

Flood Risk Assessment and SUDS Strategy for Planning

Change of Use Application

**No physical works
No Sequential Test required**

Duplex residential.

Site is not in FZ3.

In area of patchy FZ2.

Access & egress in FZ1 and FZ2.

No increase in footprint.

No habitable areas below the 1in100year+climate change

- **The Ground FFL is at a minimum of c. 38.30mAOD: this is 100mm above the design flood level plus climate change.**
 - o **No habitable areas are lower than the design flood level including for an allowance for climate change.**
 - o **The First FFL is at c. 40.57mAOD: this is 2.28m above the 1in100year+cc flood level**
 - **No bedrooms on the ground floor.**
 - o **All sleeping is to be 2.28m above the 1in100year+cc flood level.**

All site users have upper refuge.

Reading SFRA and EA flood policy compliant

AT

97 York Road, Reading RG1 8DU

January 2026

Ark Ltd

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If this report has been released electronically, the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

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1.0 Scope

This report contains the details of a flood risk assessment statement for planning carried out by Ark Environmental Consultancy Limited ("Ark Ltd") for 97 York Road, Reading RG1 8DU, henceforth referred to as "the site" in this report.

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All parties to this report do not intend any of the terms of the Contracts (Right of Third Parties Act 1999) to apply to this report. Please note this report does not purport to provide definitive legal advice nor can it be used to demonstrate that the site will never flood in the future or provide exact specifications / warranties for the products used.

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2.0 Introduction

The information source used to undertake this FRA & SUDS / Drainage Strategy has been collected from the following sources:

- British Geological Survey Website
- EA Website
- London Plan:
- Reading Flood and SUDS Policies compliant
- Reading Strategic Flood Risk Assessment & Surface Water Management Plan
- Internet mapping and searches

3.0 Existing Site Status and Environmental Setting

3.1 Site Location, Fluvial / Tidal and Topography

This site is in EA FZ2 and climate change extents. Site is not in FZ3 without climate change. Site is in LOW hazard surface water flooding. See Appendix A.

Topography Requirement

The scheme is a change of use to an existing property in FZ3 / FZ2.

Additional analysis is not required because a raised floor level is not an option that is feasible or required for the change of use at this site, specifically.

- **There is a raised threshold of c. 200mm that will be retained. See below.**
- A full topographic survey is provided in AppA.
- **The external ground FFL is at ~38.3mAOD**
- **The raised Threshold is at 40.0mAOD (c. 200mm step up)**

Given the nature of the change of use scheme, the scheme will be full height ground floor resilient.

- This means flood resilience will be higher than any extreme flood level.
- Flood resistance is incorporated to be higher than the worse case design flood level

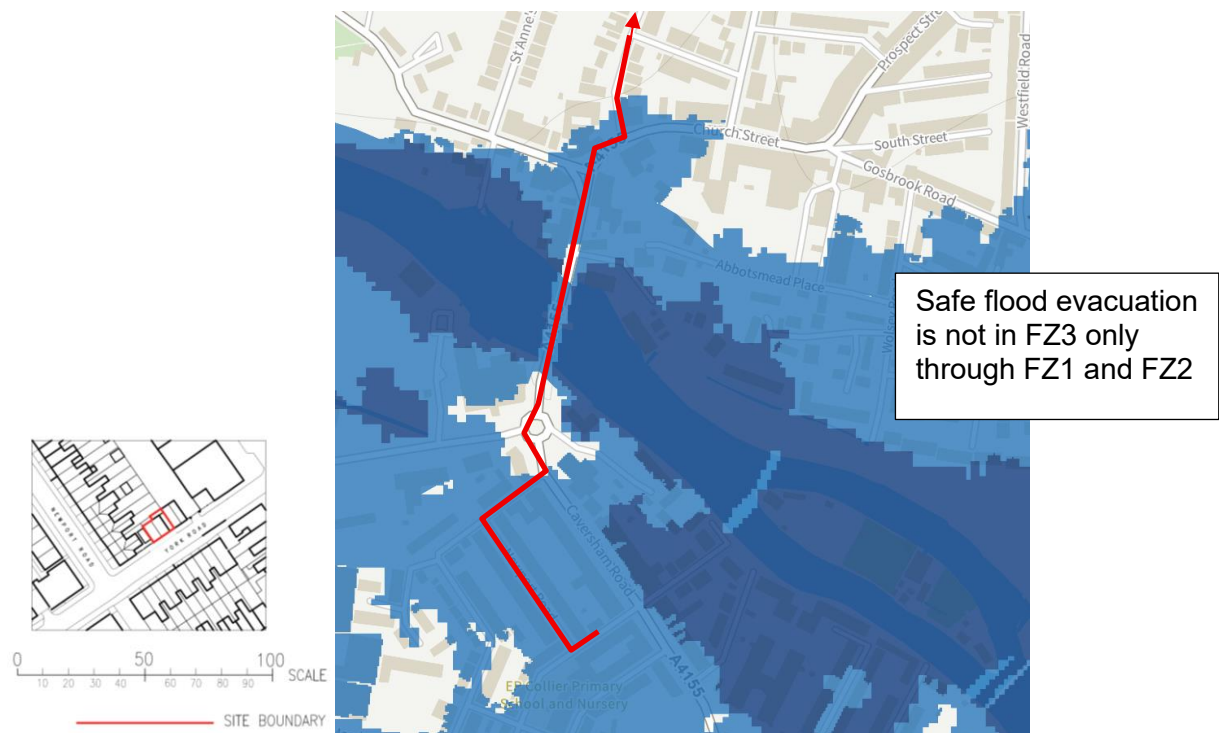
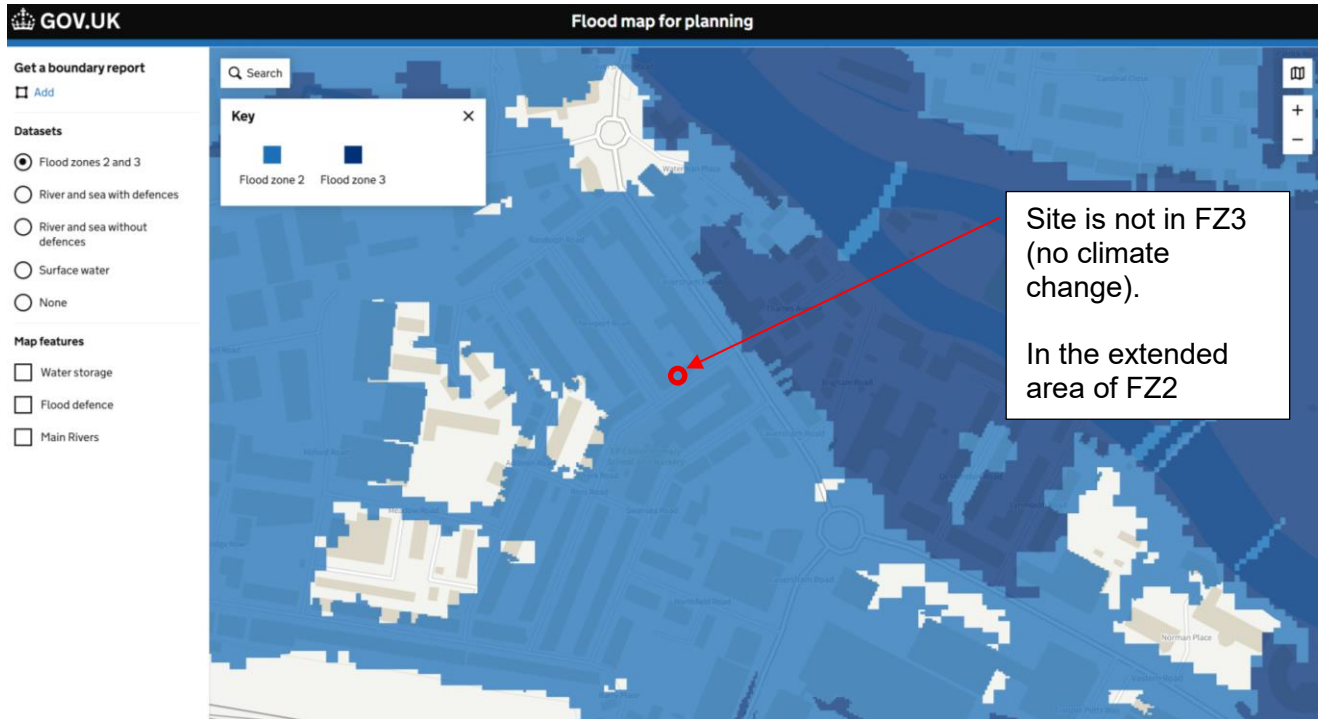
The resilience will therefore be higher than any flood level at the site.



Thresholds and floor level already raised by c.
200mm to 38.30mAOD
This is 100mm higher than the 1in100year+climate
change scenario

**Flood free in the EA's 1in100year + climate
change flood scenario for the site and catchment**

Flood free for the lifetime of the scheme



3.2 EA 2026 Surface Water Hazard

Site is wholly within VERY LOW hazard for all EA surface water scenarios:

Flood risk summary

Your selected location: 97, York Road, Reading, RG1 8DU

This information tells you the flood risk of the land around a building, not the building itself.

[How we assess an area's flood risk](#)

The highest risks of flooding at this location are from **surface water** and **rivers and the sea**.

[Flood risk and climate change](#)

Surface water [More about your surface water flood risk](#)

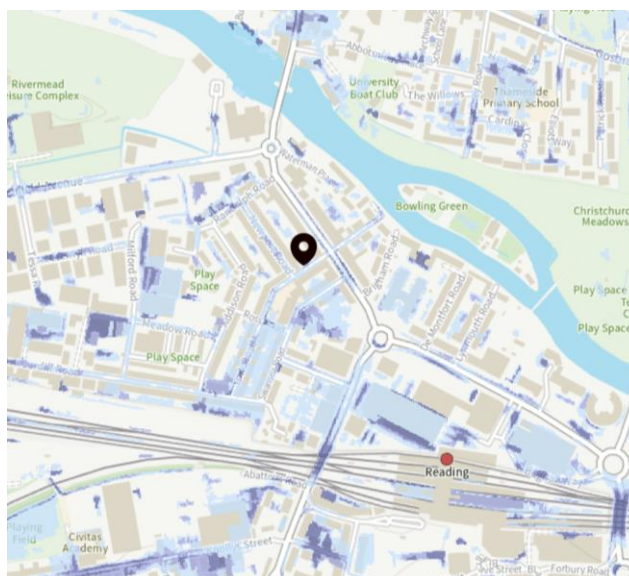
Yearly chance of flooding

Very low **Low** Medium High

Yearly chance of flooding between 2040 and 2060

Very low **Low** Medium High

What surface water is
Surface water flooding is sometimes known as flash flooding. It happens when rainwater cannot drain away through normal drainage systems.
[Why surface water flooding is a problem](#)



Surface water map

Yearly chance of flooding

- ☒ Flood area (extent)
- ☐ High chance
- ☐ Medium chance
- ☐ Low chance

Yearly chance of flooding between 2040 and 2060

- ☐ Flood area (extent)

Map details

- ☒ Show flooding
- ☒ Selected address

3.3 Existing Drainage and Infiltration Potential

The site is an existing workshop with connections to the adjacent sewers.

The site is relatively very small and is defined by existing footprint a small yard and immediately adjacent properties / highways such that it is not feasible to meet the easement requirements for the location of a soakaway i.e. 5.0m from the nearest footprint and 3.0m from the site boundary.

Therefore, given the site and size of the scheme, no formal infiltration measures can be used and no BRE365 Testing is required at the planning stage.

The scheme does not need to and indeed cannot alter the connections.

3.4 Summary of Flood Risks Posed to and From Site and Scheme

Flood Sources	Site Status	Comment on flood risk posed to / from the development
Fluvial / Tidal	FZ2: residual hazard	Site is not in FZ3. Access & egress in FZ2 and FZ1: safe operation. No bedrooms on the ground floor. Flood resilience for full height Results in better protected and flood future-proofed property than existing.
Surface Water	Site is within EA No – VERY LOW hazard in all EA risk scenarios	Scheme will not increase the flood risk posed from this source Scheme will not obstruct any surface water flow pathways or ponding areas
Groundwater	Site is not within an area of high potential for elevated groundwater flooding (less than 25% zone) EA data state site is in an area not expected to flood from groundwater	Scheme will not increase the risk posed to or from groundwater Low risk Building Regs to ensure compliant structure
Artificial Sources	Site is not within EA general Reservoir Flood Warning area No other artificial sources with likely flood flowpaths that could reach the site	Low Risk
Climate Change	40% can be used in the SUDS storage calculations	Development will manage the peak flow and volume of discharge from the site Low risk posed to and from the development

3.5 Response to Case Officer and the requirements of EA Standing Advice

This is a change of use scheme in FZ2.
There are no physical works as a result of the scheme.

The final, comments from the case officer are answered below:

- *an assessment of the flood risk from all sources of flooding for your development, plus an allowance for climate change*
- AND**
- *the estimated flood level for your development, taking into account the impacts of climate change over its lifetime*

The site is in Flood Zone 2.

The EA's guidance for climate change for this area and catchment in FZ2 is that their "Central" climate change uplift is to be used.

The EA's "Central" climate change uplift (peak river flow allowances) for this catchment is 21%.

It is appropriate to use the 25% (greater flood level and extent) as a precautionary level.

Flood level including climate change: 38.29mAOD worse case.

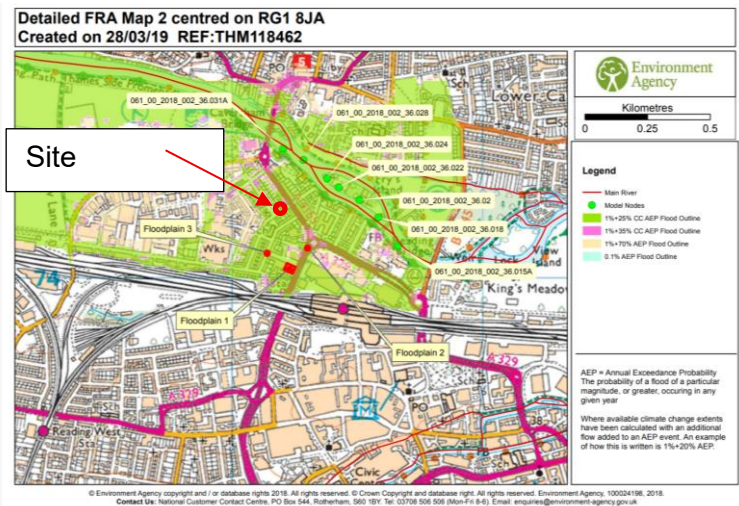
The Ground FFL is at 38.30mAOD

This is 100mm higher than the 1in100year+climate change flood level

No inundation at the site.

This is corroborated by the EA's hazard mapping which shows:

EA official Fluvial with climate change Hazard Rating: No hazard at the site



Modelled floodplain flood levels

THM118462

The modelled flood levels for the closest most appropriate model grid cells for your site are provided below:

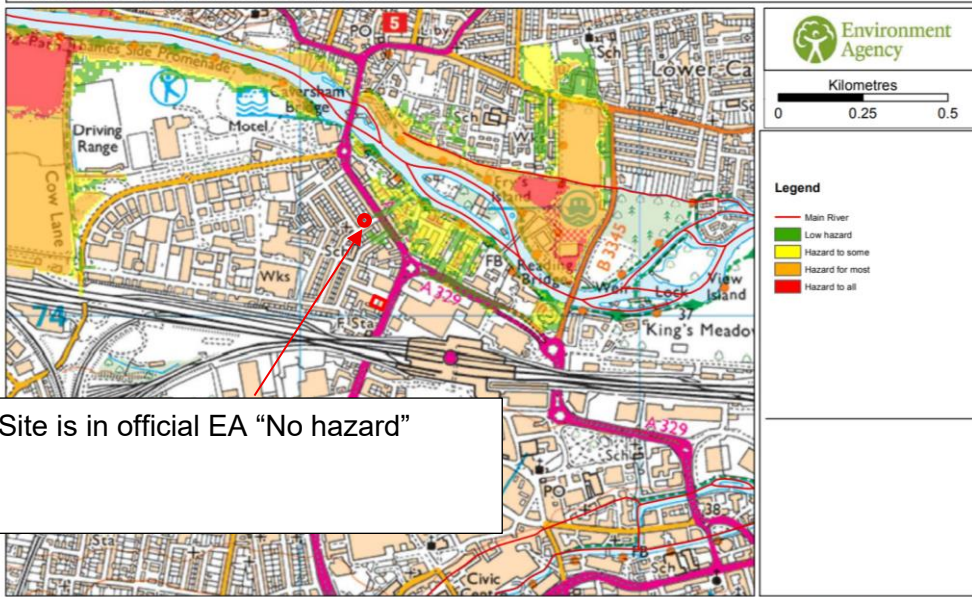
2D grid cell reference	Model	Easting	Northing	flood levels (mAOD)									
				20% AEP	5% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.5% AEP	0.1% AEP	
Floodplain 1	Thames (Sandford to Mapledurham) 2018	471,231	174,043	No data	No data	No data	No data	38.29	38.35	38.55	38.17	38.49	
Floodplain 2	Thames (Sandford to Mapledurham) 2018	471,307	174,126	No data	No data	No data	No data	38.28	38.34	38.53	38.16	38.47	
Floodplain 3	Thames (Sandford to Mapledurham) 2018	471,143	174,105	No data	No data	No data	No data	38.29	38.36	38.56	38.17	38.50	

This flood model has represented the floodplain as a grid.
The flood water levels have been calculated for each grid cell.

Note:
Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Hazard Map centred on RG1 8JA
Created on 28/03/19 REF:THM118462



- *an assessment of the residual risks resulting from the breach or overtopping of any flood defences*

Overtopping with climate change: the EA's hazard mapping shows: No hazard at the site
No breach events reach the site.

- *details of the finished floor levels*

The Ground FFL is at a minimum of c. 38.30mAOD: this is 100mm above the design flood level plus climate change.

No habitable areas are lower than the design flood level including for an allowance for climate change.

The First FFL is at c. 40.57mAOD: this is 2.28m above the 1in100year+cc flood level

No bedrooms on the ground floor.

All sleeping is to be 2.28m above the 1in100year+cc flood level.

- *details of your flood resistance and resilience plans*

See Section 4.3: resilience and resistance fully incorporated.

Flood resistance 1: Ground FFL is already 100mm above the 1in100year + climate change

Flood resistance 2: incorporated to a minimum of 38.88mAOD for waterproof door system

This is 600mm higher than the design flood level with climate change

Flood resilience is already incorporated to c. 40.5mAOD (full ground floor height)

This is greater than 2.22m height resilience

Exact specifications can be conditioned (they are the contractor's detailed construction specification)

- *If the proposed development will increase flood risk elsewhere and, if so, that appropriate mitigation has been included*

Fluvial

There is no increase in footprint as a result of the scheme.

There is no flood displacement.

There is no risk of increasing flood risk off site.

Surface water / drainage

The site is existing 100% impermeable.

There are no physical works proposed as part of the scheme.

It is a change of use.

The scheme will not increase surface water input to any system, in fact, the scheme meets the betterment by incorporating retroactive SUDS suitable to such a small site and small scheme.

It is a change of use and no physical works are required to achieve the scheme.

4.0 Scheme & SUDS Strategy

4.1 Proposed Development

See Appendix B. The scheme comprises:

- Existing workshops converted to 2 number duplex dwellings.
- The Ground FFL is at a minimum of c. 38.30mAOD: this is 100mm above the design flood level plus climate change.
 - No habitable areas are lower than the design flood level including for an allowance for climate change.
 - The First FFL is at c. 40.57mAOD: this is 2.28m above the 1in100year+cc flood level
- No bedrooms on the ground floor.
 - All sleeping is to be 2.28m above the 1in100year+cc flood level.
- All site users continue to have upper refuge
- Flood resilience for full height
- Access & egress in FZ1 and FZ2
- Results in better protected and flood future-proofed property than existing.

4.2 SUDS Assessment and Specifications

The scheme does not involve any new footprint.

The site is defined by c. 95% existing footprint and c. 5% permeable yard.

Formal infiltration is not feasible due to the site constraints.

There is no river or drainage ditch to discharge to (for completeness).

The most sustainable approach is a re-use of the existing system with betterment i.e. complemented with additional Source Control SUDS storage if at all feasible.

The existing connections will be retained:

- This is a very important approach to ensure embodied carbon is reduced
- There is anticipated no changes to pipes or manholes
 - Importantly: the final discharge arrangement will not be altered by the scheme other than Source Control SUDS proposed will have an overflow to sewer

SUDS that are suitable for this constrained footprint change of use within 95% impermeable existing footprint:

- Where there is easy access for maintenance: RWP's can connect to rain planter storage if not

already incorporated as part of the existing warehouse uses

- Sensitive to ensuring also balance of maximising amenity space for dwellings
- No change to gravity drainage that is operating as existing

Additional formal extensive SUDS would not be commensurate with the scale and sensitivity of the scheme and indeed would not be feasible.

- Retain the maximum amount of the existing porous / permeable areas

4.3 Sequential and Exception Tests

The scheme is a change of use in FZ2.

- The Sequential Test is not required by the NPPF for changes of use applications.
- The Exception Test is not required by the NPPF for More Vulnerable uses in Flood Zone 2.

4.4 Flood Resilience AND Resistance for change of use

The following flood resilient measures will be incorporated if any new elements are required:

Resistance

- Retrofitted waterproofing where feasible to tie in to wall and floor up to 900mm height
- Water Proof Door system incorporated where feasible
 - Floodgates are not easily incorporated given the nature of the façade and existing door openings to be re-used

Resilience

- Electrics to be installed top-down where feasible
- Non-return valves as standard
- Any new waterproofing to be installed to above ground level as appropriate
- Plasterboards will be installed in horizontal sheets rather than conventional vertical installation methods to minimise the amount of plasterboard that could be damaged in a flood event
- Wall sockets will be raised to as high as is feasible and practicable in order to minimise damage if flood waters inundate the property
- Any wood fixings will be robust and/or protected by suitable coatings in order to minimise damage during a flood event

5.0 Summary

The scheme will be flood future-proofed for the lifetime of the scheme.

- The scheme is not in FZ3
- The Ground FFL is at a minimum of c. 38.30mAOD: this is 100mm above the design flood level plus climate change.
 - No habitable areas are lower than the design flood level including for an allowance for climate change.
 - The First FFL is at c. 40.57mAOD: this is 2.28m above the 1in100year+cc flood level
- No bedrooms on the ground floor.
 - All sleeping is to be 2.28m above the 1in100year+cc flood level.
- Access & egress is in FZ2 and FZ1
- Retroactive SUDS are feasible in the small area of patio / yard area
- The scheme includes full height flood resilience
 - There is not a need to compare site and floor levels to any flood levels

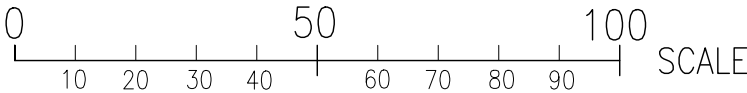
The scheme will result in a better flood protected and lifetime flood future-proofed property than existing.

Based on the likely flooding risk, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF/PPG.

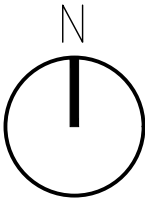
APPENDICES

APPENDIX A

APPENDIX B



— SITE BOUNDARY



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REV	DATE	DESCRIPTION	DRN

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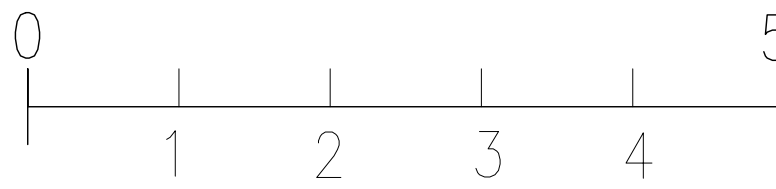
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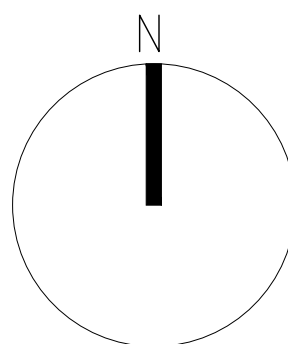
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APPENDIX B



SCALE BAR

SITE BOUNDARY



ALL EXTERNAL CHANGES
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P04	15.07.25	DESIGN DEVELOPMENT	DO
P03	04.07.25	DESIGN DEVELOPMENT	DO
P02	19.06.25	DESIGN DEVELOPMENT	DO
P01	12.02.25	FIRST ISSUE	DO
REV	DATE	DESCRIPTION	DRN

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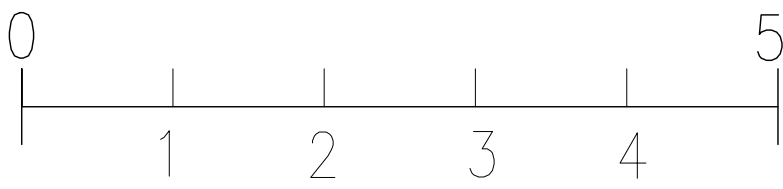
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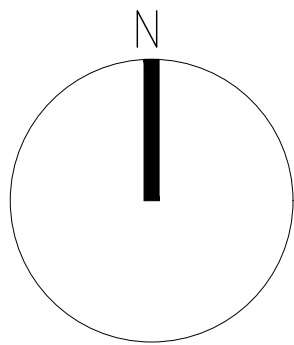
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SCALE BAR

SITE BOUNDARY



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P02	19.06.25	DESIGN DEVELOPMENT	DR
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PROPOSED FIRST

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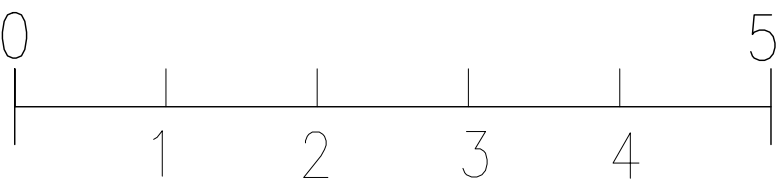
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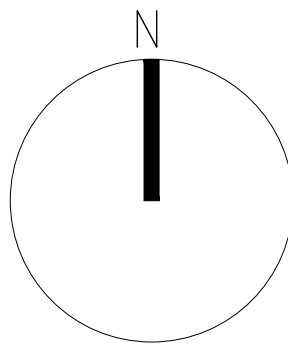
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INTERNAL LAYOUTS INDICATIVE

NOTES



SCALE BAR

SITE BOUNDARY



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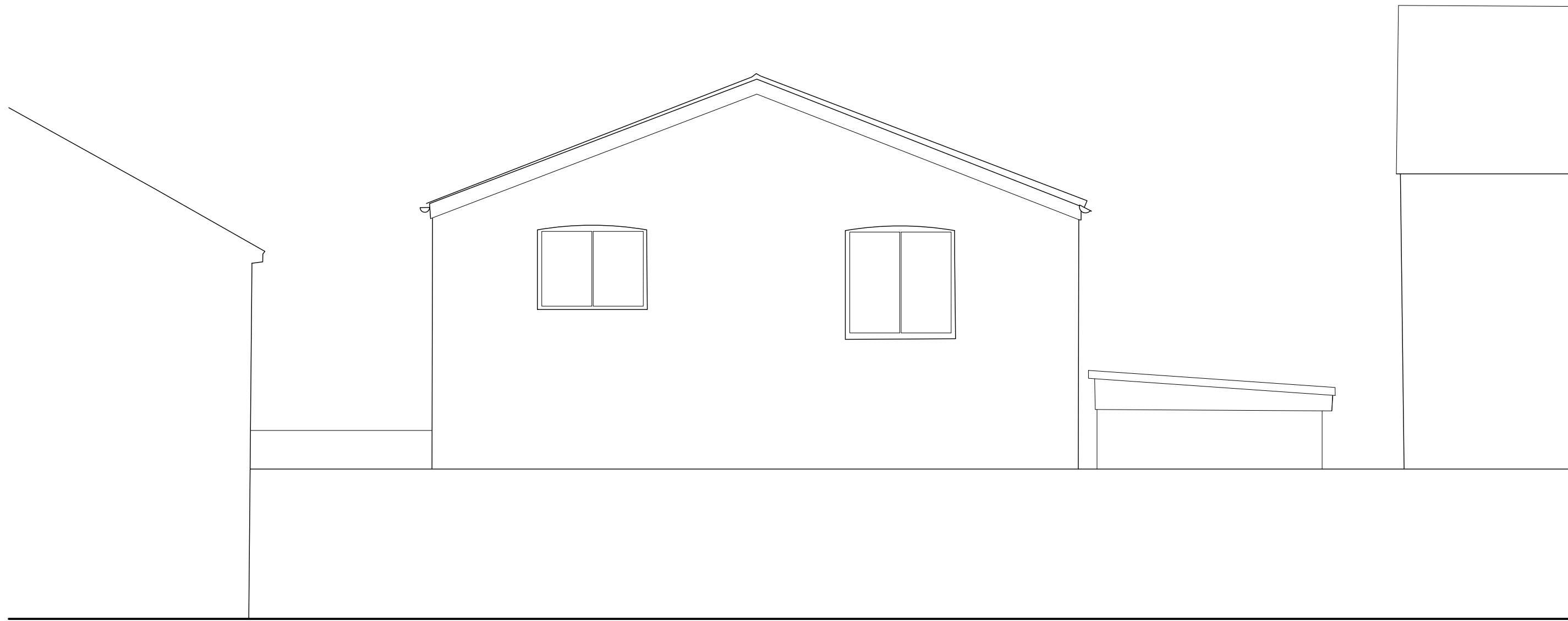
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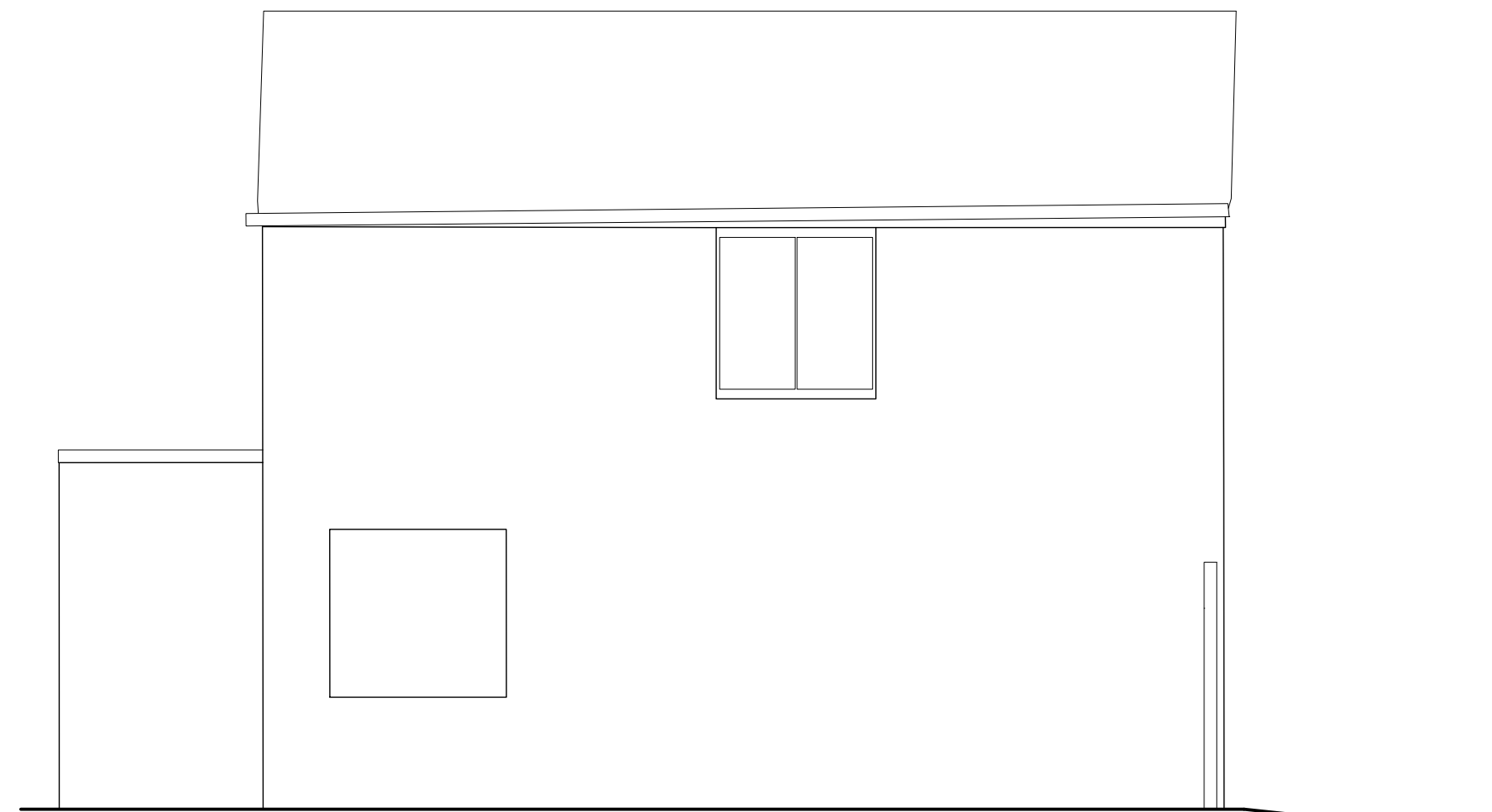
REAR ELEVATION



FLANK ELEVATION FACING NORTH EAST



FRONT ELEVATION FACING YORK ROAD

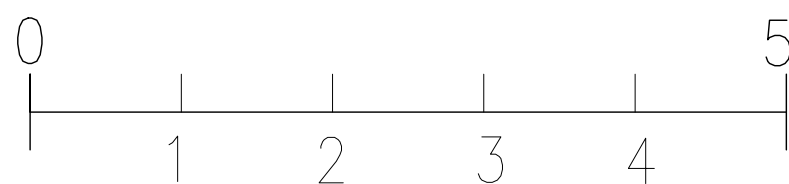


FLANK ELEVATION FACING SOUTH WEST

ALL DIMENSIONS MUST BE CHECKED ON SITE. INFORM THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
INTERNAL LAYOUTS INDICATIVE.

NOTES

1. WINDOW MULLION / PATIO GLAZING ARRANGEMENT INDICATIVE SUBJECT TO DETAIL DESIGN
2. SITE FOOTPRINT TAKEN FROM SURVEY. REST OF EXISTING PLAN, ELEVATION RIDGE AND EAVES HEIGHT OF IMMEDIATE NEIGHBOURING BUILDINGS FROM OS & APPROXIMATE
3. DO NOT SCALE OFF THIS DRAWING FOR CONSTRUCTION ALL DIMENSIONS TO BE CHECKED ON SITE.
4. EXISTING TREES SHOWN INDICATIVELY, PLEASE REFER TO XXX
5. PROPOSED TREE LOCATIONS SHOWN INDICATIVELY
6. INFORM ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION



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P01	27.06.25	FIRST ISSUE	DC
P02	15.07.25	DESIGN DEVELOPMENT	DC
P03	09.08.25	DESIGN DEVELOPMENT	DC

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PROJECT
YORK ROAD,
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DRAWING TITLE
EXISTING ELEVATIONS

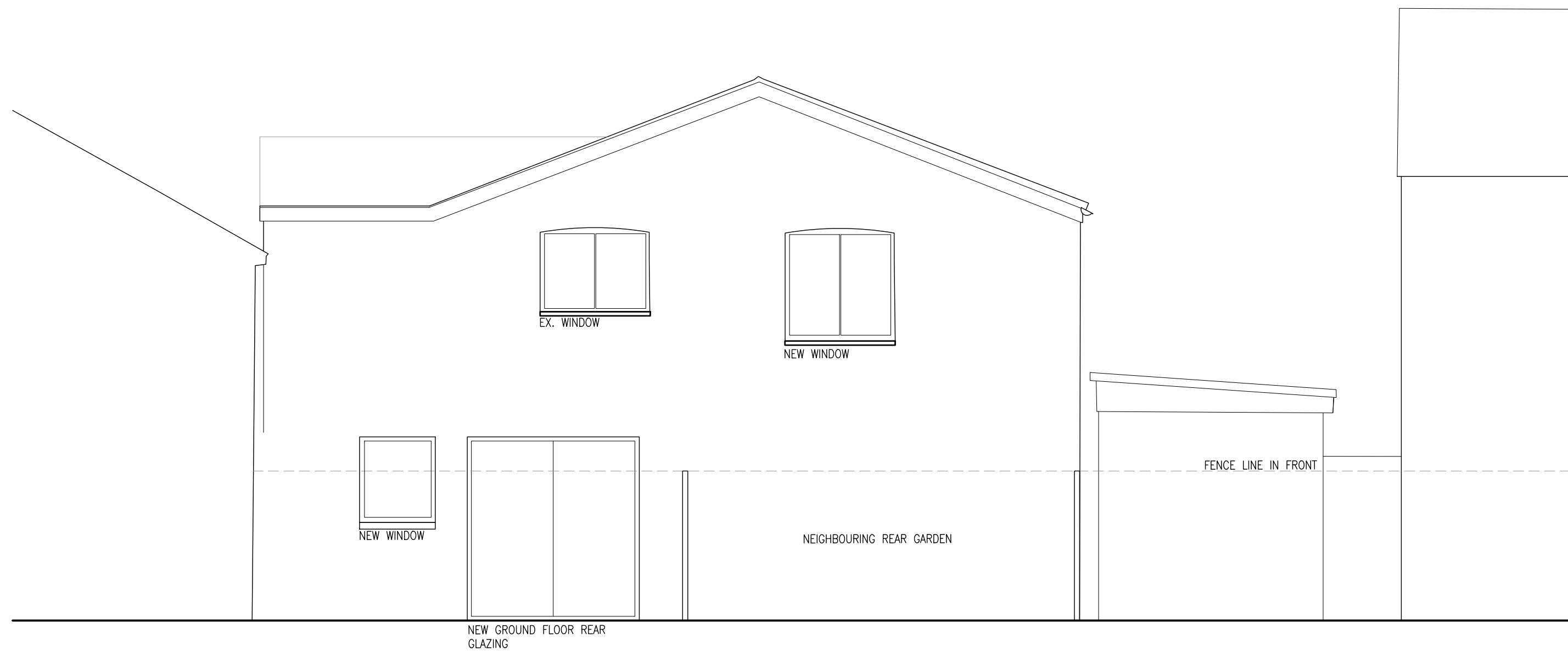
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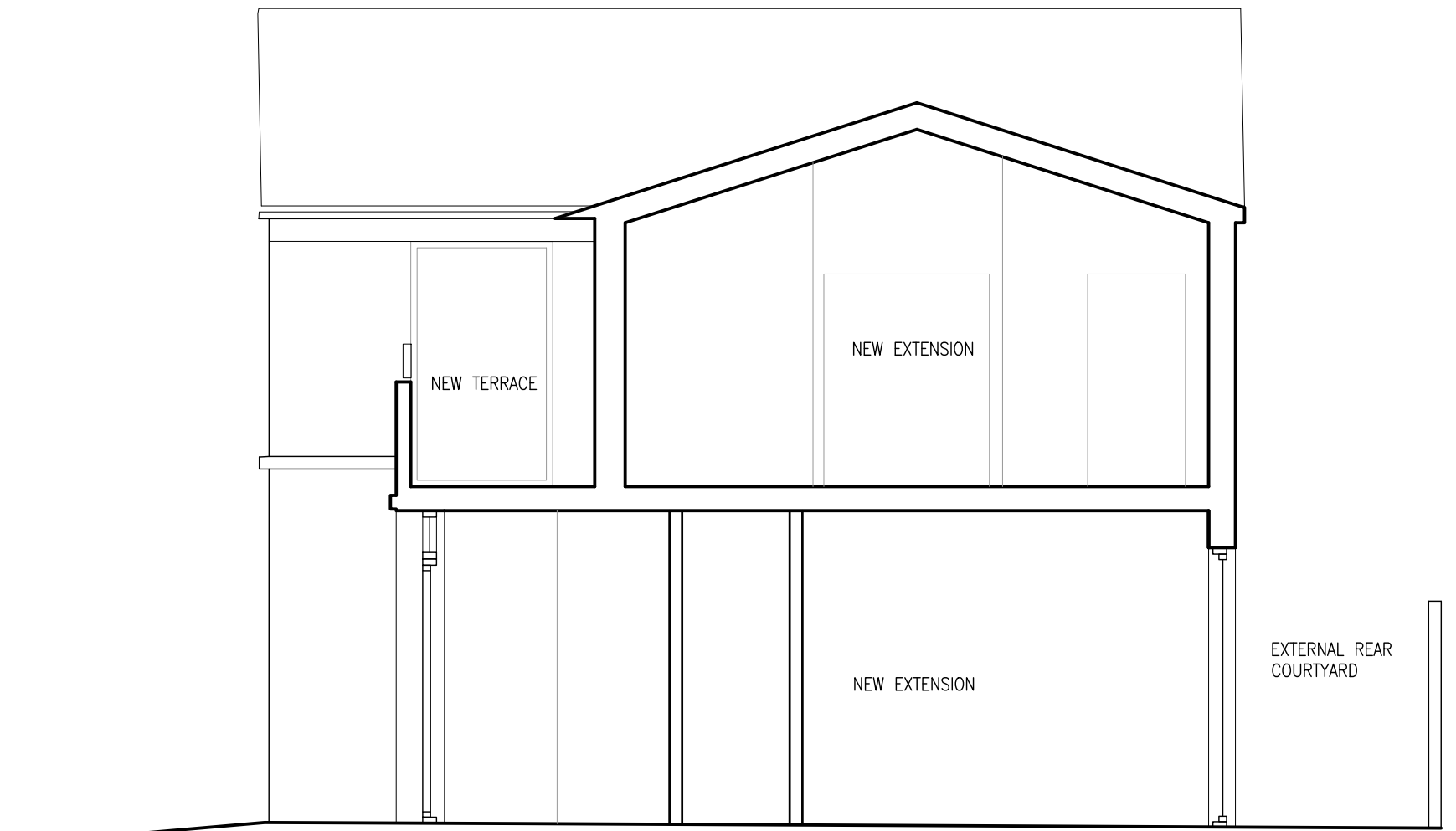
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P03

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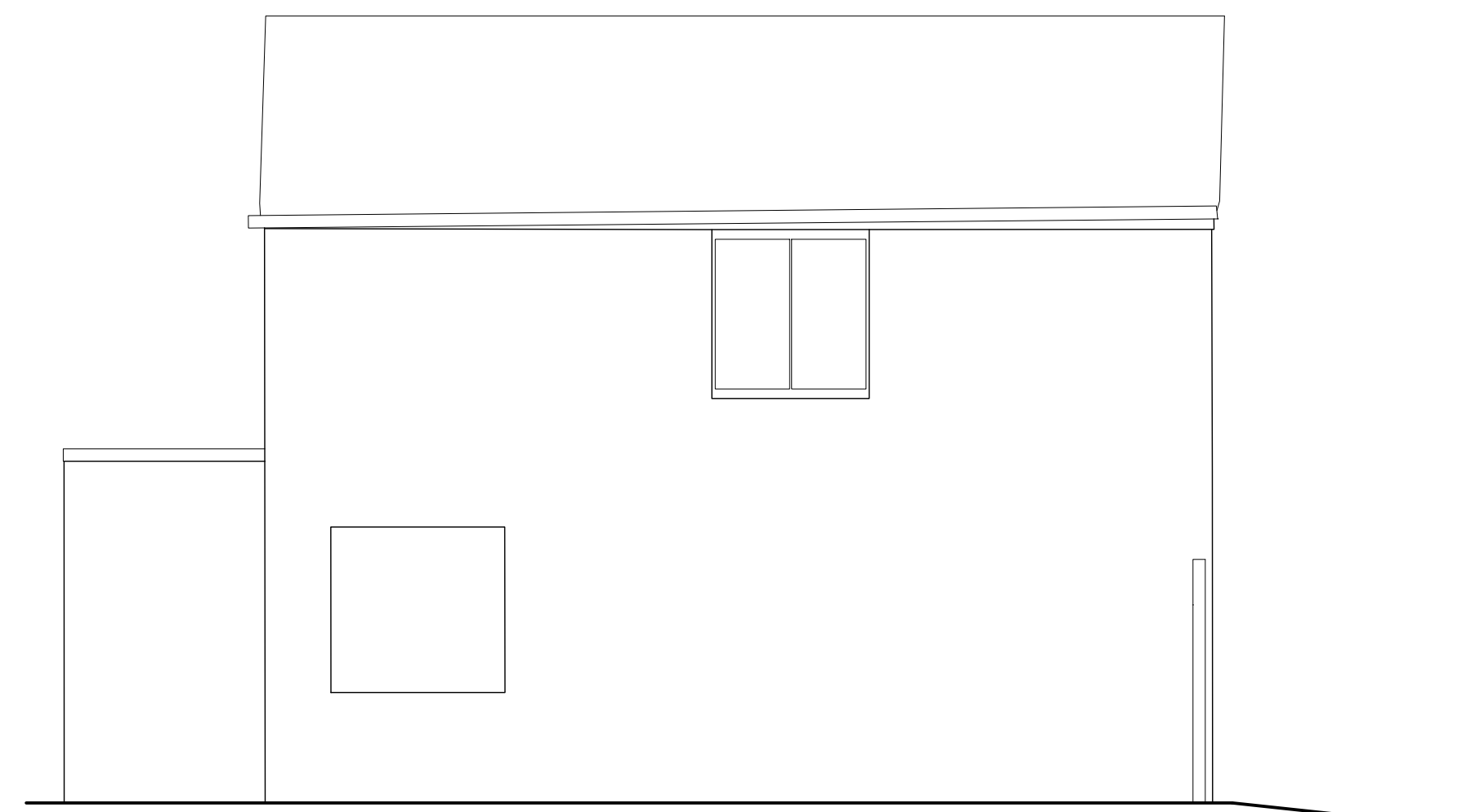
REAR ELEVATION



SECTION THROUGH SIDE EXTENSION



FRONT ELEVATION FACING YORK ROAD

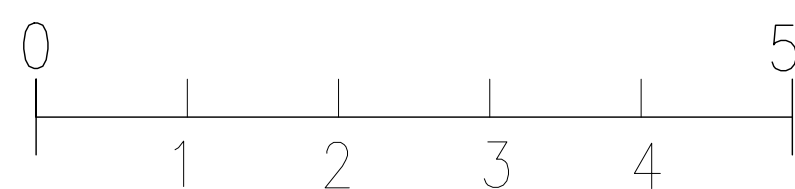


FLANK ELEVATION FACING SOUTH WEST

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P03	15.07.25	DESIGN DEVELOPMENT	DC
P04	09.08.25	DESIGN DEVELOPMENT	DC

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PROJECT
YORK ROAD,
READING

DRAWING TITLE
PROPOSED ELEVATIONS

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STATUS
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P04

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