



aegaea

Flood risk, water and environment

Flood Risk Assessment AEG0170_Uxbridge

Mr Shaun Nava

Site Address:
1-3 Rear Unit 16, Uxbridge Road, Hayes, UB4 0JN

**UK Experts in Flood Modelling, Flood Risk
Assessments, and Surface Water Drainage
Strategies**

aegaea

Flood risk, water and environment

fra@aegaea.com
02081 640 550
02081 641 282
www.aegaea.com

Document Issue Record

Project: Flood Risk Assessment – Level 1

Prepared for: Shaun Nava

Reference: AEG0170_Uxbridge_01

Site Location: 1-3 Rear Unit 16, Uxbridge Road, Hayes, UB4 0JN

Proposed Development: Conversion/change of use of existing office building to restaurant, including a terraced conservatory extension.

Consultant		Date	Signature
Author	Douglas Swinbanks	22/09/2021	
Document Check			
Authorisation	Daniel Cook	23/09/2021	

Please Note:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from Aegaea Limited. All work has been carried out within the terms of the brief using all reasonable skill, care, and diligence. No liability is accepted by Aegaea Limited for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced.

Contents

1.	Summary.....	4
2.	Policy Compliance.....	6
3.	Development Description and Site Area	7
	<i>Proposed Development and Location.....</i>	<i>7</i>
	<i>Geology.....</i>	<i>8</i>
4.	Sequential Test/Exception Test.....	9
5.	Site Flood Hazards	10
	<i>Sources of Flooding.....</i>	<i>10</i>
	<i>Fluvial.....</i>	<i>10</i>
	<i>Tidal.....</i>	<i>11</i>
	<i>Surface Water (Pluvial).....</i>	<i>11</i>
	<i>Groundwater</i>	<i>12</i>
	<i>Canals.....</i>	<i>13</i>
6.	Probability of Flooding.....	14
	<i>Flood Zones.....</i>	<i>14</i>
7.	Residual Risks.....	14
	<i>Identification of Residual Risks</i>	<i>14</i>
	<i>Reservoir Failure.....</i>	<i>15</i>
8.	Flood Risk Management Measures.....	15
	<i>Flood Risks.....</i>	<i>15</i>
9.	Off Site Impacts.....	15
	<i>Impact to Flood Risk Elsewhere</i>	<i>15</i>
10.	Conclusion	16
	Appendix A – Supporting Plans.....	17

1. Summary

- 1.1 Aegaea has been appointed by the applicant to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 1-3 Rear Unit 16, Uxbridge Road, Hayes, UB4 0JN.
- 1.2 The development is for the conversion of the existing office building to a restaurant, including a terrace conservatory extension (36m²) to the north. The site is currently an office space of Less Vulnerable use. The proposed development is a change of land use to a restaurant (including extension) and will continue to be classified as Less Vulnerable under Annex 3 of the NPPF.
- 1.3 The Environment Agency (EA) Flood Map for Planning shows the existing office building to be in Flood Zone 2 and the proposed terrace extension to be partially within Flood Zone 2 and Flood Zone 1. Flood Zone 2 comprises land assessed as having between a 1 in 100 and a 1 in 1,000 annual probability of river/fluviat flooding (0.1-1.0%) or between a 1 in 200 and a 1 in 1,000 annual probability of flooding from the sea (0.1-0.5%) in any year. Flood Zone 1 is land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
- 1.4 The existing office building is in an area at risk of flooding from the Yeading Brook watercourse which is fluvial at this location.
- 1.5 Review of the Environment Agency Long Term Flood Risk Maps which include Surface Water Flooding as well as West London SFRA show the Site to be at Low Risk from this source of flooding. And no recorded instances of sewer flooding were found for the site following review of the Hillingdon PFRA (2011).
- 1.6 It is understood that the proposed extension will be no greater than 250m², and any Finished floor levels will be set no lower than the existing. Surface water will drain to the existing drainage network currently servicing the existing building.
- 1.7 Following the guidelines contained within the NPPF, the proposed change of use and terrace extension should be considered suitable and appropriate for development.

Development Description	Existing	Proposed
Development Type:	Residential	Restaurant
EA Vulnerability Classification:	Less Vulnerable	Less Vulnerable
Ground Floor Level:		No Change
Level of Sleeping Accommodation:	N/A ²	N/A ²
Impermeable Surface Area:	N/A ²	Increase
Surface Water Drainage:	N/A ²	Main Sewer
Site Size:		No change
Risk to Development	Summary	Comment
EA Flood Zone:	1 and 2	
Flood Source:	Yeading Brook	
SFRA Available:	Yes	
Management Measures	Summary	Comment
Ground floor level above extreme flood levels:	N/A	finished floor levels of the restraint and extension to be set no lower than the existing
Safe Access/Egress Route:	Yes	Residents to sign up to the EA flood alert and flood warning service.
Flood Resilient Design:	Yes	Section 8 of this report
Site Drainage Plan:	N/A ²	Main Sewer
Flood Warning & Evacuation Plan:		Residents to sign up to the EA flood alert and flood warning service.
Offsite Impacts	Summary	Comment
Displacement of floodwater:	None	Minor Development.
Increase in surface run-off generation:		Development is change of use and an extension with the proposed roof drainage to drain into the existing drainage system.
Impact on hydraulic performance of channels:	None	No change

Table 1 Summary of flood risks, impacts and proposed flood mitigation measures.

¹ not required for this assessment

² data not available.

2. Policy Compliance

2.1 The proposed development site is located within Flood Zone 1 and 2 based on the EA Flood Map for Planning. The requirement for an FRA comes from the NPPF and the Hillingdon Local Plan Policy Part 1 -Flood Risk Management, November 2012 .

2.2 The National Planning Policy Framework (NPPF) (DCLG, 2021) includes Government policy on development and flood risk stating that:

159. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future).

Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

164. The application of the exception test should be informed by a strategic or site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:

a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and

b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

165. Both elements of the exception test should be satisfied for development to be allocated or permitted.

168. Applications for some minor development and changes of use⁵⁶ should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 55.

55 A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

56 This includes householder development, small non-residential extensions (with a footprint of less than 250m²) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate

3. Development Description and Site Area

Proposed Development and Location

- 3.1 The proposed development is located at 1-3 Rear Unit 16, Uxbridge Road, Hayes, UB4 0JN (Figures 1 and 2).
- 3.2 The development is for the change of use from an office space to restaurant, and construction of a terrace conservatory (36m²).

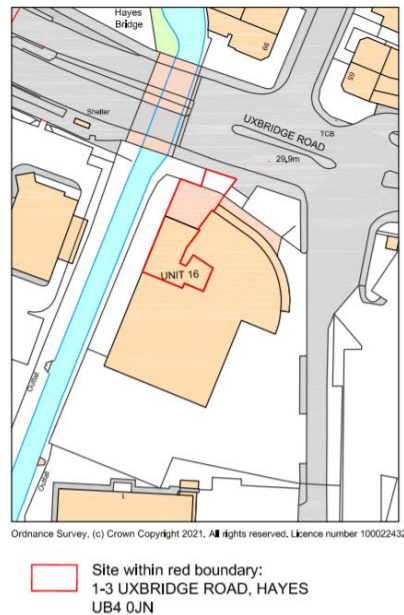


Figure 1 Location Map, identifying the location of the Site (Source: OS Mapping Data)

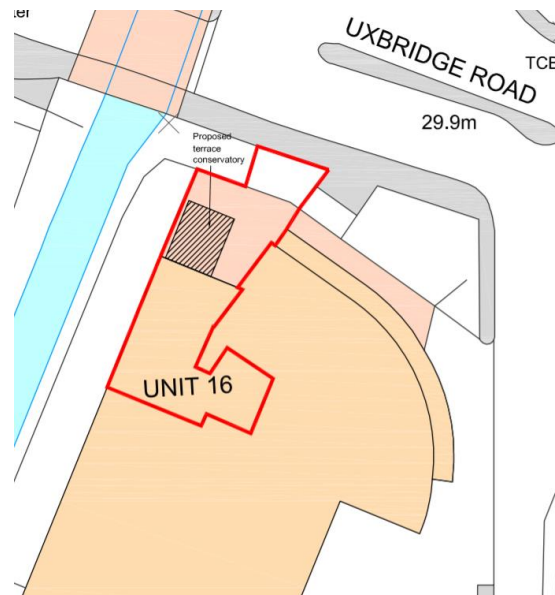


Figure 2 Aerial Map, identifying the location of the Site with redline application boundary (Source: Google Earth)

Vulnerability Classification

- 3.3 The site is currently an office building of Less Vulnerable use. The proposed development is to convert the existing office space into a restaurant, including a proposed terrace conservatory extension, and is viewed as a minor development. The vulnerability of the building and extension will continue to be Less Vulnerable.
- 3.4 On review of the EA Flood Maps for Planning, the existing office building is located within Flood Zone 1 and 2. The proposed conservatory extension to the north is partially within Flood Zone 2 and mostly in Flood Zone 1.

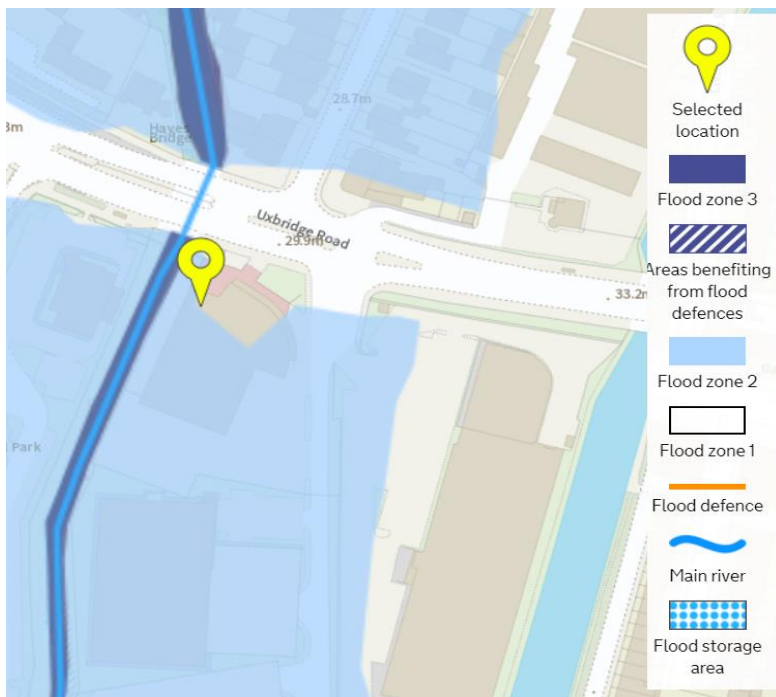


Figure 3 EA Flood Map for Planning

Geology

- 3.5 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is London Clay Formation - Clay, Silt and Sand.
- 3.6 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits are the Langley Silt Member - Clay and Silt.
- 3.7 Review of the BGS - Borehole Scan tool has provided 3 borehole logs undertaken in 1964- BGS ID TQ18SW152-154, to depths between 4.19m-9.14m. The boreholes are located at Davies timber yard approximately 150m North of the site. The findings of the borehole logs were found to be Firm Brown Clay, Fine Sand and Medium Gravels, Red Sand and Grey Peat. The standing water level was recorded to be between 0.83m-1.40m within the records.

4. Sequential Test/Exception Test

- 4.1 Under the NPPF, all new planning applications should undergo a *Sequential Test*. This test should be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g. residential, hospitals, mobile homes etc.) outside of the floodplain.
- 4.2 The NPPF Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table is reproduced below;

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
	Zone 3b <i>Functional Floodplain</i>	Exception Test Required	✓	✗	✗	✗

Table 2 The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF/PPG.
Please note: ✓ means development is appropriate; ✗ means the development should not be permitted.

- 4.3 In The proposed redevelopment and extension are of Less Vulnerable flood risk classification, and is located /partially located within Flood Zone 1 and 2, and therefore is appropriate and applicable following the Sequential Test.
- 4.4 In accordance with Paragraph 168 of the NPPF 2021 and footnotes 55 and 56, the proposed extension is a minor development and therefore should not be subject to the sequential test or exception tests but should still the meet the requirement for site specific flood risk assessments.
- 4.5 This document seeks to provide an FRA that meets the scale of the development being proposed whilst being in accordance with the NPPF, Hillingdon Local Plan Policy and EA standing advice on development and flood risk.

5. Site Flood Hazards

Sources of Flooding

5.1

3.1 Source	Description
Fluvial	Site is within / partially within Flood Zone 2
Tidal	N/A
Surface	Very Low
Groundwater	Low
Sewer	Low
Canals	Low

5.2 Table 3 summarises the potential sources of flooding to the site:

Source	Description
Fluvial	Site is within / partially within Flood Zone 2
Tidal	N/A
Surface	Very Low
Groundwater	Low
Sewer	Low
Canals	Low

Table 3 Summary of flood sources.

Fluvial

5.3 A The Environment Agency (EA) Flood Map for Planning shows the existing office building to be in Flood Zone 2 and the proposed terrace extension to be partially within Flood Zone 2 and Flood Zone 1. Flood Zone 2 comprises land assessed as having between a 1 in 100 and a 1 in 1,000 annual probability of river/fluviial flooding (0.1-1.0%) or between a 1 in 200 and a 1 in 1,000 annual probability of flooding from the sea (0.1-0.5%) in any year. Flood Zone 1 is

land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

- 5.4 The Site is in an area at risk of flooding from the Yeading Brook watercourse which is fluvial at this location.
- 5.5 Aegaea have reviewed the Environment Agency Long Term Flood Risk Map service which existing office building to be at risk of flooding from rivers and seas is Medium Risk. The proposed terrace conservatory only partially within Flood Zone 2.



Figure 4 Environment Agency - Long Term Flood Risk Map Extent for Surface Water Flooding

- 5.6 The development includes an extension to the existing office building as part of a proposed restaurant and as such will provide the following.
 - A. Extension will be no greater than 250m²
 - B. Finished floor levels will be set no lower than the existing.

Tidal

- 5.7 The site is not considered to be at risk of flooding from tidal sources due to its proximity in relation to the nearest coastal waterbody

Surface Water (Pluvial)

- 5.8 Review of the Environment Agency Long Term Flood Risk Maps which include Surface Water Flooding as well as West London SFRA show the Site to be at Low Risk from this source of flooding, as shown in Figures 5 and 6 respectively



Figure 5: Environment Agency – Long Term Flood Risk Map Extent of Surface Water Flooding

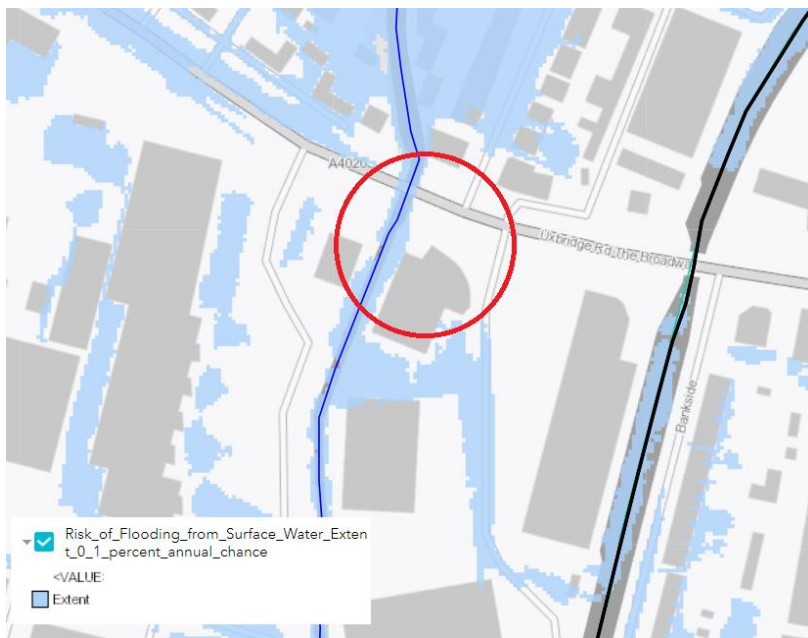


Figure 6: West London SFRA – Surface Water Flood Risk

Groundwater

- 5.9 Review of the West London SFRA has demonstrated the site to be in an area that has a <25% susceptibility of groundwater flooding. Flood Risk from groundwater sources can be considered to be low.

Sewer

- 5.10 Aegaea have reviewed the West London SFRA to understand if the Site is an area that has experienced sewer flooding (according to Thames Water sewer flooding records (2017)). No recorded instances of sewer flooding were found for the site. Aegaea then sought to review the Hillingdon PFRA, 2011 to find records of flooding from this source.
- 5.11 The PFRA document contained no instances of surface water/sewer flooding within the site boundary. Flood risk from sewers can be considered to be low

Canals

- 5.12 The Paddington Arm branch of the Grand Union Canal is situated 140m east of the proposed development site.
- 5.13 The Canal and River Trust (CRT) maintains canal levels using reservoirs, feeders and boreholes and manages water levels by transferring it within the canal system.
- 5.14 Water in a canal is typically maintained at predetermined levels by control weirs. When rainfall or other water enters the canal, the water level rises and flows out over the weir. If the level continues rising it will reach the level of the storm weirs. The control weirs and storm weirs are normally designed to take the water that legally enters the canal under normal conditions. However, it is possible for unexpected water to enter the canal or for the weirs to become obstructed. In such instances the increased water levels could result in water overtopping the towpath and flowing onto the surrounding land.
- 5.15 Flooding can also occur where a canal is impounded above surrounding ground levels and the retaining structure fails. However, flood risk from canals is considered to be low.

6. Probability of Flooding

Flood Zones

- 6.1 According to the EA Flood Map for Planning, the existing building / proposed terrace extension is located within / partially within Flood Zone 2 and Flood Zone 1 (medium and low risk of flooding respectively).
- 6.2 The EA Flood Map for Planning has been produced in part using a relatively coarse, national scale flood modelling strategy, and in part by detailed modelling. For reference, the definition of the NPPF flood risk zones is included below.

Zone	Description
1	Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
2	Medium Probability. This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.
3a	High Probability. 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.
3b	The Functional Floodplain. This zone comprises land where water has to flow or be stored in times of flood. SFRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the EA, including water conveyance routes).

Table 6 Definition of the NPPF Flood Zones. (Source: EA/PPG)

7. Residual Risks

Identification of Residual Risks

- 7.1 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:
- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system.
 - failure of a reservoir, or;

- a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

Reservoir Failure

- 7.2 The EA Risk from Reservoir Map demonstrates the site to be in an area with the potential of reservoir flooding. In the unlikely event that a reservoir dam fails, a large volume of water would escape at once with little or no warning. The EA predicts that floodwater on site would be greater than 2m deep. According to the EA, there has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work carried out. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, flooding from this source may be considered as a relatively low risk.
- 7.3 The EA Risk from Reservoir Map demonstrates that the site would be affected if failure of a reservoir occurred with possible depths on site between 0.3m and 2m

8. Flood Risk Management Measures

Flood Risks

- 1.1 The site is currently an office building, the proposed development involves a change of use to a restaurant and includes the construction of an extension to the front of the existing property. The proposed extension to the existing building will be less than 250m², and finished floor levels will be set no lower than the existing property level.
- 8.1 The site has been demonstrated to be in Flood Zone 1 and 2 according to the EA flood map for planning.
- 8.2 The following mitigation measures are recommended:
- Finished Floor Levels to be set no lower than the existing;
 - Safe access and egress to Uxbridge Road (north) provided at all times;
- Site owners should sign up to the EA Flood Alert and Warning Service

9. Off Site Impacts

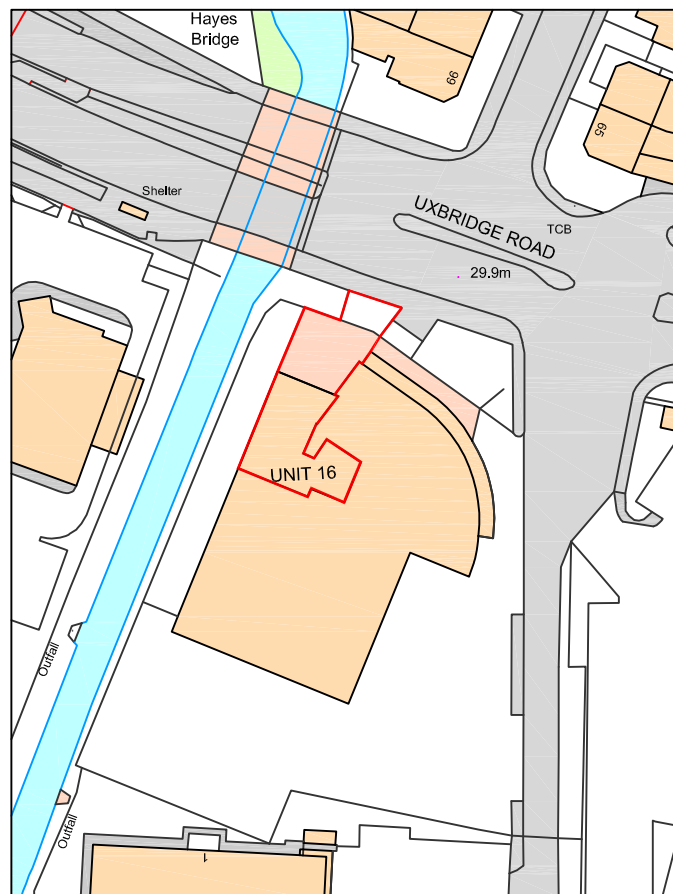
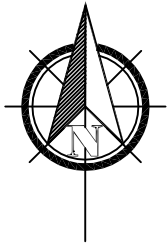
Impact to Flood Risk Elsewhere

- 9.1 The site has been demonstrated to be in Flood Zone 1 and 2. The development is considered minor totalling 42m². The risk of flooding elsewhere is considered low.

10. Conclusion

- 10.1 Aegaea has been appointed by the applicant to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 1-3 Rear Unit 16, Uxbridge Road, Hayes, UB4 0JN
- 10.2 The development is for the conversion of the existing office building to a restaurant, including a terrace conservatory extension (36m²) to the north. The site is currently an office space of Less Vulnerable use. The proposed development is a change of land use to a restaurant (including extension) and will continue to be classified as Less Vulnerable.
- 10.3 The Environment Agency (EA) Flood Map for Planning shows the existing office building to be in Flood Zone 2 and the proposed terrace extension to be partially within Flood Zone 2 and Flood Zone 1. Flood Zone 2 comprises land assessed as having between a 1 in 100 and a 1 in 1,000 annual probability of river/fluvi al flooding (0.1-1.0%) or between a 1 in 200 and a 1 in 1,000 annual probability of flooding from the sea (0.1-0.5%) in any year. Flood Zone 1 is land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
- 10.4 The existing office building is in an area at risk of flooding from the Yeading Brook watercourse which is fluvial at this location.
- 10.5 Review of the Environment Agency Long Term Flood Risk Maps which include Surface Water Flooding as well as West London SFRA show the Site to be at Low Risk from this source of flooding. And no recorded instances of sewer flooding were found for the site following review of the Hillingdon PFRA (2011).
- 10.6 The site has been demonstrated from review of the Environment Agency Long Term Flood Risk Maps for Surface Water and so to the Greater Nottingham Strategic Flood Risk Assessment (SFRA) to be in an area of very low risk of surface water flooding.
- 10.7 It is understood that the proposed extension will be no greater than 250m² and any Finished floor levels will be set no lower than the existing. Surface water will drain to the existing drainage network currently servicing the existing building.
- 10.8 Following the guidelines contained within the NPPF, the proposed change of use and terrace extension should be considered suitable and appropriate for development.

Appendix A – Supporting Plans



Ordnance Survey, (c) Crown Copyright 2021. All rights reserved. Licence number 100022432



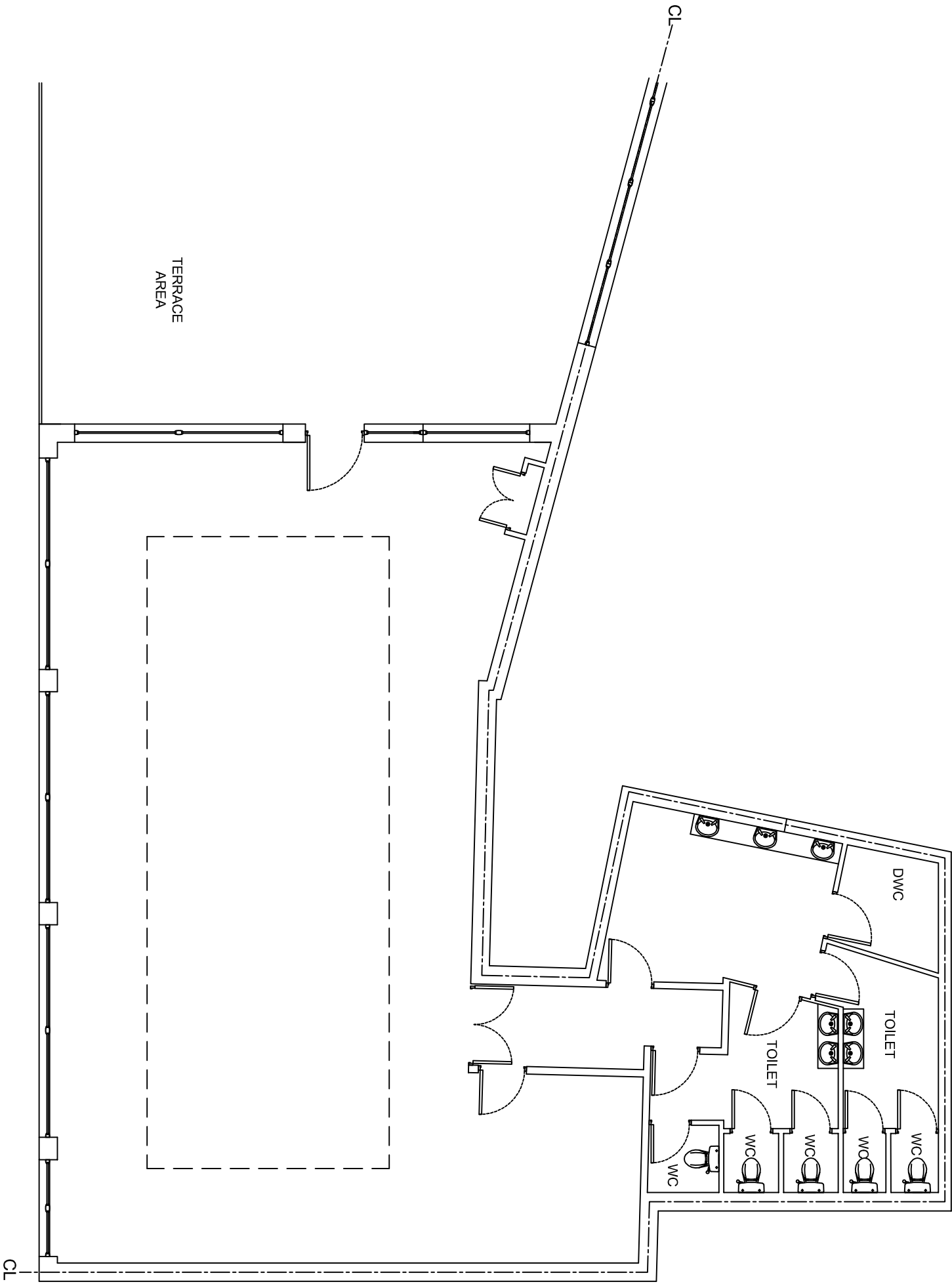
Site within red boundary:
1-3 UXBRIDGE ROAD, HAYES
UB4 0JN

GDC DESIGN LTD
CHARTERED ARCHITECT
Tel: 01895 251323
Mob: 07976 732636
g.g.calton11@btinternet.com

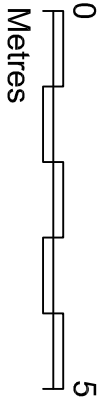
NOTES: - DO NOT SCALE FROM THIS DRAWING. The Contractor must verify all dimensions at the site before setting out, commencing work, or making any shop drawings. Any discrepancies must be reported to the Contract Administrator before proceeding.

Rev	Revision notes	Initials	Date
-	-	-	-
Project	1-3 UXBRIDGE ROAD, HAYES UB4 0JN	Drawn by	JT
Description	SITE LOCATION PLAN	Checked by	GC
Scale	1:1250 @ A4	Drawing No.	1-3 UR / P / 01
Date	27/05/21	Rev.	





EXISTING FLOOR PLAN



Rev	Revision notes	Initials	Date
-----	----------------	----------	------



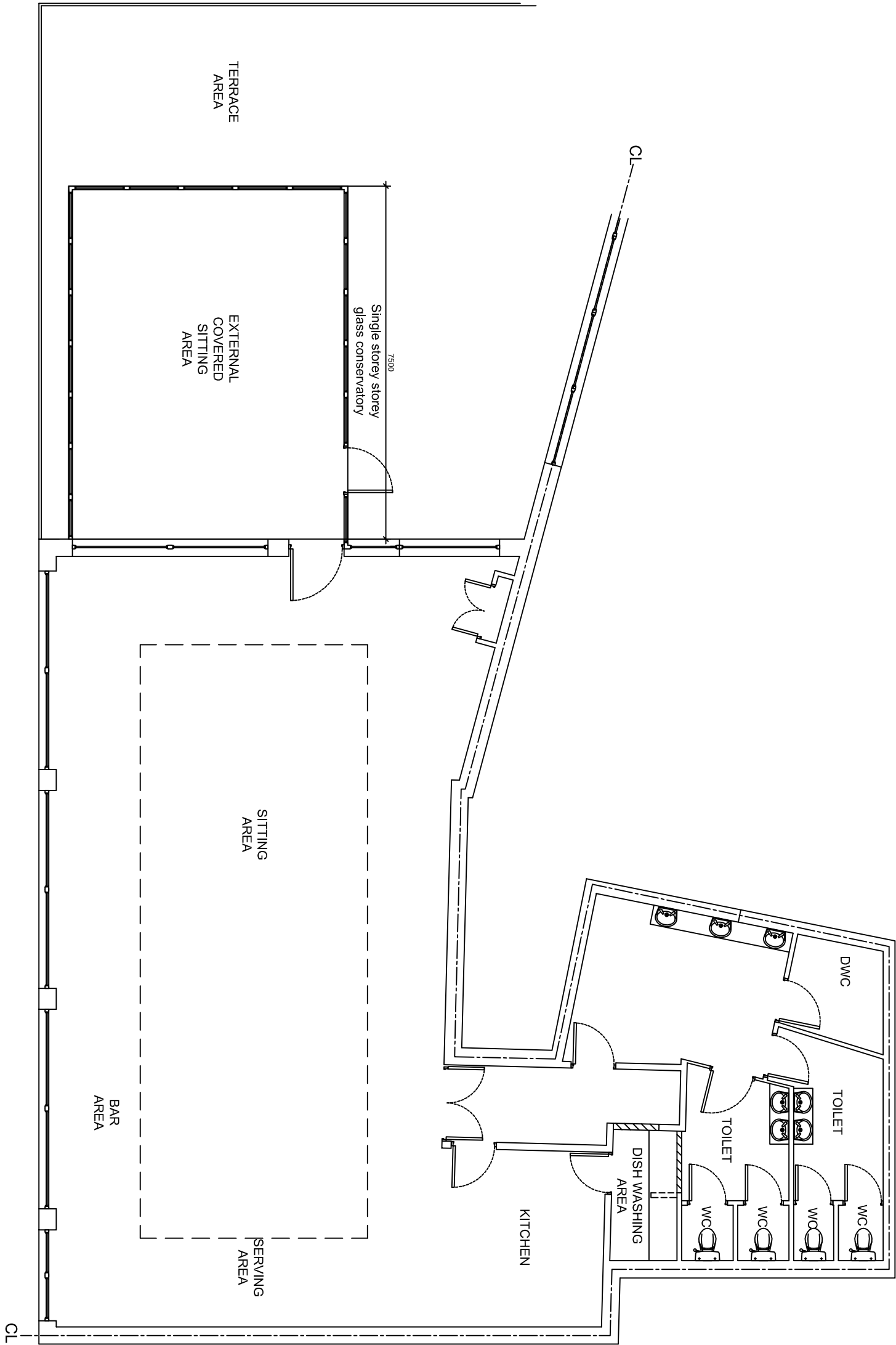
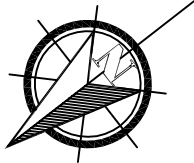
GDC DESIGN LTD
CHARTERED ARCHITECT
Tel: 01895 251323
Mob: 07976 732636
g.g.callon11@btinternet.com

PROJECT
1-3 UXBRIDGE ROAD, HAYES UB4 0JN
CONVERSION OF A RETAIL UNIT TO
A RESTAURANT

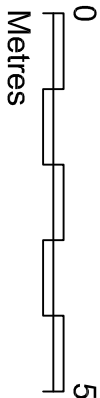
DESCRIPTION
EXISTING FLOOR PLAN

SCALE	DRAWN BY	CHECKED BY	DATE
1:100 @ A3	JT	GC	10/6/21

DRAWING No.	REV.
1-3 UR / P / 03	



PROPOSED FLOOR PLAN



Rev	Revision notes	Initials	Date
-	-	-	-



GGC DESIGN LTD
CHARTERED ARCHITECT
Tel: 01895 251323
Mob: 07976 732636
g.g.c@btinternet.com

PROJECT
1-3 UXBRIDGE ROAD, HAYES UB4 0JN
CONVERSION OF A RETAIL UNIT TO
A RESTAURANT

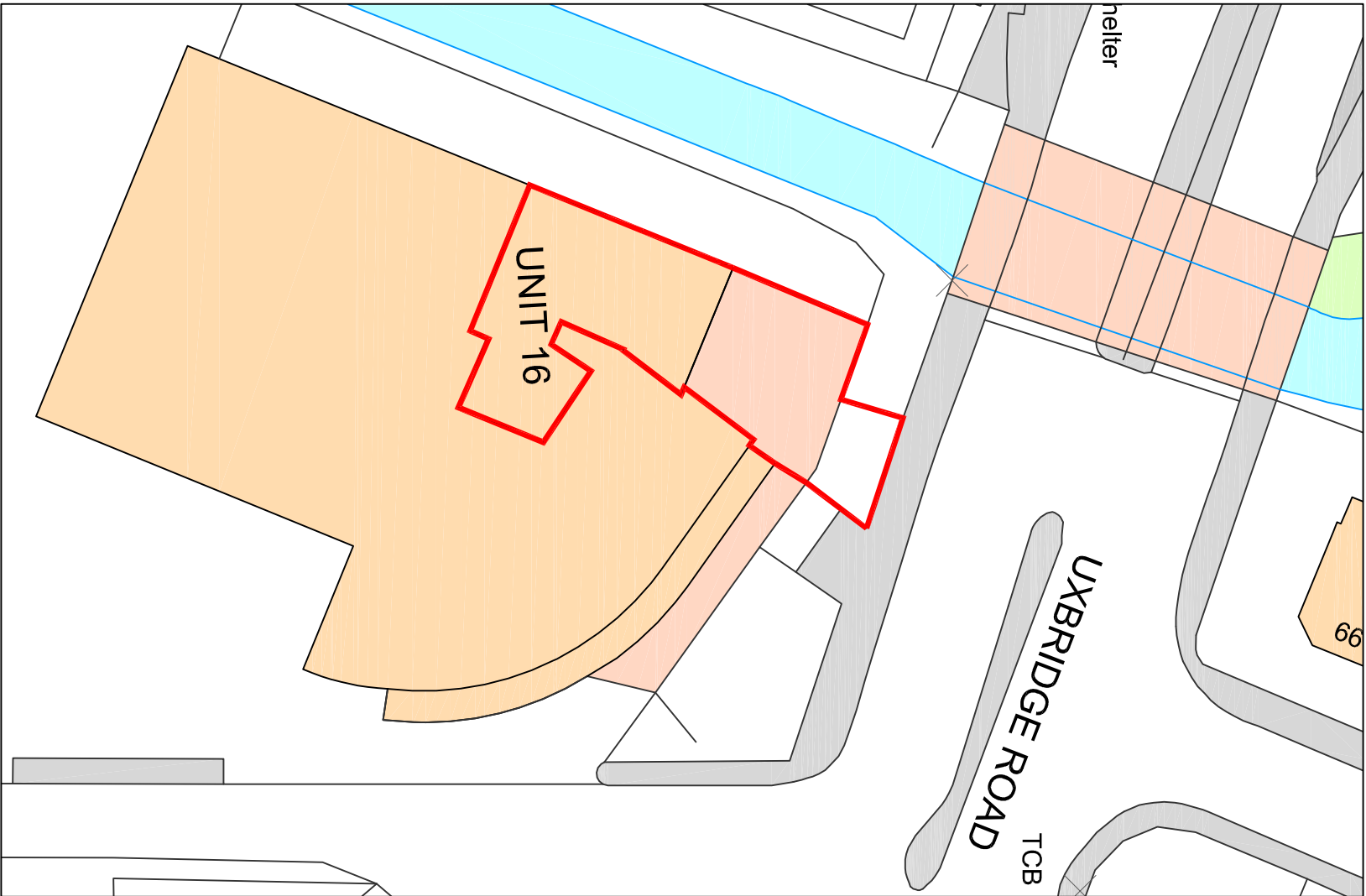
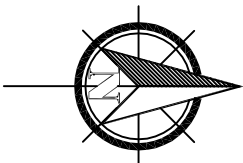
DESCRIPTION
PROPOSED FLOOR PLAN

SCALE	DRAWN BY	CHECKED BY	DATE
1:100 @ A3	JT	GC	24/06/21
DRAWING No.	REV.		

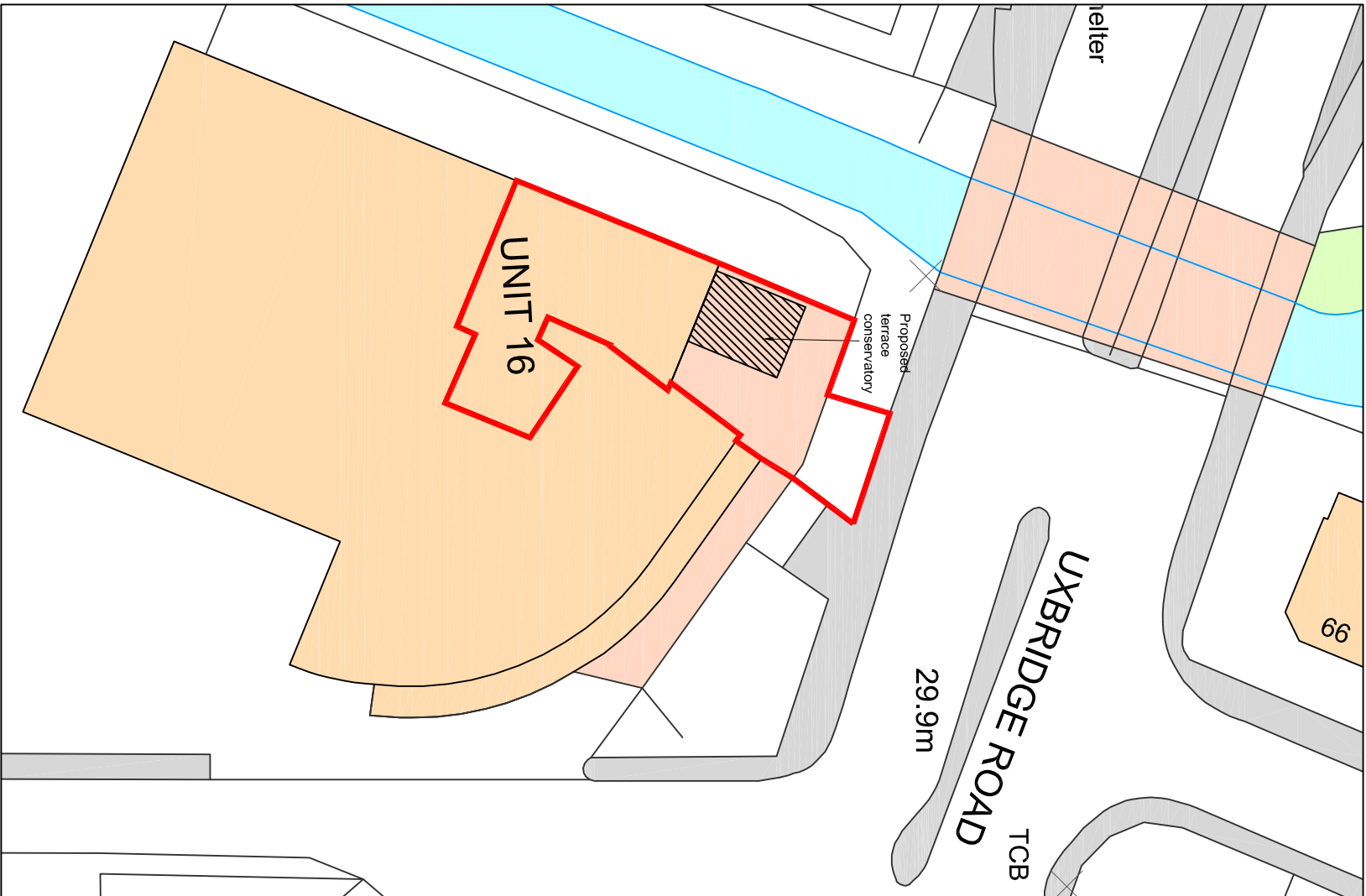
1-3 UR / P / 04

The Contractor must verify all dimensions at the site before setting out. Any discrepancies between the drawings and the actual site conditions must be reported to the Contract Administrator before proceeding.

DO NOT SCALE FROM THIS DRAWING



EXISTING SITE PLAN



PROPOSED SITE PLAN

Rev	Revision notes	Initials	Date
-	-	-	-



GGC DESIGN LTD
CHARTERED ARCHITECT
Tel: 01895 251323
Mob: 07976 732636
g.g.callon11@btinternet.com

PROJECT
1-3 UXBRIDGE ROAD, HAYES UB4 0JN
CONVERSION OF A RETAIL UNIT TO
A RESTAURANT

DESCRIPTION
EXISTING & PROPOSED SITE PLANS

SCALE	DRAWN BY	CHECKED BY	DATE
1:500 @ A3	JT	GC	27/05/21

