SG
supplementary
GUIDANCE

Flooding and Drainage

2018

West Lothian Council

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INTRODUCTION

1. The United Kingdom is experiencing the effects of a changing climate. Flood events continue to have a detrimental effect on social, economic and environmental wellbeing. West Lothian is no different. A number of communities here have been affected severely by flooding. For more than a decade, the council has been proactive in its approach to minimise the risk of flooding and the effects of severely impaired drainage through effective development planning practices, investment in a series of measures to reduce flood risk in our communities and through an effective response before, during and in the aftermath of severe weather.

2. All forms of flooding and their potential impacts on the natural and built environment are "material considerations" to be taken into account in the development planning process. The council, as local planning authority, expects developers to adopt a precautionary approach to the management of flood risk and ensure that development is safe from the effects of flooding and will not result in an increase in flood risk elsewhere. It is also expected that measures to mitigate the effects of flooding and the impact of development on the water environment are sustainable and maximise social, economic and environmental benefits.

3. This Supplementary Guidance (SG) aims to assist developers in making better planning applications to aid infrastructure delivery and help stakeholders gain a better understanding of the council's commitment to minimising the risk of flooding across West Lothian. This PG should be read in conjunction with a number of national and local planning policies and guidance contained within the West Lothian Local Development Plan.

4. The West Lothian Local Development Plan sets out land use planning policies and proposals that will play an important role in improving the quality of life for local people as well as those that work and or do business in West Lothian, helping adapt to our changing climate, protecting valuable resources, including the built and natural environment and developing more sustainable communities. The decisions that the council makes about the quality, location and resilience of new development will be key to maximising quality of life, reducing social inequality and optimising the benefits that can be derived from investment.

5. This Supplementary Guidance is one of a number prepared to support the West Lothian Local Development Plan. Its purpose is to assist developers and their agents by providing context and an overview of issues that the council has to have regard to when producing and implementing a land use development plan, highlighting the matters that will need to be considered and the information that will need to be brought forward by developers when submitting a planning application to ensure that new development is not at risk of flooding, that the risk of flooding is not increased elsewhere and that the water environment is protected and, where necessary, restored to a more natural, resilient condition.

OUR CHANGING CLIMATE

6. *The Foresight Future Flooding Study 2004* (E. Evans), provided an assessment of flood risk in the UK over a 30-100-year timescale. The key message is that the effects of climate change may be more extreme than had previously been estimated. In particular, the potential increase in rainfall volume, intensity and temperature are each greater. The update also highlighted the increased risk that we will face from surface water flooding. With the uncertainty associated with a changing climate, the update recommended that strong governance and investment would be required to tackle the increased risks. The study was updated in 2008.

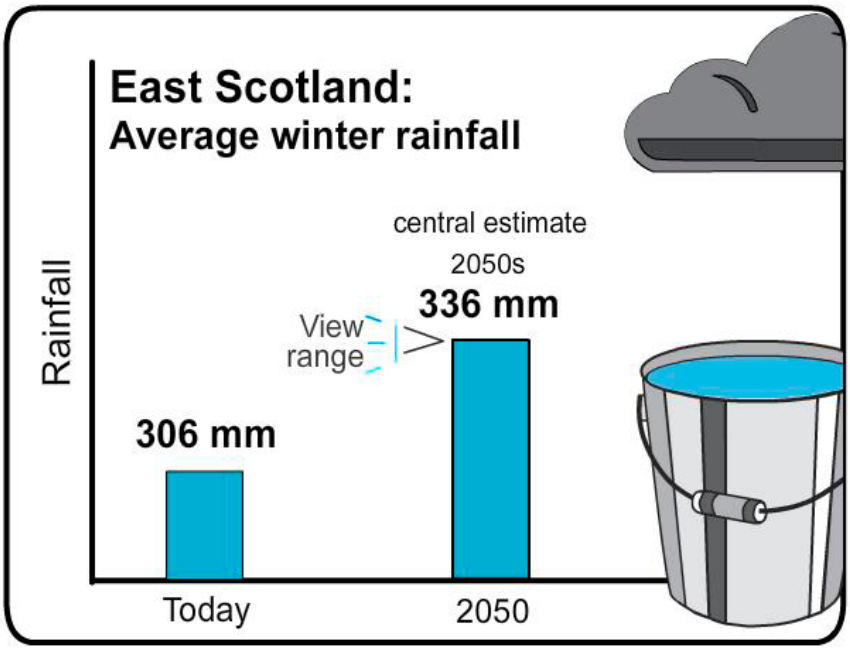
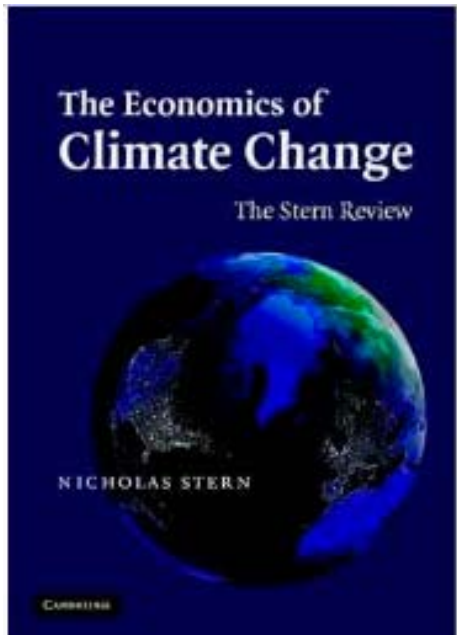


Fig. 1: The Met Office (2010) predicts an increase in average winter rainfall of 9% between now and 2050 Courtesy of the Met Office, 2010

7. *A Handbook of Climate Trends across Scotland (2006)* (Barnett, C. J. Hossell, M. Perry, C. Proctor & G. Hughes), paints a bleak picture showing an increase in the number of days of heavy rain, a steady decrease in the consecutive number of dry days each year, an increase in the level of rainfall intensity and an increase in the maximum five-day precipitation total.

ADAPTING TO A CHANGING CLIMATE

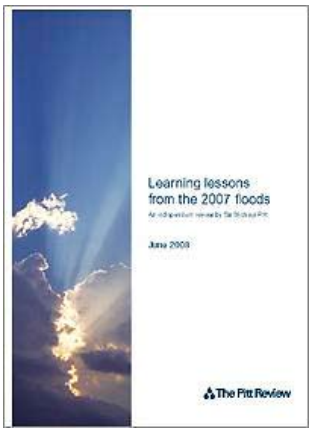
8. In his **Review of the Economics of Climate Change (2006),** Sir Nicholas Stern said, *"Given that climate change is happening measures to help people adapt to it are essential and the less mitigation that we do now the greater the difficulty of continuing to adapt in future".*



9. The *UK Climate Impacts Programme (2009)* has formulated scenarios to look at possible future climate change, dependent on predicted future global greenhouse gas emissions. This research provides Scotland with the best available information on predicted changes in climate and indicates that, over the coming decades, Scotland will experience more severe rainfall events in winter, particularly in the east of the country.

10. Following a request to conduct an independent review of the flooding emergency that took place in England in Summer 2007, Sir Michael Pitt published his final report ***The Pitt Review: Lessons learned from the 2007 floods***. Among the recommendations arising from his report, four were particularly relevant to local authorities:

- Given the predicted increase in the range of future extremes of weather, the government should give priority to both adaptation and mitigation in its programmes to help society cope with climate change.
- Local authorities should lead on the management of local flood risk, with the support of relevant organisations.



- Local authorities should positively tackle local problems of flooding by working with all relevant parties, establishing ownership and legal responsibility.
- Local authorities should assess and, if appropriate, enhance their technical capabilities to deliver a wide range of responsibilities in relation to local flood risk management.

11. It is in this context that we have seen the introduction of more robust legislation in Scotland which requires a number of responsible public sector bodies to take firm action to avoid flood risk, protect against the risk of flooding and prepare for flooding. Local authorities are now proactive in ensuring that the number of properties at risk in their respective administrative area is not increasing and that measures are being put in place that, in time, will reduce the number of susceptible properties.

LEGAL CONTEXT

The European Water Framework Directive

12. *The Water Framework Directive – 2000/60/EC* (WFD) requires member states to make plans to protect and improve the water environment. In summary, the Directive aims to protect and prevent the deterioration of aquatic ecosystems; conserve habitats and species that depend directly on water; reduce the release of individual pollutants that present a significant threat to the aquatic environment; reduce the pollution of groundwater and prevent or limit the entry of pollutants; and help reduce the effects of floods and droughts.

The European Floods Directive

13. *The European Floods Directive, 2007/60/EC* on the assessment and management of flood risk came into force on 26 November 2007. Its aim was to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk from flooding and then draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters as well as all coastal waters across the European Union.

14. The Directive is to be executed in coordination with the Water Framework Directive, notably through flood risk management plans and river basin management plans being coordinated, and through public participation in the preparation of these plans. All assessments, maps and plans prepared are to be made available to the public.

15. Member States are also expected to coordinate their flood risk management practices in shared river basins and must take into consideration long-term developments, including climate change, as well as sustainable land use practices in the flood risk management cycle addressed in the Directive.

Water Environment & Water Services (Scotland) Act 2003

16. The European Water Framework Directive was transposed into Scots Law through the Water Environment & Water Services (Scotland) Act 2003. The Act sets out arrangements for the protection of the water environment in Scotland and changes how new connections to the public water and sewerage infrastructure are to be funded.

17. Responsible authorities must exercise their designated functions so as to secure compliance with the requirements of the Water Framework Directive.Responsible authorities, in exercising their designated functions, must:

(a) have regard to the social and economic impact of such exercise of those functions; so far as is consistent with the purposes of the relevant enactment or designated function in question;

(b) promote sustainable flood risk management;

(c) act in the way best calculated to contribute to the achievement of sustainable development; and

(d) so far as practicable, adopt an integrated approach by co-operating with each other with a view to coordinating the exercise of their respective functions.

18. Section 16 of the Act requires every public body and office-holder, including the local authorities, in exercising any functions to have regard to the River Basin Management Plan.

19. The Scottish Ministers and every public body and office-holder must also, in exercising any functions, have regard to the desirability of protecting the water environment.

The Climate Change (Scotland) Act 2009

20. Part 1 of the Climate Change (Scotland) Act 2009 creates the statutory framework for greenhouse gas emissions reductions in Scotland by setting an interim 42 per cent reduction target for 2020, with the power for this to be varied based on expert advice, and an 80 per cent reduction target for 2050. To help ensure the delivery of these targets, this part of the Act also requires that the Scottish Ministers set annual targets, in secondary legislation, for Scottish emissions from 2010 to 2050.

21. The Act includes other provisions on climate change in Part 5, including adaptation, forestry, energy efficiency and waste reduction. Public engagement is a significant feature of Part 6 of the Act, which also includes provision on carbon assessment.

22. Measures which reduce the risk of flooding or mitigate its effects are included in the adaptation submission made to the Scottish Government.

The Flood Risk Management (Scotland) Act 2009

23. The Flood Risk Management (Scotland) Act 2009 transposed the EU Floods Directive into Scots law. It introduced a proactive, plan-led, catchment-wide and risk-based approach to manage the risk of flooding across Scotland. Land and property owners, however, continue to be responsible for their own assets and for avoiding damages where possible.

24. So far as is consistent with flood risk functions, local authorities must also:

- act with a view to reducing overall flood risk;
- act to secure compliance with the European Floods Directive;
- act with a view to achieving the objectives set out in the flood risk management plans;
- have regard to the social, environmental and economic impact of carrying out those functions;
- prepare flood risk management plans and local flood risk management plans;
- prepare maps of bodies of water;
- prepare a schedule of clearance and repair works;
- assess bodies of water;
- obtain information;
- act in the way best calculated to manage flood risk in a sustainable way and co-operate with all responsible authorities;
- promote sustainable flood management;
- act with a view to raising awareness of flood risk; and
- act in the way best calculated to contribute to the achievement of sustainable development.

25. Local authorities, the Scottish Environment Protection Agency (SEPA) and Scottish Water have a legal duty to co-operate to produce the National Flood Risk Assessment, flood hazard maps, Flood Risk Management Strategies and Local Flood Risk Management Plans. The process of risk assessment, mapping and planning is to be repeated every six years. The six year periods are referred to as cycles. The Forth Estuary Flood Risk Management Strategy can be located on SEPAS website - http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html

26. For the purposes of managing flood risk, Scotland has been divided into 14 Local Plan Districts (LPDs). Each LPD has a partnership and a lead local authority. SEPA has produced a Flood Risk Management Strategy for each LPD and the lead local authority has produced a Local Flood Risk Management Plan in liaison with member authorities. Officers from West Lothian continue to work closely with representatives from ten other local authorities, Scottish Water and SEPA as part of a local statutory framework known as the Forth Estuary Local Plan District; a partnership to develop a Local Flood Risk Management Plan for the area, which was published in June 2016 http://www.edinburgh.gov.uk/info/20006/emergencies_safety_and_crime/1433/flood_risk_management_plan

27. The Flood Risk Management Strategies produced by SEPA identify the main flood hazards and impacts, setting out objectives for reducing the risk of flooding and identifying the best combination of actions to achieve this. The Local Flood Risk Management Plan published by the Lead Local Authority on behalf of the Local Plan District takes these objectives and explains what actions will be taken to deliver them within the respective six-year planning cycle.

28. Together with partners, West Lothian Council is developing a better understanding of the extents, causes and impacts of flooding in West Lothian. In the past, investment has tended to be reactive rather than pre-emptive. The new approach is more long-term and sustainable and anticipates future flood risk.

29. For the first time, plans are in place to manage risk from all sources of flooding affecting an area, whether from rivers, overwhelmed drainage networks, groundwater or from the sea.

The Roads (Scotland) Act 1984

30. The council as roads authority has a duty to provide drainage for public roads and for road safety.

31. Section 21 of the Roads (Scotland) Act 1984 refers to the requirement of consent for new roads built other than by a roads authority. Where a developer is seeking to apply for a new road to be adopted by the roads authority, it is necessary for the layout and construction of roads, including road and surface water drainage to satisfy current design standards;

32. Section 31 of the Act provides powers to the roads authority to drain a public road or proposed public road or otherwise prevent surface water from flowing onto it; and

33. Section 99 of the Act allows roads authorities to carry out works to prevent the flow of water onto roads and to serve notice on others or to carry out works to prevent the flow of water onto roads, where the owner or occupier of any land has failed to prevent the flow of water or of filth, dirt or other offensive matter from, or any percolation of water through, the land onto the road.

Sewerage (Scotland) Act 1968 (as amended)

34. Part 1 of the Sewerage (Scotland) Act 1968 (as amended) details the duties and powers of Scottish Water in terms of the provision and maintenance of public sewerage. It also provides details regarding the vesting of public sewerage.

35. Section 7 of the Act allows roads authorities (including Local Authorities) and Scottish Water to enter into agreements as to the provision, management, maintenance and use of their sewers or drains for the conveyance of water from the surface of a road or surface water from premises.

36. Part 2 of the Act details the requirements relating to Trade Effluent.

The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR)

37. Section 20 of the Water Environment and Water Services Act (Scotland) 2003 gave Ministers powers to introduce regulatory controls over activities in order to protect and improve the water environment. The Act defines the purpose of the regimes and therefore provides the basis of interpreting the powers in the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR).

38. The regulations are built upon a requirement for controlled activities to be authorised. The controlled activities are defined within the Water Environment and Water Services Act (Scotland) 2003 but are modified by CAR to include activities which will directly or indirectly cause an impact upon the water environment.

39. Under CAR, SEPA assess proposed activities before granting an authorisation. There are three types of authorisation and the type of authorisation depends on the environmental risk of the proposed activity:

(a) General Binding Rules (GBRs) – for certain low-risk activities.

(b) Registration – low-risk activities which can cumulatively pose a risk to the water environment.

(c) Licence – is needed if site-specific controls are required.

The Planning etc. (Scotland) Act 2006

40. The Planning etc. (Scotland) Act 2006 gives planning authorities powers to grant or refuse planning applications.

41. Part 2 of the Act requires the planning authority to exercise the planning function with the objective of contributing to sustainable development.

42. Part 2 states that, a strategic development plan should set out the infrastructure of that area (including communications, transport and drainage system and systems for the supply of water and energy); and that where land is not within a strategic development plan area, a local development plan should set out the infrastructure of that area (including communications, transport and drainage system and systems for the supply of water and energy).

The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008

43. Regulation 25 and Schedule 5 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008 requires that planning authorities must consult with SEPA where the development is likely to result in a material increase in the number of buildings at risk of being damaged by flooding. Planning authorities must take SEPA's advice into account alongside the development plan and other material considerations in the determination of planning applications involving flood risk.

44. Key agencies, including SEPA, are required to co-operate with planning authorities during the compilation of main issues reports, the preparation of proposed strategic development plans and local development plans.

The Town and Country Planning (Miscellaneous Amendments) (Scotland) Regulations 2011

45. The Town and Country Planning (Miscellaneous Amendments) (Scotland) Regulations 2011 regulations amend the Town and Country Planning (Development Planning) (Scotland) Regulations 2008 to include reference to flood risk management plans and local flood risk management plans. Planning authorities, when preparing strategic development plans and local development plans, must have regard to any approved flood risk management plan or finalised local flood risk management plan relating to the strategic development plan and local development plan area.

The Town and Country Planning (Notification of Applications) (Scotland) Direction 2009

46. The Town and Country Planning (Notification of Applications) (Scotland) Direction 2009 requires planning authorities to notify Scottish Ministers of any application where SEPA has advised against the granting of planning permission or has recommended conditions relating to flood risk, which the planning authority do not propose to attach to the planning permission.

The Building (Scotland) Act 2003

47. Section 8 of the Building (Scotland) Act 2003 refers to the issuing of Building Warrants for construction work and Part 3 covers compliance and enforcement.

48. Mandatory Building Standard 3.6 requires every building and hard surface within the curtilage of a building, to be designed and constructed with a surface water drainage system that will:

- ensure the disposal of surface water without threatening the building and the health and safety of the people in and around the building; and
- have facilities for the separation and removal of silt, grit and pollutants.

POLICY CONTEXT

National Planning Framework (NPF) and Scottish Planning Policy

49. Scotland's Third National Planning Framework (Scottish Government, 2014) (NPF3) sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. It sets out the Government's development priorities over the next 20-30 years and identifies national developments which support the development strategy. In conjunction with the NPF3, Scottish Planning Policy (Scottish Government, 2014) (SPP) sets out national planning policies reflecting the priorities of Scottish Ministers. SPP promotes national consistency in the planning process while still providing a degree of flexibility for planning authorities to take due recognition of local circumstances. The requirements for developers to consider flooding, including surface water and the provision of drainage, are presented in paragraphs 254 to 268.

50. SPP is intended to promote:

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

51. Local development plans should use the flood risk framework set out in SPP to guide development. This sets out three categories of coastal and watercourse flood risk, together with guidance on surface water flooding, and the appropriate planning approach for each.

The West Lothian Local Development Plan

52. The West Lothian Local Development Plan (LDP) provides the statutory planning framework for guiding the location and quality of development in West Lothian. The LDP provides a clear and concise description of the requirements for developments, via policies ENV11, EMG1, EMG2 and EMG4, in relation to:

- protection of the water environment/coastline and riparian corridors;
- improvement of the water environment;
- flooding; and
- sustainable drainage.

53. These policies, which are set out below, are supplemented by this Supplementary Guidance which sets out the requirements for all new development within West Lothian in relation to flood risk and the provision of drainage and the management of surface water run-off.

ENV 11 Protection of the water environment / coastline and riparian corridors

54. The council recognises the importance of the water environment in terms of its landscape, ecological, recreational and land drainage functions. Accordingly:

a. there will be a general presumption against development which would have a detrimental effect on the integrity and water quality of aquatic and riparian ecosystems, or the recreational amenity of the water environment, or which would lead to deterioration of the ecological status of any element of the water environment. Where appropriate, development proposals adjacent to a waterbody should comply with SEPA's Guidance on buffer strips adjacent to water bodies;

b. there will be a general presumption against development which would have a detrimental effect on Groundwater Dependent Terrestrial Ecosystems (GWDTE);

c. there will be a general presumption against any unnecessary engineering works in the water environment including new culverts, bridges, watercourses diversions, bank modifications or dams;

d. opportunities to improve the water environment by opening out previously culverted water course, removing redundant water engineering installations, and restoring the natural course of watercourses should be exploited where possible;

e. there is a presumption against proposals which would undermine, through intrusive development, the landscape character and amenity of river valleys and other significant water courses. Development within riparian corridors which impacts on the ecological and landscape integrity will not be permitted unless a specific need for the development can be demonstrated;

f. the council will support the development of measures identified within the Forth Area River Basin Management Plan designed to improve the ecological status of the water environment and coastal areas;

g. the water environment will be promoted as a recreational resource (subject to the requirements of Natura 2000 sites) with existing riparian access safeguarded and additional opportunities for ecological enhancement, access and recreation encouraged where compatible with nature conservation objectives;

h. there is a general presumption in favour of sustainable development and use of the marine environment in the marine area from mean high water springs (MHWS) where the proposals can satisfactorily demonstrate that they are compliant with the objectives and policies of the National Marine Plan (2015) and regional marine plans. This principle is applicable to all marine activity.

Policy EMG 1: Water Environment Improvement

55. Proposals for the culverting of a watercourse will be considered with reference to SEPA's position statement on culverting.

56. Opportunities to improve the water environment and promote natural flood management are supported where it can be demonstrated that these will help to reduce overall flood risk. This could include wetland restoration, riparian planting, flood plain creation, daylighting of culverted watercourses and restoration of heavily modified watercourse.

57. Proposals that are aligned with measures identified in the River Basin Management Plan will be supported in principle, including the retrofitting of SuDS features to the existing surface drainage system, the restoration of watercourses and the removal of redundant structures provided that, where appropriate, these activities are informed by a Flood Risk Assessment.

Policy EMG 2: Flooding

58. Flooding can seriously impact on people, businesses and the environment and the council will, as a first principle, seek to prevent development which would have a significant probability of being affected by flooding or would increase the probability of giving rise to flooding.

59. When considering proposals for development, the council will adopt a precautionary approach to the flood risk from all sources, including coastal, water course (fluvial), surface water (pluvial), groundwater, reservoirs and drainage systems (sewers and culverts), taking account of the predicted impacts of climate change.

60. Development will specifically not be supported in:

a. locations identified as being at medium to high flood risk, unless it accords with the flood risk framework set out in SPP 2014; or

b. where it would lead to an increase in the probability of flooding elsewhere.

61. Developers will be required to submit a full Flood Risk Assessment (FRA) for all developments deemed to be at risk of flooding from any source in medium to high risk areas and developments in low to medium risk areas identified in the risk framework (i.e. developments located in an area at the upper end of the probability scale, essential infrastructure and the most vulnerable land uses). The Flood Risk Assessment should be undertaken in accordance with the relevant and prevailing SEPA technical guidance.

62. To limit the impact of potential flood risk any development that is subsequently permitted in medium to high risk areas (that accords with the exceptions in the risk framework) or is located in adjacent low to medium risk areas must be built to a water resilient design.

63. Development that is proposed in an area that is or will be behind a formal flood protection scheme must be an appropriate and acceptable land use for the location, designed to be resilient. Any such formal flood protection scheme must be designed to an appropriate standard. Developments will be assessed against the flood risk framework contained in SPP which sets out the types of development and locations where it is appropriate to develop.

64. New development requiring new defences against coastal erosion or coastal flooding will not be supported except where there is clear justification for a departure from the general policy to avoid development in areas at risk.

65. Appendices 1 & 2 (which respectively list employment and housing land allocations in the plan) identify those sites where there is a known requirement for a FRA, watercourse buffer strips and best practice SuDS treatment.

66. The council nevertheless reserves the right to require the preparation and submission of FRAs for other development sites which present over the plan period where deemed necessary. Guidance will be sought from SEPA and other agencies as appropriate.

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

68. All proposals must comply with the terms of Supplementary Guidance on Flooding and Drainage.

Policy EMG 3: Sustainable Drainage

69. Developers may be required to submit a Drainage Impact Assessment (DIA) to ensure that surface water flows are properly taken into account in the design of a development. DIAs, proportionate to the development proposal and covering both surface and foul water, will be required for areas where drainage is already constrained or otherwise problematic, or if there would be off-site effects. With the exception of single houses, SuDS will be a required part of all proposed development as a means of treating/attenuating surface water and managing flow rates.

70. Developers will be required to ensure that adequate land to accommodate SuDS is incorporated within development proposals and that housing densities take into account the physical space for effective SuDS. The design of the system should meet best current practice. It is expected that surface water drainage systems, including sustainable drainage systems, for most will be vested in Scottish Water as drainage authority and will, as a consequence, be designed and constructed in accord with the most up to date edition of Scottish Water's Construction Standards and Vesting Conditions 'Sewers for Scotland' (3rd Edition) and at the same time comply with SEPA's Policy and Supporting Guidance on the provision of Waste Water Drainage in Settlements in promoting connection to the public sewerage system where possible.

71. Where new development (or the change of use of land or buildings) impacts on existing drainage arrangements, the council may require these arrangements to be upgraded as a condition of planning approval in order to avoid detriment to the water environment.

72. Where there are existing issues of capacity or flooding associated with combined drainage systems, and these would be exacerbated by proposed development, developers may be required to invest in off-site works to provide additional capacity or reduce loadings on such drainage systems.

73. Private drainage systems for sewered areas will only be considered as a temporary measure where there is no capacity in the existing sewer system.

74. Development relying on private sewage systems will only be permitted where there is no public system in the locality and where the council is satisfied that the proposal is acceptable in terms of the impacts on the water environment and on public health.

75. Developments involving private water supplies will only be permitted where there is no public supply in the locality and where the council is satisfied that there is sufficient water and that the proposal is acceptable in terms of the environment and public health.

76. The council will support in principle the incorporation of water conservation measures in new developments, including rainwater harvesting and systems for the recycling of "greywater."

77. Regard should also be had to other LDP policies in relation to drainage in new developments, SuDS, flood risk and the treatment of watercourses and proposals will require to contribute to the delivery of green infrastructure and the green network where this is considered appropriate.

78. Paragraphs 181 – 184 and 254 – 259 of the West Lothian Local Development Plan refer.

79. In addition, in support of the LDP, the council prepared a Strategic Flood Risk Assessment (SFRA) background paper (West Lothian Council, 2014) which provides information on flood risk that will facilitate the council's understanding of existing and potential flood risk to development located within the Local Development Plan.

80. Ensuring developers manage flood risk from all sources in a proactive and sustainable manner will remain the underlying principle. The Local Development Plan represents an increasingly significant consideration for future developments in the run up to the adoption of the plan. Policies EMG1, EMG2 and EMG3 in the Local Development Plan include details in relation to Water Environment Improvement, Flooding and Sustainable Drainage. Policy ENV 11: Protection of the water environment

/ coastline and riparian corridors is also relevant as the scope of this policy includes land drainage functions.

81. It is anticipated that future development will have a significant role to play in the management of existing and future surface water flooding issues in West Lothian.

82. The second Local Biodiversity Action Plan (LBAP) for West Lothian is the Local Biodiversity Action Plan: Planning for Biodiversity Action 2005-2009 (West Lothian Council, 2005). The principles relating to the protection of species and habitats remain current. There is currently no intention to update the Plan. However, the council has as recently as March 2018 reported on its biodiversity duties over the period 2015 – 2017. The report can be viewed at http://coins.westlothian.gov.uk/coins/submissiondocuments.asp?submissionid=37853

83. The LBAP identified a range of strategic habitat types which could align with the principles of managing surface water run-off at source, these include farmland, woodland and lowland raised bogs.

84. The following actions have been identified for rivers and streams and present potential opportunities for the sustainable management of flooding:

- through planning controls, ensure the inclusion of effective sustainable drainage systems for all development;
- implement retrofit SUDs to mitigate the effects of run-off from industrial sites;
- improve the geomorphology of our rivers and streams to reduce flood risk, improve riparian and riverine habitats, restore natural processes; and
- identify a river Local Geodiversity Site (LGS) to demonstrate active geomorphological processes.

River Basin Management Plan

85. River Basin Management Plans are generated on behalf of the Scottish Government to meet the requirements of the European Water Framework Directive (WFD). West Lothian is located within the "Forth Area Advisory Group" in the Forth Area of the "Scotland River Basin District". The first plan was published in 2009 The River basin management plan for the Scotland river basin district 2009-2015: Summary (Scottish Government, 2009) and has since been replaced by the second plan in December 2015.

86. The major watercourses of the River Almond and Water of Leith have been classified as being of "Poor" status for all reaches. The status of the River Avon varies with the main stem being classified as "Moderate" and its tributaries being "Good", "Moderate" and "Bad".

87. Ambitious targets have been set for rivers, with an objective for 96% to be at good or high-status by 2027.

88. The Water Environment Fund provides a potential funding mechanism for works which will bring about an improvement in WFD status and will alleviate some of the pressures identified in the Forth Area River Basin Management Plan.

Climate Change Adaption Plan

89. As a local authority, the council is bound by the Public Bodies Climate Change Duties to monitor and reduce greenhouse gas emissions. To achieve these targets, climate change and sustainability drivers are embedded within the council's governance structure, driven by the council's Climate Change and Sustainability Working Group and the Environment Forum.

90. There are also a wide range of climate change-related projects underway, some highlights of which are listed below:

- Reducing corporate emissions:
  - development of the council's renewable energy capacity;
  - promoting sustainable transport guidance for staff;
  - provision of waste education, minimisation and recycling resources for students, teachers, staff and Facilities Management at schools;
  - sustainable procurement project plan; and
  - sustainable behaviour change project (Green Impact).
- Reducing area-wide emissions:
  - Provision of energy efficiency support and advice for communities;
  - development and implementation of active travel projects (e.g. bicycle recycling scheme), Green Travel Plans and sustainable transport infrastructure;
  - improved management and regeneration of parks and play areas;
  - air quality monitoring and the Switch-Off campaign for vehicles emissions;
  - promoting recycling, in particular food waste recycling across our communities; and
  - new glass recycling and improved waste segregation facilities also being rolled out.

91. In addition to efforts to reduce emissions, there are a number of climate change adaptation projects underway in order to ensure that the natural, built and social environments of West Lothian are better equipped to withstand the effects of a changing climate. Some highlights include:

- Severe Weather Plan (2014)
- Local Flood Risk Management Plan (2016);
- peatland restoration projects;
- woodland expansion projects; and
- meadow management and wildflower planting.

92. A report on the activities the council is undertaking to mitigate and adapt to climate change is published annually within the council's Scottish Climate Change Declaration Report on the Sustainable Scotland Network website.

ROLES AND RESPONSIBILITIES

93. A number of different organisations, with different roles and responsibilities, work together to manage flood risk in West Lothian. Some of these organisations have a legal duty to work together to reduce overall flood risk.

Scottish Government

- Sets National Policy on Flood Risk Management and Flood Warning;
- Sets Scottish Planning Policy;

and provide resources to enable authorities to address flood risk.

SEPA

- Provides a flood warning service for Scotland and operates 'Floodline';
- Provides advice to local authorities on flood risk and planning; and co-ordination of flood risk management policy and activities across Scotland.

West Lothian Council

- manages water-related assets owned by the council;
- investigates flooding and severely impaired drainage;
- prepares maps of water bodies and sustainable drainage systems;
- assesses bodies of water ;
- maintains watercourses;
- maintains existing flood protection schemes;
- maintains road drainage systems;
- develops and implements effective policy on flood risk management and drainage as planning authority;
- provides an effective response before, during and in the aftermath of flood events and provides support to emergency responders;
- provides reception centres for people evacuated from their homes in the aftermath of a flood and coordinates the provision of temporary accommodation for council tenants;
- provides road closures on the local road network; and
- prepares Surface Water Management Plans and contributes to the Local Flood Risk Management Plan.

Scottish Water

- maintains water supply and drainage infrastructure;
- manages the discharge of surface water that enters the public drainage system;
- works in partnership with the local authority and emergency services;
- deals with flood-damaged mains and flooding caused by bursts;
- liaises with other stakeholders during flood events to alleviate any flooding from public sewers; and reduces the risk of flooding from public drainage infrastructure associated with weather-related peak flows.
- is responsible for the provision and maintenance of public sewerage.

Police Scotland

- Co-ordinates the actions of all agencies during the course of a major flood;
- controls the scene at its outer-limits by setting up cordons; and
- saves lives and co-ordinates evacuation and the provision of public information.

Scottish Fire and Rescue Service

- Saves lives in the event of serious flooding; and protects property.

The Met Office

- Produces weather forecasts;
- warns people of extreme weather conditions; and provides dedicated forecasting support to SEPA and local authorities and other category one and two responders such as Scottish Fire & Rescue and Scottish Ambulance Services.

Scottish Flood Forum

- Provides support and advice to those that have been flooded or those living with the risk of flooding.

Landowners

- Maintain watercourses, bodies of water, flood defences and drainage systems in their ownership.

Home owners

- Protect their homes from flooding;
- adequately insure the buildings and contents of properties in their ownership;
- prepare for the possibility of flooding; and
- maintain drainage systems serving the property and shared access roads, courtyards etc.

DEVELOPMENT & FLOOD RISK

94. In order to ensure that new development is not at risk from flooding and that the risk of flooding is not increased elsewhere, a development site must be assessed from the outset before the potential effect of development of the site can be considered.

95. Developers are strongly advised to consider flood risk before committing to a site or project as often, development is incompatible with flood extents.

96. SEPA's Flood Hazard Maps are available online and may provide a high-level indication of risk. The maps are prepared using only coarse data and are not suitable for accurately determining the extent of risk at development site or property level. Use of the maps is conditional https://www.sepa.org.uk/environment/water/flooding/flood-maps/

97. The Construction Industry Research and Information Association (CIRIA) has prepared excellent guidance in the form of CIRIA 624 'Development & Flood Risk- Guidance for the Construction Industry', CIRIA 2004, ISBN 0-86017-624-X. http://www.ciria.org/ItemDetail?iProductCode=C624&Category=BOOK

Flood Risk Assessment

98. Currently a flood risk assessment report has to be submitted along with any type of planning application depending on the location, size and type of development. The council now requires a flood risk assessment for any residential development comprising of more than five dwellings and for industrial, retail or commercial developments of more than 250m2. Any other development deemed by the council to be in a sensitive location will also require to be assessed.

99. A key requirement for a flood risk assessment is that it must consider all sources of flooding and demonstrate how, through mitigation, potential risk will be managed taking into account the effects of climate change and illustrate that the development will not increase the risk of flooding elsewhere. The assessment should be produced under the direction of a relevant chartered professional with demonstrable up to date experience of preparing flood risk assessments.

100. A Flood Risk Assessment (FRA) is supplied in support of an application for development to the council as Planning Authority. Where the council considers that there might be a risk of flooding to a development site it has a statutory duty to consult SEPA for advice and guidance on flood risk. The SEPA – Planning Authority Protocol (Policy No. 41) between both SEPA and the council sets out the respective roles and responsibilities. http://www.sepa.org.uk/media/136143/sepa-planning-authority-protocol-41.pdf

101. Flood Risk Assessments being prepared for West Lothian Council must accord with the most up to date version of SEPA's Technical Flood Risk Guidance for Stakeholders (Reference: SS-NFR-P-002) Version 9.1 (June 2015) or later. http://www.sepa.org.uk/media/162602/ss-nfr-p-002-technical-flood-risk-guidance-for-stakeholders.pdf

102. Given that consultants are employed by developers to undertake Flood Risk Assessments, there is scope for different corporate styles and formats although there is core data and information that must be clearly presented to facilitate the rapid review and audit of reports.

103. To further facilitate a timely review of FRAs, SEPA has developed a Consultant Flood Risk Assessment checklist to be completed as an aide memoir to ensure key aspects have been considered and included in the report. https://www.sepa.org.uk/media/159170/flood-risk-assessment-checklist.xls

104. On receipt of completed flood risk assessments, the council will seek the views of the council's Flood Risk Management team who will evaluate the report based on its experience and local knowledge. A further copy will be forwarded to SEPA, for a competence check and to ensure that the assessment has been prepared in accord with its guidance.

105. The council requires the applicant, or their agent, to certify that the Flood Risk Assessment has been carried out by a fully qualified and competent person(s) and that the assessment complies with current best practice, guidance and standards. Refer to section 14 for more details on this requirement.

CULVERTS, CULVERTING AND THE RESTORATION OF OPEN WATERCOURSES

106. A culvert is a structure that allows water to flow beneath a road, railway, trail, field, housing estate or similar obstruction from one side to the other. Typically embedded so as to be surrounded by soil, a culvert may be formed from a pipe, reinforced concrete, stone or other material. In Scotland, the word can also be used to describe longer, artificially-buried watercourses. They can be bridge-like structures designed to allow vehicle or pedestrian traffic to cross over the waterway while allowing the conveyance of water.

107. Culverts come in many sizes and shapes including round, elliptical, flat-bottomed, pear-shaped, and box-like construction. Unfortunately, they have a range of harmful local and system-wide impacts on the water environment.

108. Planning applications which include proposals to culvert watercourses will be resisted for the following reasons:

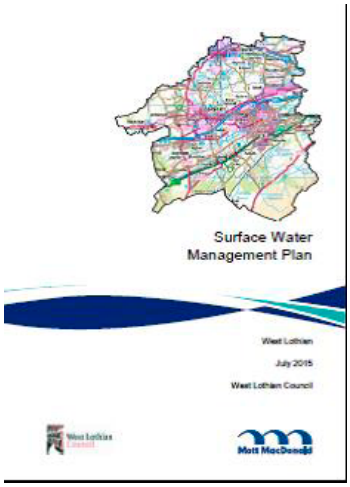
- to protect existing local, open water habitat;
- to conserve valuable open water habitat from piecemeal, cumulative loss;
- to protect the physical character, habitat, minimise sediment transport, free passage of fauna, establishment of other ecology, access to light, and chemical quality in small and urban watercourses;
- to retain the amenity value afforded by open water;
- to protect the potential of previously modified watercourses to be restored;
- to ensure that room is made for open watercourses in new developments;
- to reduce flood risk as they increase the risk of flooding and represent the single biggest cause of flooding in West Lothian;
- culverts are expensive to maintain. Roads authorities prefer not to have culverts beneath public roads and it is generally unacceptable to pass responsibility for culverts to private householders, residents groups or factors.

109. Developers will be encouraged to open up or daylight existing culverted watercourses into newly restored, natural meandering channels though their development sites.

110. SEPAs position statement and supporting guidance (WAT-PS-06-02) on the culverting of watercourses provides information and details on SEPAs objectives under the Controlled Activity Regulations (CAR) regarding culverts. The council actively supports this position. https://www.sepa.org.uk/media/150919/wat_ps_06_02.pdf

SURFACE WATER MANAGEMENT PLANNING

111. Ministerial guidance on delivering sustainable flood risk management in Scotland states that surface water flooding will be addressed through Surface Water Management Plans and that local authorities will lead on the preparation of these plans, which will be co-ordinated within the flood risk management planning process.



112. Surface Water Management Plans are not a legal requirement. Ministerial guidance however identifies the production of Surface Water Management Plans (SWMPs) as a measure to manage the risk of surface water flooding in our communities.

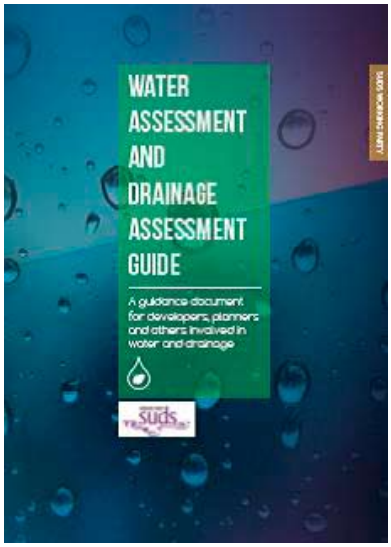
113. Four surface water management plan priority areas have been identified in SEPA's catchment characterisation reports in West Lothian. This is based on the number of residential and business properties estimated at risk of flooding. The four priority areas are Bathgate, Broxburn, Linlithgow and Livingston.

114. Surface water flooding is a significant problem in West Lothian. Based on pluvial (surface water) flood hazard data provided by SEPA, it is estimated that approximately 1500 properties may be at risk of flooding from the 1:200-year, three-hour duration storm event. New data, not yet available to local authorities, is set to increase the number of properties at risk.

115. On completion of the SWMP covering the priority areas, actions have been identified to manage and reduce surface water flood risk in these areas. The council requires developers to take cognisance of flood risk from surface water and ensure that risk is managed effectively. Applications for development are unlikely to be supported if it is likely to increase flood risk from surface water on the development site or elsewhere.

DRAINAGE AND THE MANAGEMENT OF SURFACE WATER

116. The council requires applications for Planning Permission to be accompanied by sufficient detail to prove that the proposed development can be effectively drained in accordance with current guidance and legislation. The level and amount of detail that is to be submitted will be dependent on the type of planning permission applied for along with the scale and type of development proposed. For guidance, please contact the council's Planning Services.



117. For planning applications (greater than 5 houses for residential or for greater than 250m2 for non-domestic developments) a Drainage Assessment should be submitted for approval the council as planning authority as part of the planning application process. The Drainage Assessment should cover all aspects of the drainage strategy for the development including wastewater, surface water including SUDS, drainage of landscaped and garden areas and proposals for the management of run-off during construction.

118. The Drainage Assessment should be carried out in accordance with the current Water Assessment and Drainage Assessment Guidance document produced by the Sustainable Urban Drainage Scottish Working Party (SUDSWP). This document is available online and is also available via the SEPA website.

119. The council requires applicants, or their agent, to certify that the assessment and/or designs have been carried out by a fully-qualified and competent person(s) and that the assessment complies with current best practice, guidance and standards. Refer to section 14 for more details on this requirement. https://www.sepa.org.uk/media/163472/water_assessment_and_drainage_assessment_guide.pdf

120. The following information should be clearly detailed in the Drainage Assessment –

Waste Water

121. It is expected that waste water from all new developments will discharge to the public sewer network if possible. For rural developments, or where there is no possibility of connection to the public sewer, satisfactory details of how waste water will be managed will require to be submitted as part of the assessment. Reference should be made to section 6 of the Water Assessment and Drainage Assessment Guide.

122. It is expected that waste water sewerage will be designed and constructed in accordance with the current version of Sewers for Scotland and will vest in Scottish Water on completion of the development. http://www.scottishwater.co.uk/assets/business/files/connections%20documents/sfsv4may2015pdf.pdf

Surface Water

123. The assessment will clearly outline how surface water, both statutory and road run-off, from the proposed development would be managed on site. The surface water system must be designed and constructed such that it deals with all aspects of surface water run-off as outlined in the Water and Drainage Assessment document and CIRIA SUDS manual C753 - http://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx

- Water quality – manage the quality of the surface water run-off to minimise and prevent pollution of the water environment.
- Water quantity – control the quantity of run-off to support management of flood risk and maintain the natural water cycle.

- Amenity – create and sustain better places for people.
- Biodiversity – create and sustain better places for nature.

124. Reference should be made to sections 7 and 8 of the Water Assessment and Drainage Assessment Guidance document along with CIRIA SUDS Manual C753 chapters 3 to 6 and particular details should be provided in relation to the following –

- interception storage – what consideration has been given to capture the first 5mm of rainfall for the proposed development?
- usage of surface water run-off as a resource – what consideration has been given to a proportion of the run-off being harvested for re-use?
- support flood risk and protect ecology in the receiving catchment – the rates and volumes of run-off for all high and low return period events are controlled in accordance with water quantity standards as set out in the Water and Drainage Assessment document chapter 8. Calculations should be provided to confirm that post-development run-off flows and volumes do not exceed pre-development or green field run-off figures.
- manage on-site flood risk – run-off from rainfall events that exceed the capacity of the sewerage system is managed in identified exceedance routes and storage areas. The routes and areas identified should ensure that no properties are affected either on site or off-site.
- flexibility – the SUDS design includes for climate change and urban creep.
- support the management of water quality – provision of interception and treatment of both roads run-off and statutory run-off to meet the standards set out by SEPA and in accordance with CIRIA SUDS Manual C753 chapter 4.
- The use of the Simple Index Approach (SIA) to assess water quality management requirements in accordance with CIRIA C753 and meet SEPA standards. A summary output from the SIA Tool should be included in the Drainage Assessment - SIA Excel tool.
- Source Control features – the use of various types of features to treat and attenuate road run-off at source should be agreed with the council but will generally be as per SUDS for Roads and as chapter 9 of CIRIA SUDS Manual C753.

- Public SUDS features – the use of various types of SUDS features to treat and attenuate statutory run-off (possibly along with roads run-off) will be to Scottish Water requirements as the current version of Sewers for Scotland.
- Maximise amenity and biodiversity values – what considerations have been taken into account to meet amenity and biodiversity objectives?

125. The council expects that all shared surface water drainage systems (those that deal with both statutory run-off and roads run-off) will be designed and constructed in accordance with the current version of Sewers for Scotland and will vest in Scottish Water on completion of the development and before the development roads are adopted.

126. The assessment should clearly identify, on a suitably-scaled plan, which parts of the system are to vest in Scottish Water as drainage authority, which parts will become road drainage under the Roads Construction Consent and which parts, if any, will be subject to maintenance agreements under section 7 of the Sewerage (Scotland) Act 1968, as amended between Scottish Water and West Lothian Council. The assessment should also clearly identify which part of the system will be private. Refer to section 14 for more details on this requirement.

Surface Water from Landscaped / Public Open Space Areas and Garden Ground

127. It is accepted that run-off from permeable or semi-permeable areas such as landscaped and garden ground will not be able to drain to the public sewer network. The assessment should detail what works or measures will be put in place to ensure that these areas are as free-draining as possible and do not cause run-off onto public footpaths and roads. These measures should also help preserve and protect the natural drainage patterns on site.

The Management of Surface Water During Construction

128. Although the construction phase of the development is short compared to the length of time permanent works will be in place, the risk of pollution and contamination during this period is particularly high. The completed sewerage system including SUDS measures can be adversely affected by construction run-off and measures must be put in place by the developer during construction to protect and maintain its effectiveness during this period and on completion.

129. The assessment should detail what works and measures will be used to manage construction run-off and to ensure that the sewerage system and all SUDS measures will be fit for adoption by the relevant authorities on completion of the development.

SITE COMPLETION AND SEWERAGE ADOPTION PROCESS

130. It is essential that the development be completed in accordance with the planning consent and all other approvals such as Scottish Water technical approval, the Roads Construction Consent and Building Warrant. Developers will be required to liaise with the relevant authorities as part of the site completion process ensuring that completed infrastructure is vested or adopted by the relevant authority.

131. Developers should note that, where road drainage discharges to sewers and SUDS which are to be vested in Scottish Water, the road drainage systems and roads served by that drainage system will not be adopted by the council until the sewers are vested in Scottish Water. It will not generally be acceptable for road drainage to discharge into private sewers or SUDS and, where this is proposed, it may be that the roads will not be adopted by the council. This should be agreed during the approval process.

Inspection Process

132. The developer and contractor should ensure that the relevant inspection processes take place during construction and completion of all parts of the sewerage system.

133. This will include the council's Building Standards service for all drainage within the curtilage of premises, which will become the responsibility of the owner of the premises.

134. For those parts of the sewerage system, including sustainable drainage systems (SuDS), which are to be vested in Scottish Water as public sewers it should also be deemed to include Scottish Water, as drainage authority.

135. It will also include the council's Roads Development Management team as part of the inspection process for parts of the system which will be adopted as road drainage under the Road Construction Consent. This will also apply to roads source control measures and may apply to shared public SUDS which deal with both road run-off and statutory surface water run-off.

Completion and Vesting of Sewerage Infrastructure

136. The developer and contractor should ensure that the sewerage system where relevant, including road drainage and all source and public SUDS features, is constructed in accordance with the approved plans and consents. The completed sewerage, road and sustainable drainage systems will require to be vested in or adopted by the relevant authority on completion of development in accordance with the approved assessment and relevant completion processes.

137. Where drainage infrastructure is located within the private curtilage, beyond the public road and footpath, the developer must complete necessary Deeds of Servitude and Land Transfers to enable sewerage infrastructure to be vested. This will also include all public SUDS and pumping stations that are to vest in Scottish Water.

138. The council requires developers to complete the vesting and adoption processes within a reasonable timescale following completion of site works.

BROWNFIELD DEVELOPMENT & CHANGE OF USE

139. The council actively supports the development of brownfield land and the redevelopment and expansion of existing and previously-developed sites. Development in these circumstances can have many benefits. It helps lessen the requirement for the development of greenfield land, brownfield sites often provide development and regeneration opportunities within the settlement envelope and larger-scale development can secure important physical and environmental improvements through, for example, the remediation of spoiled and contaminated land, bringing sites back into active use.

140. Although these sites have often previously been used and drainage systems established, the drainage systems were developed in less enlightened times, before the need for surface run-off to be attenuated and treated. For the purposes of draining these sites and reducing the risk of flooding, the council does not differentiate between brownfield and greenfield development and therefore expects that sites or parts of sites that are being redeveloped or expanded as appropriate must include drainage systems and sustainable drainage systems that meet current standards, including the need for sustainable drainage measures where these are appropriate to the scale and nature of the development. For clarity, the council requires developers to provide sufficient on-site storage to satisfy greenfield run-off characteristics.

LINLITHGOW & LINLITHGOW LOCH CATCHMENT - AREA OF WATER CONTROL

141. There are severe drainage constraints and a significant risk of surface water and fluvial flooding in Linlithgow and Linlithgow Bridge. The risk from fluvial flooding includes out of bank flows from the Bell's Burn, Mill Burn, Mains Burn and River Avon. Studies have also brought forward evidence of risk from the localised overtopping of Linlithgow Loch linked to constraints on the discharge during and in the aftermath of heavy and prolonged rainfall.

142. Linlithgow has also been identified as one of fifteen high-risk areas in Scotland and one of four so called priority areas within West Lothian in terms of the risk of flooding from surface water. The council, as planning authority, has been resisting development in the town, among other reasons, until it can accurately determine how developers can invest in solutions that not only allow their own developments to be connected to the surface and wastewater drainage networks but also how investment off site can provide betterment to address the current situation.

143. Forecasts suggest that the extent and severity of flood risk will be exacerbated in future as a result of urban creep, climate change and changing demographics. To manage surface water flooding and urban drainage in the long-term, it is not sustainable to continue to rely on the upgrading of traditional sewerage and surface water infrastructure. Instead, a new, integrated approach is required that takes account of all aspects of urban drainage infrastructure and identifies long-term and sustainable actions which can be implemented.

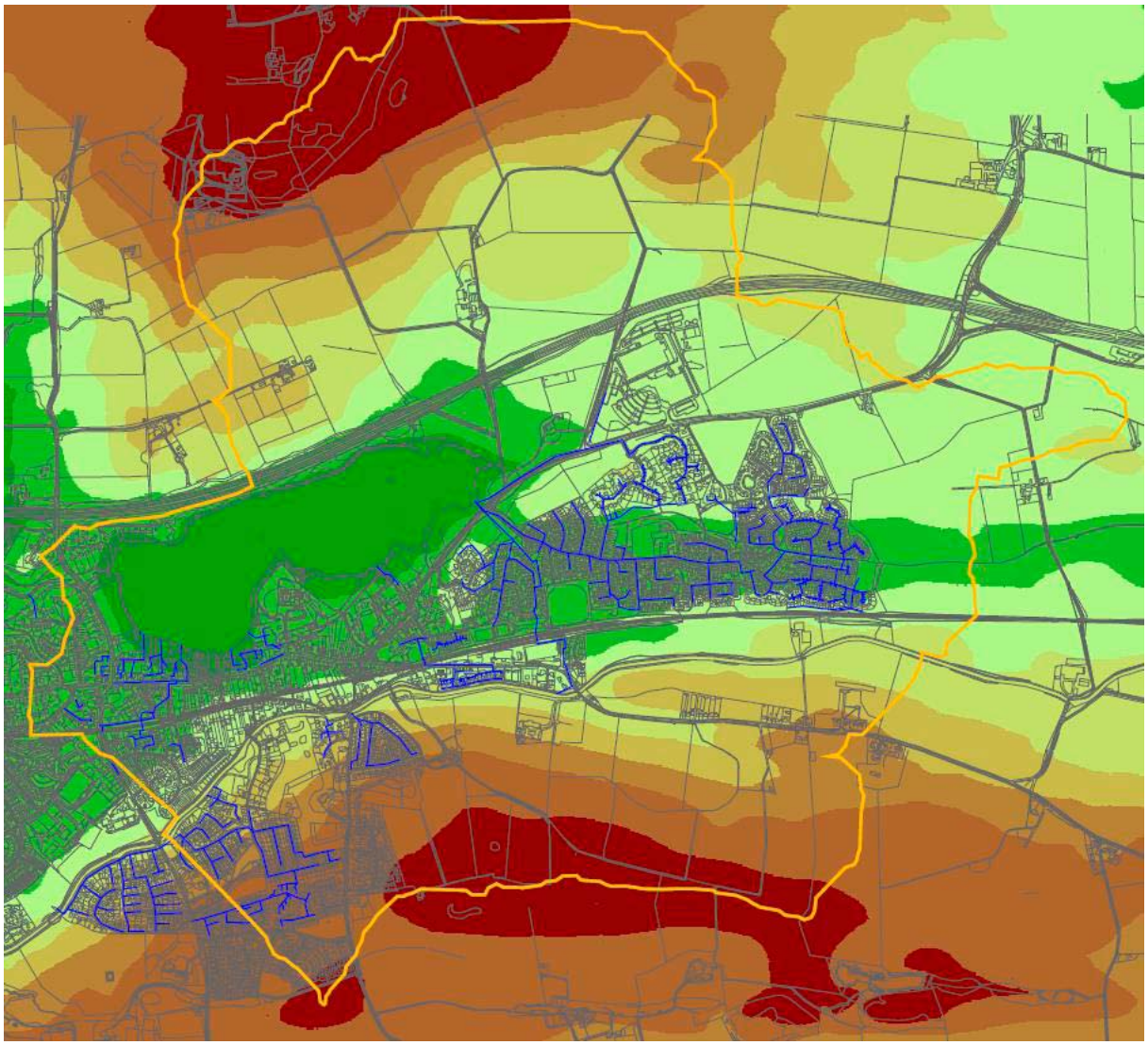
144. In some urban areas of Scotland surface water flooding is complicated by the interactions that occur between the ground drainage systems (including natural watercourses) and manmade, below-ground drainage systems (including road drains and sewers). In these instances, an Integrated Catchment Study is deemed the most appropriate tool to provide a comprehensive understanding and the necessary information regarding flooding mechanisms on which to base future decisions.

145. West Lothian Council and Scottish Water are currently working together on an Integrated Catchment Study which, at the time of writing, is nearing completion. When the study has been completed and the findings and model are available it will provide a comprehensive understanding of how existing drainage systems respond to rainfall. The data the study provides will enable the council to determine the measures necessary to achieve the most sustainable, long-term solution to manage the risk of flooding and help identify which parties should be making the investment. It is inevitable that some of the investment necessary can only be delivered as an integral part of future development proposals.

Linlithgow Loch

146. Linlithgow Loch is one of the jewels in West Lothian's crown.It is one of only two remaining natural lowland lochs in the Lothians. It provides the setting for Linlithgow Palace and Peel and is integral to the town's tourist appeal. It also provides a number of land and water-based recreational and outdoor education opportunities as well as being the focal point for naturalists.

147. Linlithgow Loch is a designated a Site of Special Scientific Interest (SSSI) for its botanical and ornithological interests. It was originally notified as the only example of a lowland mesotrophic (having a moderate amount of dissolved nutrients) loch in West Lothian. Site condition monitoring in 2004 concluded that the loch was in an unfavourable condition due to nutrient enrichment, largely associated with land use in the catchment. Evidence now suggests that the loch is currently eutrophic (having an elevated amount of dissolved nutrient) and may soon be hyper-eutrophic.



Map showing the Linlithgow Loch Catchment

Linlithgow Loch Catchment

148. There are currently extended seasonal impacts to public health and use by the public of the loch due to extensive and long-lasting seasonal toxic algal blooms. The low oxygen conditions this creates impacts on the ability of the loch to support fish. There were a number of significant fish kills during the summer of 2013. The remaining fish in the loch at that time were under significant and visible stress. There is also evidence to suggest that deteriorating water quality in the loch is adversely affecting the quality of the designation as a Site of Special Scientific Interest (SSSI).

149. The Nature Conservation (Scotland) Act 2004 places a duty on officials and public bodies to further biodiversity. The Scottish Biodiversity Strategy identifies the role of local authorities in meeting national species and habitat priorities. The public health impacts of the toxic algal blooms impact on the ability to use the loch for angling and other water-based sports and outdoor education activities and the visible scums affect its amenity and potential as a leisure destination. There are also consequences for the economy of the town.

150. In an effort to turn around the fortunes for the loch Linlithgow Loch Catchment Management Group was established in the early 2000s, which counts representatives from Historic Environment Scotland, Scottish Natural Heritage, SEPA, West Lothian Council, Scottish Water and National Farmers' Union Scotland among its membership. It commissioned two academic studies into the loch by Scottish Agricultural College (SAC) and the Centre for Ecology & Hydrology (CEH). This led to the publication of a Catchment Management Plan in 2013 which includes thirteen management recommendations to reduce the impact of diffuse pollution on the loch.

151. Some measures such as the installation of Drainmarkers® adjacent to road drains in the catchment and the publication of an 'Only rain down the drain' leaflet are tangible actions largely focussed on raising local awareness of the plight of the loch, helping people connect with drainage and water quality in the loch. Other actions are complex and will take time and investment to deliver.

152. Historic and current land use in the loch catchment is responsible for pollution entering the loch. Amongst the factors negatively impacting on water quality are: road run-off; run-off from railway drains; overflow from the Union Canal; sediment transport from agricultural land; septic tank run-off entering via the Bell's Burn, occasional short-term spills from the combined sewer overflow and large numbers of wildfowl and uncontrolled bird feeding. Future studies may identify, in order of priority, the main sources of poor water quality.

153. Coupled with the serious risk of flooding in Linlithgow, impaired water quality in the loch represents a barrier to development in the catchment. Surface and waste water volumes in the combined sewer system leading to the Linlithgow Waste Water Treatment Works has the potential to increase risk to vulnerable properties in the High Street and increase the number of spills into the loch during and in the immediate aftermath of rainfall.

154. The Linlithgow Area Local Plan of 1994 identified a number of reasons why it was considered appropriate to restrain development in Linlithgow. This general planning policy of restraint was continued in the West Lothian Local Plan (2009). However, that approach changed with the adoption of the West Lothian Local Development Plan which allows for the development in Linlithgow order to address housing needs and demand and identifies a number of development opportunities.

155. There are difficulties draining additional areas of surface and wastewater within the Linlithgow Loch catchment without compounding existing flood risk and the number of times the combined sewer overflow spills into the loch. The flooding that occurs due to the existing capacity in the combined drainage system and frequency and duration of the spills (the volume is not currently measured) means that investment is likely to be required in a range of solutions.

156. The council, as planning authority, wishes to ensure that it has the flexibility to work with Scottish Water and other partners to bring forward investment that can improve the outlook for the loch and reduce the risk of flooding in the town whilst unlocking development potential in those areas where development is otherwise deemed acceptable. This is necessary because of the current uncertainty about future house completion rates and the timing of developer contribution payments to fund infrastructure that mitigates run-off from existing infrastructure projects. It should be noted that the scale of requirement for measures to reduce flood risk and mitigate the quality of run-off entering the loch will be reviewed as housing developments progress.

157. This Supplementary Guidance will be taken into account in the determination of all planning applications for housing within the Linlithgow Loch catchment. For the avoidance of doubt, the Supplementary Guidance will apply to all current housing proposals which have yet to receive planning permission.

158. The West Lothian Local Development Plan sets out a development strategy for West Lothian. The success of the Local Development Plan strategy is dependent on additional measures being put in place to improve the quality and control the flow of surface water run-off into the loch along with the reduction in the frequency, duration and volume of spills into the loch from the combined sewerage system.

The Role of the Union Canal

159. Discussions have taken place with Scottish Canals along with officials from Scottish Water about the potential for surface water from sites adjacent to and above the canal to be directed into the Union Canal that flows through the West Lothian Council area. The principle of using the managed watercourse of the canal as a conduit for managing surface water is supported by Scottish Water, alleviating pressures on conventional infrastructure. It is a model that promotes sustainable and innovative design, bringing the canal infrastructure into contemporary new use benefitting the local environment. Scottish Canals advocate early engagement with their team for proposed developments adjacent to the canal. This is managed through the Third Party Works process, which can be found at: https://www.scottishcanals.co.uk/corporate/our-estate-works-planning/third-party-works/

160. Any proposal for the discharge of surface water into the canal would require agreement between developers, Scottish Water and Scottish Canals. It is probable that Scottish Canals would seek additional engineering works paid for and potentially discharged by the developer – site-specific requirements and costs are assessed on a commercial basis for each individual location.

161. Whilst there is good available information about surface water flooding and events, there is less data currently available on sewer flooding in the town and the relationship between a temporary lack of capacity and spillage into Linlithgow Loch from the Combined Sewer Overflow (CSO) located at the Vennel. Work is underway to gather this information as part of the integrated catchment study for Linlithgow.

FLOOD RISK ASSESSMENT/ DRAINAGE ASSESSMENT COMPLIANCE

162. The council's requirements in relation to Flood Risk Assessments and Drainage Assessments carried out to support a planning application are that they are produced by a competent Designer/Consultant and that they are fully in accordance with current guidance, standards and legislation.

163. The council has updated its requirements in this Supplementary Guidance so that it takes cognisance of current guidance and best practice all of which is publically available. Please refer to section 17.0 for a list of legislative and guidance documents which are relevant.

164. In addition to providing satisfactory supporting assessments and information on flood risk and drainage to support a planning application, the council requires the applicant, or their agent, to certify that the assessments and/or designs have been carried out by a fully qualified and competent person(s) and that the assessment complies with current best practice, guidance and standards.

Flood Risk Assessment

165. All Flood Risk Assessments that are submitted to the council should generally be in accordance with CIRIA Manual C624 – Development and Flood Risk Guidance for the Construction Industry and SEPA's Technical Flood Risk Guidance for Stakeholders Note Reference SS-NFR-P-002 as per section 7.0 of this document.

166. The following documentation should therefore be provided along with any Flood Risk Assessment that is submitted: –

- The Flood Risk Assessment – Compliance Certificate (see appendix A) – all applications.
- The Flood Risk Assessment – Independent Check Certificate (see appendix B) – major applications only.

Drainage Assessment

167. All Drainage Assessments that are submitted to the council should be in accordance with the Water Assessment and Drainage Assessment Guide published by the Sustainable Urban Drainage Scottish Working Party (SUDSWP) and will incorporate the principles of the CIRIA SUDS Manual C753 in terms of surface water management as per section 10.0 of this document.

168. The following documentation should therefore be provided along with any Drainage Assessment that is submitted –

- The Drainage Assessment – Compliance Certificate (see appendix C) – all applications.
- The Drainage Assessment – Independent Check Certificate (see appendix D) – major applications only.

Completion and Vesting of Drainage

169. It is a requirement of planning permission for a development that all public sewerage is vested in the Drainage Authority (Scottish Water) on completion of that development as outlined in section 10.0 of this document. This is especially the case where roads run-off discharges into public surface water sewers including SUDS which also convey statutory surface water run-off.

170. As detailed in section 10.4 it should be clearly identified in the Drainage Assessment, and on a suitably scaled plan, which parts of the sewerage system are to be vested in Scottish Water, which parts will require to be adopted by the council as part of the road adoption under the Roads Construction Consent and which parts will be shared between the council and Scottish Water.

171. The following documentation should therefore be provided along with any Drainage Assessment that is submitted –

- Confirmation of Future Maintenance of Sewerage and Road Drainage System including SUDS (see appendix E)
- A Maintenance Schedule for the Sustainable Drainage Apparatus should be attached to the confirmation document.

GUIDANCE AND REFERENCE DOCUMENTS

Planning Policy Documents:

- Scottish Planning Policy (2014) – Managing Flood Risk and Drainage Section
- Planning Advice Note 51: Planning Environmental Protection and Regulation
- Planning Advice Note 61: Planning and Sustainable Urban Drainage Systems
- Planning Advice Note 79: Water and Drainage
- Scottish Government Online Planning Advice on Flood Risk
- SESPlan Strategic Development Plan 2015
- West Lothian Local Development Plan

Legislative Documents:

- Water Environment and Water Services (Scotland) Act 2003
- Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)
- Roads (Scotland) Act 1984
- Sewerage (Scotland) Act 1968,(as amended
- Flood Risk Management (Scotland) Act 2009

SEPA Guidance Documents

- Land Use Planning System SEPA Guidance Note 9 (version 12)
- SEPA – Planning Authority Protocol (policy 41)
- WAT-PS-06: Culverting of Watercourses – Position Statement and Guidance
- WAT-RM-08: Regulatory Method – Sustainable Urban Drainage Systems
- WAT-RM-09: Modifications to CAR Authorisations
- WAT-SG-12: Supporting Guidance – GBRs for Surface Water Drainage Systems
- WAT-SG-39: Supporting Guidance – Point Source Regime Definitions
- PPG4: Treatment and Disposal of Sewage Where no Sewerage Available
- PPG6: Working at Construction and Demolition Sites
- SS-NFR-P-002: Technical Flood Risk Guidance for Stakeholders

CIRIA Documents

- CIRIA C624: Development and Flood Risk – Guidance for the Construction Industry
- CIRIA C689: Culvert Design and Operation Guide
- CIRIA C698: Site Handbook for the Construction of SUDS
- CIRIA C753: The SUDS Manual

SUDSWP Documents

- Water Assessment and Drainage Assessment Guide (ISBN 978-1-901322-99-6)
- SUDS for Roads

Scottish Water Documents

- Sewers for Scotland Current Edition: Technical Specification for the Design and Construction of Sewerage Infrastructure

Other Documents

- Simple Index Approach (SIA) Tool for Assessing Water Quality Management Requirements (Excel document on SUSDRAIN website).

The above list is by no means exhaustive and it should be noted that other statutory and best practice guidance documents may also be relevant.

APPENDIX A: FLOOD RISK ASSESSMENT – COMPLIANCE CERTIFICATE

This certificate must be completed and signed to accompany any Flood Risk Assessment that is submitted to the council in support of a Planning Application.

I certify that all reasonable skill care and attention to be expected of a suitably qualified and competent professional in this field has been exercised in carrying out the Flood Risk Assessment(s) and preparing the Flood Risk Assessment Report for the development named below.

I also certify that the risk assessments and report have been carried out and prepared in accordance with current best practice and guidance and meet the requirements of CIRIA Manual C624: Development and Flood Risk – A Guidance for the Construction Industry and SEPAs Technical Flood Risk Guidance for Stakeholders Note Ref: SS-NFR-P-002.

Name and Location of Development:	
Name of Developer:	
Planning Application Number:	
Roads Construction Consent Number:	
Name and Address of Organisation:	
Signed:	
Name:	
Position Held:	
Qualifications:*	
Date:	

** Minimum qualification should be membership of an appropriate Chartered Engineering Institution*

APPENDIX B: FLOOD RISK ASSESSMENT – INDEPENDENT CHECK CERTIFICATE

This certificate must be completed and signed to accompany any Flood Risk Assessment that is submitted to the council in support of a Planning Application for major developments.

I certify that all reasonable skill care and attention to be expected of a suitably qualified and competent professional in this field has been exercised in carrying out an independent check of the Flood Risk Assessment(s) and the Flood Risk Assessment Report for the development named below.

I also certify that I have checked that the risk assessments and report have been carried out and prepared in accordance with current best practice and guidance and meet the requirements of CIRIA Manual C624: Development and Flood Risk – A Guidance for the Construction Industry and SEPAs Technical Flood Risk Guidance for Stakeholders Note Ref: SS-NFR-P-002.

Name and Location of Development:	
Name of Developer:	
Planning Application Number:	
Roads Construction Consent Number:	
Name and Address of Organisation:**	
Signed:	
Name:	
Position Held:	
Qualifications:*	
Date:	

** Minimum qualification should be membership of an appropriate Chartered Engineering Institution*

*** Organisation to be totally independent of original design organisation*

APPENDIX C: DRAINAGE ASSESSMENT – COMPLIANCE CERTIFICATE

This certificate must be completed and signed to accompany any Drainage Assessment that is submitted to the council in support of a Planning Application.

I certify that all reasonable skill care and attention to be expected of a suitably qualified and competent professional in this field has been exercised in preparing the Drainage Assessment and designing the foul and surface water drainage systems for the development named below.

I also certify that the assessment and designs have been carried out and prepared in accordance with current best practice and guidance and meet the requirements of CIRIA Manual C753: The SuDS Manual and the Water Assessment and Drainage Assessment Guide published by SUDSWP Ref: ISBN 978-1-901322-99-6.

Name and Location of Development:	
Name of Developer:	
Planning Application Number:	
Roads Construction Consent Number:	
Name and Address of Organisation:	
Signed:	
Name:	
Position Held:	
Qualifications:*	
Date:	

** Minimum qualification should be membership of an appropriate Chartered Engineering Institution*

APPENDIX D: DRAINAGE ASSESSMENT – INDEPENDENT CHECK CERTIFICATE

This certificate must be completed and signed to accompany any Drainage Assessment that is submitted to the council in support of a Planning Application for major developments.

I certify that all reasonable skill care and attention to be expected of a suitably qualified and competent professional in this field has been exercised in carrying out an independent check of the Drainage Assessment and design of the foul and surface water drainage systems for the development named below.

I also certify that I have checked that the drainage assessment and design have been carried out and prepared in accordance with current best practice and guidance and meet the requirements of CIRIA Manual C753: The SuDS Manual and the Water Assessment and Drainage Assessment Guide published by SUDSWP Ref: ISBN 978-1-901322-99-6.

Name and Location of Development:	
Name of Developer:	
Planning Application Number:	
Roads Construction Consent Number:	
Name and Address of Organisation:**	
Signed:	
Name:	
Position Held:	
Qualifications:*	
Date:	

* Minimum qualification should be membership of an appropriate Chartered Engineering Institution

** Organisation to be totally independent of original design organisation

APPENDIX E: CONFIRMATION OF FUTURE MAINTENANCE ARRANGEMENTS OF SEWERAGE/SuDS

This form must be completed and signed to accompany any Drainage Assessment that is submitted to the council in support of a Planning Application.

I hereby confirm that the future maintenance of the completed surface water sewerage system, including the SuDS features, as detailed below and on the approved plans will be carried out by the undernoted organisation(s) and in accordance with the attached maintenance schedule for the Sustainable Drainage apparatus.

Name and Location of Development:	
Name of Developer:	
Planning Application Number:	
Roads Construction Consent Number:	
Name and Address of Maintenance Organisation (inc. contact tel. no):	
Details of SuDS features to be maintained:	
Signed:	
Name:	
Position Held:	
Organisation:	
Date:	

APPENDIX F – DEVELOPER CHECKLIST: Pre-application discussion material

Table B.1 Suggested pre-application discussion material

Ref	Requirements	Details (or reference documentation)	Accepted?
(a)	Any planning and environmental objectives for the site that should influence the surface water management strategy – these objectives can be put forward by both the developer and the approving body/LPA and should be agreed by all parties		
(b)	The likely environmental or technical constraints to SuDS design for the site – these should be agreed by all parties		
(c)	The requirements of the local SuDS approval and adoption processes. These should be provided to the developer by the drainage approving body		
(d)	The suite of design criteria to be applied to the SuDS scheme (taking account of (a) to (c))		
(e)	Evidence that the initial development design proposals have considered the integration and linkage of the surface water management with street layouts, architectural and landscape proposals		
(f)	An assessment of strategic opportunities for the surface water management system to deliver multiple benefits for the site – this should be provided by the developer and should include the strategic use of public open space for SuDS		
(h)	The statutory and recommended non-statutory consultees for the design proposals – this should be provided by the approval body or LPA		
(i)	The likely land and infrastructure ownership for drainage routes and points of discharge (including sewerage assets)		
(j)	An assessment of statutory consultee responsibilities and requirements, including timescales for any likely required approvals/consents		
(k)	Any potential local community impacts, health and safety issues or specific local community concerns and drainage approving body requirements that should be addressed by the detailed design		
(m)	An assessment of cost implications of stakeholder obligations		
(n)	An agreed approach to the design and maintenance of the surface water management for the proposed site		

Source: CIRIA SUDS MANUAL (C753) 2015 Appendix B: SuDS planning and design processes

Note All of the above should be agreed (where relevant) with the LPA, internal drainage board, environmental regulator, water companies and sewerage undertakers. The SuDS planning process should be closely linked to the development planning process, and the drainage design should be integrated where possible within the design of the development as a whole.

Table B.2 Conceptual drainage design documentation suggested for submission at outline planning

Ref	Requirements	Details (or reference documentation)	Accepted?
(a)	Definition of the natural drainage characteristics within, and hydrologically linked to, the site and demonstration that the drainage proposals will integrate with and not compromise the function of the natural drainage systems – natural flow paths for surface water runoff should be identified on a plan where appropriate		
(b)	Definition of state, performance and ownership of any existing site surface water drainage infrastructure and demonstration that the drainage proposals consider, use or protect these systems (where appropriate)		
(c)	Proposed strategic approach to managing on-site flood risk from all sources (as part of or in alignment with the Flood Risk Assessment/ flood consequences assessment), and implications of existing flood risk for proposed SuDS design		
(d)	Outline assessment of existing geology, ground conditions (including contamination and stability) and permeability through desk-based research (e.g. a review of geological/ hydrogeological maps, infiltration potential maps and site visit observations) – to determine the suitability of infiltration drainage for the site runoff. Infiltration tests should be carried out at this stage wherever possible. If infiltration is proposed but tests are not available an alternative outfall should be identified in case future tests show that infiltration is not possible		
(e)	Identification of the requirements of any environmentally sensitive potential receiving water bodies for the runoff (e.g. groundwater protection zones, archaeological features, receiving water body environmental designations)		
(f)	The impact of any stakeholder engagement on the design and proposed community engagement plans		
(g)	Confirmation of discharge points (i.e. to ground, watercourse or public sewer) for all return period events		
(h)	Confirmation of the design criteria for the SuDS system (including an assessment of the need and opportunity for rainwater harvesting and use), including climate change and urban creep allowances		
(i)	Conceptual SuDS design including Interception, treatment, conveyance, peak flow and volume control, storage and exceedance routes and components (and demonstration that required indicative storages and conveyance flows can be delivered on site)		
(j)	Proposed multi-functional use of SuDS space to meet community and environmental requirements (where possible green infrastructure) and the potential contribution of the surface water management system (e.g. BREEAM Community, DCLG, 2008, and Birkbeck and Kruczkowski, 2012) to the development design objectives for sustainability (including climate resilience)		

Ref	Requirements	Details (or reference documentation)	Accepted?
(k)	Proposed split of the SuDS between private and public		
(l)	Confirmation of approval and adoption arrangements for all SuDS components		
(m)	Details of any required off-site works and consents		
(n)	Appropriate consideration of the maintainability of the proposed SuDS		
(o)	Appropriate consideration of the constructability of the proposed SuDS (including the requirements for phasing or protection of components)		
(p)	An initial health and safety risk assessment		

Note: All of the above should be agreed (where relevant) with the LPA, internal drainage board, environmental regulator, water companies and sewerage undertakers. The SuDS planning process should be closely linked to the development planning process, and the drainage design should be integrated where possible within the design of the development as a whole

Table B.3 Detailed drainage design documentation suggested for submission at full planning

Ref	Requirements	Details (or reference documentation)	Accepted?
(a)	Where infiltration is proposed, an acceptable Infiltration Assessment has been submitted, including any geotechnical test results and evaluations		
(b)	A scheme design assessment with appropriate supporting calculations that has been submitted that demonstrates design conformity with the required design criteria for the site; justification of any non-compliance to national or locally set standards		
(c)	Plans of the proposed drainage system, showing: • drainage catchment and sub-catchment areas (including impermeable and permeable zones, and any phasing details) • existing and proposed site sections and levels • long- and cross-sections for the proposed drainage system (including exceedance flow management routes) and final building finished floor levels • details for connections to watercourses and sewers • maintenance access and any arisings storage and disposal arrangements • operational characteristics of any mechanical features		
(d)	All necessary consents required for off-site works		
(e)	Commitments for approval and adoption arrangements for all elements of the system (including exceedance flow management components); commitments to any cost contributions, valuation and security of any required non-performance bond		
(f)	Appropriate consideration and management of any health and safety issues relating to SuDS implementation		
(g)	The design of each element undertaken in accordance with best practice (using detailed design checklists, where required)		
(h)	Specifications prepared and approved for all materials used in the design		
(i)	A construction method statement for the proposed SuDS system submitted including: • construction processes to protect the SuDS functionality (including the provision of any required temporary drainage systems) • programming to protect the SuDS functionality • landscape planting • consideration of access for inspections by the approving or adopting organisation		
(j)	A Maintenance Plan for the proposed SuDS submitted including: • a description of the system and how each part of the system is expected to work • management objectives for the site • inspection and maintenance schedules, material, tools and initial cost estimates • maintenance access points, easements and outfalls		

Ref	Requirements	Details (or reference documentation)	Accepted?
(k)	An information and communications plan for the proposed SuDS scheme submitted, where appropriate, including: • communication with and education of existing residents • communication with and education of new residents • site and SuDS component specific information boards • local community education and education strategies (e.g. through schools). Note: this is only likely to be required on larger sites and may be provided by the drainage approving body or the developer (to be agreed between them) ***Note:*** this is only likely to be required on larger sites and may be provided by the drainage approving body or the developer (to be agreed between them)		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