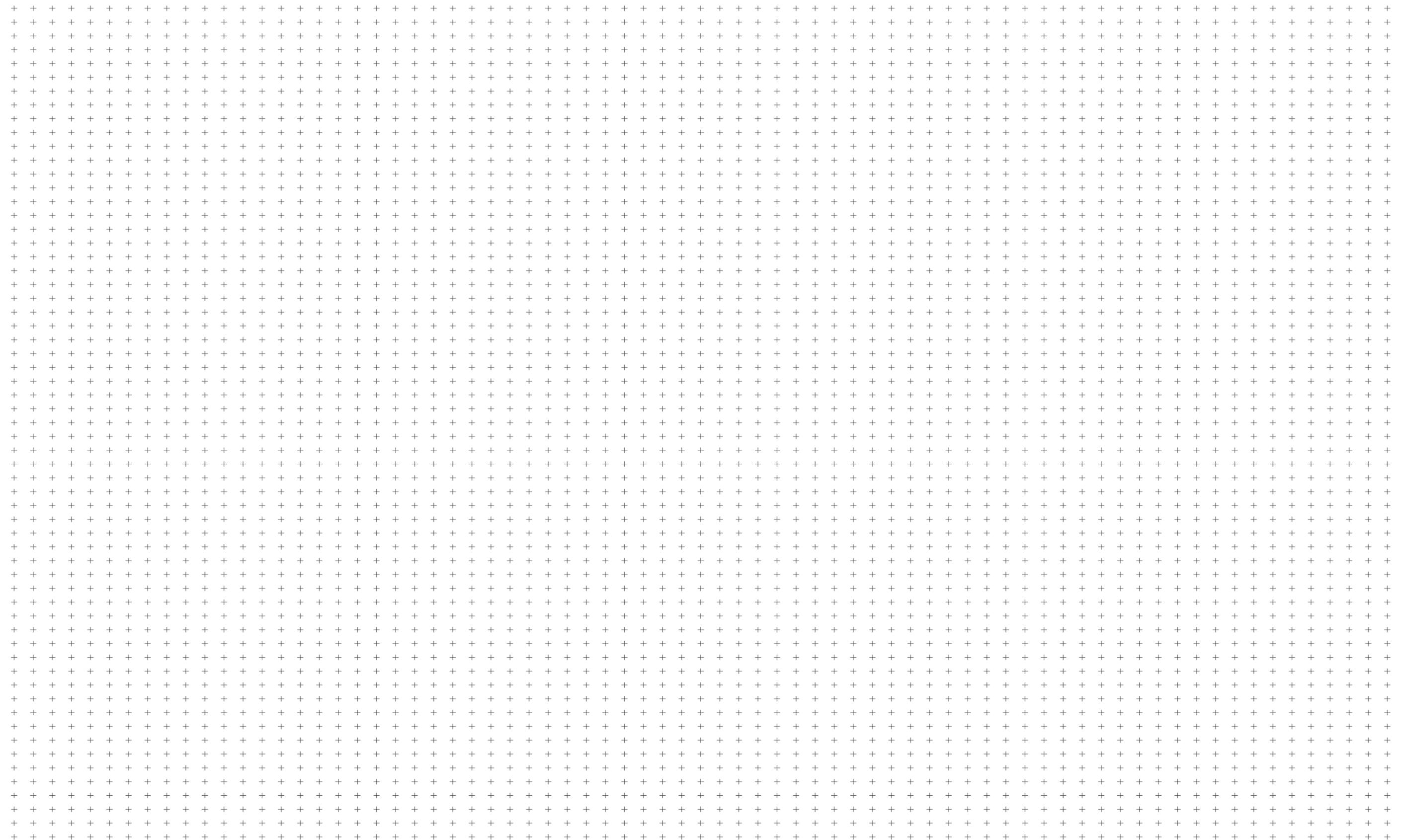


2511 - Dolphin Square, London, Flood Risk Assessment



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Status: Planning
Date: March 2022
Revision: 01
Job no: 2511
Approved by: Carmel Lennon

1. Introduction

This Flood Risk Assessment (FRA) Report has been prepared by Heyne Tillett Steel to support the planning application being submitted to Westminster City Council (WCC) in relation to the redevelopment taking place at Dolphin Square, London, SW1V 3LX.

The works are being submitted as a minor planning application with no alterations to the existing surface water drainage arrangement proposed, therefore this report will focus on flood risk from all sources.

The report aims to incorporate and demonstrate compliance with the following national, regional and local planning policy guidance and statutory requirement as far as reasonably possible.

- + National Planning Policy Framework (2019)
- + The London Plan (2021)
- + Draft Strategic Flood Risk Assessment (2019)
- + Preliminary Flood Risk Assessment (2011)
- + Emerging City Plan 2019-2040 (2019)
- + Adopted Westminster City Plan (2016)
- + Saved Unitary Development Plan Policies (2007)
- + Surface Water Management Plan (2011)
- + Local Flood Risk Management Strategy (2017)
- + Basement Development in Westminster – Supplementary Planning Document (2014)

2. Development Description

2.1 Existing Site

The site is located at Dolphin Square, London, SW1V 3LX. The approximate National Grid Reference for the site is N529500, E178034. The site covers an area extent of approximately 2.76 ha and includes a residential complex of thirteen connected apartment buildings and a hotel which ranges between six to nine storeys above ground level, and partial basement and sub-basement levels.

The site is bound to the north by Chichester Street and to the south by Grosvenor Road. Retaining walls separate the site and the rear gardens of Claverton Street and St. Georges Square to the east and west.

Dolphin Square comprises four connected wings with open garden areas in the centre of the complex. The north wing of the building is occupied by two reception areas, an estate sales area and a small shopping annex at ground floor, and hotel rooms and offices, across the above ground levels.

The main entrance to the reception areas is located on Chichester Street. The south wing of Dolphin Square comprises four 'houses': Grenville, Drake, Raleigh and Hawkins. Ground floor and all above ground levels comprise residential apartments and communal hallways and spaces. The eastern wing of Dolphin Square comprises four houses: Keyes, Hood, Collingwood and Frobisher from north to south. Ground floor and all above ground levels comprise residential apartment and communal hallways and spaces. The west wing of Dolphin Square is occupied by Nelson, Howard, Beatty and Duncan houses.

2.2 Proposed Development

The proposals for the redevelopment of Dolphin Square incorporate the demolition of the existing lobby space and construction of a new double height entrance to create a new reception layout and amenity space. The redevelopment will also accommodate new risers throughout the residential apartments, additional ventilation provision to apartments, and replacement of lifts and reworking of existing lift shafts. There are landscaping refurbishments to the Moroccan Garden which incorporate resurfacing and replanting. Overall, there is no increase in impermeable area.

Extracts of the proposed Architect and Landscape Architects plans are included in Appendix A.



Image 1 - Site Location

3. Flood Risk

To determine the risk of flooding for the development site, the Environment Agency (EA)'s website was referenced as well as flood maps published by Westminster City Council (WCC), including information contained in the SFRA and SWMP.

3.1 Fluvial and Tidal Flood Risk

The latest Environment Agency (EA) flood zone maps show that the site is located in Flood Zone 3a (High Probability) of the River Thames (Image 2) and benefits from flood defences. This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

As the site is defended from flooding arising from the River Thames, the matching risk category under the National Flood Risk Assessment (NFRA) is low with an assumed chance of flooding of between 0.1% and 1% annual exceedance probability (taking into account any flood defences that may be in the area which will abate but not completely eradicate the chance of flooding).

The EA flood zone mapping does not take account of the presence of flood defences. Along the River Thames, the combination of flood walls and the Thames Barrier tidal barrier protect London from flooding. The entire area of floodplain within Westminster benefits from the presence of these flood defences and as a result the primary risk of flooding from the River Thames is considered to be negligible.

There remains a residual risk of flooding throughout the localised region in the event of a failure in the defences. Therefore, this residual flood risk must be considered.

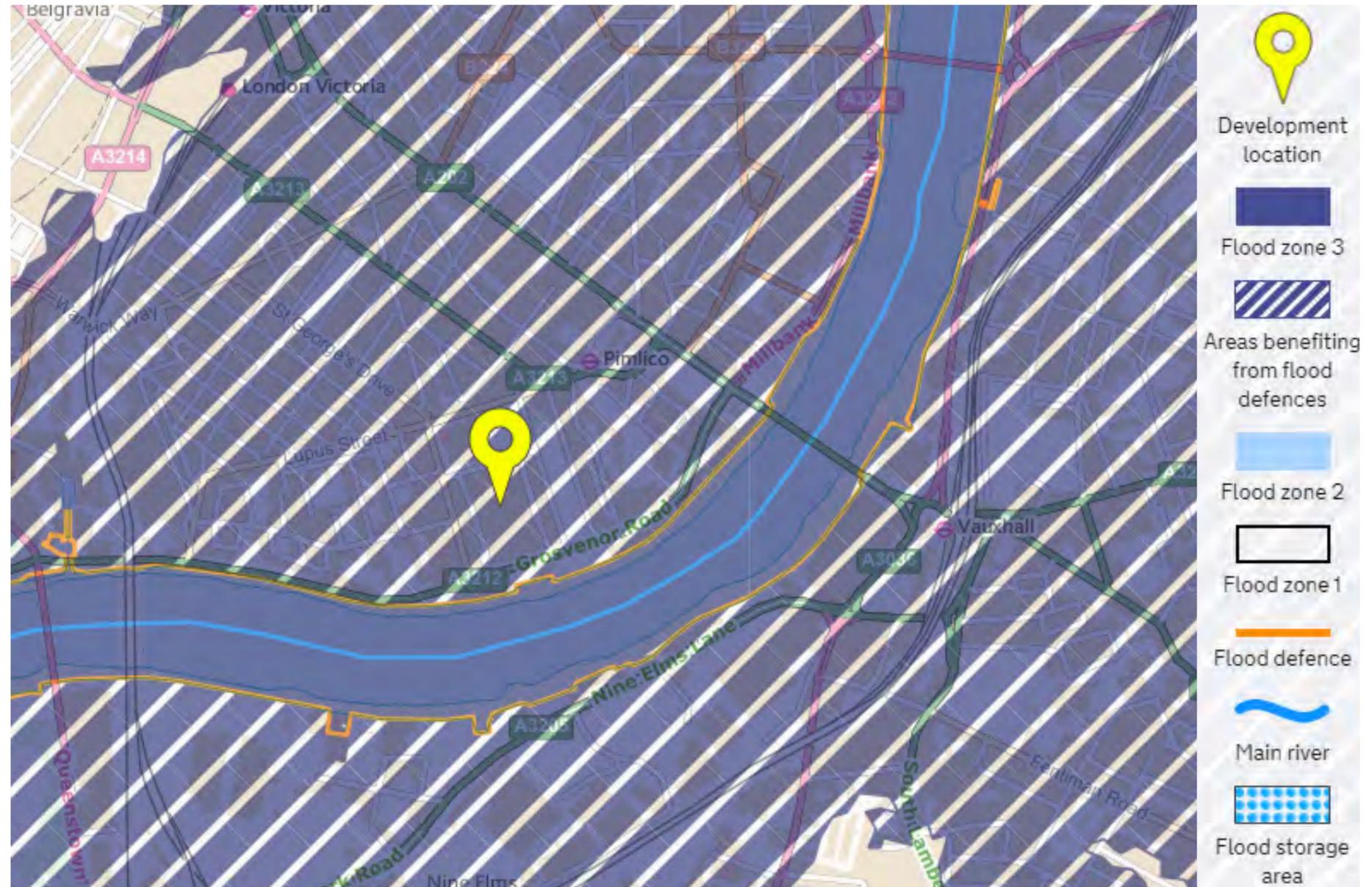


Image 2 - Environment Agency Flood Zone Map

3.1.1 Detailed Modelled Flood Water Levels

The EA has provided the latest present day and predicted future extreme water levels for the closest node to the site. In-channel flood levels for the River Thames provided by the Environment Agency reflect the Thames Estuary 2100 (TE2100) study completed by HR Wallingford. The TE2100 plan has set levels on which the flood risk management strategy is based. The plan is the principal flood management strategy for the Thames Estuary and therefore any development planning should be based on the same underlying data. Modelled flood water level information is presented in Table 1. These levels are based on the modelled output from Node 2.30 which is closest to the site.

The EA only provides extreme water levels for flood events in the tidal reach of the River Thames upstream of the Thames Barrier as flood levels are the highest tidal events allowable by the operational rules of the Thames Barrier. If levels and flows are forecast to be any higher the Thames Barrier would shut ensuring that the tide is held back and the river maintained to a lower level. The Thames Barrier and associated defences has a 1 in 1000 year standard (0.1% AEP). The extreme water level therefore represents the maximum flood that could occur when taking into account the operation of the Thames Barrier including all events up to the 1 in 1000 year return period called the Maximum Likely Water Levels (MLWLs). The Environment Agency has also noted that TE2100 takes into account operation of the Thames Barrier when considering future increases in tidal levels due to predicted future sea level rise.

A copy of the EA Product 4 dataset is included as Appendix B.

Table 1 shows defence levels for TE2100 2008 and TE2100 climate change levels. The design standard of protection of the flood defences in this area of the Thames is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event.

The Westminster Strategic Flood Risk Assessment confirms that the TE2100 Maximum Likely Water Levels (MLWLs) should be used when considering the potential future impacts of climate change.

3.1.2 Comparative Analysis of Flood Water Levels

The present day design floodwater level for the River Thames is 4.86m AOD. The defences closest to the site are all raised, man-made and privately owned. It is the riparian owners' responsibility to ensure that they are maintained to a crest level of 5.41m AODN (the Statutory Flood Defence Level in this reach of the Thames). They are inspected twice a year to ensure that they remain fit for purpose. The current condition grade for defences in the area is 2 (good), on a scale of 1 (very good) to 5 (very poor). The site is therefore protected from flooding by the Thames Barrier and formal flood defences to a standard in excess of the most extreme present-day predicted flood water level in the river.

As illustrated in Table 1, it is predicted that the level will rise as high as 5.81m AOD by the year 2100, depending on the selected defence policy in the Thames Estuary. The site is and will remain formally defended to a standard in excess of the 1000 year return period and, even assuming the worst case climate change levels shown in Table 1, would be protected from tidal flooding (flood defences will be raised to ensure continued protection past 2100 as shown in Table 1).

Table 1 – Thames Estuary 2100 Modelled 0.1% AEP (Node 2.30)

	Maximum Likely Water Level (mAOD)	Left Defence (mAOD)	Right Defence (mAOD)
Present Day	4.86	5.41	5.41
2065 to 2100	5.35	5.85	5.85
2100	5.81	6.35	6.35

3.1.3 Residual Risk – Breach Analysis

The City of Westminster Strategic Flood Risk Assessment (SFRA) states that the breaching or overtopping of existing defences constitutes a 'residual risk'. The report identifies Grosvenor Road in Pimlico as one of four critical lengths of tidal defence if breached by an extremely high tide and could lead to extensive inundation of the areas behind. Flood defences within Westminster are currently well maintained, provide sufficient flood protection from breach and overtopping and are considered to continue to provide sufficient protection throughout the lifetime of the development.

The Environment Agency has completed a comprehensive study assessing the likely extent of flooding that would arise in the event of breaches in the raised Thames Tidal Defences. The breached are assessed for various epochs or periods of time. The worst case flood water level on site for the 2014 epoch event is 4.866m AODN and for the 2100 epoch event of 2100 is 5.655m AODN. The extent of flooding in these epoch events is illustrated in the breach maps below (Image 3).

In order to mitigate against this risk, flood resilient design will be used for the proposed buildings and the existing building will be retro-fitted with flood resilient measures where possible. This will be developed at the detailed design stage. Safe access and egress to cope with the residual flood risk has also been considered.



Image 3 - EA Breach Depth Maps (2014 and 2100 epoch events)

3.1.4 Safe Access and Egress

The site is defended against tidal flooding in the Thames Estuary by the Thames Barrier and flood defences. The site will therefore remain dry during an extreme flood event in the River Thames provided the defences are operational.

The site lies within a designated flood warning area of the Environment Agency. The Flood Warning Service provides early warning of flooding in the catchment and will provide notice to implement precautionary measures where required. The full Environment Agency flood warning service comprises four staged warning codes, each indicating the severity of flooding and the level of danger. These are; All Clear, Flood Watch, Flood Warning and Severe Flood Warning. The flood status of an area is updated at 15 minute intervals on the internet and is also available by telephone on a 24 hour Floodline.

Subscribers to this service are eligible to receive free warnings by telephone, mobile, email, SMS text message or fax, whichever is most convenient. Users can subscribe either online via the Environment Agency's Webpage or by calling Floodline on 0845 988 1188. Businesses who sign up for the telephonic service, for instance, will receive an automated message via the phone telling them that flooding is expected and giving advice as to what actions should be taken.

It is recommended that all residents are made aware of the residual flood risk and encouraged to avail of the Environment Agency's "Flood Warning Direct Service". In the worst case scenario this would allow residents to vacate the areas at risk of flooding, including this development, and make their way to higher ground outside the flood zone to the north. It is also recommended that, where possible, the development has 24-hour portage to ensure there is personnel in reception to receive an automated warning of flooding.

As much of the proposed development work is limited to the refurbishment of existing buildings that sit within a Conservation Area, there is limited scope to amend the existing finished floor levels. The basement will be limited to low risk uses only such as car parking, cycle storage, plant rooms and a gymnasium. There is existing access from all units to upper floors using communal stairways.

3.2 Flooding from Surface Water

Surface water flooding is caused when the volume of rainwater falling does not drain away through the existing drainage systems or soak into the ground, but lies on or flows over the ground instead.

An extract of the Environment Agency map risk of flooding from surface water is provided in Image 4. The approximate application site boundary is shown in red. The site is shown to be located in an area of low risk from surface water flooding in a given year.

A copy of the City of Westminster Preliminary Flood Risk Assessment (PFRA) surface water flood depth map is included as Appendix C.

3.3 Flooding from Sewers

In urban areas, rainwater is frequently drained into surface water sewers or sewers containing both surface and waste water known as 'combined sewers'. Foul water flooding often occurs in areas prone to overland flow and can result when the sewer is overwhelmed by heavy rainfall and will continue until the water drains away. It can also occur when the sewer becomes blocked or is of inadequate capacity, this could lead to there being a high risk of internal property flooding with contaminated water. The Thames Water DG5 records highlights that there has been between 1 to 5 sewer flood incidents local to the site however there are no historical records of sewer flooding at the site therefore the risk of flooding from sewers is considered to be low.

A copy of the recorded incidents of sewer flooding map is included as Appendix D.

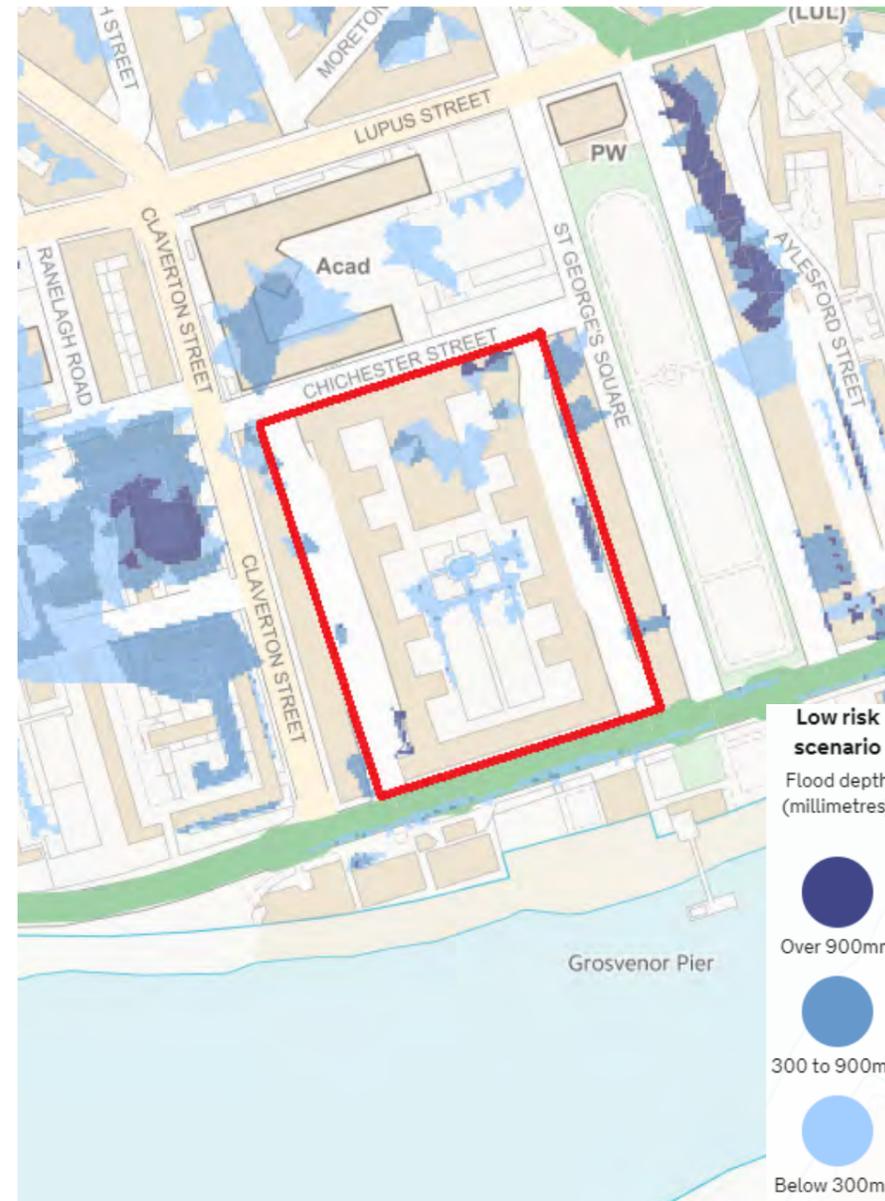


Image 4 - Surface Water Flood Map

3.4 Flooding from Groundwater

High groundwater levels are usually the key source of groundwater flooding, which occurs when excess water emerges at the ground's surface. Groundwater flooding is often more insistent than surface water flooding and would typically last for weeks/months rather than days meaning the resultant to property is often more severe flooding.

The Environment Agency groundwater source protection maps (Image 6) show that the site is located in the 'Inner Zone (Zone 1)'.

This is defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres.

The BGS Aquifer maps (Superficial Deposits Designation) (Image 7) shows the site is located within a 'Secondary A' aquifer region. The groundwater vulnerability maps (Image 8) show the site is located in a 'minor aquifer high' zone.

The risk of groundwater flooding is considered to be low risk. A copy of the elevated groundwater emergence maps is included as Appendix E.

3.5 Flooding from Reservoirs, Canals and other Artificial Water Sources

There are no reservoirs, canals or artificial water courses in close proximity to the site. Therefore the risk of flooding from reservoirs, canals or artificial water courses is very low.

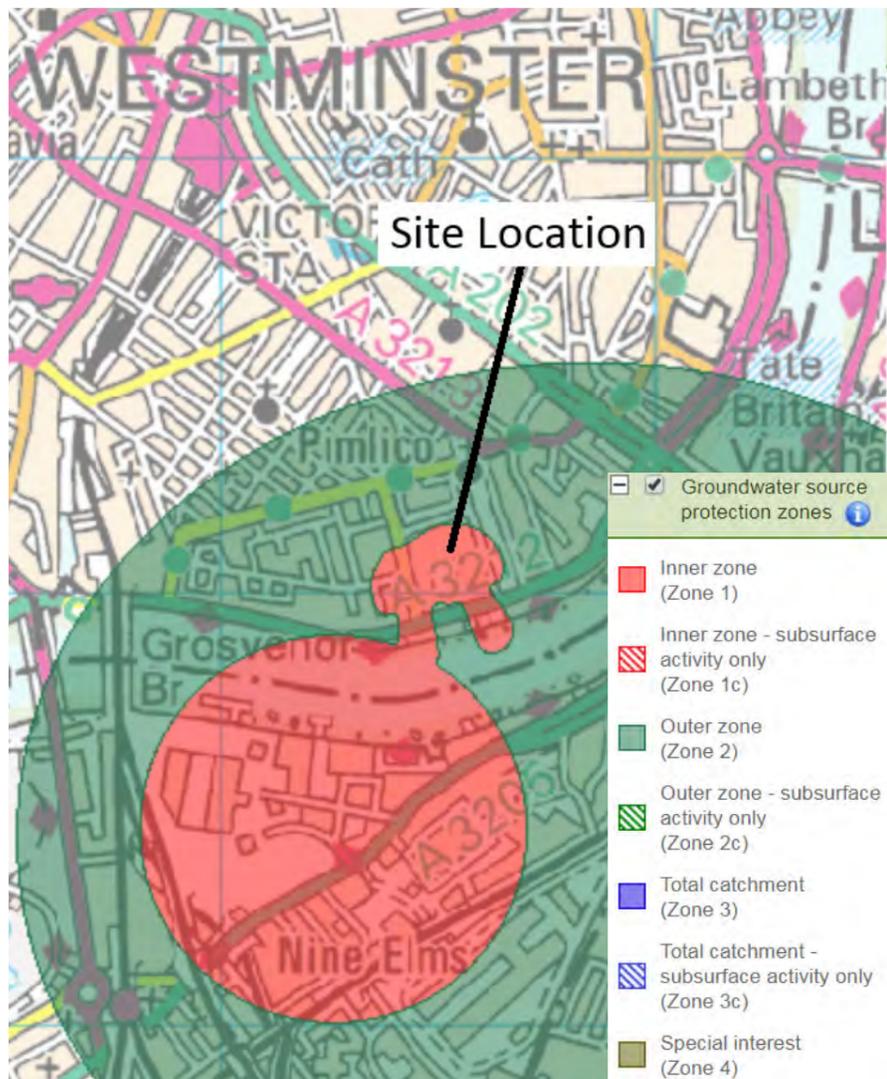


Image 5 - Groundwater Source Protection Map

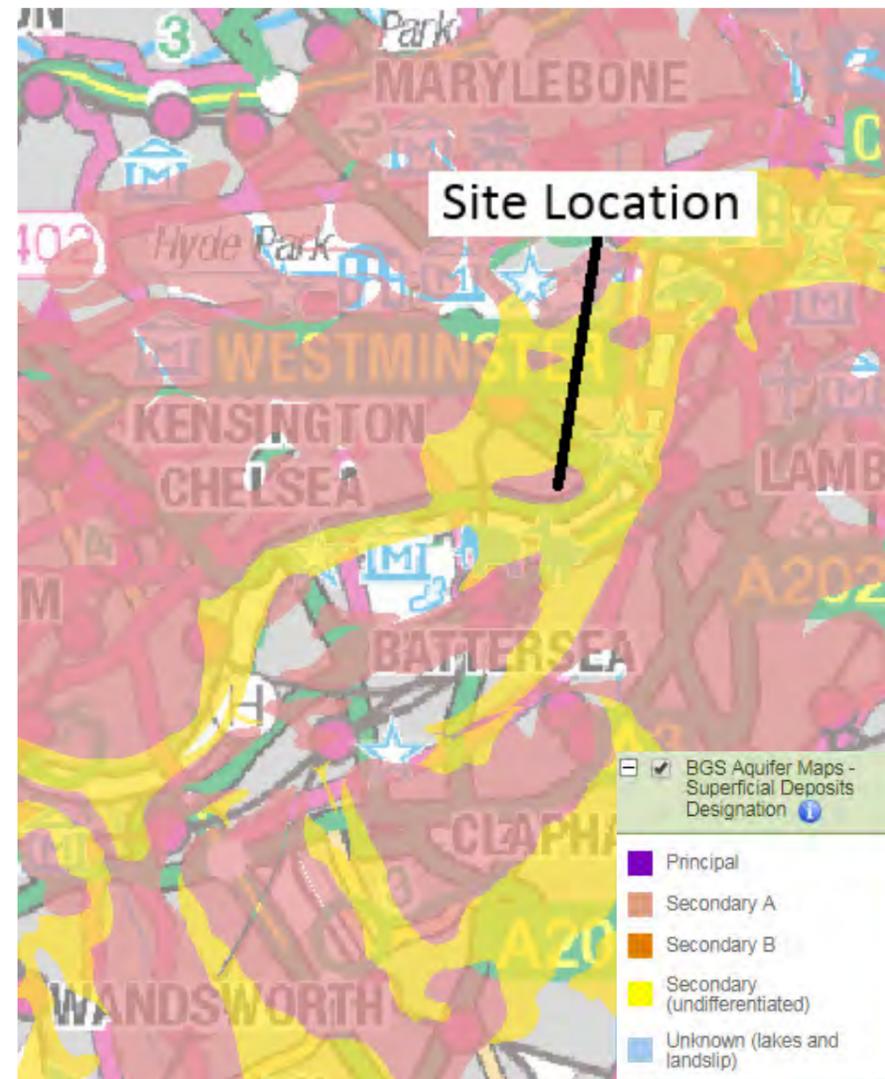


Image 6 - BGS Aquifer Map (Superficial Deposits)

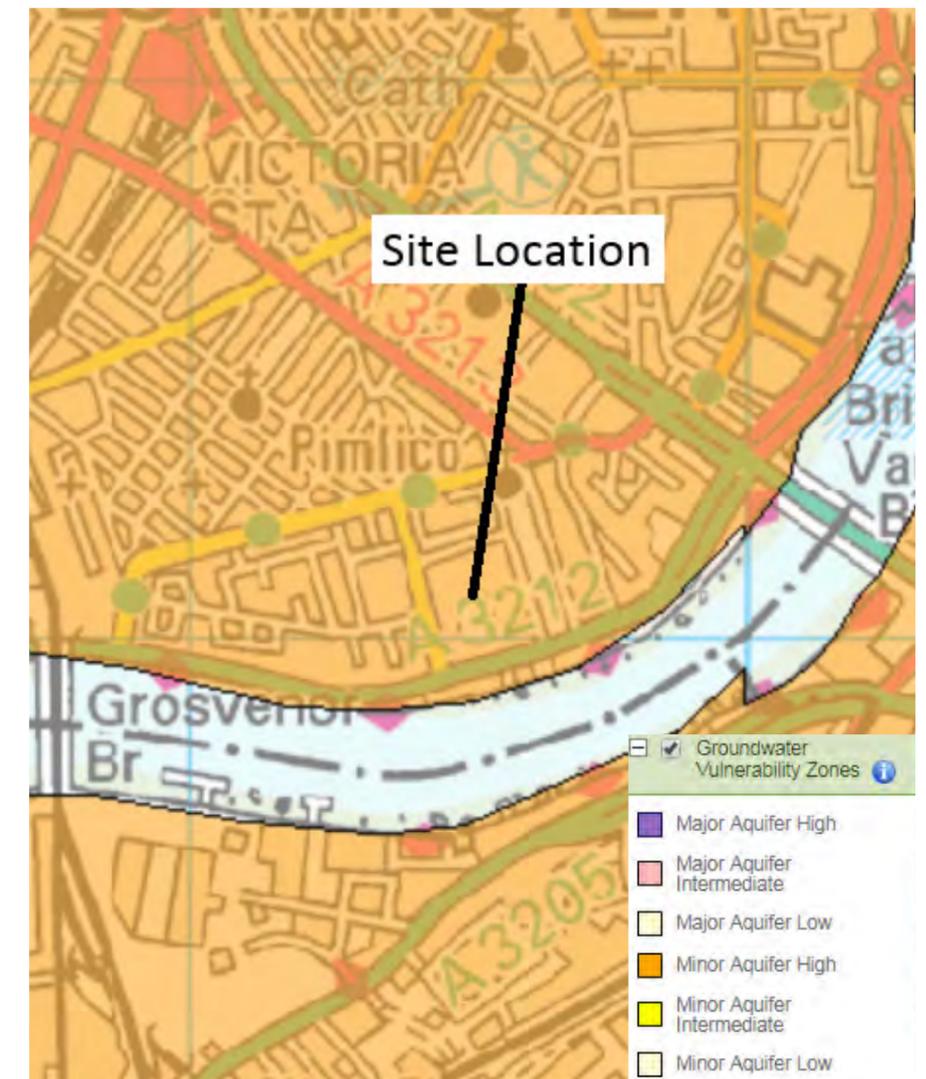


Image 7 - Groundwater Vulnerability Maps

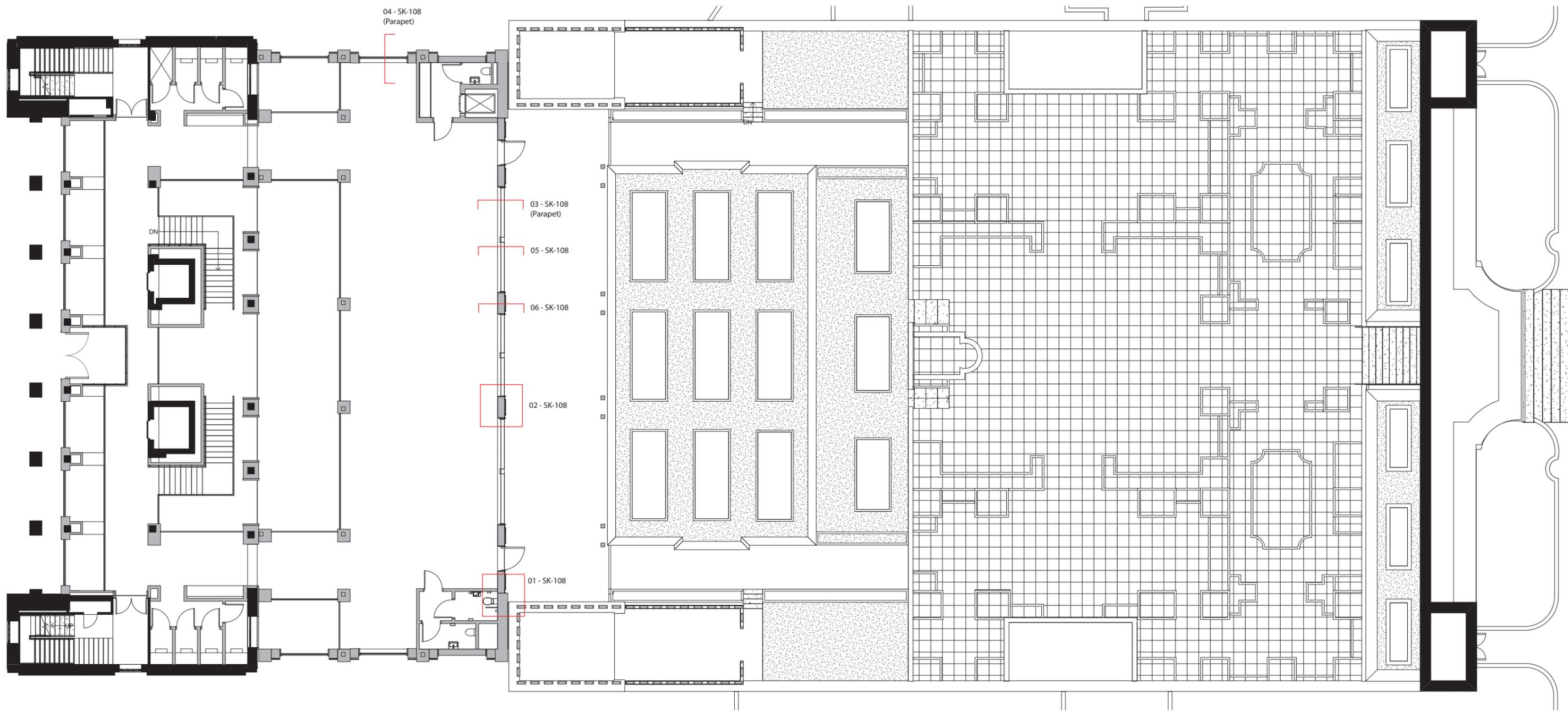
4. Conclusion

In conclusion, the risk of flooding from fluvial and tidal sources is considered low, however there is a residual risk associated with failure of the defences. Details have been provided outlining how residents could safely egress the buildings in the unlikely event of flooding. Advice is also set out regarding the Environment Agency's flood warning service.

The risk of flooding from all other sources is considered to be low.

Appendix A

Proposed Plans



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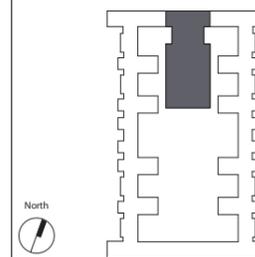
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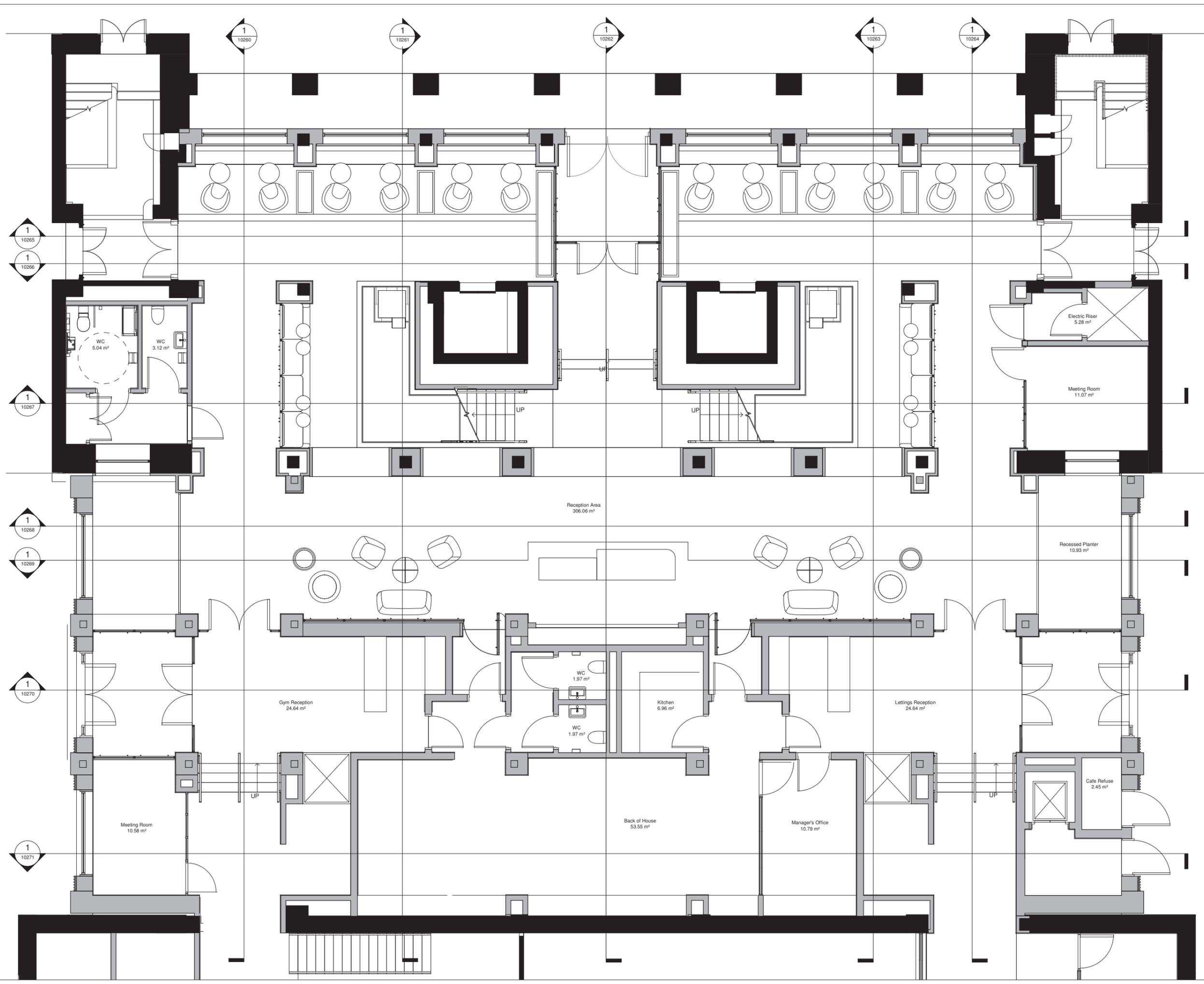
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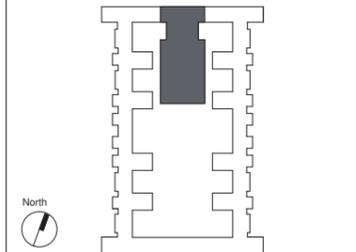
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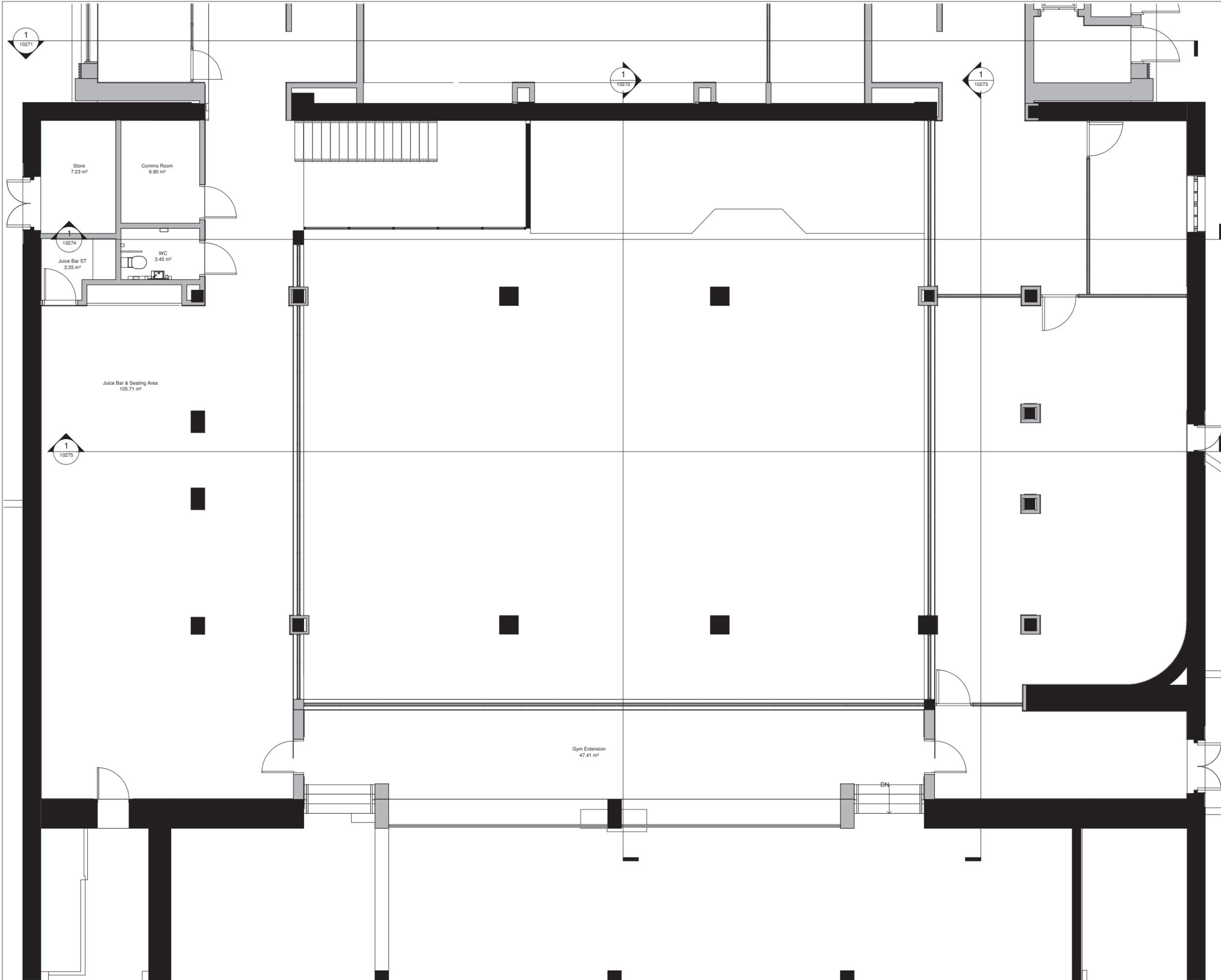
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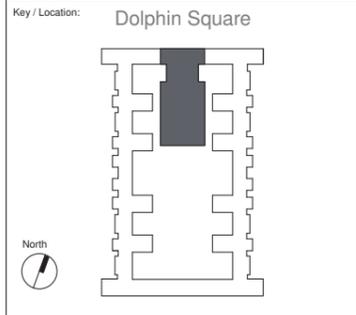
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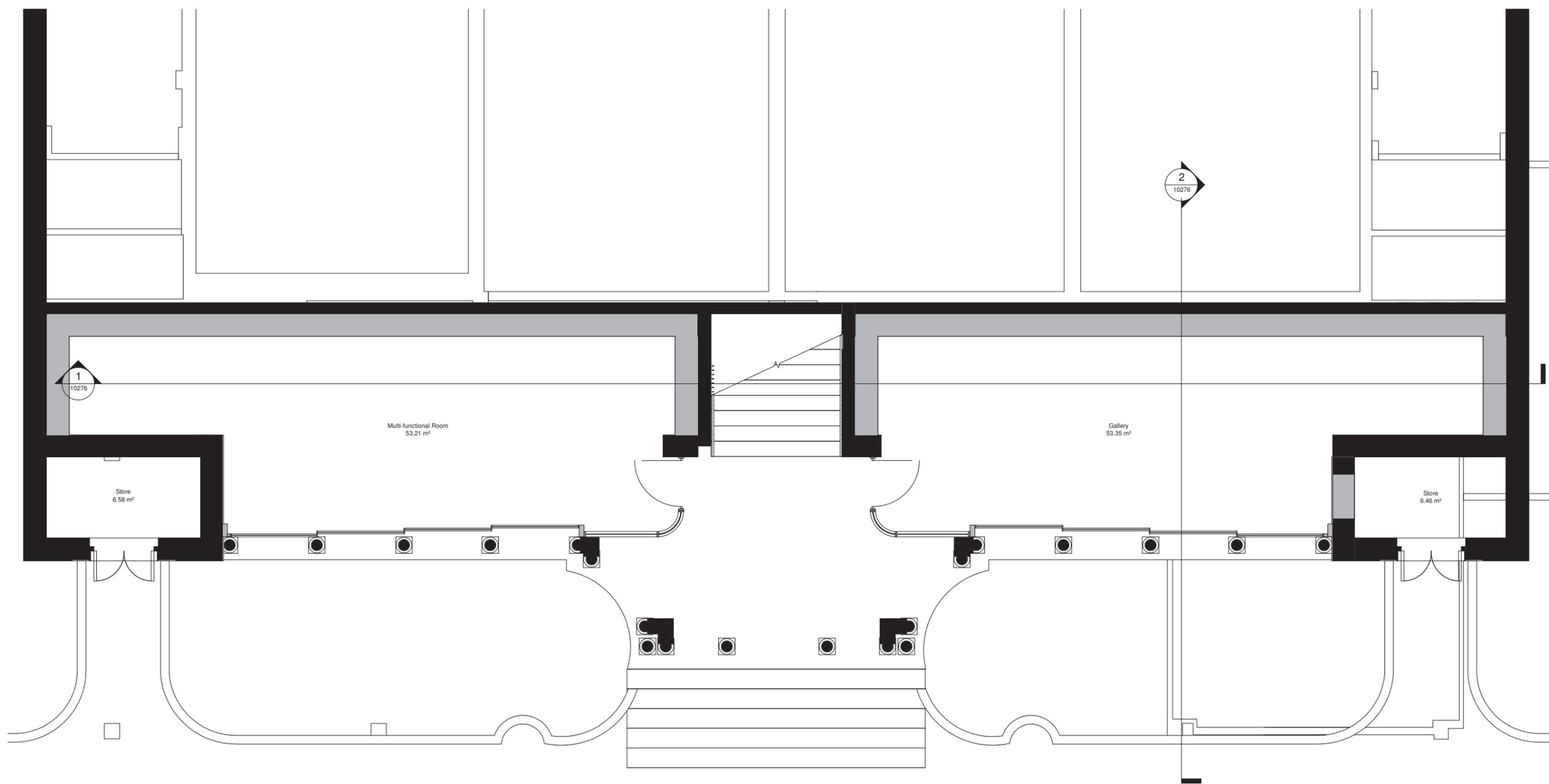
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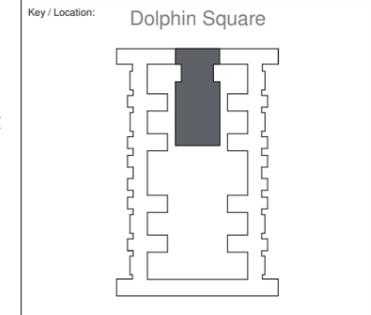
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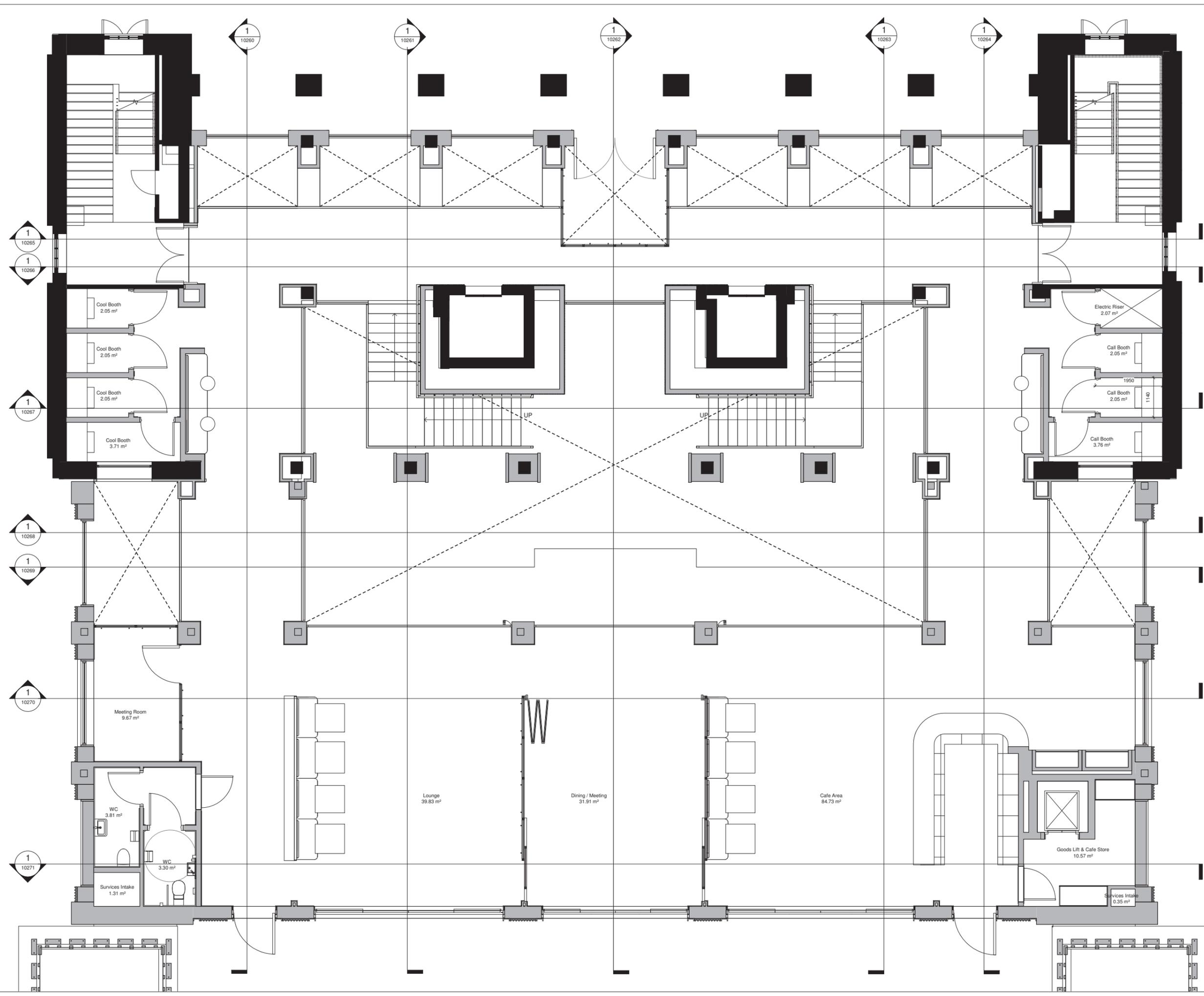
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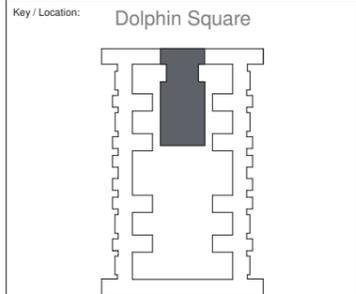
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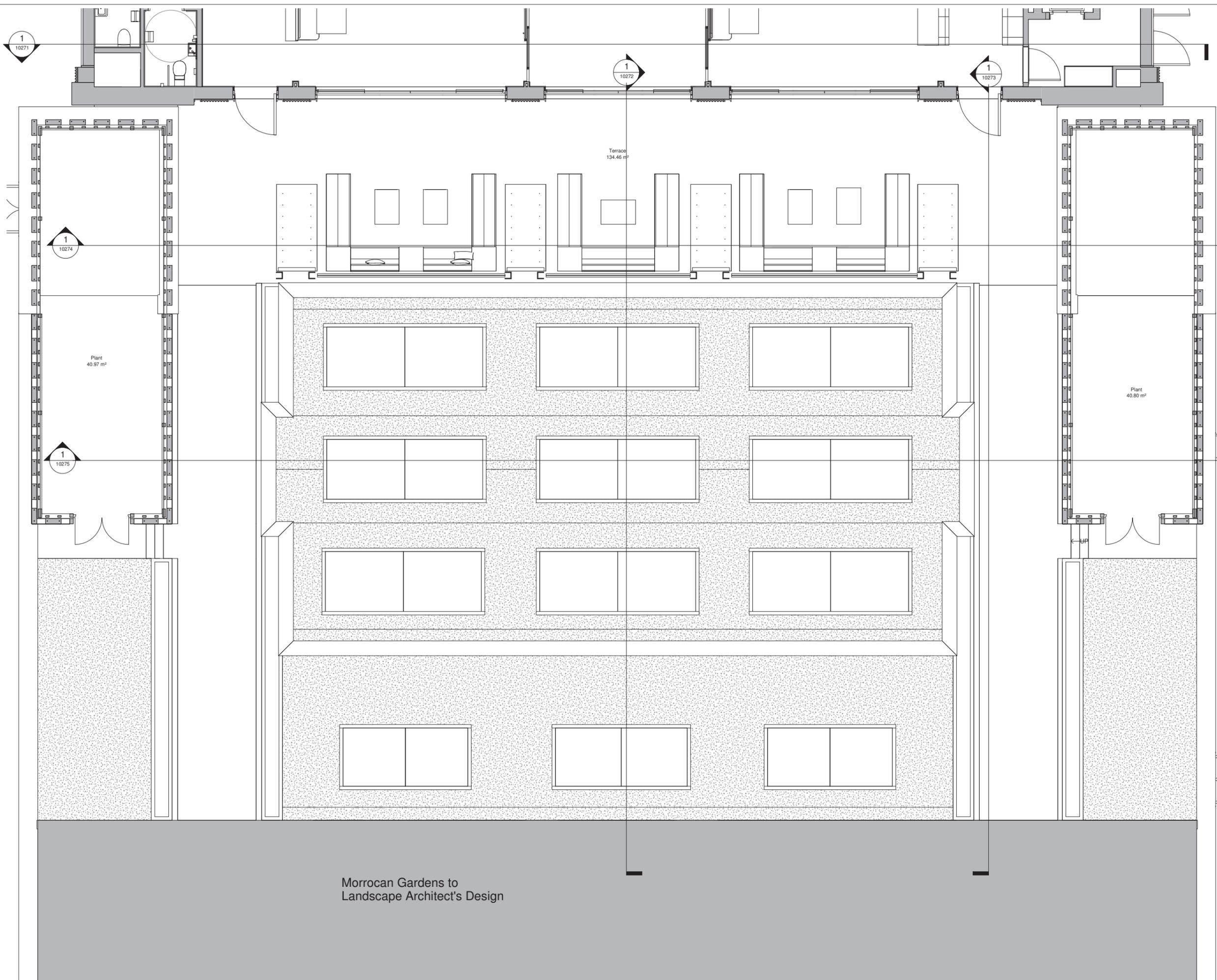
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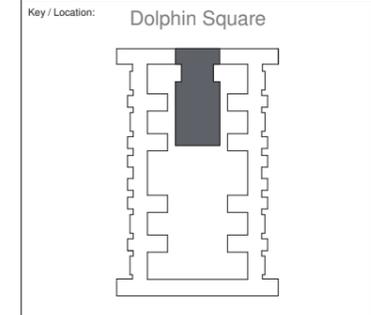
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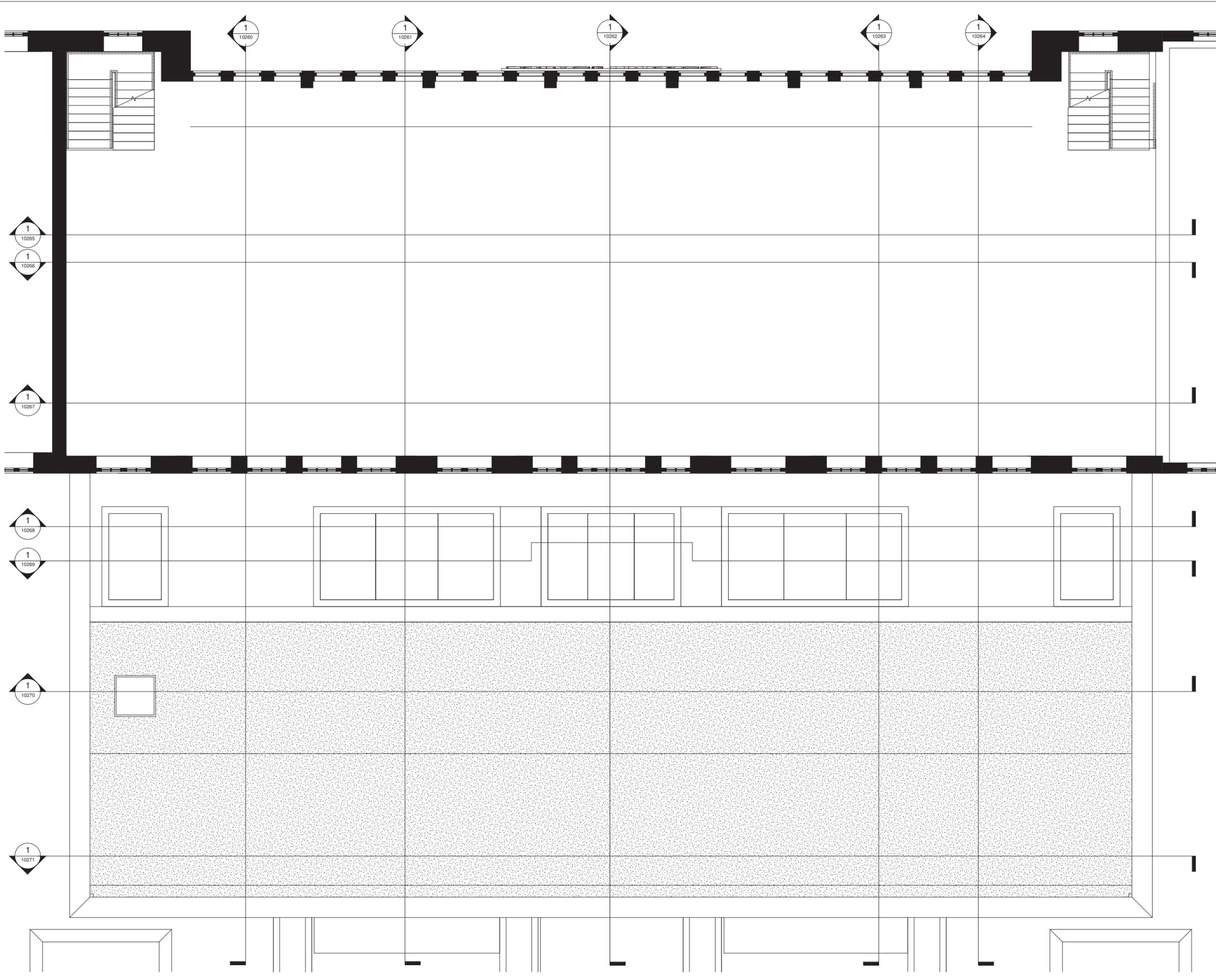
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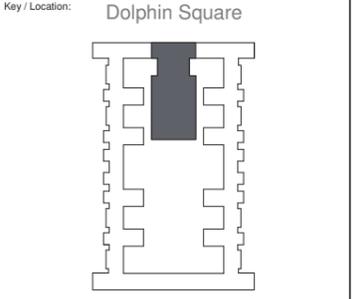
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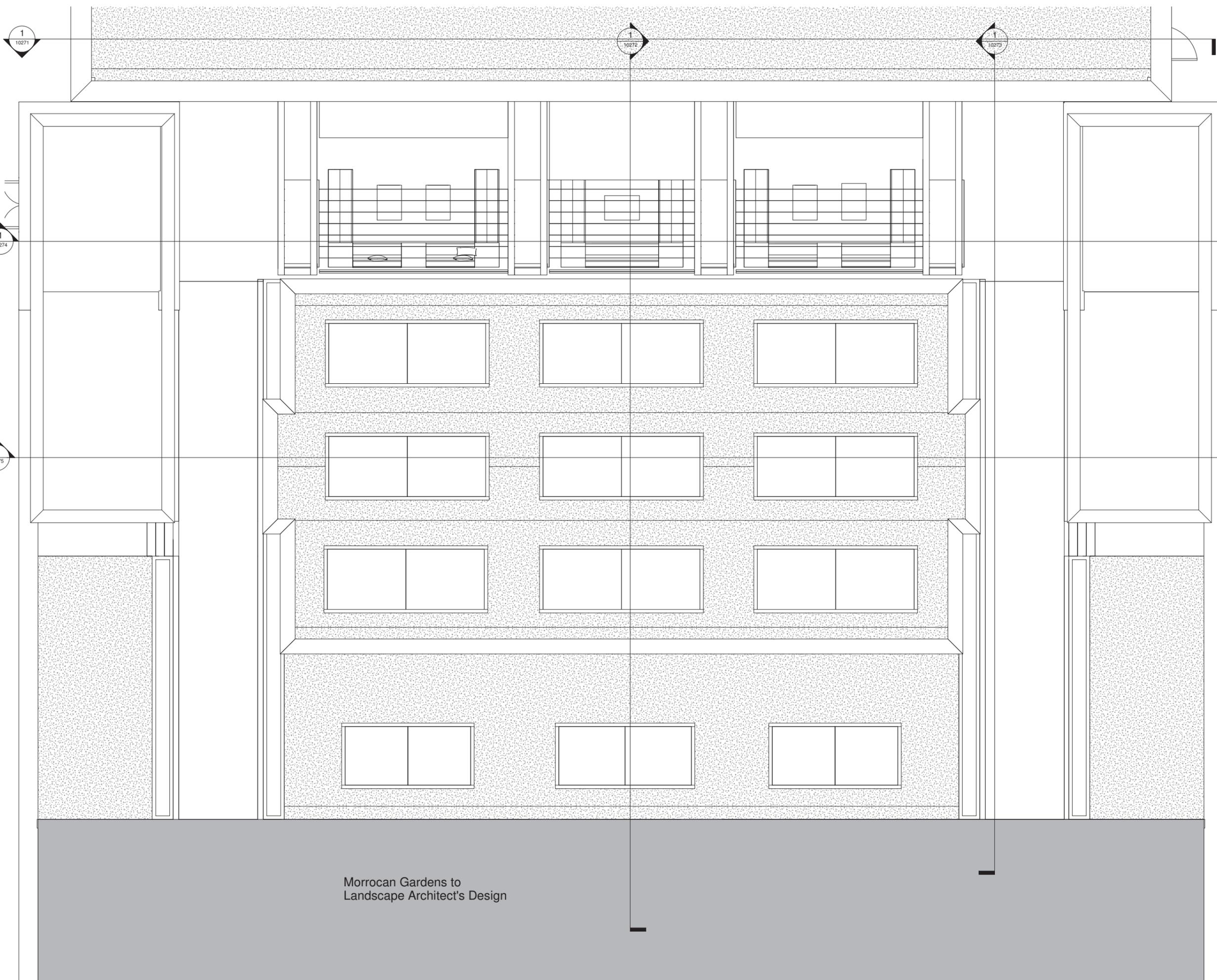
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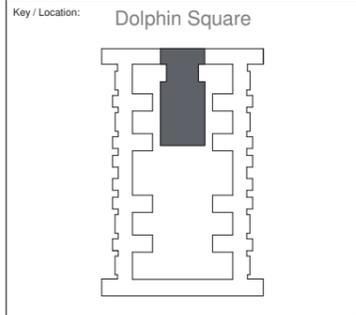
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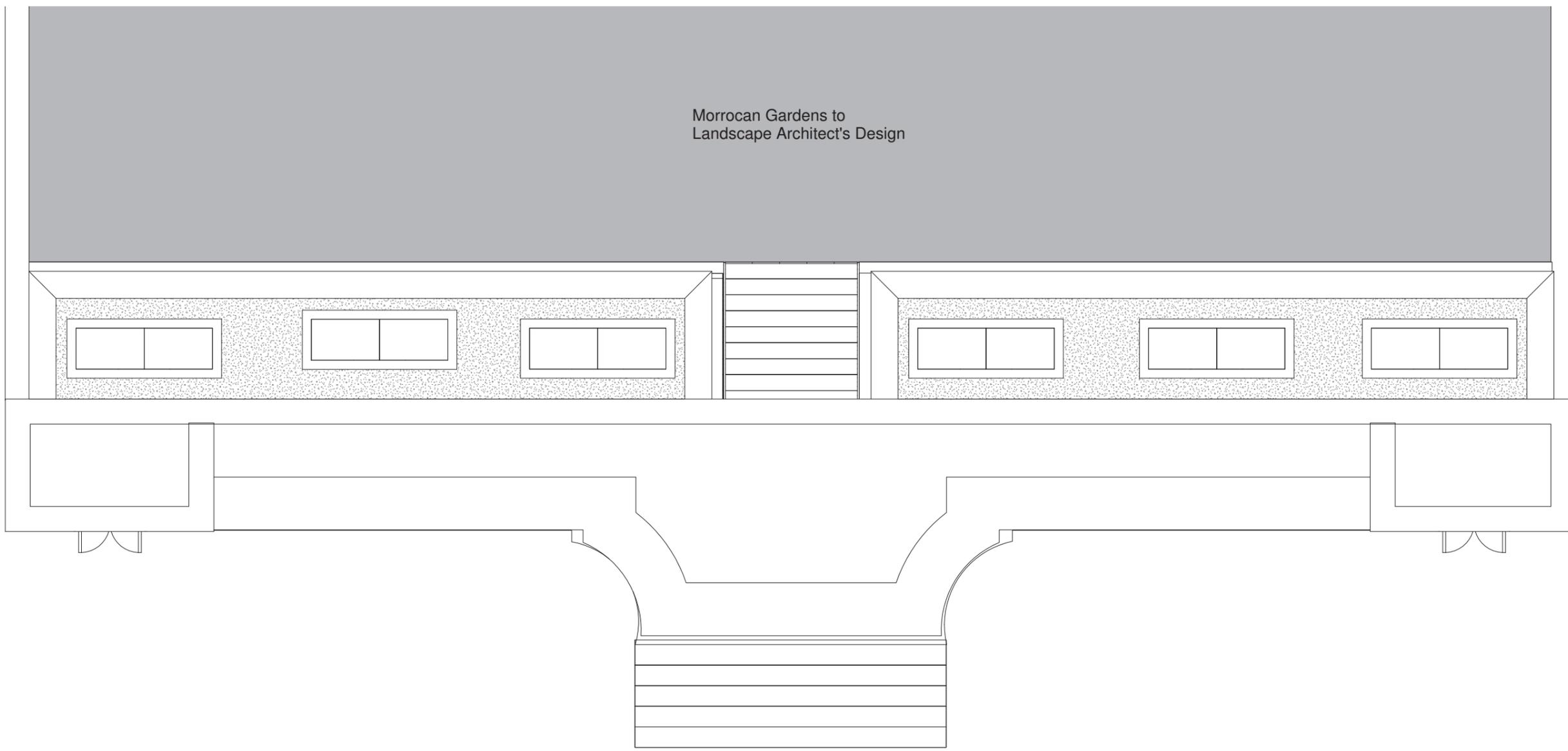
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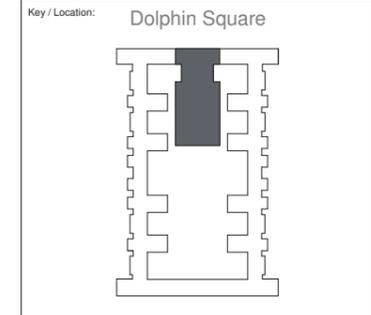
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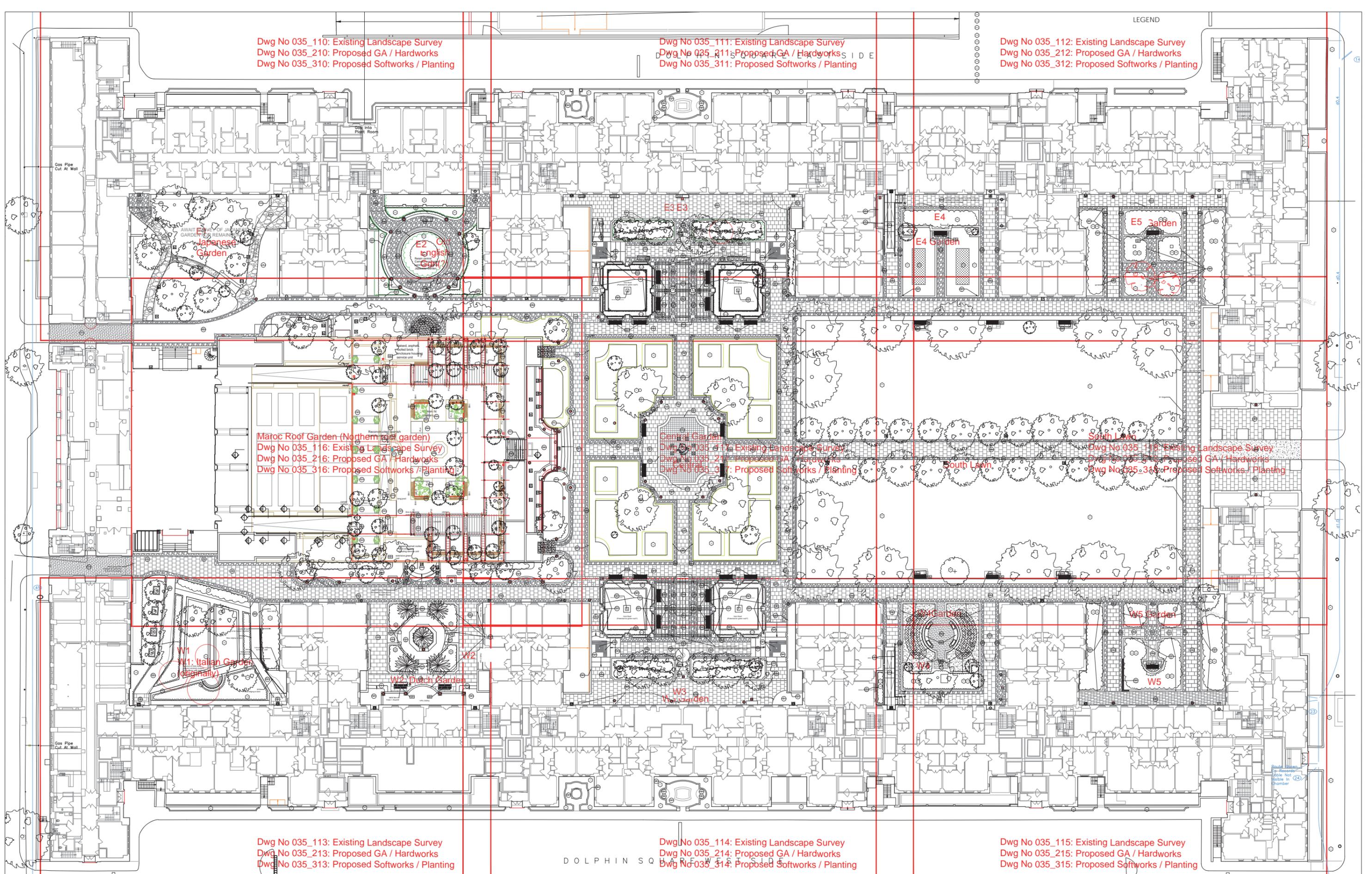
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Drawing No: DSQ-GRI-A-01-DR-A-10168	Revision:	

Dwg No 035_110: Existing Landscape Survey
Dwg No 035_210: Proposed GA / Hardworks
Dwg No 035_310: Proposed Softworks / Planting

Dwg No 035_111: Existing Landscape Survey
Dwg No 035_211: Proposed GA / Hardworks
Dwg No 035_311: Proposed Softworks / Planting

Dwg No 035_112: Existing Landscape Survey
Dwg No 035_212: Proposed GA / Hardworks
Dwg No 035_312: Proposed Softworks / Planting



Maroc Roof Garden (Northern end of garden)
Dwg No 035_116: Existing Landscape Survey
Dwg No 035_216: Proposed GA / Hardworks
Dwg No 035_316: Proposed Softworks / Planting

General Garden
Dwg No 035_117: Existing Landscape Survey
Dwg No 035_217: Proposed GA / Hardworks
Dwg No 035_317: Proposed Softworks / Planting

South Lawn
Dwg No 035_118: Existing Landscape Survey
Dwg No 035_218: Proposed GA / Hardworks
Dwg No 035_318: Proposed Softworks / Planting

Dwg No 035_113: Existing Landscape Survey
Dwg No 035_213: Proposed GA / Hardworks
Dwg No 035_313: Proposed Softworks / Planting

Dwg No 035_114: Existing Landscape Survey
Dwg No 035_214: Proposed GA / Hardworks
Dwg No 035_314: Proposed Softworks / Planting

Dwg No 035_115: Existing Landscape Survey
Dwg No 035_215: Proposed GA / Hardworks
Dwg No 035_315: Proposed Softworks / Planting

DOLPHIN SQUARE



REVISION	PROJECT	Dolphin Square	CLIENT	Dolphin Square Ltd
A: First Issue: 14.06.21	DRAWING	Existing Site Plan - Central Gardens	SCALE	1:250 @A1
	DRAWING NO.	035_201	DRAWN	AN/SP
			 e: sally@sp-la.co.uk t: +44 (0) 7905 960155	

Appendix B

EA Product 4 Data

Product 4 (Detailed Flood Risk) for: Dolphin Square, Chichester Street,
London, SW1V 3LX

Reference: HNL 218971 HH

Date: 08/06/2021

Contents

- Flood Map for Planning (Rivers and Sea)
- Flood Map Extract
- Thames Estuary 2100 (TE2100)
- Thames Tidal Upriver Breach Inundation Modelling 2017
- Thames Tidal Upriver Breach Inundation Modelling Map
- Site Node Locations Map
- Defence Details
- Recorded Flood Events Data
- Recorded Flood Events Outlines Map
- Additional Information

The information provided is based on the best data available as of the date of this letter.

You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements to the data for this location have been made. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Flood Map for Planning (Rivers and Sea)

The Flood Map:

Our Flood Map shows the natural floodplain for areas at risk from river and tidal flooding. The floodplain is specifically mapped ignoring the presence and effect of defences. Although flood defences reduce the risk of flooding they cannot completely remove that risk as they may be over topped or breached during a flood event.

The Flood Map indicates areas with a 1% (0.5% in tidal areas), Annual Exceedance Probability (AEP) - the probability of a flood of a particular magnitude, or greater, occurring in any given year, and a 0.1% AEP of flooding from rivers and/or the sea in any given year. In addition, the map also shows the location of some flood defences and the areas that benefit from them.

The Flood Map is intended to act as a guide to indicate the potential risk of flooding. When producing it we use the best data available to us at the time and also take into account historic flooding and local knowledge. The Flood Map is updated on a quarterly basis to account for any amendments required. These amendments are then displayed on the internet at <https://www.gov.uk/check-flood-risk>

At this Site:

The Flood Map shows that this site lies within Flood Zone 3 - with a 0.5% chance of flooding from the Thames (tidal Thames flooding) in any given year

Enclosed is an extract of our Flood Map which shows this information for your area.

Method of production

The Flood Map at this location has been derived using detailed modelling of the tidal River Thames through the Thames Tidal Defences Study completed in 2006 by Halcrow Ltd.

Thames Estuary 2100 (TE2100)

You have requested in-channel flood levels for the tidal river Thames. These have been taken from the Thames Estuary 2100 study completed by HR Wallingford in 2008. The modelled Thames node closest to your site is 2.30; the locations of nearby nodes on the River Thames are also shown on the enclosed map.

Details about the TE2100 plan

The Plan sets out how the Environment Agency and our partners can work together to manage tidal flood risk, from now until the end of the century. It is an adaptive plan for managing the Thames Estuary, including the tidal defence system, until 2100 so that current standards of flood protection are maintained or improved taking into account climate change effects e.g. sea level rise. The Plan has 3 phases of activity:

- Until 2035 – maintain and improve current defences, safeguard areas required for future improvements, and monitor climate change indicators.
- 2035-2050 – raise existing walls, defences & smaller barriers whilst reshaping the riverside environment.
- 2050-2100 – determine and implement an option for the future of the Thames Barrier, and adapt other defences as required to work alongside this to protect the estuary.

The Thames Estuary 2100 Plan can be found at: <https://www.gov.uk/government/publications/thames-estuary-2100-te2100>

Details about the TE2100 in-channel levels

The TE2100 in-channel levels take into account operation of the **Thames** Barrier when considering future levels. The **Thames** Barrier requires regular maintenance and with additional closures the opportunity for maintenance will be reduced. When this happens, river levels – for which the Barrier would normally shut for the 2008 epoch – will have to be allowed through to ensure that the barrier is not shut too often. For this reason, levels upriver of the barrier will increase and the tidal walls will need to be heightened to match.

Why is there no return period for levels upriver of the barrier?

The levels upriver of the barrier are the highest levels permitted by the operation of the Thames Barrier. If levels and flows are forecast to be any higher, the Thames Barrier would shut, ensuring that the tide is blocked and the river maintained to a low level. For this reason the probability of any given water level upriver of the Barrier is controlled and therefore any associated return period becomes irrelevant. The Thames Barrier and associated defence system has a 1 in 1000 year standard which means it ensures that flood risk is managed up to an event that has a 0.1% annual probability. The probability of water levels upriver is ultimately controlled by the staff at the Thames Barrier.

TE2100 2008 levels:

Levels downriver of the Thames Barrier are 0.1% AEP (1 in 1000) and levels upriver are the highest levels permitted by the Thames Barrier, described as the Maximum Likely Water Levels (MLWLs). The defence levels (left defence, right defence) are the minimum levels to which the defences should be built.

Node	Easting	Northing	Extreme water level (m)	Present Day Statutory Defence Level (Thames Left Bank) (m)	Allow for future 2100 defence raising to a level of... (Thames Left Bank)
2.29	528578	177781	4.87	5.41	6.35
2.30	529598	177749	4.86	5.41	6.35
2.31	530333	178388	4.85	5.41	6.35

TE2100 climate change levels:

Node	Easting	Northing	2065 to 2100		2100	
			Design water level	Defence level (both banks)	Design water level	Defence level (both banks)
2.29	528578	177781	5.36	5.85	5.82	6.35
2.30	529598	177749	5.35	5.85	5.81	6.35
2.31	530333	178388	5.34	5.85	5.80	6.35

Thames Tidal Upriver Breach Inundation Modelling – 2017 Upstream

The map attached displays site-specific modelled flood levels at your site. These have been taken from the Thames Tidal Upriver Breach Inundation Modelling Study 2017 completed by Atkins Ltd. in May 2017.

We have developed a modelling approach where all upriver breach locations along the Thames are equitably modelled, to ensure a consistent approach across London. This modelling simulates 5679 continuous tidal breaches along the entire extent of the Thames from Teddington to the Thames Barrier. For hard and composite defences breaches are set at 20 m wide; for soft defences, breaches are 50 m wide. In both cases, the defence breach scour distance was assumed to extend into the floodplain by the same distance as the breach width.

For breaches upriver of the Thames Barrier, there is no return period for modelled levels as the levels are controlled by barrier closures. The levels used are referred to as Maximum Likely Water Levels (MLWLs). Therefore 2005 and 2100 epochs were modelled on that basis.

This modelling has two epochs to consider; the 2005 epoch is a representation of today's flood levels without climate change considerations taken into account, and the 2100 epoch which takes into account changes likely to be seen due to climate change.

Defence Details

The design standard of protection of the flood defences in this area of the Thames is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year **tidal** flood event. The defences are all raised, man-made and privately owned. It is the riparian owners' responsibility to ensure that they are maintained to a crest level of **5.41m** mAODN (the Statutory Flood Defence Level in this reach of the Thames). We inspect them twice a year to ensure that they remain fit for purpose. The current condition grade for defences in the area is **3 (okay)**, on a scale of 1 (very good) to 5 (very poor). For more information on your rights and responsibilities as a riparian owner, please see our document 'Living on the edge' found on our website at:

<https://www.gov.uk/government/publications/riverside-ownership-rights-and-responsibilities>

There are no planned improvements in this area. Please see the 'Thames Estuary 2100' document on our website for the short, medium and long term Flood Risk Management strategy for London:

<https://www.gov.uk/government/publications/thames-estuary-2100-te2100>

Areas Benefiting from Flood Defences

This site is within an area benefiting from flood defences, as shown on the enclosed extract of our Flood Map. Areas benefiting from flood defences are defined as those areas which benefit from formal flood defences specifically in the event of flooding from rivers with a 1% (1 in 100) chance in any given year, or flooding from the sea with a 0.5% (1 in 200) chance in any given year.

If the defences were not there, these areas would be flooded. An area of land may benefit from the presence of a flood defence even if the defence has overtopped, if the presence of the defence means that the flood water does not extend as far as it would if the defence were not there.

Recorded Flood Events Data

We hold records of historic flood events from rivers and the sea. Information on the floods that may have affected the area local to your site are provided in the enclosed map.

Due to the fact that our records are not comprehensive, we would advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

We map flooding to land, not individual properties. Our historic flood event record outlines are an indication of the geographical extent of an observed flood event. Our historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea;
- surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system);
- overflowing or backing up of sewer or drainage systems which have been overwhelmed,
- groundwater rising up from underground aquifers

Currently the Environment Agency can only supply flood risk data relating to the chance of flooding from rivers or the sea. However you should be aware that in recent years, there has been an increase in flood damage caused by surface water flooding and drainage systems that have been overwhelmed.

Other Sources of Flood Risk

The Lead Local Flood Authority for your area are responsible for local flood risk (i.e. surface runoff, ground water and ordinary watercourse) and may hold further information.

You may also wish to consider contacting the appropriate relevant Local Planning Authority and/or water/sewerage undertaker for the area. They may be able to provide some knowledge on the risk of flooding from other sources.

Additional Information

Use of Environment Agency Information for Flood Risk / Flood Consequence Assessments

Important

If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:-

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice, the technical guidance to the National Planning Policy Framework and the existing PPS25 Practice Guide for information about what flood risk assessment is needed for new development in the different Flood Zones. These documents can be accessed via:

<https://www.gov.uk/flood-risk-standing-advice-frsa-for-local-planning-authorities>

<https://www.gov.uk/government/publications/national-planning-policy-framework-technical-guidance>

<https://www.gov.uk/government/publications/development-and-flood-risk-practice-guide-planning-policy-statement-25>

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

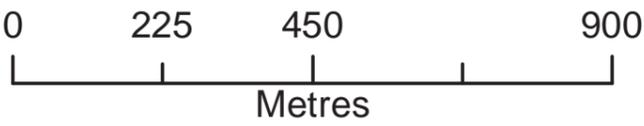
You should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk / Consequence Assessment (FRA / FCA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or overland runoff. The information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires a FRA / FCA and this is not submitted or deficient, the Environment Agency may well raise an objection.
4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your local planning authority.

Detailed FRA/FCA for: Dolphin Square, Chichester Street, London, SW1V 3LX - 08/06/2021 - HNL 218971 HH



Environment Agency
 Alchemy,
 Bessemer Road,
 Welwyn Garden City,
 Hertfordshire,
 AL7 1HE



Legend

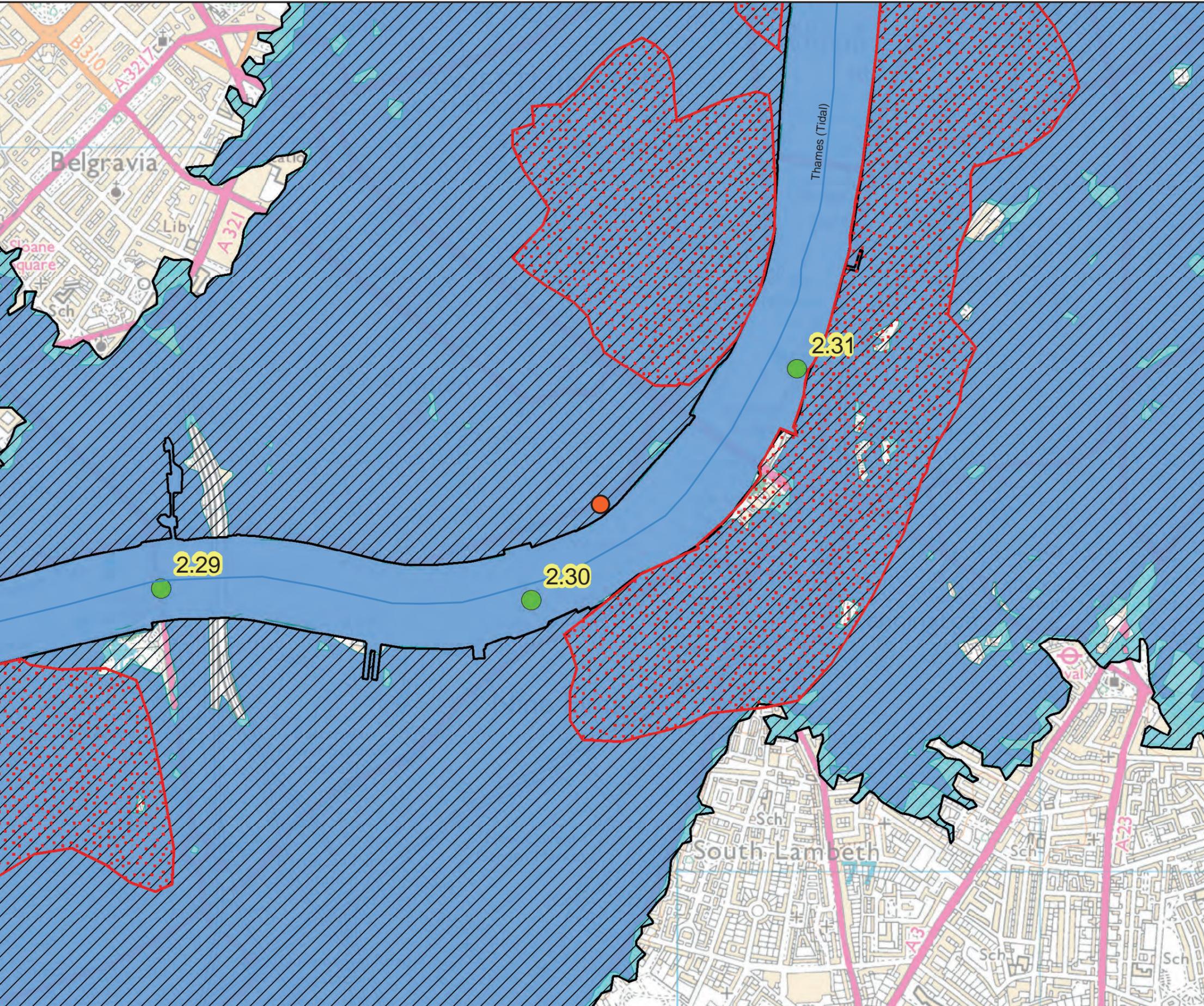
- Main Rivers
- Site location
- TE2100Nodes
- 1707 Flood Outline
- 1928 Flood Outline
- 1953 Flood Outline
- Areas Benefiting from Flood Defences
- Flood Zone 3
- Flood Zone 2

Flood Map for Planning (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:
 - from the sea with a 1 in 200 or greater chance of happening each year
 - or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Produced by:
 Partnerships & Strategic Overview,
 Hertfordshire & North London

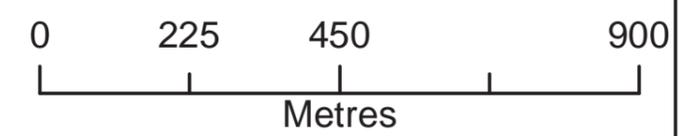


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Detailed FRA/FCA for: Dolphin Square, Chichester Street, London, SW1V 3LX - 08/06/2021 - HNL 218971 HH



Environment Agency
 Alchemy,
 Bessemer Road,
 Welwyn Garden City,
 Hertfordshire,
 AL7 1HE



Legend

- Main Rivers
- Site location

TTD Defences SDL (mAODN)

- SDL**
- 5.41

Flood Map for Planning (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:
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