



# *National Planning Policy Guideline*

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## NPPG7 - PLANNING AND FLOODING

### *introduction*

1. Flooding is a natural phenomenon which plays an important role in shaping the natural environment and cannot entirely be prevented. The Government however wishes to ensure that flood risk is properly taken into account in the planning of developments and that measures are taken to reduce the risk of flooding and the damage which floods cause. This National Planning Policy Guideline (NPPG) sets out the Government's policy on the positive role of planning in achieving these aims and the lead responsibilities of local authorities. It provides guidance to planning authorities, developers and the public on a wide range of planning and other measures which should ensure that decisions in relation to areas of existing and future development take account of flood risk, whether inland or on the coast.

2. In recent years particular areas of Scotland have suffered from widespread flooding and the planning system has to play its full part in responding to the problems. Recent examples of serious flooding include the coastal flooding at Saltcoats in January 1991 and 1995, the Tay and Highland floods of January 1990 and 1993 and the Clyde/Kelvin floods of December 1994. The devastating effects of floods such as these on individuals and communities are hard to quantify precisely, for while the financial costs can be immense, people often continue to suffer the personal effects well after the physical damage has been repaired. It is therefore important when preparing proposals for future development that due regard is given to the prospect of flooding.

3. This guideline seeks to address the problems which flooding can cause by:

- **emphasising that the susceptibility of land to flooding is a material consideration in planning decisions;**
- **instructing planning authorities to act responsibly in the weight they accord to flood risk information;**
- **stating that owners remain primarily responsible for safeguarding their property;**
- **explaining the lead role of local authorities in flood prevention works;**
- **clarifying the role of other agencies and statutory bodies e.g. River Purification Boards and Islands Councils (RPBs) in providing advice on flood issues;**
- **applying the precautionary principle to decision making so that risk is avoided where possible and managed elsewhere;**
- **specifying the actions which planning authorities should take in their structure and local planning work, and in development control;**
- **improving the information available to the community about the risks of locating in an area susceptible to flooding; and**
- **recognising that flood prevention measures can have implications for the natural and built environment.**



## NPPG7 - PLANNING AND FLOODING

### *policy and legislative context*

4. Planning authorities already have powers under the Town and Country Planning (Scotland) Act 1972 to take account of flooding issues as a material consideration in determining planning applications and appeals. Planning applications can therefore be refused on the grounds of flood risk. In addition NPPG 1 on The Planning System, published in January 1994, highlighted the need for planning policies, when setting the framework for development, to take account of local community interests of public safety including flooding. This NPPG now builds on that guidance by encouraging planning authorities to use their existing powers to guide, regulate and control development in areas at risk.

### *Responsibilities for flood protection and prevention*

5. The primary responsibility for safeguarding land or property against natural hazards such as flooding remains with the owner, including local authorities as owners of land and property. In addition regional and island councils have the leading role under the Flood Prevention (Scotland) Act 1961 which empowers them to take such measures as they think fit to prevent or mitigate the flooding of any non-agricultural land in their areas. Regional and islands councils may also maintain or repair existing flood defences but improvements or construction of new channels or defences requires the council to prepare a **flood prevention scheme**. The scheme must be widely advertised and submitted to the Secretary of State for confirmation. Objections made and not withdrawn are dealt with at a public local inquiry. Eligible expenditure on confirmed schemes is grant aided by The Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD). Confirmation of a scheme does not automatically confer deemed planning permission, although under Section 37 of the Town and Country Planning (Scotland) Act 1972 the Secretary of State, by granting a sanction, may direct that planning permission is deemed to be granted. Some schemes may be permitted development under Class 20 of The Town & Country Planning (General Permitted Development) (Scotland) Order 1992 (GPDO) i.e. the carrying out of any works required in connection with the improvement or maintenance of watercourses or land drainage works. Class 20 will be reviewed as part of the current Review of the Planning System.

6. Regional and islands councils also have permissive powers under the Flood Prevention (Scotland) Act 1961 to clean, repair, and otherwise maintain any watercourse (including the bed and banks of any river, stream or burn, ditch, drain, cut, canal, culvert, sluice or passage carrying or designed to carry water) but excluding sewers or water mains which are the responsibility of the Water Authorities (see paragraph 10). This means they may remove mud, silt, debris or other obstructions from the watercourse, and cut away bushes or scrub timber growing on the banks. They also have powers to clear culverts which are under existing development. All their powers under the 1961 Act, which can be exercised outwith an authority's area as well as within, will transfer to the new councils from April 1996.

7. For agricultural and forestry land responsibility for flood defence lies with the owner. Land drainage and flood defence works normally benefit from permitted development rights. Such works may have implications for flood risk downstream. Control is however exercised over all schemes which are grant aided by the Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD) under the Farm and Conservation Grant Scheme. These may include making, improving or altering the banks or channels of watercourses or other agricultural flood protection works to provide or improve the drainage of agricultural land. With the exception of emergency floodbank repairs, farmers must obtain SOAEFD's prior approval before starting any kind of arterial drainage or river works on which they intend to claim grant. Farmers must also obtain written confirmation from the appropriate RPB that it has no objection to any works being carried out.

Written consent must also be obtained from Scottish Natural Heritage (SNH) by the owner or occupier to undertake drainage or other works listed as Potentially Damaging Operations which affect sites of special scientific interest (SSSIs), national nature reserves (NNRs), European Sites and Ramsar Sites. In addition, to comply with the Habitats Regulations, SNH should be consulted by the relevant statutory body on all drainage or flood prevention projects which may significantly affect a European Site, including proposed sites. Permitted Development Rights may be withdrawn if these projects significantly affect the interests for which the European Site has been designated. Written consent must also be obtained from Historic Scotland where arterial drainage or river works could affect the integrity of a scheduled monument.

8. The Forestry Commission exercises control over all afforestation schemes which are grant aided under the Woodland Grant Scheme and all felling where a licence is required. Approval is conditional on compliance with the Forestry Commission's "Forests & Water Guidelines"<sup>7</sup>. These recognise that poor drainage practice could contribute to localised flooding and set out good practice in all forestry operations, including ground preparation and harvesting. For specified cases the RPB and planning authority are consulted and unresolved objections trigger a formal dispute procedure which can involve the Minister responsible for forestry.

9. There remains a possibility that uncontrolled drainage works for any purpose, including agriculture and forestry, could lead to an increased risk of flooding. In areas with an identified flood risk it remains open to planning authorities to make a Direction under Article 4 of the General Permitted Development Order to bring drainage schemes within planning control. Article 4 Directions are subject to approval by the Secretary of State and he expects planning authorities to propose such Directions only if the River Purification Board / Scottish Environment Protection Agency (SEPA) are in support.

10. The regional and islands councils are responsible for the provision of public water supply and sewerage services in their areas. They operate and maintain water supply reservoirs, sewerage systems (including stormwater sewers) and sewage disposal arrangements. The water services departments of regional councils may be asked to comment on flood-related issues when they are consulted on development plans and planning applications e.g. if there are implications for their water and sewerage systems. After April 1996, these services will become the responsibility of the new Water Authorities.

## ***The Role of Building Standards***

11. In considering planning applications, authorities should be aware of the role played by the Building Regulations<sup>8</sup>. Regulation 16 and Part G of the Technical Standards supporting the regulation have requirements to protect buildings and their users from the effects of moisture. This includes the preparation of the ground adjoining a building to minimise the risk of flooding. The regulation states that " a site, and ground immediately adjoining a site, shall be so drained or otherwise treated as to protect the building and its users, so far as may be reasonably practicable, from harmful effects caused by (a) groundwater, (b) flood water, and ( c) existing drains". This applies to all new building work other than certain limited life buildings. This requirement is intended to ensure that suitable and adequate drainage is installed to deal with normal conditions.

## ***River Purification Boards and the Scottish Environment Protection Agency (SEPA)***

12. The River Purification Boards and island councils, as River Purification Authorities, maintain records of flow in certain rivers and have powers to install and operate flood warning systems. Many of the areas at risk can be given between 3 and 12 hours notice of flood events likely to endanger life or property. The RPB can provide data for flood risk assessment and draw attention to known flood risk areas on request. They are also statutory consultees with regard to some planning applications under the Town & Country Planning (General Development Procedure) (Scotland) Order 1992 (GDPO-Article 15(1)(h)). Before granting permission the planning authority have to consult the RPB if the proposed development consists of, or includes:

- fish farming
- mining
- storage of mineral oils
- retention, treatment or disposal of sewage, trade waste and effluent (except where serving buildings used by not more than 10 people)
- works in the bed or on the banks of a river or stream
- a cemetery
- deposit of any kind of refuse or waste

These responsibilities, including the role of statutory consultee, are planned to transfer to SEPA from April 1996.

13. Although it is not a specific statutory requirement, some planning authorities consult the relevant RPBs on flooding during the preparation of structure and local plans. The RPB can also make representations when the plan is published in draft and lodge formal objections to the plans when they are finally published. It is important that they make an input to development plans because of the provision, in section 18A of the Town and Country Planning (Scotland) Act 1972, that "the determination shall be made in accordance with the plan (i.e. structure and/or local plan) unless material considerations indicate otherwise". **After April 1996 planning authorities should consult SEPA on flood risk when preparing their development plans. Under the Environment Act 1995, SEPA will have the assessment of flood risk, as far as it considers it appropriate, as one of its functions and a duty to provide advice based on information held, to a planning authority, if requested.**

### ***Flood Appraisal Groups and other consultations***

14. It is appropriate that local authorities should take the lead role in co-ordinating measures and responses to flooding because they are in the best position to address local issues and concerns. Their role will be reinforced under the new unitary councils particularly with their combined responsibilities for flood prevention, planning and building control. This will enable them to develop a widely based policy approach to flooding. To further strengthen their position as the focus for dealing with flooding issues each local authority acting corporately should identify the need for a wider forum in which to discuss flooding issues. Flood Appraisal Groups can be formed to provide the local authority with practical guidance and information on flood risk and its implications for development. This objective should be achieved through discussion and a consensus view taken, which can then be used by the planning authority in its development control and development planning functions. In addition the Group could also have a role to play in discussing flood prevention for the areas concerned.

Flood Appraisal Groups :

- are concerned with measures to reduce flood damage;
- are convened by the local authority;
- should involve relevant local authority departments and other relevant agencies with flooding responsibilities;
- should involve relevant private sector representatives such as housebuilders and insurers;
- are informal and advisory;
- provide a forum for the various parties to reach a consensus view on flood risk and its consequences

15. Issues which could form the basis for discussion in Flood Appraisal Groups include information and data requirements, catchment drainage management, flood prevention schemes, other mitigation measures, watercourse repair and maintenance, development plan land allocations, significant development proposals and future research requirements.

16. Planning authorities may also consult directly with a wide range of bodies, including those who control culverts and embankments which may serve as flood defences, such as Railtrack, British Waterways Board, Road Authorities and other riparian owners. To allow interested parties the opportunity to comment, Article 14(1) of the GDPO prevents the planning authority from determining a planning application within 14 days of receiving it, or advertising it, whichever is the later. It is open to the planning authority to allow a longer period for comments, eg in particularly complex cases. Planning authorities may also consult with local authority Emergency Planning Units who will have information on areas where there is a risk of flooding.

17. Planning authorities are required under the GDPO to consult SNH before granting planning permission for development which affects the integrity of an SSSI or NNR. The Conservation (Natural Habitats etc) Regulations 1994 include a similar requirement for European Sites (ie SPA and SAC) and in addition Ramsar sites. Circular 6/1995 and 13/1991 refer, and with SNH where there are nature conservation concerns. [ A list of the agencies with a role in dealing with the flood hazard in Scotland and their responsibilities is given in annex 1. Annex 2 lists other relevant legislation.]

## ***Sustainable Development***

18. The Government has committed itself to the concept of sustainable development. The 1990 Environment White Paper explains that this means "living on the earth's income rather than eroding its capital; keeping the consumption of renewable natural resources within the limits of their replenishment; handing down to successive generations not only man-made wealth (such as buildings, roads and railways) but also natural wealth such as clean and adequate water supplies, good arable land, a wealth of wildlife and ample forests." The concepts have been developed in the 1994 Command Paper "Sustainable Development-The UK Strategy". Government policy set out there recognises that while economic growth is required to provide jobs and rising standards of living, equally, a safe and pleasant environment in which to live and to pass on to future generations needs protecting.

19. Flood prevention may be achieved by avoiding development in areas of risk, and in coastal areas by managed retreat. **Development of an area which is exposed to frequent or extensive flooding is likely to be unsustainable and should be avoided.** Where development is essential the threat of flooding should be managed in an environmentally sensitive way. The role of "soft " engineering techniques such as natural flood meadows and washlands in attenuating flooding should be recognised and additional flood protection measures should only be adopted after full consideration of all available techniques which can provide the appropriate level of protection and ultimately the enduring need for a development in that area.

20. Flooding is part of the natural cycle of events which serve to sustain ecosystems. But in extreme circumstances, and sometimes when human activity has worsened its impact, flooding can destroy ecosystems and habitats, wash away soil and destroy the buildings and infrastructure on which the economy and society are dependent. Potential damage from flooding is both uncertain and unpredictable. It can also be significant and because of this the Government takes the view that it is necessary to act on the basis of the **precautionary principle**.

21. The precautionary principle is defined as taking action now to avoid possible environmental damage when the scientific evidence for acting is inconclusive but the potential damage could be great. It emerged as a policy response to the discharge of pollutants into the sea and has now been applied to many different activities including the use of natural resources. It is particularly relevant in dealing with the hazard of flooding.

Application of the precautionary principle acknowledges the uncertainty inherent in flood prediction but at the same time enables more open and better informed decisions to be made. By using a precautionary approach a reduction of environmental impact can be ensured despite the existence of risk. The precautionary principle thus recognises :

- that human and environmental well-being has intrinsic value and legitimate status ;
- that the environment should be passed on to future generations without further irreversible damage to its biological diversity, and to its natural and built heritage resources ;
- the limitations of scientific knowledge to predict accurately the hazards which threaten the environment ;
- that prudent action can be taken in advance of scientific certainty ;
- the need for continued surveillance, monitoring and study of the environment to improve our understanding.

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## NPPG7 - PLANNING AND FLOODING

### *background information*

#### *The Causes of Flooding*

22. The historic reasons for building on flood plains are based on the premise that the advantages (flat, fertile land which is easily developed and managed) outweigh the disadvantage of intermittent flooding. Scotland's glaciated geomorphology, climate and extensive coastline mean that a certain amount of flooding is inevitable. It is estimated that most of Scotland can expect at least 60mm of rain in one day, once in 20 years and this level of precipitation may present a flood risk. The impact of this can be aggravated by :

- a large catchment relative to the size of the watercourse draining it;
- rapid snow-melt in upland areas feeding already high river flows;
- high spring tides and strong winds creating storm surges in coastal areas;
- lack of maintenance of defence systems, watercourses, culverts (including the flood relief areas round about them) and road gullies;
- canalisation, modification and diversion of rivers and watercourses which increases the rate of flow and decreases the time taken for water to travel within the catchment;
- progressive development in catchments which increases the rate and volume of run off;
- sub-standard agricultural practices e.g. badly designed and constructed modifications to river channels and drainage works;
- poor forestry practices e.g. badly designed ploughing and drainage in upland areas;
- building of structures (e.g. embankments) which restrict flows from historical flood plains and create additional flood risks downstream.

Definition of Flood Hazard (for the purposes of this NPPG); Flood Hazard is a result of human activity or natural processes (or combination thereof) which creates the potential for flooding, thus threatening human safety, the environment and property.

23. Flooding can therefore be created by human activity as well as by physical conditions. At its simplest, flood hazard involves the estimation of the costs likely to be incurred in damage and disruption of human activities. The consequences of flooding of agricultural land although costly to the individual farmer, are unlikely to involve a serious threat to human life. On the other hand, the potential overtopping and possible failure of a high floodbank defending a densely populated urban area is an extreme hazard. Facts to be taken into account in determining the threat from the hazard are the likely depth, speed and extent of inundation, and the potential for anticipatory action to be taken as a result of flood warnings.

24. Much of the flooding that takes place, be it localised or on a major scale, results from the overtopping of relatively small watercourses or by water escaping from culverted watercourses. There are unlikely to be flow records for many of these minor watercourses but there are some indicators which should cause careful consideration to be given to an area's susceptibility to flood. These include:

- areas of flat ground at lower level than the Victorian or Edwardian development which surrounds them;
- public parks and sports fields, particularly old established areas known as meadows;
- areas on the lower bank of a watercourse especially where there is steeply rising ground on the opposite bank;
- areas upstream from a restriction either natural or man-made in the watercourse e.g. a railway embankment, a culvert or where there is simply a lack of capacity in the channel;
- place names e.g. Lochside, Waterside or Haugh;

25. Road construction, including on-line improvements, can lead to changes in the run off characteristics of a watercourse's catchment area and hence the local drainage regime. Run off treatment and drainage design should be undertaken so that possible impacts on areas where there is a risk of flooding are reduced. The promoting body should be aware of the need to consult with the RPB, or in future SEPA, who may be able to provide information and advice. In the case of Trunk Roads, advice on assessment and design is given in the Government's Design Manual for Roads and Bridges. There are also a number of research reports available on techniques for controlling surface water run off<sup>9</sup>. The National Roads Directorate are also funding research on how to assess and design for surface water run off from trunk roads to ensure protection of controlled waters. Design solutions will consider the use of detention ponds and soakaway strips. The research is due to be published in 1996.

## ***Frequency of Flooding***

### **Case Examples**

#### Perth

The Tay flood in January 1993 resulted from widespread, intense and prolonged rainfall accompanied by a rapid snow melt. Despite the river utilising over 45 sq. km of farm land for storage, the flood at Perth was the second highest recorded in nearly 200 years. The flood banks protecting North Muirton, constructed in the mid 1970s, were overtopped and breached with over 1100 houses being inundated. A previous flood, in January 1990, had approached the 1970s estimate of the 100 year flood against which the flood bank system was designed.

#### Clyde/Kelvin

The December 1994 floods in West Central Scotland were due to prolonged rainfall over 2 days (170 mm or more in some places) when a `conveyor belt' of warm and moist air associated with a slow moving front was directed over Scotland. This led to the whole catchments of the principal rivers contributing to the run off and, in these rivers, flows well in excess of any previous floods were recorded. It is estimated that the return period of these flows is considerably more than 100 years. As a result, tributary streams `backed-up' causing flooding in their lower reaches. The effects were exacerbated in some urban areas where small streams had been culverted. Even with surcharging, the culverts were unable to cope with the run off resulting in water breaking out into adjacent low lying land. The high river levels also prevented storm water sewers and drains from discharging resulting in some flooding in low areas.

26. Historical records show that floods may occur in clusters related to periods of unsettled climate. There have been periods in which there have been an inordinate number of large events e.g.; 1890s, 1948-56. Similarly there have been other periods, e.g. 1920-1948 where there have not been many large floods. Despite large scale flood prevention schemes being developed since the 1950s a large number of floods have still occurred.

## **Flood Risk**

27. Flood risk involves both the statistical probability of an event occurring and the scale of the potential consequences.

### **Probability**

All development on land within the flood plain of a watercourse, drained via a culvert or on low lying land adjacent to tidal waters is at some risk of flooding, however small. The degree of risk is calculated from historic data and expressed in terms of the expected frequency of a flood of a given magnitude e.g. the 10 year, 50 year or 100 year flood. The risk is expressed in terms of these "return periods". However this concept is often misunderstood and misinterpreted. **The meaning is that there is a 10%, 2%, 1% chance respectively of such an event happening in any given year.**

**Over a longer period, the probability is considerably greater. For example ;**

**For the 50 year return period flood,**

- a) there is a 2% chance of it occurring in any year, but**
- b) a 45% chance of at least one such flood in a 30 year period, and**
- c) a 76% chance of at least one such flood in 70 years, the minimum lifespan of many developments.**

**For the 100 year return period flood;**

- a) there is a 1% chance of it occurring in any year, but**
- b) a 26% chance of at least one such flood in a 30 year period, and**
- c) a 51% chance of at least one such event in 70 years.**

28. The calculation of return periods is based on the assumption that the record of floods represents a reasonably unbiased sample and that the conditions (e.g. climate and land use) have been basically constant during the period of the record. The Flood Studies Report and its supplements, published by the Institute of Hydrology, is the most authoritative reference on flood estimation methods in use in Great Britain, but estimates of extreme flood flows remain "best estimates" and not precise predictions.

29. Similarly for tidal waters, tide-tables give predictions of astronomical tides and take into account local conditions. However meteorological conditions can cause storm surges and these, if in phase with the normal tidal cycle, can result in levels considerably higher than those predicted by reference to tide-tables. Storm surges are associated with intense depressions and in most years, several surges of 1 to 1.5 metres are experienced and 2 metre surges are not uncommon. Fortunately, these rarely coincide with high tides but the damage in the Firth of Clyde in January 1991 and January 1995, both of which resulted from 1.5 metre surges, give some indication of the potential threat from this source. The disastrous flooding on the east coast of England in 1953 was caused by a massive storm surge in phase with a spring tide and resulted in the loss of several hundred lives and millions of pounds of damage.

30. In assessing the risk of flooding to a particular area or site, a planning authority may wish to seek expert climatological advice to supplement advice based on records of flooding. Such advice can be especially useful where flooding has recently occurred during an exceptionally severe weather event. It may be important for the authority to know how exceptional the weather was and the likelihood of it recurring. The Scottish Climate section of the Meteorological Office at the Glasgow Weather Centre provides climatological data for Scotland and can advise planning

authorities and developers. They can, for example, advise on the return period for a given amount of rainfall at any specified National Grid Reference, or the predicted rainfall in millimetres per hour over a specified area. Although a charge may be made for this service, arrangements are being made between the Meteorological Office and the RPBs/SEPA to enable the latter organisations to obtain precipitation data within their own areas of responsibility without incurring data charges.

## **Consequences**

31. In assessing the development of a site or area, the risk of a flood occurring, as expressed by a return period, has to be considered alongside the scale and type of proposal. Each type of development will be affected in a different way and the depth of the flood water is likely to be more critical for some types than others. The consequences will also depend on the potential number of users or occupiers of the development. For example, in terms of human lives and cost to the community, the consequences of flooding for a residential home or primary school are likely to be more serious than those for a factory. Local authorities should pay particular regard to proposals for residential and commercial development in known flood risk areas (see also paragraph 40).

## ***Climate Change***

32. Predicted global climate change, sometimes in conjunction with isostatic movement, may also contribute to increased flooding incidents, particularly of coastal areas and land adjacent to tidal rivers. Predictions of future conditions are normally obtained by projecting the historical record forward. Within the record however, there is evidence of cycles of wet and dry periods having occurred in the past. Computer models which simulate human-induced climate change now suggest that global warming, resulting from greenhouse gases and sulphur, may lead to average temperature increases of 0.2°C per decade. Scenarios have shown that mean sea-level could rise by up to 4mm per year and this would have implications for planning a development of any significant lifespan on, or near, the coast. Waning isostatic movement of the British Isles from the unloading of the last ice sheet is causing most of Scotland's landmass to rise by over 1 mm per year in a see-saw motion relative to south-east England, which is sinking by some 1.5 mm per year. With these additional uncertainties it is even more important to proceed on the basis of the precautionary principle, and in coastal areas consider a policy of managed retreat.

33. An additional consequence of global warming is expected to be an overall increase in winter rainfall. Changes in atmospheric circulation induced by global warming are also expected to alter the geographical distribution of rainfall. Scotland is expected to experience more frequent westerly and south-westerly winds, and hence greater rainfall in the west. Recent rainfall trends in Scotland are upward and current rainfall totals are the highest in the historical record.

34. A related change might be an increase in storm tide-surges. All of these effects are, at the moment, postulated rather than certain. Nevertheless, given the life span of most developments it would be prudent to make provision for adaptations to flood defences to be carried out without major disruption to existing development.

## ***Tidal Flooding***

35. Flooding as a result of extreme tides can be as significant as flooding from rivers and there can be a combined effect; for instance if the peak river flow coincides with a high tide and storm surge. A hydrological model of the Tay, developed after the 1993 floods estimated that a combination of a 100 year flood and a 100 year tide would increase flood levels as far upstream as the North Inch in Perth. Whilst the study<sup>4</sup> concluded that this level of risk may be 'acceptable' it warned that the effect of climate change that may be associated with global warming could alter the assessment of return periods for both river flows and tidal events. Parts of Glasgow (downstream from Glasgow Green) are also at some degree of risk from tidal flooding. Coastal towns like Saltcoats and Millport are particularly vulnerable to storm surges and exceptional waves caused by southerly winds.

## Coastal Processes

36. The risk of flooding in coastal areas can be affected by the coastal processes of erosion and deposition. For example, the sand and gravel eroded from a soft cliff can be transported along the coast by waves, currents and tides. The material can build up and sustain beaches or shingle ridges which then form important components of flood defence, either alone or where they protect sea walls from wave action and undermining. Coastal defence works may, by preventing erosion, disrupt the supply of sand and gravel to adjacent coasts leading to a breakdown in the natural defences of the coast. Sand, gravel, clay and silt are moved around the coast by waves and currents in a series of partially linked systems which may be thought of as **sediment transport cells** (sometimes called *littoral cells*). Removal of aggregates from beaches can exacerbate coastal erosion and by changing the erosion pattern of streams crossing the foreshore lead to scouring upstream.

37. An understanding of these coastal processes is important where development proposals might potentially affect them or be at risk from them. They operate over a much wider scale than most local authority areas and inter-authority liaison may be needed. Research is currently underway into defining the littoral cells around the coast of Scotland, sponsored by The Scottish Office, Historic Scotland and Scottish Natural Heritage. Consideration will be given to the policy implications and how these will be taken forward in conjunction with local authorities and other interest groups.

## River Systems

38. The basic cause of riverine flooding is that the run off from the catchment upstream of the area in question exceeds the capacity of the watercourse to transmit the flow downstream. Many factors are involved such as the geology and topography of the catchment, its permeability, the intensity and duration of rainfall, snow melt and gradient of the watercourse channel. At its simplest, steep watercourses draining small rocky catchments will quickly respond to rainfall and are most affected by intense rainfall of short duration. Larger rivers on the other hand, respond more slowly with flooding most likely to result from steady rainfall over a longer period of perhaps 1-2 days. In understanding catchments a useful concept is the "time of concentration" which is the time taken for water to flow from the remotest part of the catchment to the measuring point. If the duration of rainfall on the catchment equals or exceeds the time of concentration, every part of the catchment is then contributing to the flow and, for that intensity of rainfall, the flow is at its maximum. This has implications for flood warning as a short time of concentration means that only limited time is available to warn residents of areas at risk.

39. One characteristic common to most watercourses is that there is a succession of relatively steep sections followed by a much flatter reach. These flatter reaches are often associated with areas of level ground and, although most noticeable at junctions with other watercourses, can occur throughout the length of a stream or river. Such areas are attractive for exploitation, either for agriculture or development, but are the natural flood plain of the watercourse. A feature of these areas is that they frequently have a natural constriction at the downstream end. Where the areas have been exploited for agriculture, there are often flood bank systems, some dating from the nineteenth century. These flood banks have normally been intended to provide defence against only relatively common floods in the 5-15 year return period range and have little effect in major floods as they are quickly overtopped, thus allowing the watercourse to utilise the flood plain. However, in urban areas, the smaller watercourses have often been culverted and the limited capacity of these culverts can cause severe flooding of adjacent properties. Flooding can be exacerbated by debris such as trees, bushes and rubbish being washed down the stream in a burn and restricting the waterway or blocking culverts and bridges.

## Costs and Insurance

40. The costs of flooding can be significant, not only in financial terms but also when measured in human, environmental and infrastructural terms. Damage to the built and natural environment can

result from inundation, erosion, sediment deposition and debris. Roads, railways and flood defences can be severely damaged resulting in large restoration costs. The after effects of flooding can include landslides and subsidence and further damage through erosion. In financial terms, the 1993 Tay flood is estimated to have caused damage of about £39 million, and the total economic loss resulting from the 1994 West Central Scotland floods is likely to approach £100 million including insurance and commercial losses. The recent cost to the public purse (Bellwin scheme) of the Perth and Strathclyde floods was substantial. This includes the costs of the emergency services, accommodation, meals, salvage, cleansing and counselling. The costs to businesses located adjacent to rivers in small industrial estates and the consequent disruption to operations can affect their future viability.

41. Insurers are increasingly concerned about environmental risks such as flooding and the scale of claims to which they can give rise. They are therefore continually reviewing their policies relating to flood risk, and before insurance cover is offered some are using increasingly sophisticated techniques to identify the risk to specific properties. Development at risk of flooding may face difficulties with the cost or availability of insurance and developers may wish to seek the views of insurers at an early stage. It would also be prudent for planning authorities to recognise this during the preparation of development plans in areas of known flood risk, and aim to avoid such problems arising in the first place. This can be done by ensuring, through consultation with insurance experts (possibly a local authority's own brokers or in-house staff) that flood defences or other measures are adequate and are likely to satisfy the requirements of insurers. Experience shows that not all existing householders and individuals have insurance against flood damage. It should be emphasised that:

- for privately owned dwellings, owner occupiers should make their own arrangements;
- the landlord has the responsibility to consider insuring the structure of any house and building which they own and it is up to the tenant to insure the contents of their own homes;
- some local authorities arrange block insurance policies which enable tenants to obtain contents insurance against flood damage at a reduced cost.

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### *policy guidelines*

42. Government policy is to avoid placing an additional burden of responsibility on future generations by increasing unnecessarily the number of areas that need artificial protection against flooding. **It is for planning authorities to take the lead by considering the information they receive on the nature of flood risk and the potential consequences, and to act responsibly in the weight they accord it in the determination of planning applications and the preparation of development plans. In accordance with the precautionary principle, planning authorities should first, seek to avoid increasing the flood risk by refusing permission where appropriate, and secondly, seek to manage the threat of flooding only in cases where other reasons for granting permission take precedence over flood risk.**

43. Planning authorities should determine their own approach as to whether flooding is an issue and if so, where the appropriate policy response is **avoidance** or **managing the threat**. In doing so they should bear in mind the quality of the historic data on flooding, that local issues of land supply and demand call for flexibility, that separate standards have to be set for different types of development and that any policy based on return periods could become quickly out of date because they are often recalculated following a flood. Where natural drainage has been affected by development, culverting or other engineering works (including flood prevention works) previously calculated return periods may also have been affected. The effect of these factors has to be interpreted locally and a national "rule of thumb" or standard would not provide a sound basis for decision making by planning authorities.

### **Avoidance**

44. Where the risk of flooding is considered to be significant, either on-site or downstream, and where it is determined that a policy of risk avoidance is appropriate, development plan allocations should not be made and planning permission should not be granted for :

- new development which would be likely to be at risk ;
- development which would be likely to increase the problem of surface water run off ;
- development which would be likely to require high levels of public expenditure on flood protection works ;
- the intensification of existing development which would be likely to be at risk. This may mean having to control permitted development by using Article 4 Directions (see paragraph 48) in specific areas.

### **Managing the threat**

45. It is accepted that in some areas, particularly those where pressure for development is acute and where the lack of suitable alternative sites is apparent, then a policy for flood defence by **managing the threat** may have to be followed. Planning decisions on applications and development plans should be related to the calculated risk (return period) and consequences of flooding occurring, but development should not be precluded unnecessarily compared to other areas where the risk is more acute.

46. Managing the threat may involve a range of measures. In some parts of flood plains and low lying coastal areas, development may only be acceptable to the planning authority if flood defences and/or measures to make properties more flood resistant are included. It might also mean that in other areas, development such as a retail park or business park could be designed to allow for

some minor flooding of landscaped areas, car parks and access roads whilst siting and designing the building to minimise the impact of flooding. The weight to be given to flood risk will not only depend on such factors as intended use and the scale of development proposed but also the number of people using the development, both permanently and temporarily. Consideration should also be given to the knock-on effect that such a decision may have on the drainage of the whole catchment.

47. When managing the threat of flooding planning authorities will draw on the knowledge and expertise of statutory and other consultees, possibly through a Flood Appraisal Group to achieve a consensus view on the risk and likely consequences of flooding and the most appropriate methods for managing the threat. The group could also advise on implementation and maintenance of any such measures. It is important that the Flood Appraisal Group make their position known before the planning authority has to decide on a specific application or a development plan proposal. See paragraphs 14 & 15 on Flood Appraisal Groups.

Where a policy of managing the threat is to be followed:

- planning authorities will need to have regard to the effects of the proposed development so that it will not create or intensify the flood risk elsewhere in the river catchment or coastal zone to an unmanageable degree;
- decisions should take account of the consensus view of the Flood Appraisal Group on the risk from flooding and that it is deemed to be both acceptable and manageable;
- any requirements for new or improved flood defences should be provided at the developer's expense where they are directly attributable to the development proposals;
- the nature and degree of risk should be reviewed periodically and monitoring of mitigation measures (defence schemes) will be necessary;
- the enforcement of flood related conditions will also need to be undertaken rigorously by the planning authority;
- in considering the risk of flooding to development a key issue will be the expected life of the development ;
- ensure, where practicable, that undeveloped flood plains continue to be available for use as flood relief areas to assist the management of the flood threat. Such areas may consist of golf courses, playing fields, open spaces, "set-aside" agricultural land or woodland.

### ***Intensification of development in flood risk areas***

48. In existing areas of development, intensification can increase the risk, including that posed by run off. The following measures would thus be effective :

- Introducing Article 4 Directions to control permitted development rights in exceptional circumstances following advice from the RPB / SEPA. There are a wide range of small / medium scale developments which have permitted development rights and, which taken together, could have an aggregate effect in adding to flood problems, particularly in flood plain areas. In certain circumstances claims for compensation against the planning authority may arise if planning permission was refused within the period of twelve months after the permitted development right was withdrawn and it was shown that as a result, a person with an interest in the land had incurred abortive expenditure or sustained loss or damage. The range of developments include:
  - development within the curtilage of a dwellinghouse;
  - temporary buildings and uses;
  - agricultural buildings and operations;
  - land drainage works;

- forestry buildings and operations;
  - industrial and warehouse development.
- building flood resistance measures into buildings and public utilities in areas of flood risk characterised by short duration floods. Appropriate building and architectural advice for dwellings is in preparation and will be issued early in 1996;
  - improving flood information and education available to the public and business community about the risks of locating in an area susceptible to flooding. Local authorities could prepare a flood information map (based on information received from RPB/SEPA). Local plans can show areas where consultation with the RPB/SEPA should be carried out thus informing prospective developers and the community on flood risk (see paragraph 59).

### ***Environmental Assessment and other policies***

49. An Environmental Assessment (EA) is required for a large range of projects if they are likely to have significant environmental effects. These effects may include the increased threat posed by hazards to humans, flora, fauna, water and material assets. By drawing together in a systematic way expert quantitative and qualitative assessments the scope for modifying the project or mitigating the effects can be evaluated before a decision is made.

50. Some projects for which EA may be required include flood relief works, canalisation, coast protection works, water management for agriculture, forestry, reclamation of land from the sea (for agriculture) and dams or other installations designed to hold water or store it on a long term basis. Works below high water mark for ordinary spring tides require a licence from SOAEFD and may also need clearance from the Department of Transport and Crown Estates Commissioners. An amendment will shortly be made to the GPDO to remove permitted development rights for any development which requires EA thus bringing these projects under planning control.

51. Other key planning policies which set the context for planning and flooding include natural and built heritage conservation designations, the countryside and green belt policies. Flood plains, mudflats, saltmarshes and estuaries are likely to include areas of high conservation value. They are often designated as SSSIs and may be European Sites such as Special Areas of Conservation, Special Protection Areas and also Ramsar sites which should all receive special consideration. The location of significant built heritage features such as scheduled monuments and other archaeological sites, listed buildings, conservation areas and designed landscapes may also influence flood relief considerations in both rural and urban situations. Any possible constraints on development that may arise from taking account of flooding, will not be viewed as providing justification for the relaxation of green belt or countryside policies. As at present, any changes to these key policies should be considered in the context of development plan reviews.

### ***Development plan context***

52. In setting the framework for development, policies should take account of community interests of public safety including flooding. Implicit in this is that flooding should be considered against other interests in a strategic and longer term context. Taking a strategic view would ensure:

- that flood risk and the vulnerability of flood prone communities could be modified through land use planning and management over a 5, 10 or 15 year time horizon consistent with local and structure plan periods;
- that flooding would be considered with respect to long term settlement policy and urban regeneration priorities which are usually set out in structure and local plans. New land allocations for development, especially business, industry and housing, continue to be a key issue in every development plan. In addition to the considerations set out in other NPPGs all significant land allocations including housing land supply should now take into account the risk of flooding. This may lead to a review of the agreed effective housing land supply in some structure plan areas;

- co-ordination of related policy objectives (e.g. for public open space, nature conservation and landscape designations, and agricultural drainage) across the whole of a river catchment or coastal zone;
- assessment of the likely long term effects of peak run off in the catchment from prospective and preferred areas for tree planting schemes, as outlined by Indicative Forestry Strategies (IFS) in structure plans.

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## NPPG7 - PLANNING AND FLOODING

### *action required*

#### **Structure Plans**

53. Structure plans provide the strategic locational guidance for development. They have particular importance in setting out a settlement strategy, providing the basis for co-ordinating strategic decisions on land use and transport, and in bringing forward an effective land supply for key uses. With regard to flooding structure plan authorities have to decide where a policy of avoidance ought to be followed and where one of managing the threat could be tolerated, having regard to particular development proposals. Structure plans can also provide the opportunity to look at the issue of flood risk over the whole of a river's catchment and relate it to the long term objectives of other agencies and local communities. Where a catchment transcends administrative boundaries a degree of joint working involving the different planning authorities will be necessary possibly through a Flood Appraisal Group.

54. Authorities preparing or altering structure plans are required by the 1972 Act to examine and keep under review matters which may be expected to affect the development of that district, including the principal physical characteristics. These matters should include land which has a history of flooding and other land where there is a risk of flooding. Depending on their scale and location, these matters may be potentially significant enough to be strategic issues. In approaching the issue of flooding in their structure planning work authorities should follow a staged approach.

**55. Stage 1 In reviewing their structure plans, planning authorities should determine whether flooding is a strategic issue. This should involve discussion with the Flood Appraisal Group and/or consultation with the responsible authorities including the relevant development industry and environmental interests. Issues to consider include:**

- the record of flood events and any factors which may increase the risk of flooding;
- the main river catchments where an attempt should be made to gain a fuller understanding of their hydrology and drainage;
- identification of the land most likely to flood, including river and coastal flood plains, taking into account major events of low probability (such as storm surges) as well as the better known high frequency floods characterised by short return periods;
- whether run off from major new developments, not directly subject to flood risk, could exacerbate flood risk downstream.

**56. Stage 2 Where the authority decides that flooding is a strategic issue the structure plan should:**

- set out policies to avoid or manage the threat of flooding. A policy of avoidance should be considered first in areas of risk. A policy of managing the threat should only be considered provided certain safeguards can be met (see paragraph 47).
- seek to minimise land at risk of flooding when providing land for different types of development including housing and business uses;
- identify locations where local plans should give detailed attention to flood risk.

57. Strategic flood plain management means that planning policies could consider:

- safeguarding flood plains and other low lying land from further development;
- possible long term relocation of some existing development, in extreme cases, so that the flood plain can flood naturally;
- enhancing existing flood defence and coast protection schemes;
- proposals for new protection schemes.

## ***Local Plans***

58. Local plans express site specific policies and proposals for development. It is a requirement that they are reappraised or altered at no greater than five year intervals. Flooding is an issue which should be considered in every case. Where there is a severe problem, or the structure plan has identified the area as a location where flood risk needs special consideration, a survey should be carried out and, if necessary, a specific alteration should be promoted urgently. Local plans covering major flood plains, watercourses with a history of flooding and low lying coastal land will have to be given special consideration.

**59. In their local planning work planning authorities, through discussion with the Flood Appraisal Group and/or in consultation with the responsible authorities including relevant development industry and environmental interests, should:**

- **apply the policies of the structure plan;**
- **always consider whether flooding is a potential issue;**
- **indicate where a degree of flood risk exists in their area;**
- **define areas where new development should be avoided;**
- **define areas where the threat can be managed, drawing on the consensus view of the Flood Appraisal Group and/or other consultees;**
- **make developers and the public aware of the risk in specific areas and the consequent constraints on new development;**
- **show on the proposals map areas where consultation arrangements with the RPB / SEPA will be required for specified types of development.**

## ***Development Control***

**60. The susceptibility of land to flooding is a material consideration in deciding a planning application.** A key purpose of this guideline is to have flooding dealt with as an important issue in development plans but it will take time to do this everywhere. In the interim, while retaining the presumption in favour of proposals which accord with the development plan, flooding must still be taken into account as a material consideration in deciding planning applications, even if it is not mentioned in the current plan. Decisions on planning applications which may be subject to some degree of flood risk must still be made timeously, sensibly and sensitively. Where necessary planning authorities should seek expert advice, from SEPA, through a Flood Appraisal Group, the developer, or independently, in assessing the risk from flooding.

**61. Flooding is one of several material considerations (subsidence and contamination are others) where the applicant and occupier accept there is a degree of risk. The planning authority's responsibility is to have regard to that risk in determining the planning application. This does not affect the liability position of developers or owners while planning authorities must act reasonably in reaching decisions on planning applications. In particular, planning authorities should avoid any indication that their approval of an**

***application implies the absence of flood risk.***

62. Where the developer intends to provide flood defence works, either in full or as part of an overall scheme, responsibility for long term financing of maintenance should be agreed at planning permission stage. Planning authorities may wish to consider entering into a Section 50 Agreement to ensure continued maintenance commitments are met in future. A preferred option is for local authorities to negotiate an arrangement with the developer whereby they would assume responsibility for future maintenance, subject to payment of adequate funds by the developer on occupation of the development. Similar arrangements may be sought in respect of the maintenance of culverts.

63. In considering options for flood prevention, local authorities acting corporately, and, where one exists, through discussion with the Flood Appraisal Group, should undertake a cost-benefit analysis of a range of measures. These could include:

- a flood prevention scheme;
- 'soft' engineering solutions (see paragraph 19) including natural processes;
- improved flood resistance of some buildings in the short-term;
- improved drainage in the medium-term;
- selective relocation in the long-term.

**64. Planning applications where flooding issues will have to be considered include those for development:**

- on land with a previous history of flooding, including riverine flood plains and low lying coastal land;
- within, or adjacent to, a watercourse;
- which involves, or is adjacent to, a flood bank, flood control structure or culvert under an embankment;
- likely to involve the culverting or diversion of a watercourse;
- which may involve land raising and other remedial measures in areas known to be susceptible to flooding;
- including residential development in areas identified through the development plan consultation as being susceptible to flooding, particularly for people with impaired mobility.

**65. In development control work planning authorities should as appropriate, through discussion with the Flood Appraisal Group and/or in consultation with the responsible authorities including relevant development industry and environmental interests :**

***Generally for all locations***

**routinely consider whether risk of flooding is a relevant issue by applying a checklist of flood related indicators (such as the history of flooding, recent changes in land use, infrastructure and the location of existing significant culverts );**

- consider whether approved, but as yet unbuilt development or other changes in the area will increase the risk of flooding;
- refuse applications for development which would create an unmanageable risk of flooding;
- refuse applications which would create or intensify an unmanageable

flood risk elsewhere including in another local authority area;

*Where run off is an important factor*

- refuse applications which would result in a significant increase in surface water run off relative to the capacity of the receiving watercourse in flood risk areas. For new developments which increase the area of hard surface, 100% run off should be assumed in the design of drainage unless permeable surfaces, soakaways and detention ponds are included as integral design features;
- In the light of responses from RPB / SEPA consider, as an exceptional measure, making an Article 4 Direction to control permitted development which has potential cumulative effects upon the volume of run off;
- give full consideration to the run off effects from a local authority's own development, including road works and other public utilities;

*For specific types of development*

- take special account of the vulnerable nature of caravans and mobile homes where relevant;
- give thorough and urgent consideration to planning applications for flood defence and coast protection works;

*Where culverts are involved*

- when a proposal includes a culvert, or is on land drained via a culvert, ensure its capacity is to an acceptable standard. The design of safety grilles around culverts should also seek to minimise the risk of blockage;
- consider the use of the land around the culvert grilles from the point of view of blockage by litter. Management, monitoring and maintenance procedures for culverts should be agreed between owners and local authorities (e.g. through conditions or Section 50 agreements). The RPB / SEPA monitor for pollution aspects only;

*Additionally, as relevant*

- where an Environmental Assessment is required, ensure that flooding issues are considered from the scoping stage onwards;
- have regard to designations and policies for the protection of the natural and built environment;
- in cases of doubt, the applicant may be asked to provide an engineering report on flooding as supporting information which could form the basis of consultation with RPB/SEPA;
- take account of building control requirements and design measures intended to minimise potential flood damage;
- impose conditions as appropriate, on both outline and detailed planning permissions which may include:
  1. the method of drainage (including the need for detention ponds as necessary);
  2. details of foul and surface water drainage, means of discharge and any further flood prevention matters are carried out to the satisfaction of the relevant authorities;
  3. provision for continued maintenance of the flood protection works;

4. the erection of suitable permanent signs warning that the area is susceptible to flooding;
- encourage informal liaison and pre-application discussions with the responsible authorities.

### ***Notification of Planning Applications***

**66. The Town and Country Planning (Notification of Applications)(Scotland) Direction 1988 (see Circular 29/88 Notification of Applications) already ensures that development which the planning authority considers to be a significant departure from an approved structure plan is notified to the Secretary of State under Section 7(1) of the Town & Country Planning (Scotland) Act 1972 . The Direction is being amended to require that ;**

*where the planning authority intend to approve an application contrary to the advice of RPB / SEPA that there is a risk of flooding, the planning authority shall notify that application to the Secretary of State who shall have 28 days to decide whether to call in the application for his own decision.*

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## NPPG7 - PLANNING AND FLOODING

### Glossary

**Backing up** - a build-up of water in a watercourse due to a blockage or inadequate capacity downstream.

**Catchment** - the area of land drained by a watercourse.

**Climate** - the average weather conditions over a long period for a place or area.

**Coast Protection Works** - works carried out under the Coast Protection Act 1949.

**Culvert** - a covered channel, pipe or drain which carries a watercourse beneath a building, a structure or an embankment or which is below ground level.

**Discharge** - the flow of water from a watercourse, culvert, pipe or drain into another watercourse.

**Ecosystem** - the community of animals and plants together with the surrounding physical environment.

**Flood hydrograph** - the graph of water depth, flow and volume plotted during the period of a flood.

**Flood plain** - all land adjacent to a watercourse over which water flows in the time of flood or would flow but for the presence or flood defences where they exist. The limits of floodplain are defined by the peak water level of an appropriate return period event on the watercourse.

**Flood Prevention Scheme** - a scheme of works to reduce the risk of flooding carried out under the Flood Prevention (Scotland) Act 1961.

**Geomorphology** - study of the origins and character of the landform, including glacial effects and geological origins.

**Hazard** - the event or object which has the potential to endanger life and damage the natural or man made environment.

**Hydrological model** - a model, physical or mathematical, of the dynamic behaviour of water.

**Isostatic** - a natural large scale change in the level of the land, in Scotland typically uplift resulting from the weight of ice removed following the last ice age.

**Littoral cells** - (see sediment transport cells)

**Precautionary principle** - taking action now to avoid possible environmental damage when the scientific evidence for acting is inconclusive but the potential environmental damage could be great.

**Return period** - the historic time interval between identical events (the return periods for rainfall and flooding are not necessarily the same).

**Risk** - the chance or likelihood of a hazardous event occurring, usually expressed as odds (100:1), a ratio (1 in 100) or as a percentage (1%).

**Sediment transport cell** - a length of coast along which a relatively self contained system of sediment movement occurs.

**Storm surge** - the increase in sea level caused by the combined effects of low atmospheric

pressure, wind and a high tide.

**Surcharging** - (see also Storm surge) - a flow of water in a culvert or pipe which is above the design flow.

**Water table** - the level of ground water, below which the ground is saturated.

**Watercourse** - river, stream, burn, drains, cut, canal, culvert, sluice or passage carrying or designed to carry water, together with the bed, banks, walls, pipes or other works containing or intended to contain the same.

NB This definition does not include sewers or water mains.

**Weather** - A description of the atmosphere (inc temperature, air pressure, rainfall, cloudiness, wind speed and direction) at one time or over a short period.

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**NPPG7 - PLANNING AND FLOODING****Annex 1:****RESPONSIBILITIES FOR DEALING WITH FLOOD HAZARD IN SCOTLAND**

- |  |   |   |
|--|---|---|
| Owners of land and property  | - | Have primary responsibility for flood protection and insurance.   |
| River Purification Board   | - | Maintain river flow records, operate flood warning systems, can provide information on extent of previous flooding.   |
| Local Authorities  | - | Have statutory powers under the Flood Prevention (Scotland) Act 1961 to prevent or mitigate flooding of non-agricultural land in their areas. Act on behalf of the wide public interest and can commission reports on flood risk and flood prevention. Maintain sewage treatment and water works which can be affected by flooding until April 1996 when these responsibilities will be taken over by the new Water Authorities. Responsible also for emergency planning, coastal protection and for housing those made homeless by flooding and for remedial works to their own stock. |
| Scottish Office Agriculture, Environment and Fisheries Department (SOAEFD) | - | Grant aid arterial drainage works, including flood protection, carried out by agricultural owners and businesses. Maintain Statutory Drainage Schemes carried out under the Land Drainage (Scotland) Acts 1930-1941 on parts of the Allan Water, River Almond, River Annan, River Clyde, Dean Water, River Devon, Goodie Water, River Kelvin, Lochty Burn, River Nith, Piltanton Burn and Loch of Park.   |
| SOAEFD - Environmental Affairs Group                                       | - | Give grant aid to regional and island councils on specific flood prevention schemes submitted for confirmation. Provide advice to farmers on engineering aspects of flood protection and prevention projects. Have a co-ordinating role between central and local government on flood related issues. Responsible for co-ordination of pollution matters, advice on climate change/ozone depletion and setting up Scottish Environment Protection Agency (SEPA).  |
| Scottish Office Development Department (SODD)                              | - | Local Government Finance Division will administer Bellwin Scheme and co-ordinate relief in respect of flood damage with regional & island councils.   |
| Scottish Office Home Department (SOHD)                                     | - | Provide funding for emergency planning under the Civil Defence Act 1948, organise training studies and seminars.  |
| Railtrack/   | - | May control river embankments/canals/land on flood plains. They may also have permitted development rights which can affect the level of run off.   |
| British Waterways Board/   |   |   |
| Roads Authorities/   |   |   |
| Riparian Authorities   |   |   |
| Meteorological Office  | - | Have role to play in flood prediction and warning of adverse weather conditions. Will also have role in providing precipitation data to SEPA under agreement (Memorandum of Understanding).   |
| Institute of Hydrology   | - | Source of data on flood-risk and river flow/tidal records.  |
| Risk Consultants/  | - | Can provide information on flood-risk assessment.   |
| Centres of Research  |   |   |

- |                           |  |
|---------------------------|--|
| Insurance Companies       | - Have interest in assessing flood-risk for setting insurance policies and premiums.   |
| Business Community        | - Often commercial/industrial property can be affected by flooding.  |
| Scottish Natural Heritage | - Must be consulted by planning authorities where arterial drainage or river works, or other proposals could affect a site of European importance (SAC or SPA), a SSSI or NNR. |
| Historic Scotland         | - To be consulted where works may affect a scheduled monument.   |
| Scottish Power            | - Maintain power lines, electricity supplies.  |
| Hydro-Electric            | - Control discharge from hydro-electric reservoirs.  |
| Police                    | - Have primary role in dealing with flood events and emergencies.  |

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## NPPG7 - PLANNING AND FLOODING

### Annex 2 -

### ***Relevant Acts of Parliament with their Main Provisions (not including Town and Country Planning Acts)***

**Flood prevention (Scotland) Act 1961** which empowers regional and islands councils to carry out work to prevent or mitigate flooding of land in their area, not being agricultural land, so far as they think fit - section 1. Any work other than maintenance and management operations must be authorised by the Secretary of State - section 4.

**Coast Protection Act 1949** which empowers coast protection authorities (islands councils and councils of regions adjoining the sea) to carry out such coast protection work as may appear to them to be necessary or expedient for the protection of any land in their area - section 4. Certain coast protection work must be authorised by the Secretary of State - section 6.

**Local Government (Scotland) Act 1973 - section 84** - which allows local authorities to incur expenditure in taking action to avert, alleviate or eradicate in their area or among its inhabitants the effects or potential effects of an emergency or disaster involving destruction of or danger to life or property. Local authorities are also empowered to make grants or loans in respect of such action taken by others.

**Civil Protection in Peacetime Act 1986** which allows local authorities to use civil defence resources in taking action to avert, alleviate or eradicate in their area or among its inhabitants the effects or potential effects of an emergency or disaster involving destruction of or danger to life or property notwithstanding that the event is unconnected with any form of hostile attack by a foreign power - section 2.

**Local Government and Housing Act 1989 - section 5** - which empowers the Secretary of State to establish a scheme for the giving of financial assistance to local authorities in respect of expenditure incurred by them on, or in connection with, the taking of immediate action (whether by the carrying out of works or otherwise) to safeguard life or property, or to prevent suffering or severe inconvenience, in their area or among their inhabitants. The expenditure must have been incurred as a result of an emergency or disaster involving destruction of or danger to life on property.

**Land Drainage (Scotland) Act 1958** which enables the owner of agricultural land, subject to authorisation by an improvement order made by the Secretary of State, to carry out such drainage work as will improve drainage or will prevent or mitigate flooding or erosion - section 1.

**The Agriculture Act 1970 - section 29** - empowers Ministers to make schemes for the provision of nationally-funded capital grants. Statutory Instrument 1989 No. 128 (as varied) gives effect to the Farm and Conservation Grant Scheme - nationally. Under the scheme, grants are available for the improvement or alteration of the banks or channels of watercourses or other agricultural flood prevention works to provide or improve the drainage of agricultural land, or to prevent flooding or erosion of agricultural land.

**The Agricultural Act 1970 - sections 92-94 as amended by the Local**

**Government and Planning (Scotland) 1982 - section 21** - empowers river purification boards and islands councils to provide and operate flood warning systems for their areas.

**The Environment Act 1995 - section 25** The Scottish Environment Protection Agency will have the assessment of flood risk, so far as it considers it appropriate, as one of its functions and a duty to provide advice, based on information held, to the planning authority if requested.

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