CD 11.5 – PPG Flood risk and coastal change – extracts

Paragraph 001:

What is "flood risk"?

"Flood risk" is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources. This term is key to the application of the presumption in favour of sustainable development in paragraph 11 of the National Planning Policy Framework.

Paragraph 002:

What is meant by a "design flood"?

This is a flood event of a given annual flood probability, which is generally taken as:

- river flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year); or
- tidal flooding with a 0.5% annual probability (1 in 200 chance each year); or
- surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year),

plus an appropriate allowance for climate change.

Paragraph 003:

What are the main steps in assessing flood risk?

The National Planning Policy Framework sets out strict tests to protect people and property from flooding which all local planning authorities are expected to follow. Where these tests are not met, new development should not be allowed. The main steps to be followed in addressing flood risk are set out below, starting with assessing and then avoiding flood risk. The steps are designed to ensure that if there are lower risk sites available, or a proposed development cannot be made safe throughout its lifetime without increasing flood risk elsewhere, it should not be permitted. Measures to avoid, control, manage and mitigate flood risk should also not increase flood risk elsewhere.

Assess flood risk

- Strategic policy-making authorities should undertake a Strategic Flood Risk Assessment;
- Where appropriate, in areas at risk of flooding, developers undertake a site-specific flood risk assessment to accompany applications for planning permission (or prior approval for certain permitted development rights, or Technical Details Consent);
- Assessments of flood risk identify sources of uncertainty and how these are accounted for in a mitigation strategy. Further information on how to do this can be found in Flood risk assessment for planning applications.

Paragraph 005:

What to consider when determining whether a proposed development will be safe for its lifetime?

When assessing the safety implications of flood risk for development proposed in a site allocation or planning application, the following should be considered:

- the characteristics of a possible flood event, including residual risks from flood risk management infrastructure e.g. the type and source of flooding and frequency, depth, velocity, speed of onset and duration;
- the safety of people within a building if it floods and also the safety of people around a building and in adjacent areas, including people who are less mobile or who have a physical impairment. This includes the ability of residents and users to safely access and exit a building during a design flood and to evacuate before an extreme flood (0.1% annual probability of flooding with allowance for climate change);
- the structural safety of buildings: and
- the impact of a flood on the essential services provided to or from a development.

Further guidance on safety, including safe depth and velocity thresholds can be found in the Flood risk assessment guidance for new development.

Where flood risk management infrastructure such as flood defences form part of the strategy for addressing flood risk, strategic and site-specific flood risk assessments should, where appropriate:

- identify how this infrastructure will be operated, funded and maintained;
- ensure there is space for future maintenance or new flood risk management infrastructure that is likely to be needed;
- consider the consequences of flood risk management infrastructure failing or its design standard being exceeded;
- consider the likelihood of defences keeping pace with climate change, e.g. is funding available and what are the funding options (e.g. Community Infrastructure Levy, planning obligations / S106 agreements, or Partnership Funding). This should inform the nature of residual risk to be considered.

Paragraph 020:

What is a site-specific flood risk assessment?

A site-specific flood risk assessment is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site and should accompany a planning application where prescribed in footnote 55 of the National Planning Policy Framework. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users (see National Planning Policy Framework Annex 3 – Flood Risk Vulnerability.

Developers can use the Environment Agency guidance on flood risk assessments when considering the scope of the assessment.

The objectives of a site-specific flood risk assessment are to establish:

- whether a proposed development is likely to be affected by current or future flooding from any source;

- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- the evidence for the local planning authority to apply (if necessary) the Sequential Test, and;
- whether the development will be safe and pass the Exception Test, if applicable.

See further information on the detail needed in a flood risk assessment.

Paragraph 021:

What level of detail is needed in a site-specific flood risk assessment?

The information provided in the flood risk assessment needs to be credible and fit for purpose. Site-specific flood risk assessments need to be proportionate to the anticipated degree of flood risk and make optimum use of information already available, including information in a Strategic Flood Risk Assessment for the area, and the Environment Agency's Flood Map and surface water flood risk information on Check the long term flood risk for an area in England. Flood risk assessments need to include the information set out in the flood risk assessment checklist.

A flood risk assessment needs to be appropriate to the scale, nature and location of the development. For example, where the development is an extension to an existing house (for which an application for planning permission is required) which would not significantly increase the number of people present in an area at risk of flooding, the local planning authority would generally need a less detailed assessment to be able to reach an informed decision on the planning application. For a new development comprising a greater number of houses in a similar location, or one where the flood risk is greater, the local planning authority would need a more detailed assessment.

Paragraph 055:

What are sustainable drainage systems and why are they important?

Sustainable drainage systems (or SuDS) are designed to control surface water run off close to where it falls, combining a mixture of built and nature-based techniques to mimic natural drainage as closely as possible, and accounting for the predicted impacts of climate change. They provide benefits for water quantity, water quality, biodiversity and amenity. Many types of sustainable drainage systems are possible, contributing to reducing the causes and impacts of flooding. Multifunctional sustainable drainage systems are those that deliver a wider range of additional biodiversity and environmental net gains such as to:

- ameliorate urban heating and air pollution;
- replenish groundwater resources;
- contribute to biodiversity net gain targets;
- capture and re-use rainwater;
- store carbon;
- reduce the need for carbon-intensive construction techniques and pumped systems;
- release capacity in combined sewerage systems and at wastewater treatment works;

- create and connect valuable areas of blue-green infrastructure
- reduce lifetime maintenance costs; and
- enhance the attractiveness and value of new development by integrating water management with habitat for wildlife and opportunities for amenity and recreation.

The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land.

Guidance on the planning considerations on sustainable drainage needs to be read in conjunction with guidance related to:

- water quality
- what to think about if there are concerns about water supply/quality?

Paragraph 056:

What sort of sustainable drainage systems can be considered?

The types of sustainable drainage system which it may be appropriate to consider, will depend on the proposed development and its location, as well as any planning policies and guidance that apply locally. Where possible, preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the following hierarchy of drainage options:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

Particular types of sustainable drainage features may not be practicable or appropriate in some locations, such as the use of infiltration techniques from potentially polluting development in areas where groundwater provides a potable supply of water (e.g. Groundwater Source Protection Zone 1). Local planning authorities may find it helpful to set out those local situations where they anticipate particular sustainable drainage features:

- being inappropriate; or
- delivering the greatest benefits.

Local planning authorities may wish to encourage the incorporation of rainwater harvesting in sustainable drainage systems. Such systems are likely to be most appropriate for larger commercial or industrial applications and/or for development in areas with a current or likely future Water Stressed Area Classification. Refer to Water Efficiency Standards and consider such features as part of a Water Cycle Study.

Consideration of sustainable drainage systems early in the design process for development, including at the pre-application or master-planning stages, can lead to better integration, multi-functional benefits and reduced land-take.

Paragraph 057:

Where can advice be obtained on surface water drainage?

When considering major development with surface water drainage the local planning authority must consult the lead local flood authority on proposed drainage arrangements. For other developments, particularly in areas at risk of flooding, the local planning authority should consider the circumstances where it would be beneficial to seek advice from the lead local flood authority. Local planning authorities are also advised to consult as appropriate:

1. The relevant sewerage undertaker where adoption by the undertaker or a connection with a public sewer is proposed.
2. The Environment Agency, in areas with critical drainage problems (for non-major and major development in Flood Zone 1 consultation is a legal requirement if the Local Planning Authority receives notification from the Environment Agency).
3. The relevant highway authority for an affected road.
4. The Canal and River Trust, if the drainage system may directly or indirectly involve the discharge of water into or under a waterway managed by them.
5. An internal drainage board, if the drainage system may directly or indirectly involve the discharge of water into an ordinary watercourse (within the meaning of section 72 of the Land Drainage Act 1991) within the board's district.

Non-statutory technical standards are available to guide decisions about the design, maintenance and operation of sustainable drainage systems. Refer to the Environment Agency's approach to groundwater protection. Detailed industry guidance (for example CIRIA's SuDS Manual, the Institution of Civil Engineers' SuDS Route Maps, provide technical details for the suitability of sustainable drainage systems for a wide range of design characteristics.

Applicants and developers should take into consideration the above.

Paragraph 059:

What information on sustainable drainage needs to be submitted with a planning application?

Where SuDS are required in accordance with paragraphs 167 and 169 of the National Planning Policy Framework, to reduce delays in the planning process, applicants need to submit a sustainable drainage strategy containing proportionate information on the proposed sustainable drainage systems as part of their planning application (including outline applications), having regard to the nature and scale of the development proposed. Where a site-specific flood risk assessment is required, it may be appropriate to combine the two. Local planning authorities should consider setting out requirements for supporting information on sustainable drainage systems as part of their local list of information requirements.

Supporting information will need to describe the existing and proposed surface water management arrangements to ensure there is no increase in flood risk to others off-site. It may need to address:

1. What are the existing surface water drainage arrangements for the site?
2. If known, what (approximately) are the existing rates and volumes of surface water run-off generated by the site?
3. What are the proposals for managing and discharging surface water from the site using sustainable drainage systems and accounting for the predicted impacts of climate change? What are the proposals for restricting discharge rates?
4. Demonstrate how the hierarchy of drainage options has been followed. Explain and justify why the types of sustainable drainage systems and method of discharge have been selected and why they are considered appropriate. Where sustainable drainage systems are considered to be inappropriate, provide clear evidence to justify this. Where cost is a reason for not including sustainable drainage systems, provide information to enable comparison with the lifetime costs of a conventional public sewer connection.
5. How have sustainable drainage systems been integrated with other aspects of the development such as open space or green infrastructure, so as to ensure an efficient use of the site?
6. What multifunctional benefits will the sustainable drainage system provide? For major developments, if multifunctional sustainable drainage systems are not being provided, what evidence is there that such techniques are not possible?
7. What opportunities to reduce the causes and impacts of flooding have been identified and included as part of the proposed sustainable drainage system?
8. How will run-off from the completed development be prevented from causing an impact elsewhere?
9. How has the sustainable drainage system been designed to facilitate maintenance and, where relevant, adoption? What are the plans for ensuring an acceptable standard of operation and maintenance throughout the lifetime of the development?