates for future integrated action in the preparation of Flood Risk Management Plans under a new Flooding Act.