Sustainable Drainage in Heritage Areas

Contents

Introduction

This Factsheet provides guidance on fitting Sustainable Drainage solutions in the sensitive historic fabric of the City of Edinburgh and its environs. Areas of heritage sensitivity include the Old and New Towns of Edinburgh the two World Heritage Sites, fifty conservation areas, designed gardens and landscapes, listed buildings, Tree Preservation Orders, ancient monuments and sites of archaeological importance.

Edinburgh's Water Vision recognises the need to adapt our approach to drainage in order to cope with rising rainfall intensity as part of climate change:

"Our vision is to develop a long-term and sustainable approach to river, coastal and storm water management across the city and its environs, respecting our unique historic heritage..."

P3 Water Management Vision 2020

This reflects the **Historic Environment Policy for Scotland (HEPS)** which states that:

"The historic environment should be included in all site-specific climate change action plans and policies. It is recommended that .... measures should be effective, appropriate and take into account any special historic or architectural features of buildings and landscapes."

P9 Managing Change in the Historic Environment: Asset Management | HES

Figure 1. World Heritage New Town, Edinburgh | Shutterstock

National Planning Framework 4 (NfP4) sets out strategy for tackling the climate and nature crises. It includes national planning policies on climate adaptation, green blue infrastructure, flood and water management , placemaking and nature that aim to deliver a fair, sustainable, liveable and productive places.

A key outcome of **policy 7 Historic Assets and Places** will be

"The historic environment is valued, protected, and enhanced, supporting the transition to net zero and ensuring assets are resilient to current and future impacts of climate change"

Scottish Government, National Planning Framework 4 ,p45

Sustainable Drainage as Change in the Historic Environment

Extracts from Historic Environment Scotland Policy

- Decisions affecting any part of the historic environment should be informed by an understanding of its full extent and cultural significance.
- Changes to specific assets and their context should be managed in a way that protects the historic environment. Opportunities for enhancement should be identified where appropriate.
- Decisions affecting the historic environment should contribute to the sustainable development of communities and places.

Sustainable drainage consists of surface features that use the natural properties of soil, trees, planting and geography to treat and attenuate rainwater (stormwater) replacing or reducing pressure on traditional drainage infrastructure. As surface features (such as rain gardens, trees, green roofs or swales) sustainable drainage may produce a visible change to an area. Other features such as filter strips, pearmeable surfacing or attenuation using a pourus sub-base may have low or no visability.

A well-designed system sensitive to local character and the valued physical elements of the site can avoid detrimental change and bring multiple benefits.

Awareness of the positive or negative impacts of physical changes in heritage areas is therefore vital in the development of appropriate schemes in those areas. Historic Environment Scotland (HES) has published a range of guidance on managing changes to the historic environment including the need for adaptation for climate change.

References:

Edinburgh Adapts

Water Management Vision, CEC 2020

Proposed Cityplan 2030

Historic Environment Policy for Scotland, Historic Environment Scotland

National Planning Framework 4 (NfP4)

Figure 2. Dean Village | Gary Campbell-Hall

Figure 3. Royal Mile | Daniel0685, Flickr

Figure 4. Union Canal | Lucy Duerden

Designer Do's and Don'ts for designing Sustainable drainage in Heritage Areas

☑ **DO** use consultants and contractors with appropriate qualifications and expertise and ensure a high standard of design in any new work and in the alteration of the historic environment.

☑ **DO** commission heritage appraisals, historic building records, inspections, tree surveys and research (where appropriate) at an early stage to inform appropriate and practical design.

☒ **DON'T** design physical changes in heritage areas, structures or landscape elements that detract from the qualities or alter the character for which that area, structure or element are valued and protected.

☑ **DO** consult with appropriate council departments and stakeholders (such as EWHS) at an early stage in the design development. This can inform design development and avoid delays to the project.

☑ **DO** consider views and visual relationships both within or adjacent to heritage areas or features including their setting.

☑ **DO** take steps to minimise any detrimental impacts on the historic environment by removing or altering as little as necessary. If some impact is unavoidable evidence that alternatives have been explored, and mitigation measures put in place should be included with proposals (for both planning applications and permitted development).

☑ **DO** consider integrating sustainable drainage with historic landscape restoration to create positive benefits (for example as part of restoring woodland cover or naturalising drainage features such as ponds or swales).

☑ **DO** consider the type and depth of sustainable drainage features in areas where there may be potential for impacts on sensitive archaeology. Where proposals could involve excavations, erosion of or damage to buried archaeological features, this should be assessed and discussed with CEC Archaeology Services at an early stage of the design process. This will also avoid potential for significant project delays at a later stage.

☑ **DO** develop site specific sustainable drainage solutions that reflect and enhance local character. Consider how sustainable drainage elements might be used to improve the quality of public space to provide multiple benefits.

DO consider the functional 'behaviour' of any listed structures or surfaces when introducing sustainable drainage features. This will prevent long term damage from imposing thermal or moisture or load induced damage to historic structures. Materials designed to 'breathe' should be allowed to continue to 'breathe'.

☑ **DO** develop a maintenance plan as part of the sustainable drainage proposals that considers any potential effects on the historic environment and agree appropriate management regimes with the adopting authority or group.

☒ **DON'T** forget that all established trees are environmental assets and important visual elements in the character of an area and may be protected by cultural or natural heritage designations or form part of the setting of a protected area or structure. Wherever possible avoid detrimental impacts on mature trees and try to integrate them into proposals.

☑ **DO** carryout a detailed underground survey (looking at utilities, structures, voids and the root zones of existing mature trees) to inform design of any feature with potential for below ground impacts such as SuDS trees or an attenuating porous sub- base layer. An early, thorough understanding of underground basements, cellars and public utilities is necessary prior to any feasibility or design.

☑ **DO** retain, reuse, and restore original historic materials. Where possible new elements should be constructed of matching natural materials.

Technical References:

Proposed City Plan 2030

Historic Environment Policy for Scotland, Historic Environment Scotland

Historic Environment Policy for Scotland, Managing Change in the Historic Environment

Edinburgh's Historic Environment

Occupied for over 10,000 years and site of Scotland's Medieval Capital, Edinburgh avoided the most intense growth normally associated with the Industrial Revolution and escaped the major war damage and major post-War redevelopment and infrastructure programmes that are seen elsewhere. It therefore remains a recognisably historic city with an intact historic core. The city's topography has also created wide and dramatic variations in character and strong relationships between areas.

Technical References:

Proposed City Plan 2030

CEC Planning portal

Edinburgh World Heritage Site

Figure 5. Skyline of Edinburgh's World Heritage Site | City of Edinburgh Council

General Design Principles for Heritage Areas

World Heritage Sites

World Heritage Sites (WHS) are registered with UNESCO and protected for their **'Outstanding Universal Value' (OUV)** to humanity. The OUV of Edinburgh WHS includes the striking contrast and architectural quality of the medieval Old Town, with its distinctive street pattern, closes and wynds, which were overlaid with wider streets in the 19th century, and the New Towns, which started in 1767 and represent the largest and best preserved example of Georgian Town Planning in the UK.

The OUV of the Forth Bridge WHS relates to its innovative engineering and sheer presence. The buffer area around the southern area of the bridge has areas of urban and semi-rural character.

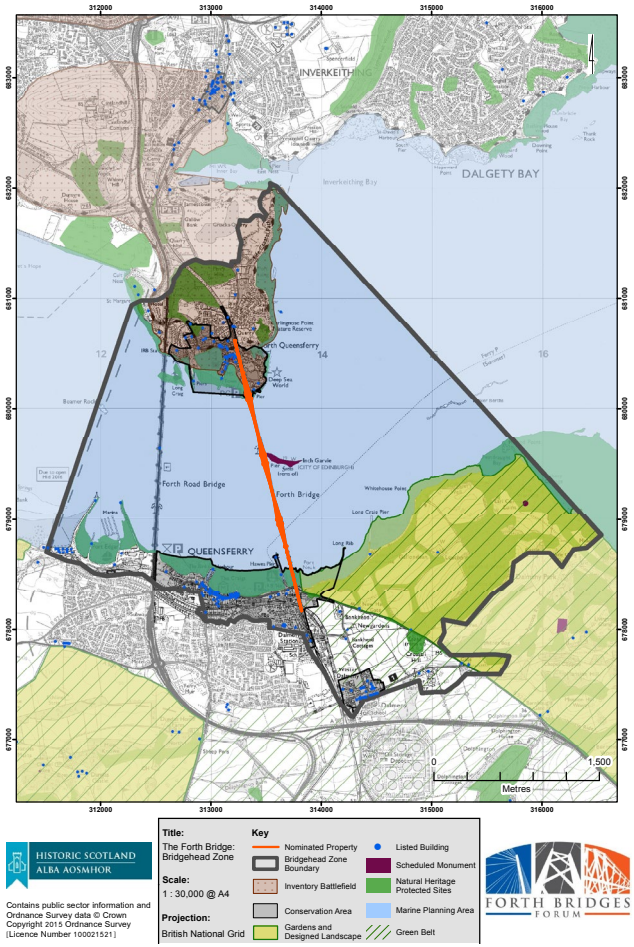

Figure 6. Forth Rail Bridge | Scott Marsland

Technical References:

Proposed City Plan 2030

Managing Change in the Historic Environment: World Heritage | HES

Managing Change in the Historic Environment: Setting | HES | History

Old and New Towns of Edinburgh Statement of Outstanding Universal Value (historicenvironment.scot)

Forth Bridge Statement of Outstanding Universal Value | HES | History (historicenvironment.scot)

CEC Planning, Edinburgh Skyline and views

Key Design considerations for the world heritage sites

- Any change proposed within a World Heritage Site should be assessed in terms how it might affect the qualities identified as of OUV, specific CEC policies, and key elements such as important structures or views and their relationships. For example, the enclosed gardens and main streets of the New Town have a sculptural quality that could be altered by new vertical elements such as street trees.
- As a first step a Heritage Appraisal should be carried out as different parts of the WHS have very different characters and any proposal that will create visual change or impact on historic elements will need to respond to local character and importance. At street level this might affect choice of materials, suitability of types of SuDS features, and decisions about street layout.
- Proposals should also avoid visual impacts on the distinctive Edinburgh skyline of pitched roofs and spires. This is of relevance for flat green/ blue roofs.
- WHS buffer zones while not part of the Word Heritage site are identified to protect the OUV's immediate setting including key views or other attributes. Therefore, proposals for sustainable drainage within WHS buffer zones should consider whether changes will create adverse visual impacts on or from the WHS. This will be a consideration for living roofs (as flat roofs) and any major changes to road layout, landscape setting or the removal or introduction of trees.

Figure 8. Edinburgh Castle & Princes Street Gardens | Hellinterface

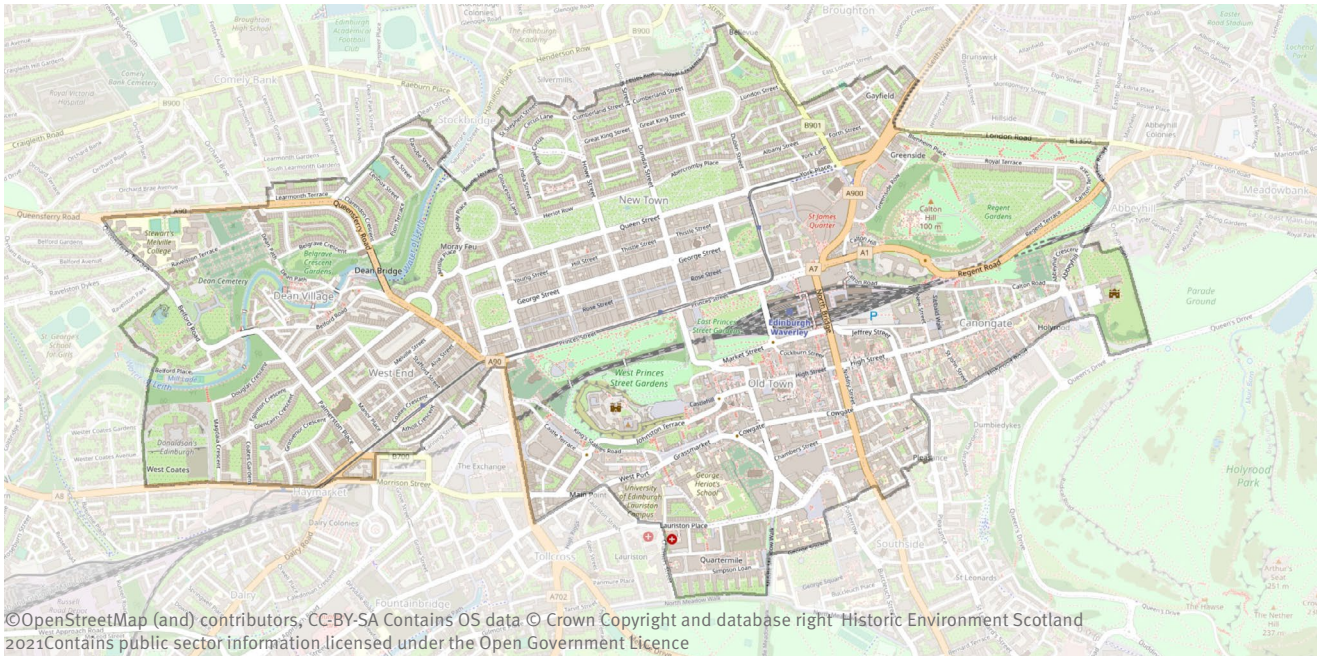

Figure 7. Edinburgh World Heritage Site | Historic Environment Scotland

Conservation Areas

Each of Edinburgh's 50 conservation areas has its own unique character and appearance, and this variation illustrates the history of Edinburgh.

Edinburgh's conservation areas range from the internationally famous New Town, the largest conservation area in Scotland, to small villages which have been absorbed as the city expanded.

An underlying principle behind the designation of conservation areas is to maintain the variety of character that illustrates the history of the city. The variety of the city's pre c.1800 development is illustrated in areas such as the Old Town, New Town, Old Leith, South Side, and West End. Examples of old village centres include Swanston, Cramond, Kirkliston, Gilmerton, Corstorphine and South Queensferry, and some of the best Victorian and Edwardian developments are represented by areas like Merchiston, Greenhill, West Murrayfield, Grange and Marchmont.

Even within the same types of area there is variation in character. The waterside settlements of Leith and Newhaven are very different, while in other areas, such as Portobello, different types of character are juxtaposed.

Key Design Considerations for conservation areas

- **Any change proposed should enhance the area and avoid negative impacts on the valued characteristics** identified in the Conservation Area Character Appraisals.
- **The design should seek to preserve and enhance elements of locally distinctive character** which may include materials, street layouts, vegetation, or activities on or around the site. For example, a new sustainable drainage system could match local materials or preserve and incorporate existing mature trees to maintain local character and maximise environmental benefits.

"Elements such as the street layout, open spaces and the public realm all contribute to an area's special character."

P2 Interim Guidance On The Designation Of Conservation Areas And Conservation Area Consent April 2019/ HES

Technical References:

Proposed City Plan 2030

CEC Planning, Edinburgh Skyline and views

Conservation Area Character Appraisals – The City of Edinburgh Council

Guidance on Conservation Areas | Historic Environment Scotland

Figure 9. South Queensferry Conservation Area | Shutterstock

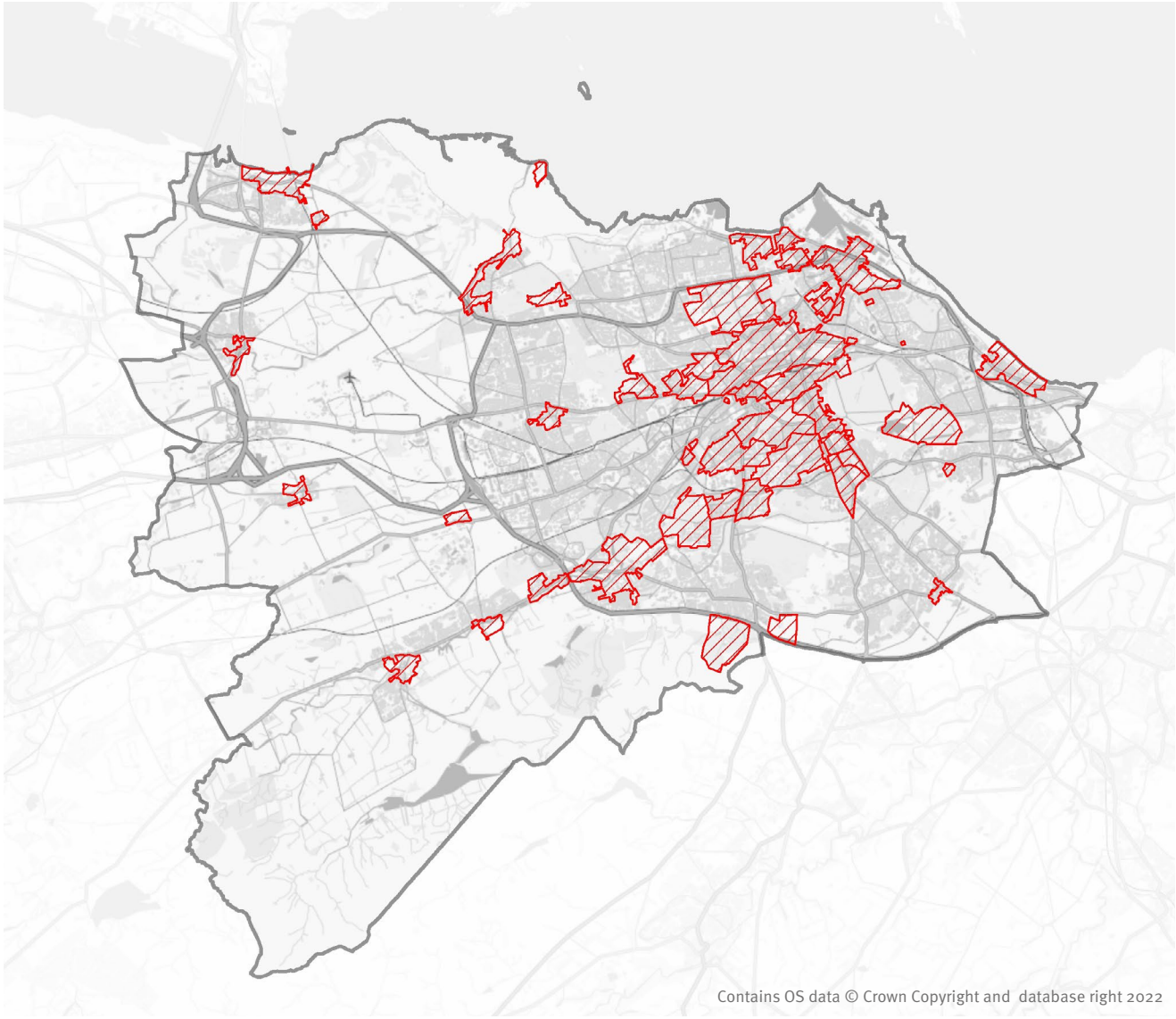

Figure 10. Conservation Areas | CEC Atlas

Figure 11. Portobello | Luka Owczarczyk

Figure 12. Cramond Village | Richard Webb

Designed Gardens and Landscapes

"Gardens and designed landscapes – grounds consciously laid out for artistic effect – are an important element of Scotland's historic environment and landscape."

What is the Inventory of Gardens and Designed Landscapes? | HES (historicenvironment.scot)

- Designed Gardens and Landscapes can include estate lands, parks, cemeteries, the shared Georgian gardens of the New Town and the setting of ancient monuments and significant buildings.
- Edinburgh has 21 sites identified as of national importance in the Register of Designed Gardens and Landscapes which lists details of location, valued characteristics and site extents. Site boundaries are based on historical records rather than current land ownership. These sites are protected under Edinburgh planning policy.
- CEC has surveyed and mapped additional designed landscapes of local importance some of which form the setting of listed buildings. Under Edinburgh planning policy any change creating adverse effects on landscapes of local importance should minimised and where possible mitigated.
- The local development plan includes Special Landscape Areas protected for their scenic quality and importance in the character and setting of Edinburgh.

Technical References:

Edinburgh landscape and scenery – The City of Edinburgh Council

Inventory Status and Development: Gardens and Landscapes | Historic Environment Scotland

The Inventory of Designed landscapes, Historic Environment Scotland

Managing Change in the Historic Environment: Gardens and Designed Landscapes, Historic Environment Scotland

Figure 13. Arthur's Seat in Holyrood Park | Flickr

Figure 14. Craigmillar Castle | Flickr

Key Design Considerations for Designed Gardens and Landscapes

- Look for opportunities to integrate sustainable drainage with landscape restoration to create positive benefits.
- Ensure that any sustainable drainage proposals within or close to sites listed in the Register of Designed Gardens and Landscapes create no detrimental impacts on the features or characteristics for which it is valued.
- For proposed changes to locally valued designed landscapes or land comprising the setting of listed buildings and monuments a Heritage Appraisal should be carried out at an early stage to identify important elements to be preserved, inform design decisions and avoid issues that will cause delays in the planning system.
- Any proposals for visible change within Special Landscape areas should be informed by the valued characteristics for each area as set out in the Statement of Importance for each site and should pay particular attention to views into and out of the site from the wider area.

Figure 15. Designed gardens and landscape | Historic Environment Scotland

Heritage Trees and Woodlands

"Trees and woodland make an enormous contribution to the unique urban landscape of Edinburgh and play a major role in the international importance of its setting."

P1 CEC, Guidance on Protected Trees, 2015

Trees are significant structural elements in our streets and landscapes contributing to local character. Some trees, woodlands or tree groups are specifically protected through the planning system.

- **Tree Preservation Orders (TPOs) -** Trees or tree groups that are Protected for their cultural or historical significance or important as part of the visual character of an area. It is an offence to fell, prune, uproot, deliberately damage or destroy a tree with a TPO without Council's permission.
- **Conservation Areas** – Trees and hedges within conservation areas are protected and cannot be removed or pruned without council permission.
- **The Setting of Listed Buildings and Ancient Monuments** – Trees are recognised as important structural and visual elements within the setting of Listed Buildings and Ancient Monuments.
- **Ancient Woodland** – In Scotland Ancient Woodland is defined as woodland areas that have survived from the 18 C or earlier and is recognised as a finite and highly valued cultural and biodiversity resource.

All mature trees are important environmental assets that contribute not only to the setting and beauty of the city but also play important roles in rainwater management, air quality and climate change resilience. Young trees as replacement planting for a mature tree will take 50 years or more to reach sufficient maturity to begin to provide equivalent benefits; therefore the removal of any mature tree should always be a last resort.

Figure 16. Leith Docks, Conservation Area | © City of Edinburgh Council

Technical References:

Edinburgh landscape and scenery – The City of Edinburgh Council

Managing Change in the Historic Environment: Setting | Historic Environments Scotland

Privately-owned trees – The City of Edinburgh Council

BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction

Guidance-on-protected-trees (edinburgh.gov.uk)

Information and Advisory Note 95 - The Inventory of Ancient and Long-Established Woodland Sites and the Inventory of Semi-Natural Woodlands (provisional) | NatureScot

Trees on Council Land -Forestry Services Forestryservice@edinburgh.gov.uk

Trees in Conservation Areas – apply through Scottish Government's e-Planning system

Existing trees section of Edinburgh Design Guide

Existing trees Edinburgh Sustainable Rainwater Management Guide, Trees and Woodland,

Edinburgh Sustainable Rainwater Management, W.1 SuDS Tree Factsheet

EDG F5 Street Tree Factsheet

Key Design Considerations for Heritage Trees and Woodlands

- **Carry out a tree survey at an early stage** to establish the size, type and significance of trees on site, this can inform design to minimise conflicts.
- **Where there are potential conflicts between proposals and heritage trees and woodlands contact City of Edinburgh Council Planning Services at an early stage** for discussion and advice. To discuss trees on council land contact City of Edinburgh Council Forestry Service. No works to protected trees should be carried out prior to consent.
- Wherever possible **incorporate existing mature trees or mitigation planting** into the overall layout and landscape design of the development as part of **nature based solutions.**
- [1]**Retrofitting permeable surfacing around existing trees** can incorporate them into localised source control while minimising future damage to paving or root intrusions into structures
- Ensure that any removal, tree works or mitigation planting a**voids impacts on the aesthetic value of the site, views from the wider area and visual relationships** between trees and listed buildings or monuments.
- Ensure that any agreed **mitigation planting is appropriately specified planted and maintained to a high standard** with a minimum establishment period of 5 years. In heritage areas consider the size and species of replacement planting to maintain local character.
- **Avoid damage to tree roots.** Where necessary protect sustainable drainage features with root barriers to avoid conflicts with existing trees.
- **During construction follow best practice** to protect existing trees on site as set out in BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction.

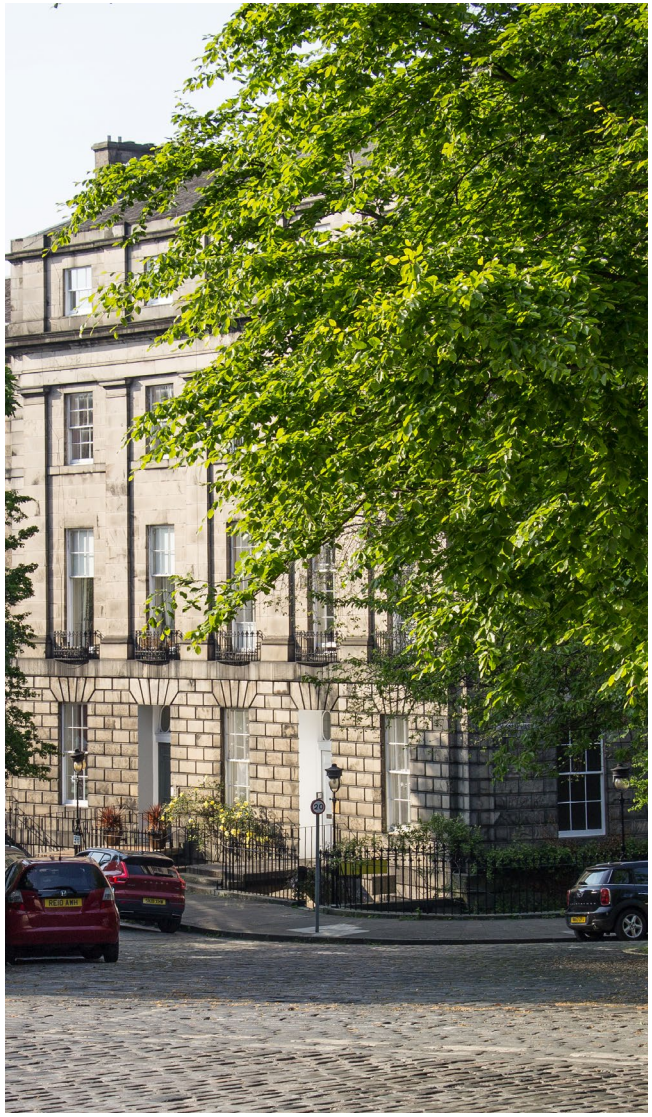

Figure 17. Royal Circus Gardens South | Billy Wilson

1 'Nature Based Solutions' are defined by the UN as using the natural properties of soil, water, trees and green spaces to deliver services that are cost effective while also providing social, environmental and economic benefits, and improving climate resilience.

Archaeological Heritage

Defining Archaeological Sensitivity To establish archaeological sensitivity, **carry out a Historic Appraisal at the project outset and contact the City Archaeologist.** This can avoid costly delays during planning and construction.	**Contact City Archaeologist**	**Large Sustainable Drainage Features** *Trees, Basins, Ponds and new wetlands,*	**Shallow Sustainable Drainage Features** *Rain Gardens, Swales, infiltration strips, permeable paving or asphalt*	**Surface Sustainable Drainage Features** *Green /Blue Roofs, Rainwater Planters, surface level permeable ground cover (such as gravel)*
High Known Risk – areas of historic settlement including conservation areas, WHS, along with any designated historic areas, listed buildings or ancient monuments and their settings.	Yes	Unsuitable unless agreed with city archaeologist on a site-specific basis as the excavation depths may damage archaeology	Limited suitability as shallow features on a site-specific basis (for example within an existing road if excavation depth does not exceed the existing modern road construction depth).	These features would pose no risk to archaeology as no excavation would be required.
Unknown Risk – where no information is currently available, but ground has been relatively undisturbed below surface therefore archaeology may be present. For example, this can include roads in historic areas or open farmland.	Yes	Early consultation with the city archaeologist is advised to determine risk levels and therefore suitability of these larger SuDS features.	As shallow features these SuDS elements pose lower risks but should still be informed by the advice from the city archaeologist unless limited to areas described above.	
Low Risk – large areas of made ground excavated and infilled in recent history such as landfill areas and areas where very large-scale excavations for construction have taken place since 1995.	No	Archaeology would be unlikely to have survived full excavation therefore from an archaeological perspective all sustainable drainage types would be suitable. Other Edinburgh Council, HES, SEPA and Scottish Water design guidelines and policies would still apply.		

Considering SuDS Typologies

Figure 18. Trees at Grassmarket, Edinburgh | Gillespies

Figure 19. Eastcote Town Centre Rain Gardens | Landscape Institute

Figure 20. Permeable Paving, Derbyshire Street Tower Hamlets | Mayor of London Assembly

On street SuDS Trees, Trees in large Rain Gardens or Urban Swales

Visibility – High, may be visible over a distance, may block vistas, screen unsightly elements, or create a focus of interest.

Potential below ground disturbance (including any new drainage infrastructure) Medium/ High depending on scale and location.

On street Rain Gardens and Urban Swales (without trees)

Visibility – Medium/ Low (dependant on scale), creates a visible urban element over a short distance. Can be a formal element with potential for amenity planting.

Potential below ground disturbance (including any new drainage infrastructure) Medium/ Low (depending on scale) – surface elements with shallow construction.

Filter Drains and Permeable Surfaces

Visibility - Low to None, dependant on selection of materials (wide choice available).

Potential below ground disturbance – Low, Medium - typically depth will be similar to conventional road/ footway construction causing minimum disturbance. A pourus sub-base used as an attenuating layer may require greater depth of construction.

Figure 21. Green Roof, City of Edinburgh Council offices' East Market Street Edinburgh | Flikr

Living Roofs

Visibility High/Low dependant on type, construction, and location. Avoid visual impacts of flat roofs on historic parts of the Edinburgh Skyline.

Potential below ground disturbance - none.

Figure 22. SuDS in a Ruchill Park, Glasgow | Nature.Scot

SuDS in Greenspace

Visibility high /none (dependant on type of SuDS feature). High potential for integrating amenity enhancements.

Potential below ground disturbance - medium/ none – could vary from overland flow (none) to tree planting and pond creation (high)

Figure 23. Storm Water Runnel, Malmo | SVR Design

Disconnected down pipes and rainwater planters

Visibility – Medium -Low dependant on context, planters will be visible over a relatively short distance. Potential for amenity planting.

Potential below ground disturbance - none

Heritage in Design and Planning of Sustainable Drainage

Considering Heritage in Design and Planning of Sustainable Drainage in Edinburgh's historic environment.

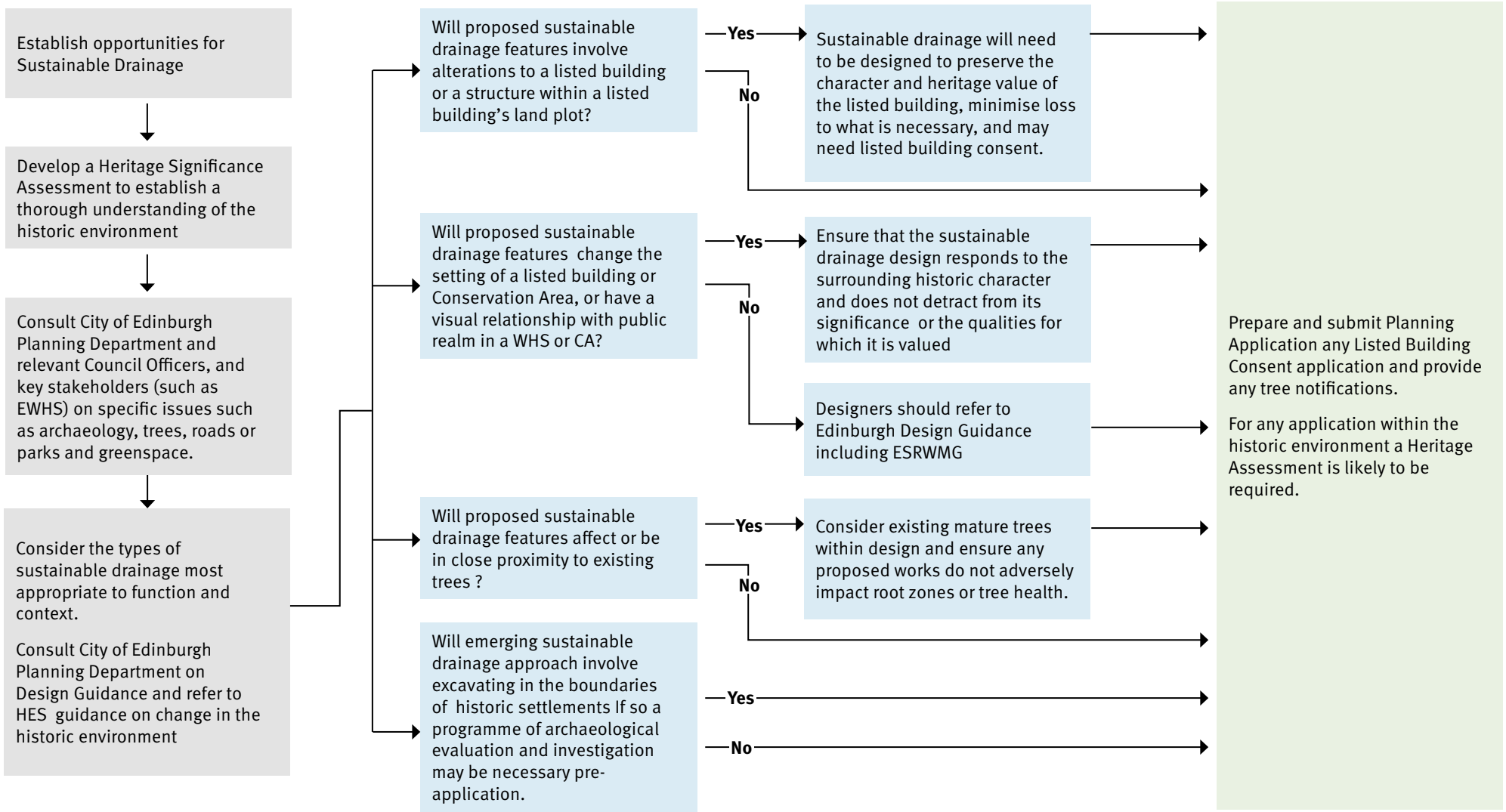

Image References

Figure 1. World Heritage New Town, Edinburgh | Shutterstock
Lischetzki, C. (2020), *Edinburgh city the historic town sunny day aerial shot.* [Photograph/image] Available at: https://www.shutterstock.com/image-photo/edinburgh-city-historic-town-sunny-day-514379308 (Accessed June 2021)

Figure 2. Dean Village | Gary Campbell-Hall
Campbell-Hall, G. (2017) D*ean Village, Edinburgh.* [Photograph/image] This work is licensed under a CC BY 2.0 ‹https://creativecommons.org/licenses/by/2.0›, via Wikimedia Commons

Figure 3. Royal Mile | Daniel0685, Flickr
Daniel (2017). *Royal Mile, Edinburgh.* [Photograph/image] This work is licensed under a CC BY 2.0 ‹https://creativecommons.org/licenses/by/2.0›, via Wikimedia Commons Available at: https://www.flickr.com/photos/57511216@N04/8987820575 (Accessed: December 2022)

Figure 4. Union Canal | Lucy Duerden
Duerden, L. (2020) *Edinburgh Union Canal.* [Photograph/image] Taken 2020

Figure 5. Skyline of Edinburgh's World Heritage Site | City of Edinburgh Council
City of Edinburgh Council (2016). Skyline of Edinburgh's World Heritage Site. [Photograph/image]

Figure 6. Forth Rail Bridge | Scott Marsland
Marshland, S. (2013). *Forth Rail Bridge.* [Photograph/image] This work is licensed under a CC BY 3.0. Available at: https://upload.wikimedia.org/wikipedia/commons/3/37/Forth_Rail_Bridge_-_panoramio_%284%29.jpg (Accessed: December 2021)

Figure 7. Edinburgh World Heritage Site | Historic Environment Scotland
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Figure 8. Edinburgh Castle & Princes Street Gardens | Hellinterface

Figure 9. South Queensferry Conservation Area | Shutterstock
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Figure 10. Conservation Areas | CEC Atlas
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Figure 11. Portobello | Luka Owczarczyk
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Figure 12. Cramond Village | Richard Webb
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Figure 13. Arthur's Seat in Holyrood Park | Flickr
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Figure 14. Craigmillar Castle | Flickr
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Figure 16. Leith Docks, Conservation Area | © City of Edinburgh Council
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Figure 17. Royal Circus Gardens South | Billy Wilson
Wilson, B. 2019. Royal Circus, New Town, Edinburgh. [Photograph/image] Licensed under a CC BY 2.0. Available at: https://www.flickr.com/photos/billy_wilson/50031221593/in/photostream/ (Accessed: January 2022)

Figure 18. Trees at Grassmarket, Edinburgh | Gillespies
Gillespies, 2011. Trees at Grassmarket, Edinburgh. [Photograph/image] Available at: https://www.gillespies.co.uk/projects/edinburghs-grassmarket (Accessed: January 2022)

Figure 19. Eastcote Town Centre Rain Gardens | Landscape Institute
Project Centre Limited (PCL), 2020. Eastcote Town Centre Rain Gardens. [Photograph/image] Available at: https://my.landscapeinstitute.org/case-study/eastcote-town-centre-rain-gardens/366d97e1-502e-eb11-bf6f-00224801c8ab (Accessed: January 2022)

Figure 20. Permeable Paving, Derbyshire Street Tower Hamlets | Mayor of London Assembly
Mayor of London Assembly, Derbyshire Street Rain Gardens, Tower Hamlets. [Photograph/image] Available at: https://www.london.gov.uk/what-we-do/environment/climate-change/surface-water/london-sustainable-drainage-action-plan (Accessed: January 2022)

Figure 21. Green Roof, Market Street Edinburgh | Flikr
Jonathan, 2015. Waverley Court. [Photograph/image] Available at: https://www.flickr.com/photos/iceninejon/32565435363/in/photostream/ (Accessed: January 2022)

Figure 22. SuDS in a Ruchill Park, Glasgow | Nature.Scot
[Photograph/image] Available at: https://www.nature.scot/professional-advice/placemaking-and-green-infrastructure/green-infrastructure/sustainable-drainage-systems-suds (Accessed: January 2022)

Figure 23. Storm Water Runnel, Malmo | SVR Design
Cormier, N. 2010. *Stormwater Runnels in Malmo.* Available at: http://www.svrdesign.com/blog/2010/10/street-of-the-week-no-4-stormwater-runnels-in-malmo (Accessed: January 2022)