

Habitat Management and Monitoring Plan

| | |
|------------|--|
| Site Name: | Tower of London. New moat access ramp and associated landscape |
| Date: | 01/07/2025 |
| Version: | 4.0_issue for Design Team and HRP Review |

Author: Dr Mike Wells

Biodiversity by Design



Client: Rose Blezard

Historic Royal Palace



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Version Control

The version control is used for updates to the content. Record the initial version and further version control details in this table each time the management plan is altered throughout the management and monitoring period.

| Version | Issue Status | Prepared by / Date | Approved by / Date |
|-----------|--------------------------------|-------------------------------|--------------------|
| 1.0_issue | For Design Team and HRP Review | Dr Mike Wells 07 May 2025 | |
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| 4.0_issue | For Design Team and HRP Review | Dr Mike Wells 01 July 2025 | |

Document Details

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| Authorship Details |
|---|
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1. Project Background

| Site Overview PB-B01 | |
|---|--|
| Project type | On-site |
| Development Name and Address | New ramp access and associated landscape. Tower of London, London EC3N 4AB |
| BNG Project Name and Address | As above |
| Author Organisation | Dr Michael Wells RDI FCIEEM Biodiversity by Design Ltd |
| Landowner | The Crown |
| Land Manager | Historic Royal Palaces |
| Responsible person/organisation for creating or enhancing the habitat | Historic Royal Palaces |
| Period covered by this management plan | 2026 to 2056 |
| Planning authority | London Borough of Tower Hamlets |
| Planning reference (if applicable) | To be advised |
| BNG register reference (if applicable) | N/A |
| Central OS grid reference | TQ 33585 80570 |
| Metric revision/title | Statutory Biodiversity Metric (July 23, 2024) |
| Are any Irreplaceable Habitats present onsite | Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> |

Summary of Management Plan

| Habitats to be Retained, Created and Enhanced PB-B02 |
|---|
| Retained: Other Neutral Grassland in Poor Condition Created: Other Neutral Grassland in Good and Moderate Condition and species-rich Flower bed |
| Timescales for Actions PB-B03 |
| 2026 to 2056 |
| Monitoring Requirements PB-B04 |
| Monitoring the Biodiversity Net Gain condition of target grassland habitats annually over years 1 to 6 and then every 2 years to year 10, thereafter every 3 years for the term of the plan. Use and status of artificial refuges for fauna (annual). Status onsite of Jersey Cudweed <i>Gnaphalium luteoalbum</i> (Schedule 8) - annual Status onsite of Knotted Hedge-parsley <i>Torilis nodosa</i> /other London notable annual plant species – every 2 years |
| Required Consents and Licences PB-B05 |
| <ul style="list-style-type: none">Planning Consent from the London Borough of Tower HamletsScheduled Monument ConsentUNESCO section 172 submission |
| Funding PB-B06 |
| Direct funding from the trustees – Historic Royal Palaces – revenue based on ticket sales at the Tower of London World Heritage Site. |
| Legal Agreement PB-B07 |
| Not known at this stage. |



Figure above: Site red line boundary in the context of the wider Tower of London Site.

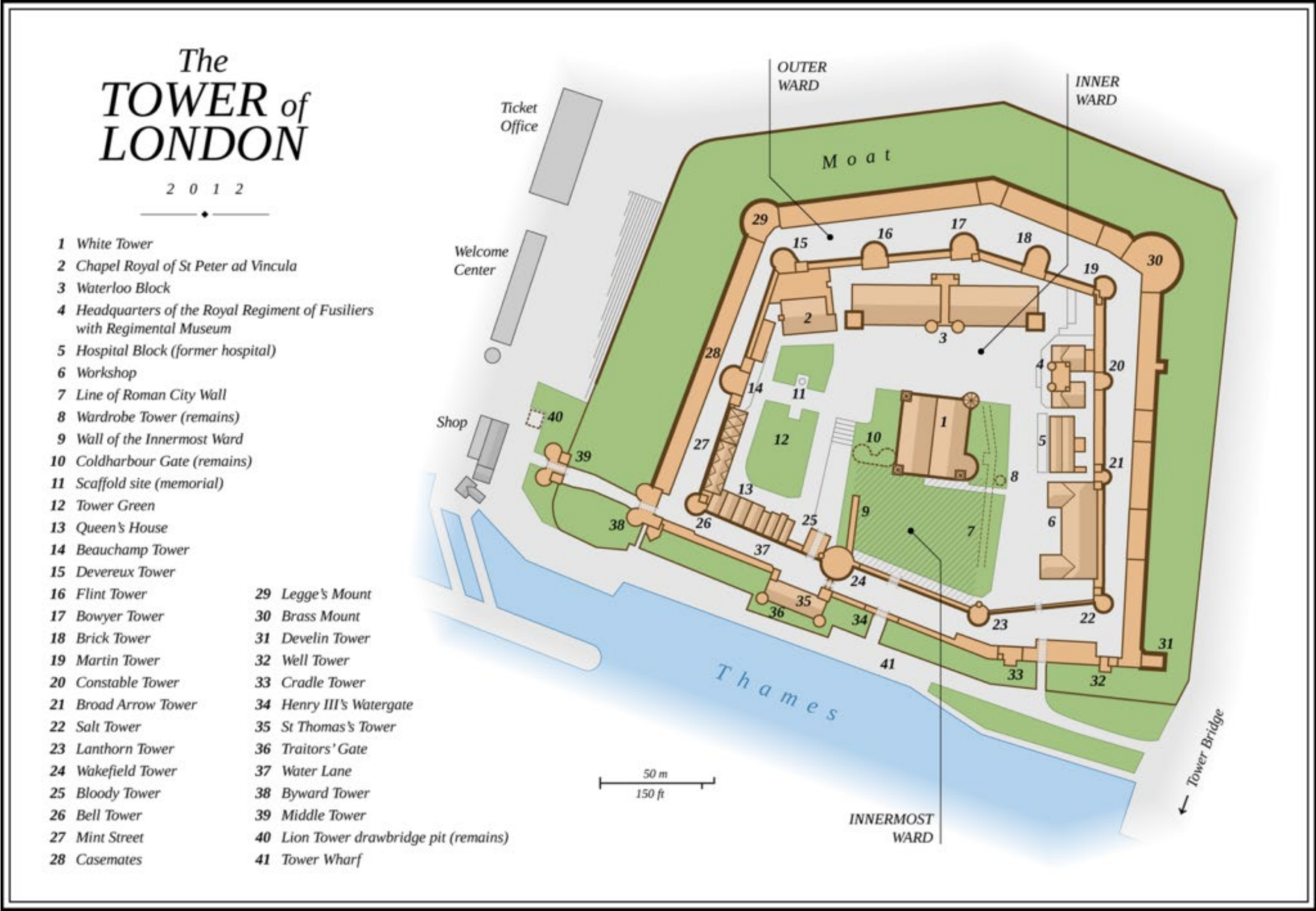


Figure above: Tower of London site: nomenclature of key buildings and features.

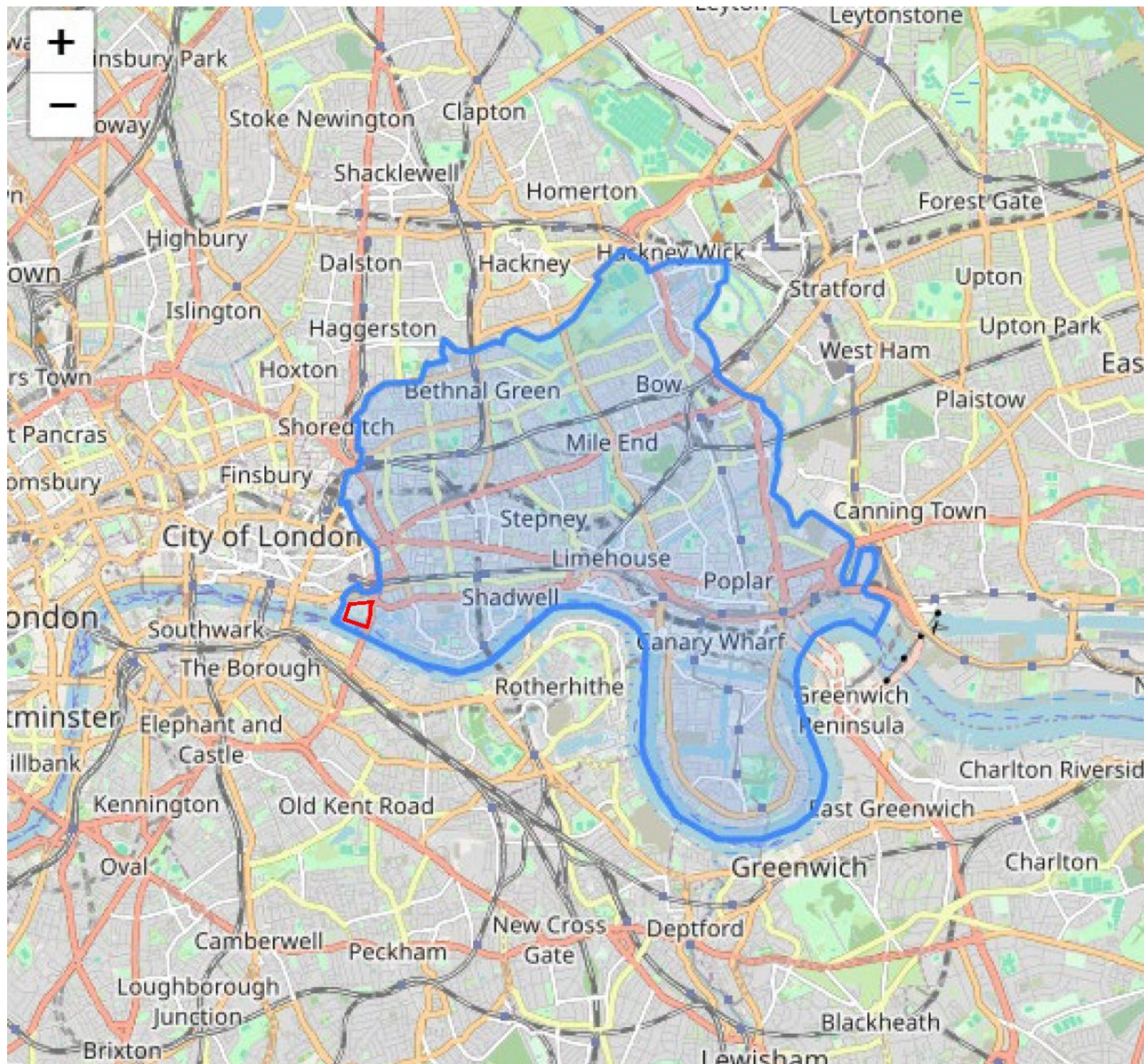


Figure above: The Tower of London site as managed by HRP in the London Borough of Tower Hamlets (blue boundary): source MapIT, UK.

The Tower of London site is in the far southwestern corner of the London Borough of Tower Hamlets with the City of London just to the west.

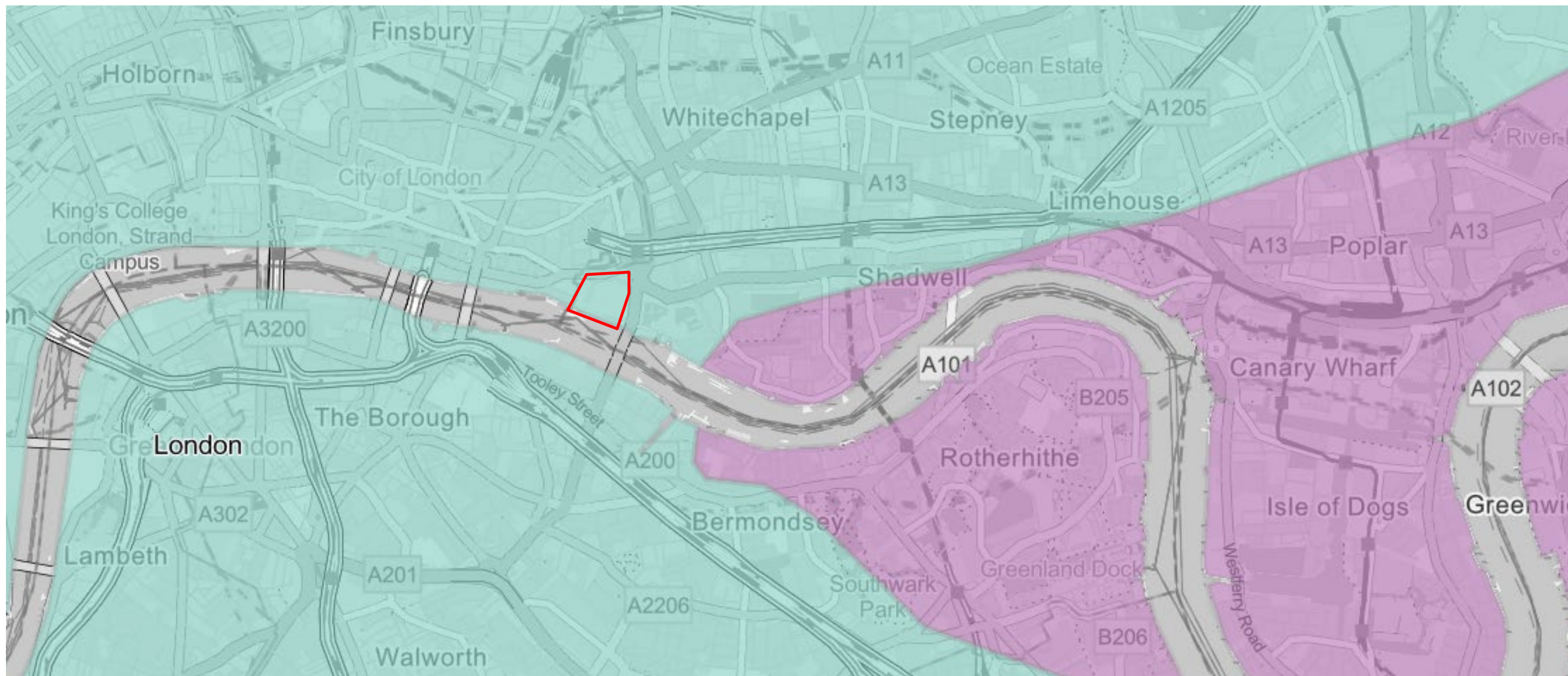


Figure above: The Tower of London site (red line) in the context of National Character Areas from <https://nationalcharacterareas.co.uk/>. Area 112 Inner London in turquoise. Area 81 – The Greater Thames Estuary in purple. Wider Tower of London Site under HRP stewardship outlined approximately in red.

The Tower of London Site lies within *National Character Area: 112 Inner London*. Owing to its urban nature, Inner London relies heavily on ecosystem services provided by the surrounding NCAs, such as flood alleviation, air temperature regulation and recreational services. *National Character Area 81 – The Greater Thames Estuary* Lies within 500 m to the east. Key characteristics of this Character Area relevant to the Tower of London site include:

- Traditional unimproved wet pasture grazed with sheep and cattle combined with extensive drained and ploughed arable land protected from floods by sea walls, with some areas of more mixed agriculture on higher ground.
- Open mosaic habitats on brownfield sites support nationally important invertebrate assemblages and key populations of rare invertebrate species.



Figure above: Publicly Accessible Open Space (mid green shading) according to the London Borough of Tower Hamlets Local Plan 2031 Adopted Policies Map, adopted 2020.



Figure above: Location of the All-London Green Grid (dark green lines) and Green Grid Buffer zone (green stippling) according to the London Borough of Tower Hamlets Local Plan 2031 Adopted Policies Map, adopted 2020.

Opportunities and Constraints for Nature Recovery in London

Map created by Greenspace Information for Greater London CIC (GiGL) using data submitted by a range of London stakeholders

GREATER
LONDON
AUTHORITY



GiGL

Greenspace Information for Greater London CIC
the capital's environmental records centre

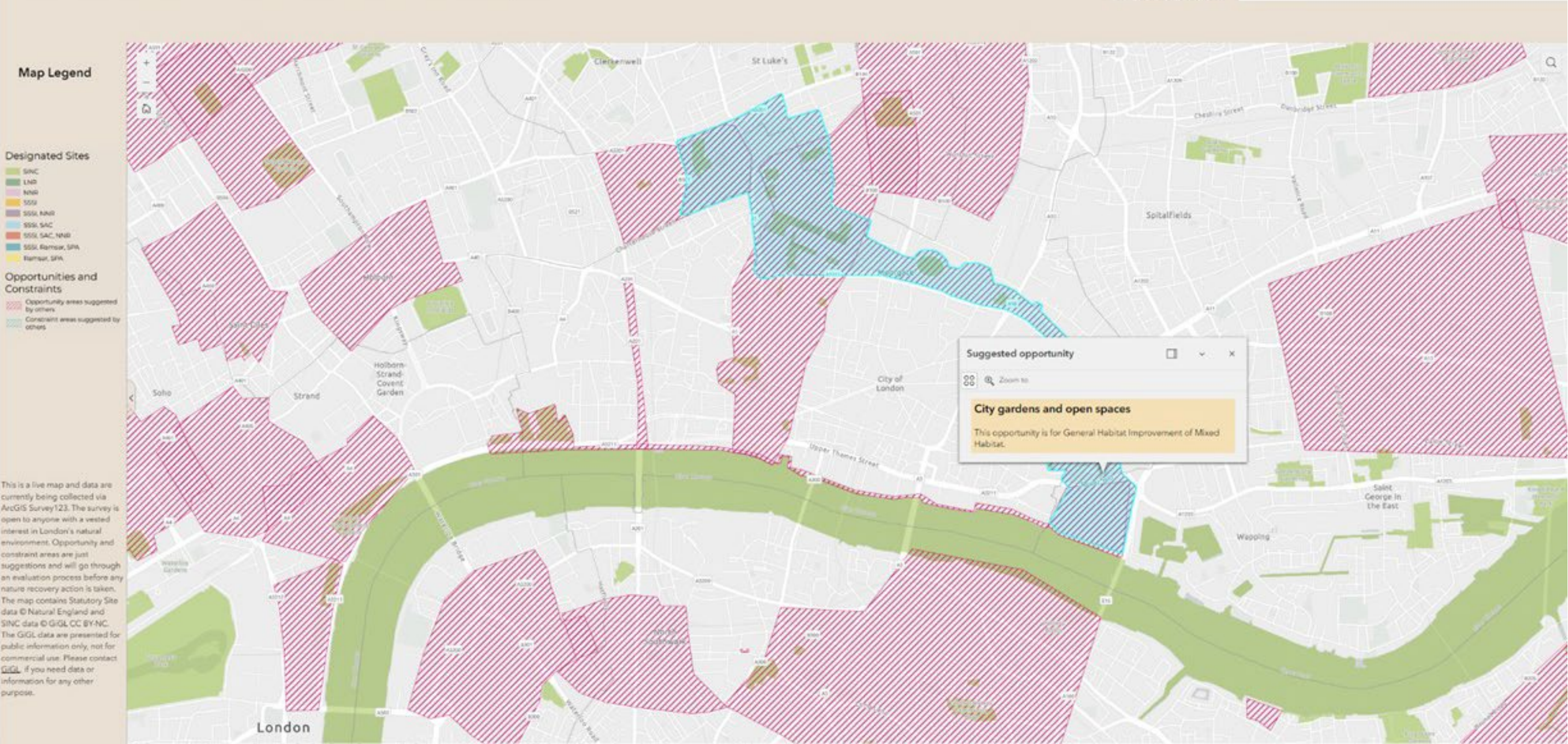


Figure above: Nature Improvement Areas (NIA) covering the Tower of London Site (red line) and environs – consultation draft. The opportunity already identified is for *General Habitat Improvement of Mixed Habitat*. (N.B. NIAs are in the process of being superseded by Local Nature Recovery Strategies (LNRSS) for providing a landscape-scale framework for restoring and connecting nature).

Phasing strategy

Will the proposed work measures be delivered in phases? PB-B08

Yes: ☐ No: ☒

The management plan here covers the entire Site/project.

Roles and Responsibilities

Ecologist or Other Professional Responsible for HMMP PB-B09

| | | | | |
|------------------|-----------------|--|---------------|-----|
| Name or Initials | | Dr Mike Wells (Ecologist) James Clarke (Landscape Architect) | | |
| Organisation | | Biodiversity by Design (Ecologists) Grant Associates (Landscape Architects) | | |
| Responsibility | Start Date: TBA | | End Date: TBA | TBA |

Dr Mike Wells is to be responsible for lead authorship of the plan to ensure proper implementation of the habitats and is to lead on all ecological aspects. Input on management of horticultural species is to be provided by Grant Associates Landscape Architects (key contact for this project James Clarke, Associate).

Statement of Competency

Dr Mike Wells RDI FCIEEM FRSA MCIWEM CBiol CEnv CSci CBiol CWEM – Scheme Ecological Designer. An ecologist with nearly 45 years of experience in ecological science and over 35 years of consultancy experience in the UK; lead author of many land management plans for similar sites including the Athletes’ Village (East Village, Stratford) for the 2012 London Olympics. Founding Director of Biodiversity by Design.

James Clarke (BA Hons Dip LArch) – a highly experienced landscape architect and Senior Associate of Grant Associates – a world-leading Landscape Practice based in Bath. Delivered the Superbloom installation at the Tower and has produced numerous landscape management plans for urban schemes.

Landowner or Land Manager PB-B10

| | | | | |
|------------------|-----------------|----------------------------|---------------|--|
| Name or Initials | | Alex Wigley | | |
| Organisation | | Historic Royal Palaces | | |
| Responsibility | Start Date: TBA | Following planning consent | End Date: TBA | |

Alex Wigley, as Head of Gardens and Estates for Historic Royal Palaces, is to be responsible for practical review and delivery of the plan, advised as required by the project landscape architect (Grant Associates) and the project design ecologist (Biodiversity by Design)

Statement of Competency

Alex Wigley MCIHort has a Wisley Diploma in Practical Horticulture 1999- 2001a and is a Wisley specialist Certificate in arboriculture with Estate Management 2001-2002. He was Head Gardener at Ockham Park 2002-2017 and Garden and Outdoor Manager for the National Trust’s Polesden Lacey estate, 2017-2022. He has been Head of Gardens and Parks for Historic Royal Palaces since 2022. He has significant experience in wildflower meadow creation and management including the use of traditional machinery and heavy horses.

Management Organisation(s) Responsible for Implementing the HMMP PB-B11

| | | | | |
|------------------|-----------------|--|-----------|-----|
| Name or Initials | | As above. | | |
| Organisation | | Historic Royal Palaces – subcontracting as required. | | |
| Responsibility | Start Date: TBA | | End Date: | TBA |

Statement of Competency

To be advised.

LPA or Responsible Body for Reviewing HMMP PB-B12

| | |
|------------------|----------------|
| Name or Initials | Not yet known. |
|------------------|----------------|

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BIODIVERSITY NET GAIN - HABITAT MANAGEMENT AND MONITORING PLAN

Contents

Project Background

Planned Management Activities

Monitoring Schedule

| | | | | |
|-----------------|-----------------|---------------------------------|---------------|--|
| Organisation | | London Borough of Tower Hamlets | | |
| Responsibility | Start Date: TBA | Once received | End Date: TBA | |
| Not yet agreed. | | | | |

Land Use Summary

Overview of Baseline Site Use PB-B13

The current land use of the Site is amenity lawn – some forming part of the moat and some a lawn on the Wharf of the Tower of London World Heritage Site.

The Site is used mainly for access to the rest of the moat (for visitors to the Echo Phase of the Superbloom installation) by resident staff including to walk their dogs and to obtain access to the rooms built into the Tower Bridge Approach.

The current management regime is one of regular mowing to maintain uniform lawns.

The site is part of the wider moat – the prescriptions for which include keeping an open treeless and shrub-less landscape, to protect any buried heritage, and maintain an open aspect to reinforce the defensive characteristics of the moat.

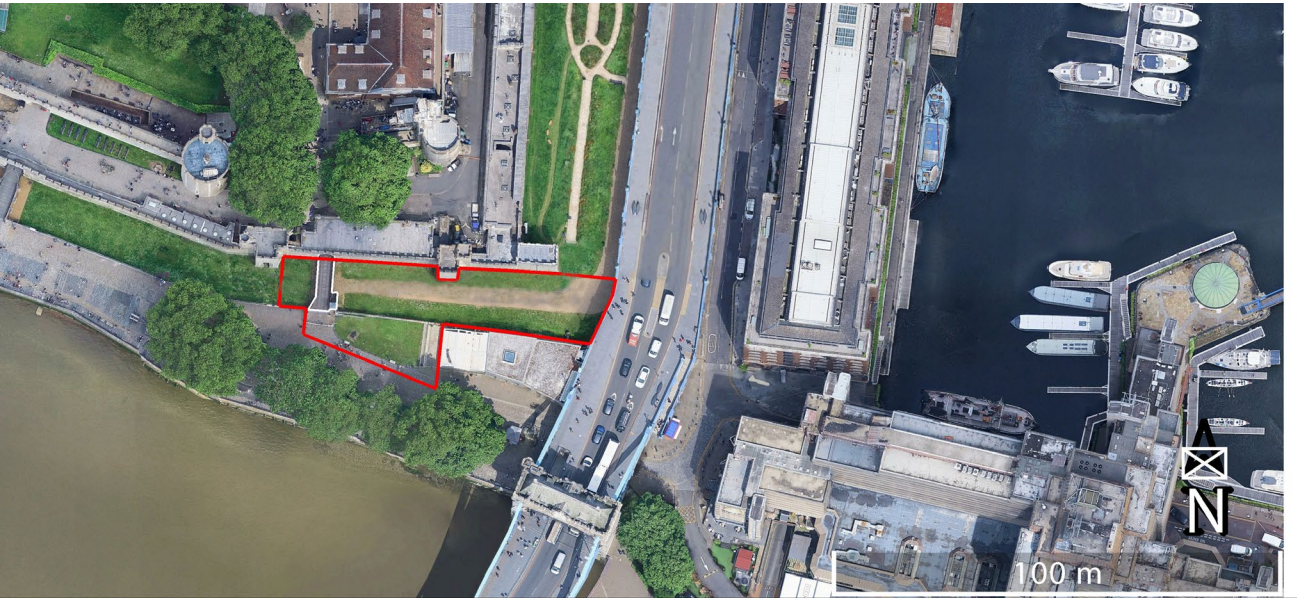
Overview of Proposed Site Use PB-B14

A new moat access is to be provided in the form of a long ramp from the Wharf into the eastern corner of the south moat. This access is to be used by the visiting public, staff and residents. The other key public entrance to the moat is a long ramp into the west moat.

The surrounding land use is to be a mixture of biodiverse habitats – taken from the palette being developed for the long-term Legacy Landscape project – the aim being to create a highly floristic, species-rich, and largely native landscape setting for the ramp with both biodiversity and educational value.

Site Context Photos PB-F03

The images below show the current nature of the grasslands on The Wharf and the moat within the Site as of February 2025.



| Baseline and Environmental Information | Prompts for when these may be relevant. This is not an exhaustive list. Use your professional judgement to determine which are required for your HMMP | Check box if included | Document Reference or Reason if not included |
|---|--|-------------------------------------|--|
| Statutory / Non-statutory Designated Sites | Will your proposals lead to direct or indirect effects on designated sites? | <input checked="" type="checkbox"/> | See Ecological Appraisal BbD (2025a). |
| Protected and Notable Species | Does the presence or proximity of specific species on or near your site present any constraints or opportunities to project design or management? | <input checked="" type="checkbox"/> | |
| Invasive Non-Native Species (INNS) | Are any INNS present onsite that could affect the proposals? | <input type="checkbox"/> | None present. |
| Biological Records Plan - Sites and Species | Does the presence of designated sites or specific species on or near the site present any constraints or opportunities to proposals? | <input checked="" type="checkbox"/> | |
| Baseline Habitats Survey | Is this current and important HMMP information located in a separate document? If so, provide details on where it is located. | <input checked="" type="checkbox"/> | |
| Public Access | Has public access, or proposals to allow public access, influenced your management prescriptions? If so, how? | <input checked="" type="checkbox"/> | |
| Climate | Are local climate conditions and, or, climate change likely to impact the target habitat retention, creation or enhancement? | <input checked="" type="checkbox"/> | |
| Geology and Topography | Any geological or topographical constraints or opportunities? | <input checked="" type="checkbox"/> | |
| Agricultural Land Status | Does the site support any land favourable for agricultural management? Could this affect the proposals? | <input type="checkbox"/> | Not relevant – urban site. |
| Soils and Substrates | Do soils and substrates present any constraints or opportunities? | <input checked="" type="checkbox"/> | |
| Contaminated Land | If there is any contaminated land, will this present any constraints? | <input type="checkbox"/> | Not a contaminated site |
| Hydrology and Drainage | Will the site hydrology present any constraints or opportunities? | <input checked="" type="checkbox"/> | |
| Flood Risk Zones | Is the site within a flood risk zone? Will that present any site management risks? | <input checked="" type="checkbox"/> | |
| Landscape Character and Designations | Does the landscape character of the site present any constraints or opportunities? | <input checked="" type="checkbox"/> | |
| Historic Land Use | Does the historic land use present any constraints or opportunities? | <input checked="" type="checkbox"/> | |
| Historic Environment and Earth Heritage | Are there any historic environment designations? What are the implications for your plan? | <input checked="" type="checkbox"/> | |
| Other – please specify | Any other details - for example underground services or overhead powerlines, which may impact habitat management. | <input checked="" type="checkbox"/> | |

Baseline and Environmental Information

Baseline Habitats Survey

| Ecologist responsible for baseline surveys (BI-T03) | |
|--|-------------------------------|
| Name or Initials | Dr Michael Wells FCIEEM |
| Organisation | Biodiversity by Design Ltd |
| Survey Date | 2 nd February 2025 |
| Statement of Competency | |
| <p>Dr Michael Wells RDI FCIEEM FRSA is a highly experienced consultant ecologist with nearly 45 years of experience in ecological science and nearly 35 years in ecological consultancy practice in the UK and overseas. Mike was one of the original co-authors of the first Ecological Impact Assessment Guidance for the UK on behalf of what is now the Chartered Institute of Ecology and Environmental Management. Mike has organised and run many multi-taxon ecological survey teams in the UK for projects of all scales.</p> <p>The habitat surveys were undertaken in conjunction with Sharon Pilkington MCIEEM – former BSBI botanical recorder for Wiltshire and now national UK recorder for bryophytes and Helen Saunders MCIEEM, a highly experienced ecological consultant.</p> | |
| Survey conditions and limitations | |
| <p>Habitat/botanical survey was undertaken in the winter months (2nd February 2025). Given the nature of the habitats (mown lawns) and the experience and botanical knowledge of the surveyors, this was not considered to have compromised the habitat/botanical assessment, or conclusions as to habitat condition. In the London metropolis, the warmer winters of recent years, further enhanced by the urban heat island effect encourage the survival of annuals and biennials, so that they can still be present and often possible to identify in winter. However, as a verification, further survey was undertaken of habitats on 11 June 2025 when annuals are typically flowering.</p> | |

Habitat Degradation

| Are there any signs or evidence that the baseline habitats have been purposefully degraded since 30 th January 2020? (BI-B05) |
|--|
| <p>There has been no purposeful degradation of the baseline habitats to reduce pre-development biodiversity value.</p> |
| If habitats have been purposefully degraded, provide details of how this has been accounted for (BI-B06) |
| |

Baseline Habitat Descriptions and Condition

Habitats (BI-T04)

| Parcel Refs | Habitat Type and Code | Irreplaceable | Priority | Description and Condition Justification | Condition | Area (ha) |
|--------------|-----------------------|---------------|----------|--|-----------|-----------|
| Mod Grass_M1 | Modified grassland g4 | No | No | Habitat description: tightly mown lawn in good condition Criterion A - Pass Criterion B - Fail Criterion C - Pass Criterion D - Pass Criterion E - Pass Criterion F - Pass Criterion G - Pass Total = 6 Passed | Good | 0.0088 |
| Mod Grass_M2 | Modified grassland g4 | No | No | Habitat description: mown lawn with some local sward damage creating bare ground > 5% of parcel size Criterion A - Pass Criterion B - Fail Criterion C - Pass Criterion D - Fail Criterion E - Fail Criterion F - Pass Criterion G - Pass Total = 4 passed | Moderate | 0.0104 |
| Mod Grass_W1 | Modified grassland g4 | No | No | Habitat description: tightly mown lawn with some local sward damage creating bare ground > 5% of parcel size Criterion A - Pass Criterion B - Fail Criterion C - Pass Criterion D - Fail Criterion E - Fail Criterion F - Pass Criterion G - Pass Total = 4 passed | Moderate | 0.0161 |
| | | | | | Poor | 0.0418 |

| | | | | | | |
|----------------------|-------------------------------|----|----|---|--|--|
| ONG_M1 and ONG_M2 | Other neutral grassland – g3c | No | No | <p>Habitat description: Mown lawn but qualifies as ONG as:</p> <ul style="list-style-type: none">• > 20 % cover broadleaved herbs and sedges• > 8 species per m² (including forbs, grasses, sedges and rushes and excluding bryophytes (average = 9.75 for ONG_M1 and 10.2 for ONG_M2)• > or = 1 grass species not generally sown for agricultural production is at least abundant• Cover of Rye grasses <i>Lolium</i> sp. and White Clover <i>Trifolium repens</i>, where present, is < 30% <p>And includes several perennial forbs characteristic of the habitat such as <i>Achillea millefolium</i>, <i>Plantago lanceolata</i> and <i>Poterium sanguisorba</i>.</p> <p>Criterion A – Fail.</p> <p>Criterion B - Fail</p> <p>Criterion C - Fail</p> <p>Criterion D - Pass</p> <p>Criterion E - Fail</p> <p>Criterion F - Fail</p> <p>Total = 1 passed</p> | | |
|----------------------|-------------------------------|----|----|---|--|--|





Baseline Habitats Photos (BI-F04)

Image below: The Modified Grassland on the Wharf



Image below: View of the Sentry tower and East Drawbridge from the east.



Image below: Modified and Other Neutral Grassland (mown) in the moat.



Image below: Artificial light levels of the Site at night.



Land Tenure and Public Access

Relevant Land Tenure Information (EI-B01)

The land is owned by the Crown Estate. This will not change over the tenure of the plan.

Potential Impact to Scheme (EI-B02)

The Site ownership should not impact on the management proposals.

Public Access Information (EI-B03)

The Site is to be accessible to the public during normal opening hours of the monument and at other select times by the permission of Historic Royal Palaces. There is to be guidance to the public to stay on footpaths.

Potential Impact to Scheme (EI-B04)

Habitat management is to be designed to counteract the impacts of public access (footfall) where appropriate.

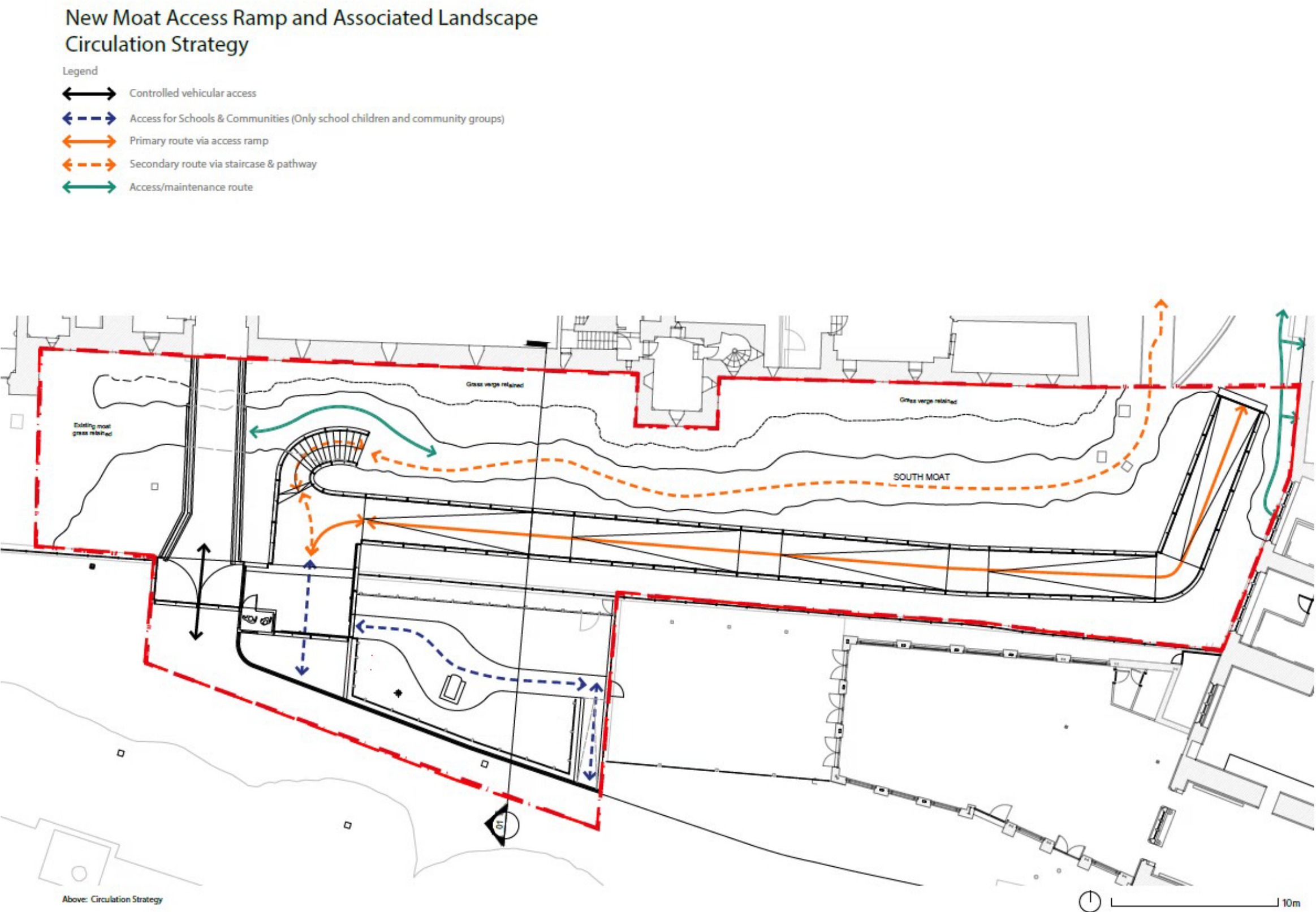


Figure above: The proposed public access plan that is to operate during Tower of London opening hours only. All land in the red line is in the ownership of the Crown Estates and under the stewardship of Historic Royal Palaces.

Climate

| Current Climate Information (EI-T01) | |
|---|---|
| Nearest weather station details | St James' Park: 03770099999 At latitude 51.500 and Longitude 0.117 |
| Days of rain per year | 155 |
| Average annual rainfall mm | 623.5mm |
| Average temperature °C | 13 Celsius |
| Highest temperature – Month and temperature °C | July (average 19 Celsus) |
| Lowest temperature – Month and temperature °C | January (average 5 Celsius) – rarely below zero |
| Average annual hours of sunshine | Ca. 1,460 |
| Sunniest month and average hours of sunshine | July - Ca. 6 hour of sunshine per day |
| Average number of days with air frost | Ca. 33.9 (Greenwich Observatory) per year |
| Frostiest month and number of days | January or February – several days |
| Potential impact of current climate on project (EI-B05) | |
| <p>The current climate should be conducive to good development of the habitats proposed. However, there may be local droughting in the driest weather.</p> <p>Climate change may increase the frequency of droughts which could adversely affect grassland habitats. However, a sustainable irrigation strategy is to be put in place to counter this effect; and the partial shade cast by the nearby trees, moat walls and ramp should counter these impacts.</p> | |



Potential Impact of Climate Change on Proposals (EI-B06)

Geology and Topography

| Geological Information (EI-B07) |
|---|
| <p>London Clay Formation - clay, silt and sand. Sedimentary bedrock formed between 56 and 47.8 million years ago during the Palaeogene period.</p> <p>Superficial deposits of Taplow Gravel Member - Sand and gravel. Sedimentary superficial deposit formed between 362 and 126 thousand years ago during the Quaternary period.</p> |
| Potential Impact to Scheme (EI-B08) |
| <p>Geology and topography will not affect the scheme.</p> |
| Topography (EI-B09) |
| <p>The site is relatively flat though in the moat there is a fall of ca. 1:15 from north to south towards the River Thames.</p> <p>The grassland on the Wharf is ca. 2.5 m above the level of the moat</p> |
| Potential Impact to Scheme (EI-B10) |
| <p>Parcels requiring soils of different nutrient levels have been separated by the main access path.</p> |

Geology and Topography Plan (EI-F02)

Not necessary.

| Parcel Refs | Soil Texture | pH | Nitrogen (N) | Phosphorous (P) | Potassium (K) |
|-------------------------------|-------------------------------|------------------|--------------|--|---------------------|
| All moat soils pre-Superbloom | Sandy loam to sandy clay loam | 7.88+0.05 (n=12) | Not tested | 62.0+3.6 (n = 12) Highest value was in south moat at 77 | 195.3+26.7 (n = 12) |

Summary of Soils Information (EI-B13)

Tim O’Hare Associates (2021) described the main pre-Superbloom moat soils as follows:

‘Vulnerable to structural degradation and particle inter-packing... reducing drainage, aeration and root growth... but do not display evidence of significant drainage impedance in their current state.’

Although nitrogen and potassium are important individually and collectively as key plant nutrients in grasslands, the most important nutrient that decreases sward diversity when present in excessive concentrations is phosphorus (Gough & Marrs, 1990). If plant nutrient levels, especially phosphorus, are too high this can result in:

- Domination by a few large, coarse, highly competitive, perennial plants, e.g., Perennial Rye-grass, Couch-grass, Common Nettle.
- Accelerated plant growth producing greater volumes of biomass.
- Finer grasses and flowers that require more open sward areas and/or which are less competitive being less prevalent, reducing diversity.
- Less bare ground reducing opportunities for many invertebrate species that are characteristic of flower-rich grasslands, e.g., burrowing solitary bees and wasps.

Box (2019) recommends the following targets for species-rich neutral grassland in lowland UK:

- Soil pH 5-6.5
- Extractable P (Olsen bicarbonate method) **<10 mg/l**.
- Extractable K (ammonium nitrate method) <175 mg/l.
- Total N <10g/kg

The Higher-Level Stewardship Farm Environment Plan (FEP) Manual (Natural England, 2010) suggests that for the best species-rich grasslands, a target soil-available phosphorus level of **below 16 mg/l and** an extractable K level of **< 61 mg/l** were advisable.

The existing soils of the site therefore:

- exceed target phosphorus levels by a factor of between ca. **400% and 600%**.
- exceed target potassium levels by a factor of ca. **10%** and **320%** depending on the authority followed.

Box, J. (2019). Species Rich Meadows. **Effective Restoration and Creation Requires a Glorious Mix of Simple Soil Chemistry and Complex Volunteer Activity**. CIEEM Presentation. Online

Gough, M.W. & Marrs, R. H. (1990). **A Comparison of Soil Fertility Between Seminatural and Agricultural Plant Communities: Implication for the Creation of Floristically Rich Grassland on Abandoned Agricultural Land.** *Biological Conservation*, **51**: 83-96.

Natural England (2010). **Higher Level Stewardship Farm Environment Plan (FEP) Manual. Technical Guidance on the Completion of the FEP and Identification, Condition Assessment and Recording of HLS FEP features.** Third Edition, Natural England, Peterborough.

Potential Impact on Project (EI-B14)

Where new biodiverse grasslands are to be created, low-nutrient subsoil admixed with the appropriate quantity of topsoil to achieve appropriate nutrient levels for high quality lowland other neutral grassland establishment, is to be brought to the Site and lain over the existing soils to a depth of ca. 20 cm.

It is considered that this will be effective in creating good quality species-rich lowland grassland long-term alongside traditional meadow management approaches.

Soils and Substrate Plan (EI-F04)

Not available. All substrates in the moat part of the Site are likely to be very similar.

Hydrology and Drainage

Summary of Hydrological Information (EI-B17)

The Site drains naturally through the soils to the 19th century brick arch culvert beneath, though infiltration.

The higher area of The Wharf also drains to the culvert through gullies and secondary connections.

From the culvert, at low tide, water is manually released into the Thames estuary.

During the Superbloom installation in the west, north and east moats, it was found that irrigation water drained quite rapidly to the culvert which essentially acts as a large drain. Meadow habitats created on imported soils since Superbloom in these and other areas appear to be thriving.

The substrate of the Site appears to be fairly free-draining, which is typical of most of the rest of the moat.

Potential Impact on Project (EI-B18)

A sustainable irrigation design is to be developed to ensure that grasslands can be irrigated in extreme drought conditions.

See Flood Risk Assessment and next pages.



Flood Risk Zones

Summary of Flood Risk Information (EI-B19)

The flood risk map on the UK government website indicates the Site lies within Flood Zone 3. However, the Site is protected from fluvial flooding by the flood defences of The Wharf and the Thames Barrier.

The same website indicates some risk of surface water flooding from runoff collecting into the moat, the site being a low point.

Potential Impact on Project (EI-B20)

Despite the surface water flood risk within the Site, the impact on the scheme and its management is predicted to be minimal.

The ramp in the proposed scheme will not increase flood risk given its porous deck.

The increase in Breedon gravel pathway will decrease overall site permeability, but on balance this should help rather than hinder habitat condition as it will direct more runoff water to the newly created habitats.

Some variation in substrate hydrology is likely to promote sward diversity.

The proposed and existing Other Neutral Grassland habitats would probably only be subject to rare short-term inundation and should hence largely recover thereafter.

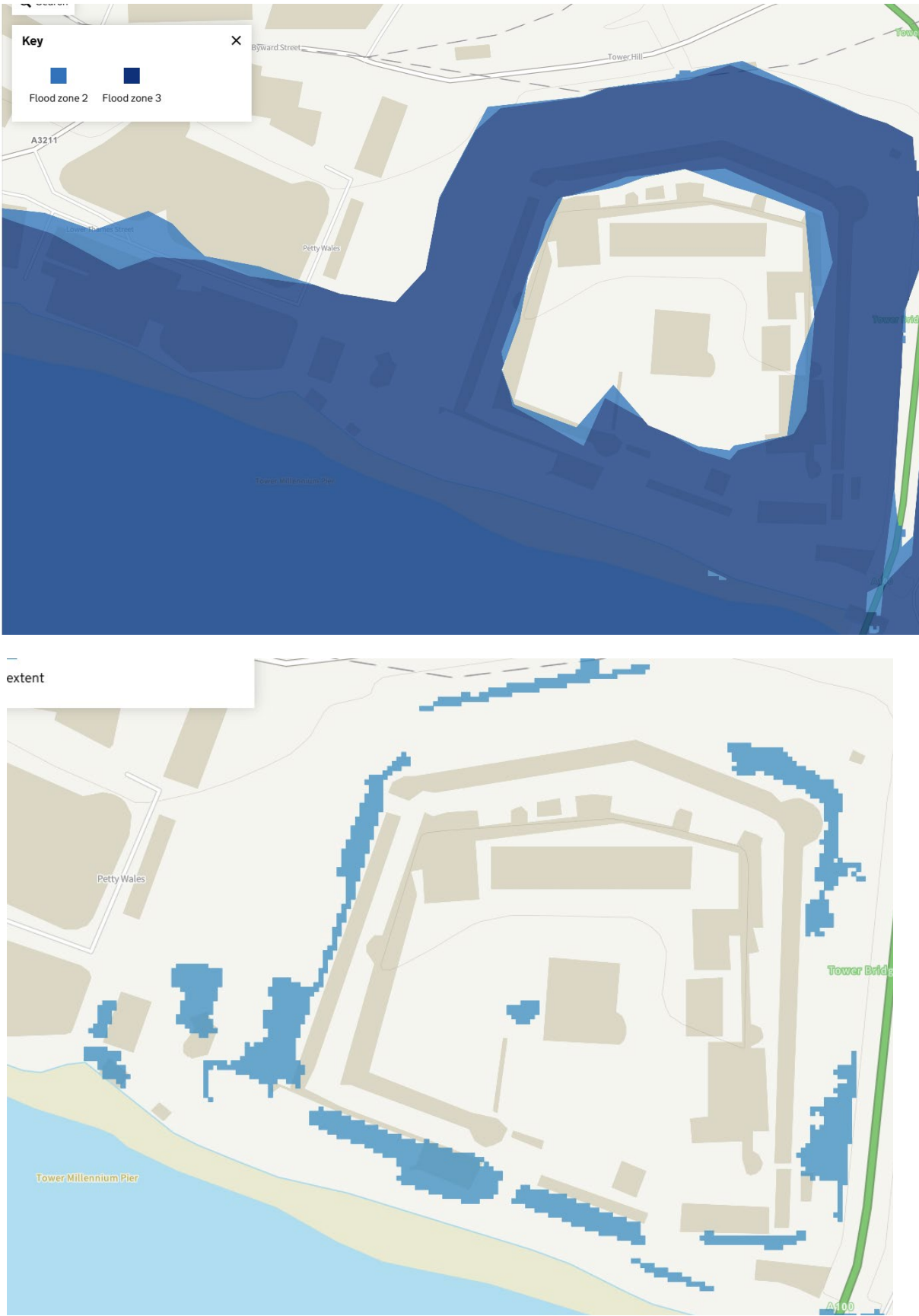
Overseeding or supplementary plug planting is to be undertaken as required to repair any flood damage.

Flower-bed habitats are also to be replanted as required in this key location in the case of flood damage.

With the implementation of the moat Legacy Landscape project, better control and pumping systems are planned that are to permit emptying of the culvert, even against a tidal head.

In the unexpected eventuality of problematic surface flooding, some modifications to grassland drainage are to be made to speed movement of surface water into the drainage culvert.

Flood Risk Zone Plan (EI-F07)



Flood risk area at the Tower of London. Top: Fluvial Bottom: Surface Water

Landscape Character and Designations

Summary of Landscape Character and Designations (EI-B21)

The site lies with the National Character Area 112 – Inner London.

The Tower of London site is at the eastern end of Character Area 112. Of relevance to the present project the environmental opportunities listed in the profile for this Character Area include to:

- *‘Protect and enhance the landscape of the River Thames and its tributaries....*
- *Protect and enhance the network of Inner London’s green spaces so that it provides services where people need them, promotes recreational and educational opportunities, supports biodiversity, reinforces local character and is resilient to future challenges such as climate change... e.g. by:*
 - *Conserving, enhancing, restoring and creating features of wildlife value.*
 - *Improving the management of green spaces to increase the quality and range of services such as recreation, wildlife value, climate regulation and flood alleviation.*
 - *Improving the management of green spaces... to increase the value to local character.*
 - *Ensuring that development and regeneration demonstrate long-term funding for the creation, improvement and management.*
- *Reconnect people with nature by providing opportunities and access to engage with nature close to where they live, work and play, reinforcing sense of place, improving recreation and providing benefits for biodiversity and climate regulation. e.g. by:*
 - *Improving access to nature by enhancing the nature value of accessible sites, opening access to restricted sites and, where feasible, creating new sites within which to experience nature.*
 - *Building capacity and supporting local communities to develop and deliver projects for the enhancement of local landscapes and provision of habitat such as river restoration, tree planting, growing food and green space improvement.*
 - *Building capacity and support for local communities to recognise the value of natural landscape features in neighbourhood planning and exploring opportunities for managing local green spaces.*
 - *Promoting the use of green infrastructure to benefit health and wellbeing, for example through health walks.*
 - *Developing and supporting volunteering for biological recording, conservation, green space management and monitoring and control of invasive species.*
 - *Building capacity within local communities for protection and enhancement of local green spaces through neighbourhood planning and community ownership and management.’*

Potential Impact on Project (EI-B21)

The project has been specifically tailored to meet the goals of this character area – improving green space and public access to nature.

Landscape Character and Designations Plan (EI-F08)

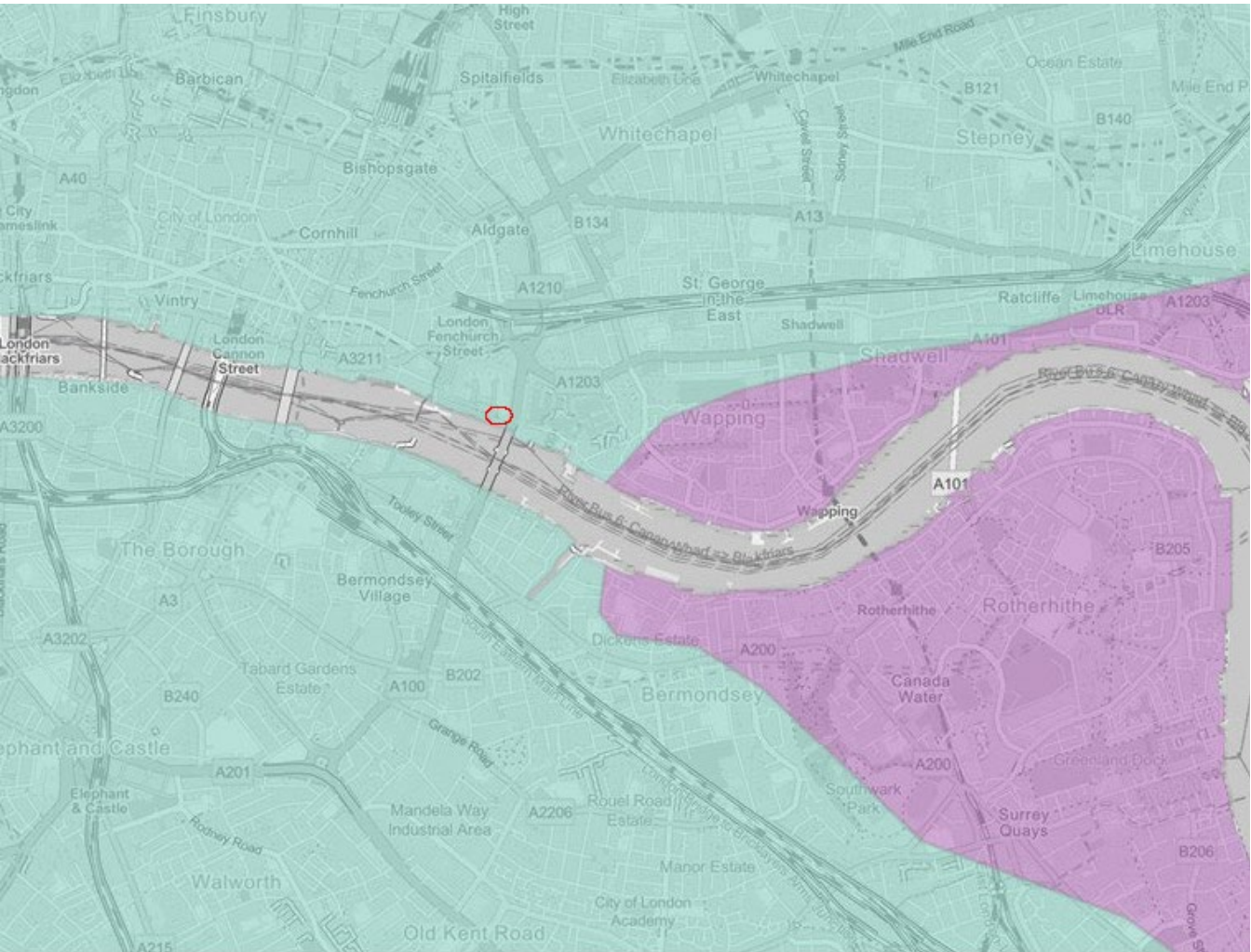


Figure above: National Character Areas in relation to the project site (which is marked approximately by the red circle):

Key: **Light green:** National Character Area 112 – Inner London

Mauve: National Character Area 81 – Greater Thames Estuary

Historic Environment and Earth Heritage

Summary of Historic Environment and Earth Heritage (EI-B22)

- The Site is part of a:
- World Heritage Site.
 - Scheduled Ancient Monument.
 - Statutory Listed Building.
 - Conservation Area.

There are potential heritage deposits in the deeper layers of soil.

The site does not have Earth Heritage Value.

Potential Impact on Project (EI-B23)

Plans for the development of a long-term Legacy Landscape for the moat are being developed. These portray a highly biodiverse habitat mosaic rich in wildlife, of value for public amenity, and complementing the Outstanding Universal Values of the WHS, SAM, Listed Building, and Conservation Area. This is also proposed for the Site that is the subject of the present Habitat Management and Monitoring Plan.

The present scheme also responds directly to policy S.DH5 in the local plan which states:

‘Development within the vicinity of the Tower of London is required to demonstrate how it will improve local pedestrian and cycle access routes, particularly signage and way-finding in the surrounding area.’

There are to be no excavations below the top 10 cm of substrate without a close archaeological watching brief operated by HRP.

Historic Environment and Earth Heritage Plan (EI-F09)

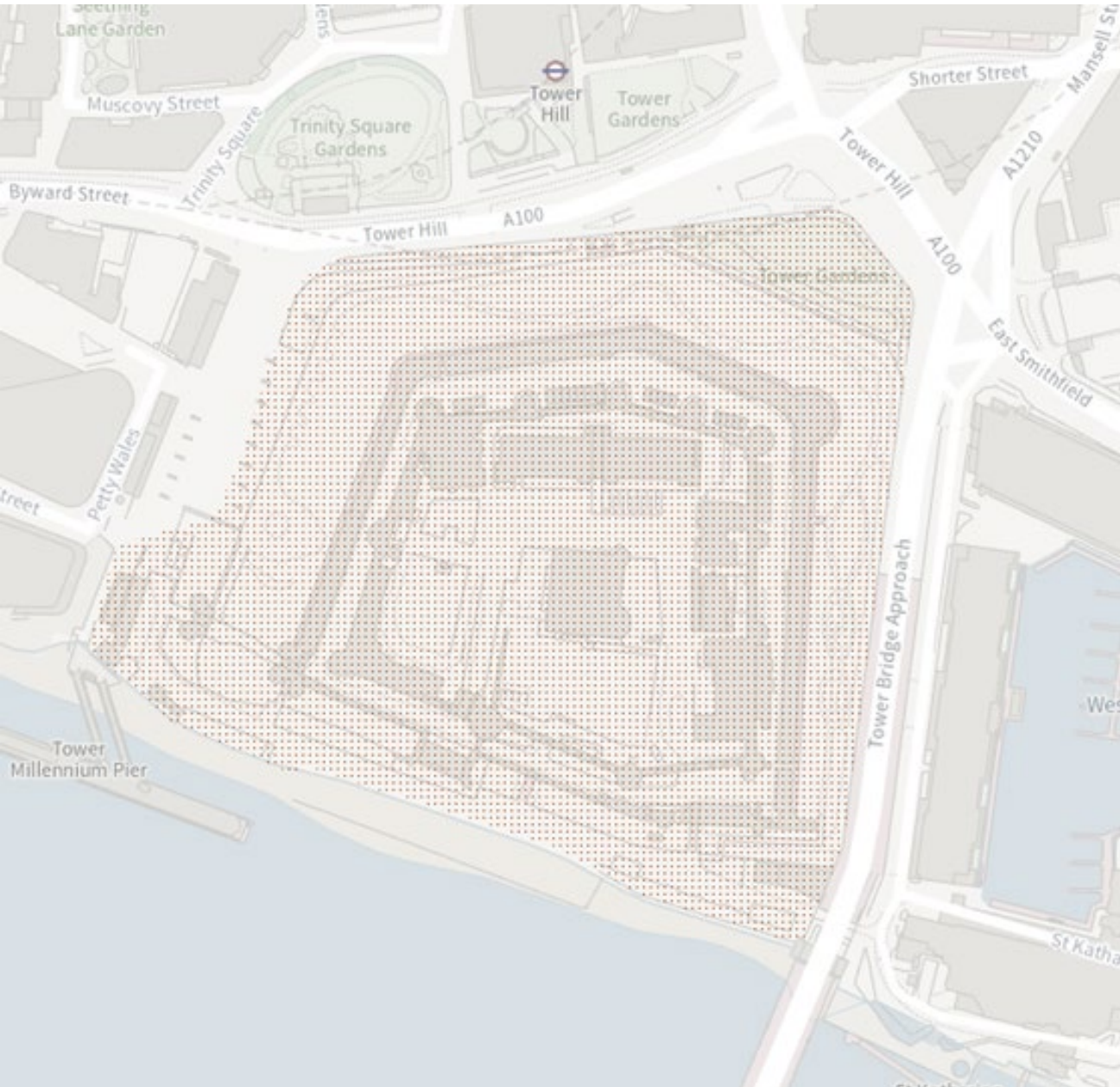
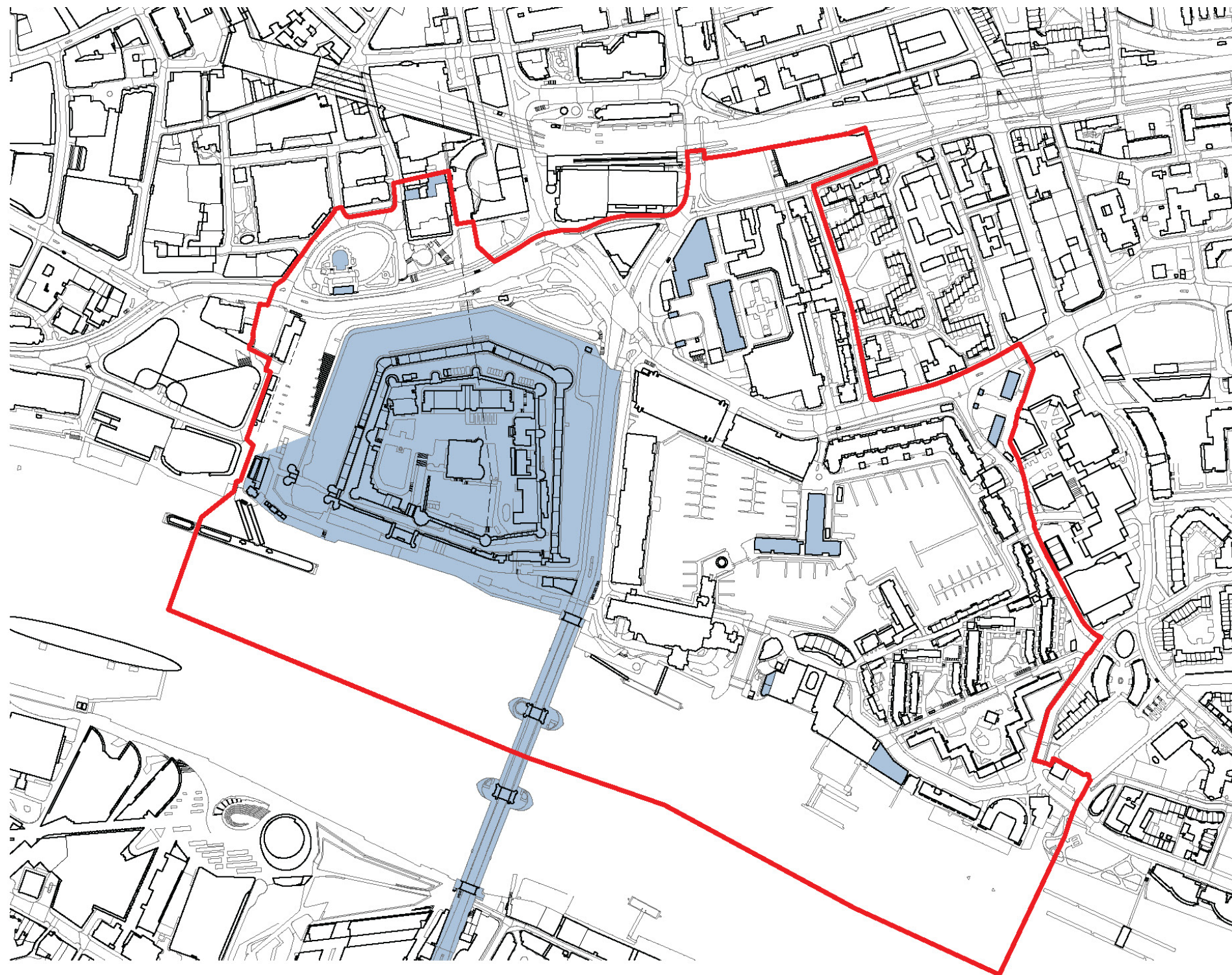


Figure above: Tower of London World Heritage Site and Buffer Area.



The Tower Conservation Area
Listed Buildings & Scheduled
Monuments



Figure above: Listed Building and Scheduled Ancient Monuments.

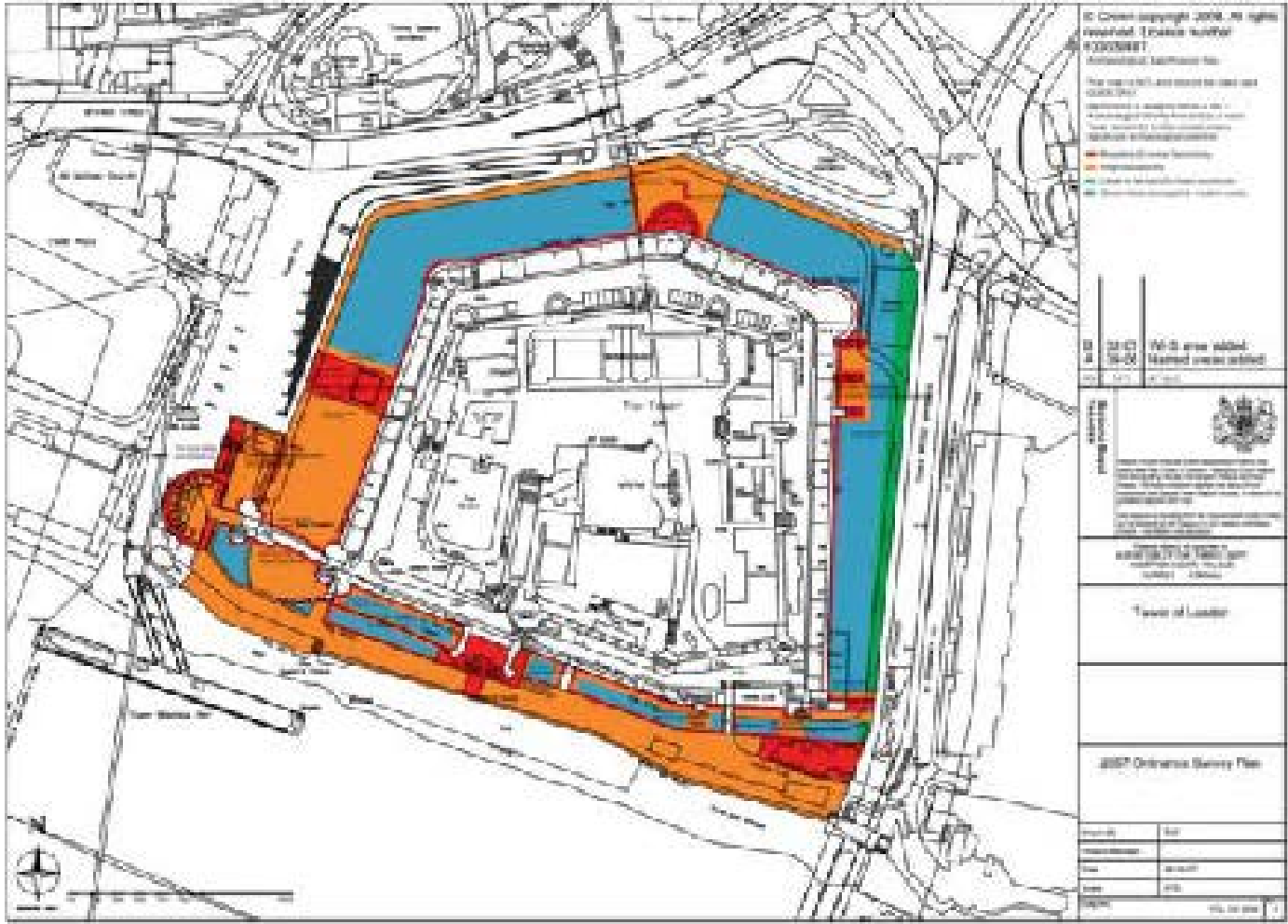


Figure above: Relative archaeological Importance plan.

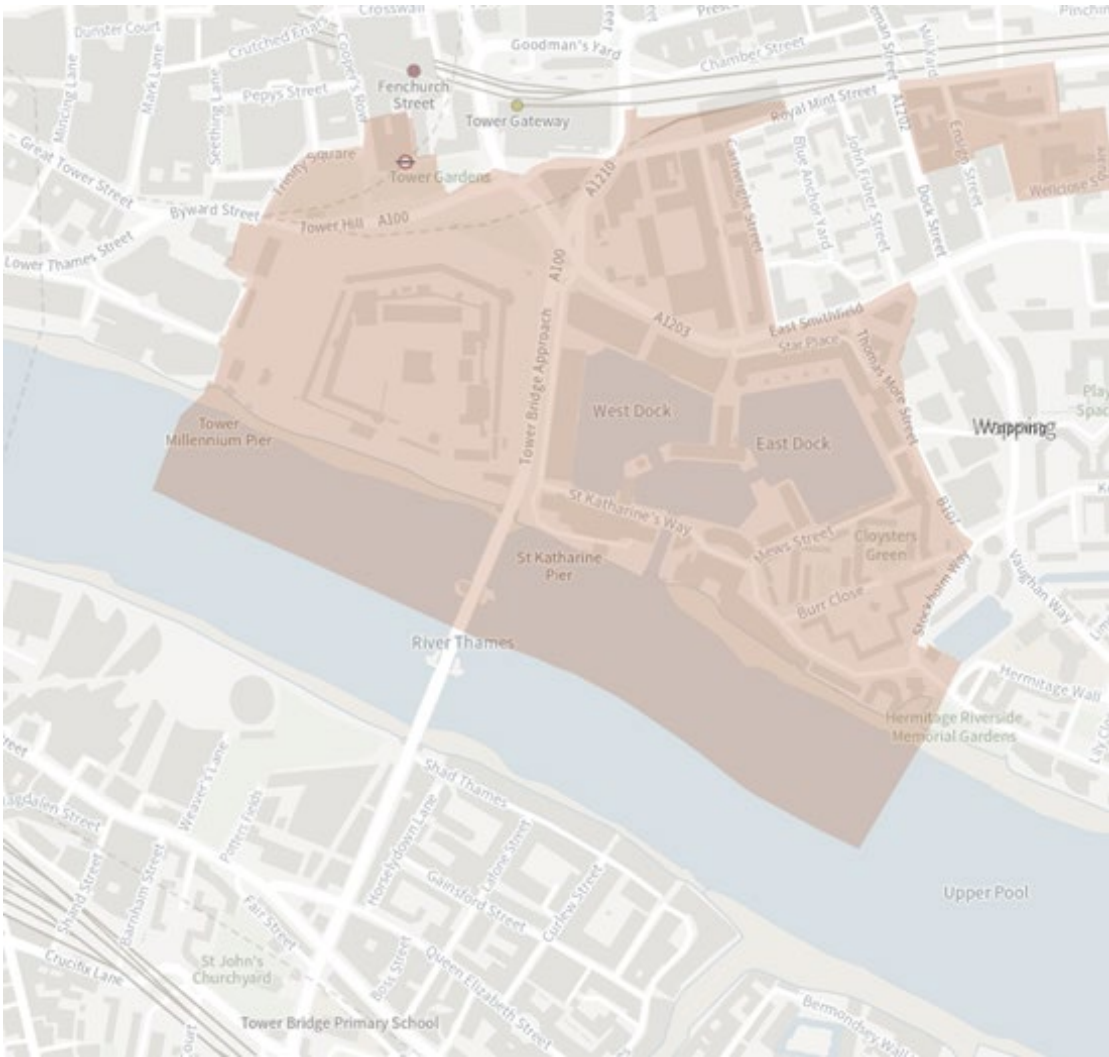


Figure above: Conservation Area Boundary.

2. Planned Management Activities

Management Plan Aims and Objectives PM-B01

VISION

The overall vision for the Site is as an entrance gateway to the southeast moat of the Tower of London that inspires the public to enter and explore the moat further as part of a wider greatly enriched visitor experience.

The ramp and landscape design of the Site are to further enable public exploration of key historic themes associated with the moat — highlighting the Tower’s role as a fortress, a wartime symbol of national strength, and a provider for the people. These themes are presented within a contemporary interpretive framework that reflects today’s global challenges, including environmental sustainability, biodiversity loss, and climate change.

The vision also extends to the Tower’s local and social role to provide an enhanced green asset for the residents of the complex, the citizens of Tower Hamlets, and beyond, in a part of London where biodiverse greenspace is scarce.

Within the framework of achieving all these goals the aim is to maximise the value of the moat landscape to priority habitats and species in a resilient and sustainable way.

MANAGEMENT OBJECTIVES

- The Management Objectives for the Site are:
- To create a thought-provoking and biodiverse landscape gateway to the southeast moat, showcasing priority habitats and native biodiversity alongside floristically rich, historically inspired flower beds that reflect the moat’s past landscapes, plant life, and uses.
 - To manage the created habitats in a way that maximizes and sustains their native biodiversity value over the long term, while accommodating high levels of visitor use.
 - To achieve a net gain of ca. 30% in Biodiversity Habitat Units (species-rich grasslands and diverse flower beds) relative to the current baseline condition.

Design Principles Informed by Baseline Information PM-B02

Habitat creation concepts have emerged from three years of study on the wider moat Legacy Landscape, which have highlighted the historic habitats of the moat including grazed meadows, food production areas (and, of particular relevance to the present proposals for the wider moat) biodiverse wetlands.

The Site lies within the Inner London National Character, which emphasises the importance of providing biodiverse greenspace for urban citizens near to where they live.

The London Borough of Tower Hamlets will be subject to the Greater London Local Nature Recovery Strategy (GLLNRS). In a consultation draft of the All-London Green Grid, which was until recently available online, the HRP-managed Tower of London site was identified as a site of “*opportunity is for General Habitat Improvement of Mixed Habitat*” and this has partly inspired the habitat mosaic approach for the Sit.

The existing habitats of the Site, which are primarily mown lawns. The identification of some less common annual plant species (such as Knotted Hedge-parsley *Torilis nodosa*) and species-rich lawn areas did inform the decision to retain areas of the existing mown maintenance strip.

Habitat and Condition Targets PM-T01

| Baseline Habitat Type | Target Habitat Type | Parcel / Feature Refs | Baseline Condition | Targeted Condition | Years to Targeted Condition | Condition Assessment Targets | Comments |
|-------------------------|-------------------------------|------------------------|--------------------|--------------------|-----------------------------|--|---|
| Species-rich grassland | Other Neutral Grassland (g3c) | ONG_W1 and W2 | N/A | Good | 10 | All criteria | Entrance landscape – high profile must be in best condition |
| Species-rich grassland | Other Neutral Grassland (g3c) | ONG_M3, ONG_M4, ONG_M5 | N/A | Moderate | 5 | Moderate condition is to be targeted by achieving a pass in criteria A, B, D and F. Criteria C and E is to also be targeted but may not be achieved. | Somewhat more flexibility for conditions in the moat |
| Species-rich grassland | Other Neutral Grassland (g3c) | ONG_Ramp 1 | N/A | Moderate | 5 | Moderate condition is to be targeted by achieving a pass in criteria A, B, D and F. Criteria C and E is to also be targeted but may not be achieved. | Somewhat more flexibility for conditions in the moat |
| Existing Flowering lawn | Other Neutral Grassland (g3c) | ONG_M2 | Poor | Poor | 0 | Poor condition is to be targeted by achieving a pass in criteria D. Other criteria are not to be targeted. | Maintenance grass strip – but intervention is to be as required to ensure remains ONG rather than modified grassland. |
| Existing Lawn | Modified Grassland (g4) | Mod Grass_M1 | Good | Good | 0 | Poor condition is to be targeted by achieving a pass in all criteria except B which is not to be targeted. | The habitat is to be retained as a mown lawn |
| | | | | | | | |
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Habitat and Condition Targets Further Comments

Habitat Retention

Measures to be Implemented to Protect Retained Habitats PM-03

Parts of Habitat Parcels ONG_M2 (Poor Condition) and Mod Grass M_1 (Good Condition) are to be retained.

They are to continue their functions of providing general maintenance access (ONG_M2) and resident recreational access (ONG_M1).

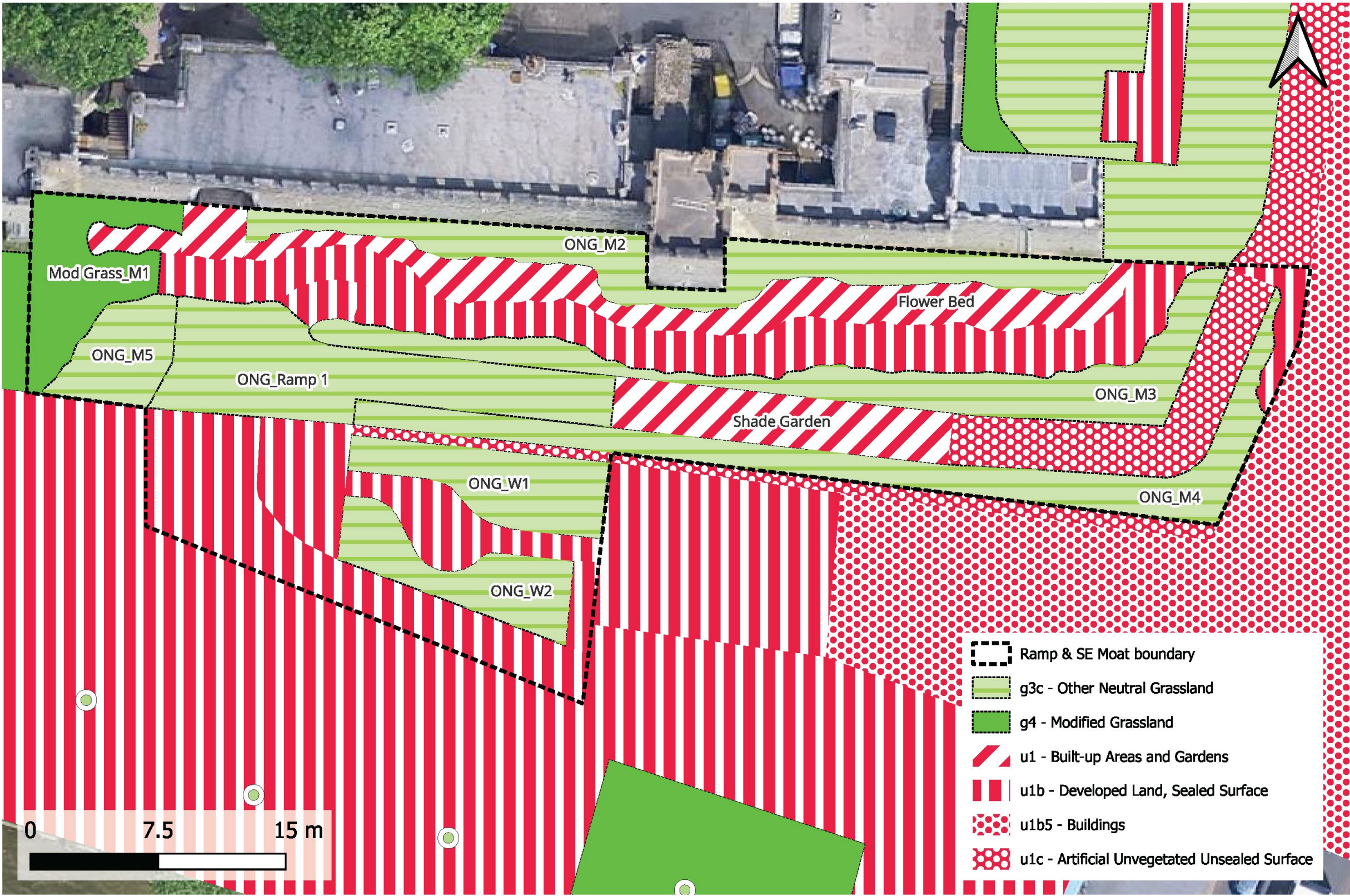
Specification of Protective Measures to be Used PM-04

Areas to be retained are to be clearly demarcated in the field and signage is to be erected to make sure they are not harmed or used for laydown. The precise form of the demarcation is not yet decided.

Habitat Retention Plan PM-F01

Reference: The areas to be retained are in the figure below, outlined in orange. All other areas within the project line (Black dotted line) are to be created.





Creation, Enhancement and Management Summary (GH-T01)

| Target Habitat | | | | Other Neutral Grassland g3c – Good Condition – to be created | | |
|-------------------------------|--|----------|---------------------|--|------------------------------|---|
| Condition Assessment Criteria | | Targeted | Relevant Parcels | Creation Approach | Enhance- ment Approach | Management Approach |
| A | <p>The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.</p> <p>Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.</p> | Yes | ONG_W1 and_W2 | <p>Importation of suitable low-nutrient substrate (this may be sourced from Superbloom soils already in the moat).</p> <p>Laying of imported soil to depth of a least 20 cm on existing soils creating a gently undulating tilth.</p> <p>Avoidance of soil compaction.</p> <p>Seeding with bespoke native lowland England species-rich grassland seed (e.g. Emorsgate) seed mixes using standard meadow creation approaches.</p> | N/A | Traditional lowland meadow management – see detailed prescriptions later in this document. |
| B | <p>Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.</p> | Yes | ONG_W1 and_W2 | <p>This is to be achieved through a variable rotational cutting regime varying cut height and frequency across the parcel to mimic the effects of grazing.</p> | N/A | <p>This is to be achieved through a variable rotational cutting regime varying cut height and frequency across the site to mimic the effects of grazing.</p> |
| C | <p>Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.</p> | Yes | ONG_W1 and_W2 | <p>Every effort is to be taken to avoid persistence of any larger bare ground areas in these swards, which will be part of the setting of a new showcase gateway to the moat.</p> | N/A | <p>Signage, education and local guiding to avoid human footfall, or picking of flowers may be considered if required.</p> <p>There is to be rapid repair where required by soil tining and reseeding.</p> |
| D | <p>Cover of bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%.</p> | Yes | ONG_W1 and_W2 | <p>No Bracken is currently on the Site, and none is to be planted.</p> | N/A | <p>There is no nearby source for colonisation by Bracken; but if it were to colonise, it would be weeded out and disposed of off-site.</p> |
| E | <p>Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging activities) accounts for less than 5% of total area.</p> <p>If any invasive non-native species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.</p> | Yes | ONG_W1 and_W2 | <p>Every effort is to be taken to achieve this criterion. There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal.</p> | N/A | <p>There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal.</p> <p>There is to be rapid repair where required by soil tining and reseeding.</p> |
| F | <p>There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type.</p> <p>Note – this criterion is essential for achieving Good condition for non-acid grassland types only.</p> | Yes | ONG_W1 and_W2 | <p>The parcel is to be sown with a suitable lowland meadow species-rich mix of over 30 native species (e.g. Emorsgate EM3), supplemented with Yellow-rattle <i>Rhinanthus minor</i> to keep grasses in check.</p> | N/A | <p>Ongoing traditional meadow management with removal of arisings should ensure maintenance of good species diversity notably higher than 10 species per square metre.</p> |

| Target Habitat | | | | Other Neutral Grassland g3c – Moderate Condition – to be created | | |
|-------------------------------|--|----------|----------------------------|--|------------------------------|--|
| Condition Assessment Criteria | | Targeted | Relevant Parcels | Creation Approach | Enhance- ment Approach | Management Approach |
| A | <p>The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type.</p> <p>Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.</p> | Yes | ONG_M3 ONG_M4 ONG_M5 | <p>Importation of suitable low-nutrient substrate (this may be sourced from Superbloom soils already in the moat).</p> <p>Laying of imported soil to depth of a least 20 cm on existing soils creating a gently undulating tilth.</p> <p>Avoidance of soil compaction.</p> <p>Seeding with bespoke native lowland England species-rich grassland (e.g. Emorsgate EM3), admixed with up to 20% by volume of some more shade tolerant hedgerow fringe species e.g. Emorsgate Hedgerow mix EH1 (bespoke version, omitting Cow Parsley <i>Anthriscus sylvestris</i>) – creating an herbaceous seed mixture tolerant of light shade. This is to be supplemented by the native annual Yellow-rattle <i>Rhinanthus minor</i> to help maintain the balance of grasses and forbs.</p> | N/A | <p>Traditional lowland meadow management – see detailed prescriptions later in this document.</p> <p>.</p> |
| B | <p>Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.</p> | Yes | ONG_M3 ONG_M4 ONG_M5 | <p>This is to be achieved through a variable rotational cutting regime varying cut height and frequency across the parcel to mimic the effects of grazing.</p> | N/A | <p>This is to be achieved through a variable rotational cutting regime varying cut height and frequency across the parcels to mimic the effects of grazing.</p> |
| C | <p>Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.</p> | No | ONG_M3 ONG_M4 ONG_M5 | <p>Every effort is to be taken to avoid bare ground areas in these swards. However, given the linear nature of these narrow habitats this is not targeted.</p> | N/A | <p>Signage, education and local guiding to avoid human footfall, or picking of flowers may be considered if required.</p> <p>There is to be rapid repair where required by soil tining and reseedling.</p> |
| D | <p>Cover of Bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%.</p> | Yes | ONG_M3 ONG_M4 ONG_M5 | <p>No Bracken is currently on the Site, and none is to be planted.</p> | N/A | <p>There is no nearby source for colonisation by Bracken; but if it were to colonise, it would be weeded out and disposed of off-site.</p> |
| E | <p>Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging activities) accounts for less than 5% of total area.</p> <p>If any invasive non-native species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed.</p> | No | ONG_M3 ONG_M4 ONG_M5 | <p>Every effort is to be taken to achieve this criterion. There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal.</p> <p>However, on a conservative basis given the conditions in the moat and the mix of adjacent habitats, and because some areas may be managed to create habitat for fossorial bees, this criterion is not targeted.</p> | N/A | <p>There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal.</p> <p>There is to be rapid repair where required by soil tining and reseedling.</p> <p>However, on a conservative basis given the public access this criterion is not targeted.</p> |
| F | <p>There are 10 or more vascular plant species per m² present, including forbs that are characteristic of the habitat type.</p> <p>Note – this criterion is essential for achieving Good condition for non-acid grassland types only.</p> | Yes | ONG_M3 ONG_M4 ONG_M5 | <p>These parcels are to be sown with a suitable species-rich mix of over 30 native lowland meadow species (e.g. Emorsgate EM3), admixed with up to 20% by volume of some more shade tolerant hedgerow fringe species e.g. Emorsgate Hedgerow mix EH1 (as a bespoke version, omitting Cow Parsley <i>Anthriscus sylvestris</i>) – creating an herbaceous seed mixture tolerant of light shade. This is to again be supplemented</p> | N/A | <p>Ongoing traditional meadow management with removal of arisings should ensure maintenance of good species diversity notably higher than 10 species per square metre.</p> |

| | | | | | | |
|--|--|--|--|---|--|--|
| | | | | by the native annual Yellow-rattle <i>Rhinanthus minor</i> , a grass parasite, that will help to maintain the balance of grasses and forbs. | | |
|--|--|--|--|---|--|--|

| Target Habitat | | | | Other Neutral Grassland g3c – Moderate Condition – to be created | | |
|-------------------------------|---|----------|------------------|---|----------------------|--|
| Condition Assessment Criteria | | Targeted | Relevant Parcels | Creation Approach | Enhancement Approach | Management Approach |
| A | The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only. | Yes | ONG_Ramp 1 | Importation of suitable low-nutrient substrate (this may be sourced from Superbloom soils already in the moat). Laying of imported soil to depth of a least 20 cm on existing soils, creating a gently undulating tilth. Avoidance of soil compaction. Seeding of bespoke shade tolerant hedgerow-edge mix (e.g. Emorsgate Hedgerow Mix EH1 as a bespoke version, omitting Cow Parsley <i>Anthriscus sylvestris</i>). This should grow well in the partial shade of the ramp where there is over 1.5 m clearance. | N/A | Traditional lowland meadow management but adapted to the partial shade condition– see detailed prescriptions later in this document. . |
| B | Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. | Yes | ONG_Ramp 1 | This is to be achieved through a variable rotational cutting regime varying cut height and frequency. | N/A | This is to be achieved through a variable and zones rotational cutting regime varying cut height and frequency. Areas in the greatest shade may be left uncut to develop a tussocky structure with areas nearer the outer edges of the shade cut once in autumn or twice (late winter and autumn). Rotational cutting of tussocky areas is to be undertaken every ca. 5 years. |
| C | Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. | No | ONG_Ramp 1 | Every effort is to be taken to avoid bare ground areas in these swards. However, given the partial shade condition this criterion is not targeted. | N/A | There is to be repair where required by soil tining and reseedling. |
| D | Cover of Bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%. | Yes | ONG_Ramp 1 | No Bracken is currently on the Site, and none is to be planted. | N/A | There is no nearby source for colonisation by Bracken; but if it were to colonise, it would be weeded out and disposed of off-site. |
| E | Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging activities) accounts for less than 5% of total area. If any invasive non-native species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed. | No | ONG_Ramp 1 | There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal. However, on a conservative basis given the public access and associated risk of physical damage this criterion is not targeted. | N/A | There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal. There is to be rapid repair where required by soil tining and reseedling. |
| F | There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type. Note – this criterion is essential for achieving Good condition for non-acid grassland types only. | No | ONG_Ramp 1 | The parcel is to be sown with a partially shade tolerant hedgerow mix (e.g. Emorsgate hedgerow mix EH1). However, given the difficulty in predicting the full effects of the specific shade conditions that will prevail, this criterion is not targeted. | N/A | Ongoing traditional meadow management with removal of arisings |

| Target Habitat | | | | Other Neutral Grassland g3c – Poor Condition – to be <u>retained</u> | | |
|-------------------------------|---|----------|---------------------|--|---|--|
| Condition Assessment Criteria | | Targeted | Relevant Parcels | Creation Approach | Enhancement Approach | Management Approach |
| A | The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type. Note – this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only. | No | ONG_M2 | N/A | Goal is to maintain habitat for relatively uncommon annual plant species rather than generally enhance. | Lawn cutting. Overseeding with lawn flowering forbs as necessary to maintain existing species richness and relatively uncommon annuals. If any net enhancement is achieved, this would be welcomed but is not targeted. |
| B | Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed. | No | ONG_M2 | N/A | N/A | |
| C | Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens. | No | ONG_M2 | N/A | Because of the challenging condition of footfall, and varying water regime this criterion is not targeted though there are to be efforts to avoid persistence of > 10% bare ground bare ground. | There is to be repair where required by soil tining and reseeding. |
| D | Cover of Bracken <i>Pteridium aquilinum</i> less than 20% and cover of scrub (including bramble) less than 5%. | Yes | ONG_M2 | N/A | No Bracken is currently on the Site, and none is to be planted. | There is no nearby source for colonisation by Bracken; but if it were to colonise, it would be weeded out and disposed of off-site. |
| E | Combined cover of species indicative of suboptimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging activities) accounts for less than 5% of total area. If any invasive non-native species (as listed on Schedule 9 of WCA) are present, this criterion is automatically failed. | No | ONG_M2 | N/A | There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal. However, on a conservative basis given the public access and associated risk of physical damage this criterion is not targeted. | There is to be constant surveillance for species indicative of suboptimal condition and invasive non-native species and a protocol for early identification and removal. There is to be rapid repair where required by soil tining and reseeding. |
| F | There are 10 or more vascular plant species per m ² present, including forbs that are characteristic of the habitat type. Note – this criterion is essential for achieving Good condition for non-acid grassland types only. | No | ONG_M2 | N/A | There are no plans to enhance this parcel as it needs to be retained as a mown lawn maintenance strip. | Lawn cutting. Overseeding with lawn flowering forbs as necessary to maintain existing above-average species-richness for a mown lawn. |

Additional Management Prescriptions (GH-B01)

None at this time.

Creation, Enhancement and Management Detailed Methods (GH-T02)

| Action | Relevant Parcels | Timing | Prescriptions |
|------------------------------|---|-------------------------------------|--|
| Soil importation | All parcels | Uncertain: Ideally in autumn | <ul style="list-style-type: none">For Other Neutral Grassland: Soil of suitable composition is to be composed from existing stores of Superbloom topsoil and subsoil in the moat and combined in the proportion of 75% subsoil 25% topsoil to achieve target P levels (see previous under soils in this plan).Alternatively, a suitable weed-free substrate is to be imported from outside of the Tower of London site.For Flower Bed: a suitable soil of intermediate fertility is to be derived from stockpiled soils or imported.For the Shade Bed a low-nutrient topsoil is to be installed, like that used for the Other Neutral Grassland creation. |
| Tilt preparation and seeding | ONG_W1 and_W2 ONG_M3 to M5 ONG Ramp 1 | Uncertain: Ideally in autumn | <ul style="list-style-type: none">Soils are to be lain to a minimum depth of 20 cm creating local gentle of undulations in an east-west direction to maximise variety.Seeding is to be by traditional hand casting with a sand marker.Light tamping of tilth is to be undertaken if necessary to ensure good seed/soil contact, but with care not to compact installed soils.Bird net protection is to be placed over the sown seed if necessary. |
| Weeding | ONG_W1 and_W2 ONG_M3 to M5 ONG Ramp 1 | May to July | <ul style="list-style-type: none">Weeds to be removed by hand before seed set. |
| Cutting | ONG_W1 and_W2 ONG_M3 to M5ONG_Ramp 1 | August/September | <ul style="list-style-type: none">Cutting down to 5 cm is to be undertaken after most plants have seeded (typically at the end of July/early August); likely by use of hand scythe or power scythe.Cuttings are to be left on the ground for a week – the cuttings being turned every other day to dislodge seed.Cuttings are then to be raked and removed or baled. Likely use of mini-baler.Between October and the end of March, cutting is to be undertaken only when grass becomes higher than ca. 20 cm. (A low sward in this period is important as this is when many grassland species germinate. Cutting is to be uneven and patchy – to promote habitat diversity (mosaic management) Arisings are to be taken offsite. Care is to be taken not to harm emerging Yellow-rattle in March.No cutting is to be undertaken between 1 April and the time when most plants have seeded.If grass starts to ‘thatch’, raking in September is to be undertaken.Supplementary sowing with Yellow-rattle is to be undertaken, if required, between August and December. |
| Cutting | ONG Ramp 2 | August/September | <ul style="list-style-type: none">Cutting is to be undertaken after most plants have seeded, likely by use of hand scythe, working around any ferns.Arising are to be removed. |
| Cutting | ONG_M2 | Through the year as required | <ul style="list-style-type: none">Mow as required to maintain appearance of a neat amenity lawn.If species richness starts to fall, scarify and overseed with lawn forbs in the autumn. |
| Watering | ONG_W1 and_W2 ONG_M3 to M5 ONG Ramp 1 | Only in extreme drought conditions. | <ul style="list-style-type: none">Only during establishment in very dry weather and thereafter in very extreme drought is watering to be undertaken. (Periodic droughting of the sward is important to maintain species diversity.) |

Grassland (Medium, High, and Very High Distinctiveness) Species Lists (GH-T03)

See Landscape Design Section of Design and Access Statement.

For Parcels ONG_W1 and W2: A seed mixture e.g. of Emorsgate EM3 Special Meadow Mix with EC1 Standard Cornfield Mixture as a nurse crop is proposed

For Parcels ONG_M3 to M5: A seed mixture e.g. of Emorsgate EM3 Special Meadow Mix with EC1 Standard Cornfield Mixture as a nurse crop is proposed with some (modified) EH1 (hedgerow mix).

For Parcel ONG_Ramp 1: A seed mixture e.g. of Emorsgate (modified) EH1 (hedgerow mix).

| Common Name | Scientific Name | Abundance / % | Comments |
|-------------|-----------------|---------------|----------|
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Other Supporting Information

| Supporting Information (GH-B02) |
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| Additional sowing of Yellow-rattle at the opportune time to suppress excessive plant growth. |

What Does Success Look Like? (GH-F01)

Image below: Model for ONG_W1 and_W2 and M3, M4 and M5. This is ONG created by the authors at Stratford East Village ca. 10 years before the image was taken.



Image below: Model for ONG_Ramp 1. This is shade fringe ONG created by the authors at Stratford East Village ca. 7 years before the image was taken.



Image below: Retained (in part) ONG_M2



Grassland (Low Distinctiveness)

Creation, Enhancement and Management Summary (GL-T01)

| Target Habitat: | | Modified Grassland: Mod Grass_M1 – Poor Condition – to be retained (in part) | | | | |
|-------------------------------|---|--|---------------------|----------------------|-------------------------|--|
| Condition Assessment Criteria | | Targeted | Relevant Parcels | Creation Approach | Enhancement Approach | Management Approach |
| A | There are 6-8 vascular plant species per m ² present, including at least 2 forbs. Note - this criterion is essential for achieving Moderate or Good condition. Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m ² , please review the full UKHab description to assess whether the grassland should be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high or very high distinctiveness, please use the relevant condition sheet. | Yes | Mod Grass_1 | N/A | N/A | Continued lawn management as per rest of World Heritage Site. |
| B | Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed. | No | Mod Grass_1 | N/A | N/A | Mown lawn – mostly tightly mown with local somewhat less frequent mowing regime. |
| C | Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble <i>Rubus fruticosus</i> agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type. | Yes | Mod Grass_1 | N/A | N/A | Continued lawn management as per rest of World Heritage Site. |
| D | Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities. | Yes | Mod Grass_1 | N/A | N/A | As required repairs/reseeding. |
| E | Cover of bare ground between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens.) | Yes | Mod Grass_1 | N/A | N/A | As required repairs/reseeding. |
| F | Cover of bracken <i>Pteridium aquilinum</i> less than 20%. | Yes | Mod Grass_1 | N/A | N/A | Continued lawn management as per rest of World Heritage Site. |
| G | There is an absence of invasive non-native species (as listed on Schedule 9 of WCA). | Yes | Mod Grass_1 | N/A | N/A | Continued vigilance. Spot removal if found. |

| Additional Management Prescriptions (GL-B01) | |
|--|--|
| Nil | |

Grassland (Low Distinctiveness)

Creation, Enhancement and Management Detailed Methods (GL-T02)

Provide detailed prescriptions for the creation and management of the habitat.

| Action | Relevant Parcels | Timing | Prescriptions |
|----------------------|---------------------|----------------------------|---|
| Modified lawn regime | | As needed through the year | <ul style="list-style-type: none">Regular mowing to maintain majority as a low sward with local areas somewhat taller to permit better flowering of annuals.<i>Ad hoc</i> repair and reseeding with standard lawn mixTining as required.No fertiliser use. |

Other Supporting Information

| Supporting Information (GL-B02) |
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What Does Success Look Like? (GL-F01)



Urban

Creation, Enhancement and Management Summary (UR-T01)

The urban habitat being created is a biodiverse largely non-native habitat zone with high species and structural diversity and high value to native pollinators. Currently there is no BNG condition assessment for this habitat type.

It is to be managed and maintained to the highest horticultural standards.

There is to be a specific mitigation area of ca. 12 square metres to accommodate plants/seed from the ca. 1 m² patch containing 10 No. specimens of Jersey Cudweed. This area will be at the extreme western end of the ‘Flower Bed’ type as it extends west of the East Drawbridge. This is to be a low-nutrient substrate area and there is to be strictly no herbicide or fertiliser use in the relevant vicinity of this patch.

Additional Management Prescriptions (UR-B01)

Invertebrate hotels to be inserted into the sward. Annually maintained to ensure that parasites do not spread.

Bat and bird refuges are to be inspected annually. Records of their use are to be maintained, and the refuges are to be cleaned, repaired, and securely reinstalled or repositioned as needed.

Species Lists (UR-T03)

See Design and Access Statement at this stage.

| Common Name | Scientific Name | Abundance / % | Comments |
|-------------|-----------------|---------------|----------|
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Other Supporting Information

Supporting Information (UR-B02)

None at this stage.

What Does Success Look Like? (UR-F01)

Please refer to the Design and Access Statement at this stage for further imagery of the majority of this habitat compartment.

Below is an image of health Jersey Cudweed growing in a gravelly substrate – an image of success for the western tip of the compartment.

Habitat Creation and Management – Risk Register and Remedial Measures PM-T02

Provide a site-wide risk register associated with creating, enhancing and/ or, managing each habitat type. Consider your approach to delivering the BNG targets in case the management prescriptions do not deliver as expected.

| Risk Identification Date | Habitat Type | Risk Factor | Trigger for Action | Remedial Measure |
|--------------------------|-------------------------|--|---|---|
| 15/05/2025 | Other Neutral Grassland | Newly sown grassland fails to establish. | Poor germination after first season. | Re-scarify and resow in autumn. |
| 15/05/2025 | Other Neutral Grassland | Weed colonisation. | More than 5% weed cover. | Intensify hand weeding effort. |
| 15/05/2025 | Other Neutral Grassland | Persistent damage by public | Repeated harm after more than two repair attempts. | Continue to repair. Install interpretational/educational signage and barriers if considered feasible. |
| 15/05/2025 | Other Neutral Grassland | Species diversity falls due to apparent nutrient enrichment. | Appearance of species characteristic of nutrient enrichment. | Temporarily modify cutting regime with removal of arisings to increase rate of depletion. Mange through strategic species selection and maintenance practices aimed at enhancing sand sustaining species and general ecological diversity. |
| 15/05/2025 | Other Neutral Grassland | Fire risk relating to tall dry sward in drought. | Grass becoming very dry and drought conditions with hot weather are forecast over a prolonged period. | Monitor planting and water if considered necessary. If necessary, consider early cut and removal of standing biomass. |
| 15/05/2025 | Other Neutral Grassland | Flood damage risk. | Persistent damage creating more than 5% of bare ground locally. | Install drainage facilitation measures to increase speed of infiltration to the culvert but without disturbing valued buried heritage, e.g. by use of a pedestrian air spade. |
| 15/05/2025 | All habitats | Insect pests and plant damage. | Should one or more species reach serious pest proportions and cause widespread defoliation. | Apply biological or other control mechanisms that avoid the use of synthetic pesticides. |

3. Monitoring Schedule

Monitoring Strategy

| Provide details of the monitoring strategy to encourage successful implementation of the management plan (MS-B01) | |
|---|--|
| Baseline, construction and ongoing annual photographic record. | |
| Before-and-after surveys according to BNG habitat condition assessment methods | |
| | |

Monitoring Methods and Intervals MS-T01

| Habitat Type | Monitoring Methods | Monitoring Interval and Timing |
|---|---|---|
| Other Neutral Grassland and Modified Grassland | To be undertaken on all parcels of these habitat types. Undertake quadrat sampling to identify the habitat type that is establishing and then number of species per m². Estimate percentage of bare ground cover. (There is to be no shrub cover). Collect a botanical species list across grassland to check against target species list. | Annually from years 1-6, then every 2 years to year 10. Thereafter every 3 years. Surveys to be completed between mid-May and mid-July. |
| Flower-bed and Shade bed | To be undertake on all parcels of this habitat type. Inspections for plant survival, flowering, invasiveness, and condition/disease. | Annually but in more than one month depending on palette flowering times. |
| Faunal Refuges | Expert inspection for use, cleaning and maintenance. | Annually in winter. |
| Invasive alien plant species and species indicative of poor condition | Preparation of an identification guide. Toolbox talks to maintenance staff for general maintenance staff to monitor during all maintenance work. Additional survey visits by expert botanists | Ongoing Annual |
| Jersey Cudweed | Inspection by an expert botanist in peak flowering season towards the end of June | Annual |

Monitoring Reports

| Organisation Responsible for Submitting the Monitoring Reports | Organisation Receiving and Responsible for Reviewing Reports |
|--|--|
| Historic Royal Palaces | London Borough of Tower Hamlets |

| Project Year | Month Report to be Submitted | Month Management Plan to be reviewed | Comments |
|-------------------------------------|------------------------------|--------------------------------------|---|
| Year 1 | November | December and January. | Report on results of initial grassland creation measures. |
| Annually thereafter for 5 years | November | December and January. | Early establishment reports. |
| Thereafter every 2 years to year 10 | November | December and January. | Maturation reports. |
| Thereafter every 3 years to year 30 | November | December and January. | Condition maintenance reports. |
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Adaptive Management

| Summary of Adaptive Management Approaches (MS-B02) |
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| <p>The management plan is to be reviewed annually by HRP, advised by relevant experts as necessary.</p> <p>Evidence of problems arising such as pests or failure of species are to be discussed and a decision taken as to whether to not intervene or to intervene adaptively e.g. with protective measures, additional seeding and planting etc.</p> |