6.0 Local SuDS requirements for Oxford City

Landscape character

Oxford City covers a total area of approximately 46km2. Whilst parts of the urban area are very densely developed, 52% of the city is open space, and 27% of Oxford is in the Green Belt, with much of this land being flood plain for both the River Cherwell and Thames.

Although Oxford is a compact city, there is a range of topography, from flat floodplain to steep hills. Oxford also contains other Main Rivers (as classified by the Environment Agency) including the Boundary Brook, Littlemore Brook, Northfield Brook, Marston Brook and Peasmoor Brook, as well as numerous ordinary watercourses which provide a drainage function to the City and surrounding area.

Oxford also has a number of historic city parks and conservation areas, including Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI), which create pockets and corridors of green infrastructure within the City.

The Lye Valley SSSI is a spring-fed lowland fen within the city, particularly reliant on functioning drainage. The Lye Valley is important because it has very rare fen habitats, which are particularly sensitive to changes to water quantity and quality in ground and surface water. It relies on the dispersion of water to the upstream limestone aquifer to feed the alkaline spring fens.

Local Geology

The soil type in the Oxford City area varies from sandy loam in the vicinity of the River Thames and River Cherwell to clayey and lime rich loamy soils within the eastern parts of Oxford, due to the presence of Oxford Clay and mudstone bedrock geology.

A map of the general underlying soil conditions is provided on the facing page.

It should be noted that the above map is an overview of the geology of Oxford, and whilst it may give an indication as to the suitability of infiltration for SuDS, this will need to be confirmed at site specific level with ground investigation data, including the determination of infiltration rate from soakage tests.

Oxford Geology Map

Map showing the general soil conditions within the Oxford City Area. Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office (HMSO). © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Local SuDS specific requirements

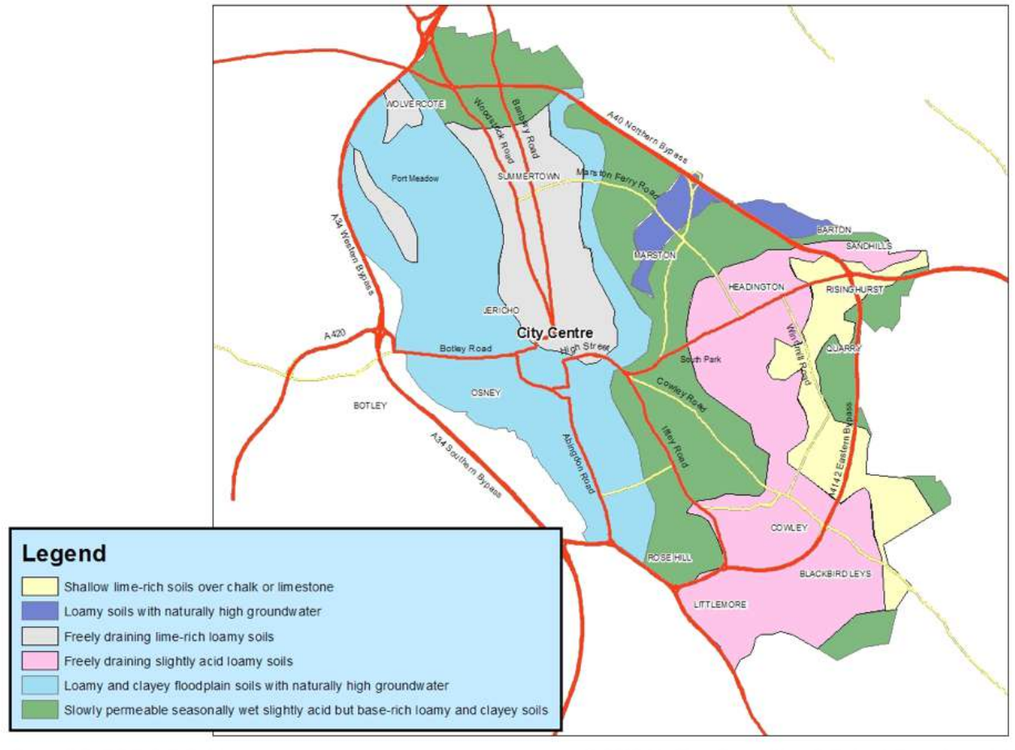
SuDS are a significant means of managing and reducing flood risk and are therefore the preferred method of drainage within the Oxford City area.

When proposing a Major development within the Oxford City area, applicants should also consult Oxfordshire County Council guidance, as they are consulted on such applications in their role as Lead Local Flood Authority (LLFA)

The Lye Valley

The Lye Valley is a Site of Special Scientific Interest (SSSI) containing alkaline spring fens, reported as one of the best examples of calcareous valley fens in southern England, and a rare and threatened habitat. It is reported that due to changes in hydrological conditions in the upper catchment, water run-off has led to erosion of the Boundary Brook, and channelisation has increased the flow of water within the channel, reducing that entering the fen itself. It is important to ensure that effective SuDS are used within the catchment of the Lye Valley to slow surface water flows and to reduce the chance of pollution reaching surface and ground water.

Given the unique nature of The Lye Valley SSSI, discharge to the underlying aquifer is the preferred method of water disposal (where infiltration rates permit). Other methods of water disposal, such as attenuation and discharge to a water body or sewer, should only be considered if ground investigation, ground contamination and/or poor permeability prohibit this.



Water Quality will need to be ensured through the provision of appropriate measures for the removal of hydrocarbons and other contaminants, in order to preserve the alkaline nature of the fen, and the unique habitat it provides. Additionally, where SuDS are proposed within the Lye Valley catchment, inert materials (such as gravels) should be used to prevent changes to groundwater chemistry.

For proposed SuDS, water quantity calculations and details are to be supplied, along with demonstration of the use of an appropriate number and type of water quality measures. Development likely to have an impact on the water quality of the Lye Valley SSSI may need to demonstrate appropriate measures have been taken in order to mitigate any adverse impacts as part of the drainage strategy, which may include appropriate water quality modelling for larger developments.

Local LPA and Stakeholder Engagement

The use of SuDS can provide benefits for the wider community, and local stakeholders should be considered when designing such systems. Early engagement and consideration of SuDS within a scheme can provide secondary benefits in other areas, such as amenity, landscape and ecology.

The location and size of developments is a factor when considering local stakeholder engagement. Within Oxford City this could include, but is not limited to:

- Thames Water
- Environment Agency
- Highways Authority
- Local community groups
- Local land owners
- Natural England
- Oxfordshire County council as Lead Local Flood Authority (on major applications)
- Oxford City Council

Oxford City Council can provide pre application advice on SuDS. For Major development, it is recommended that pre-application advice is sought from both Oxford City Council and Oxfordshire County Council as the Lead Local Flood Authority (LLFA).

Adoption and Maintenance of SuDS

All SuDS should have a comprehensive maintenance plan in place in order to ensure they remain functional and safe for the lifetime of the development. Where this involves adoption of SuDS by a third party (such as Thames Water or a maintenance company), details of this should be provided as part of any drainage strategy submitted accompanying a planning application.

Facing Page: Oxford SuDS projects.