



REGENTS GATE, READING

THIRD FLOOR CONVERSION

Reading, RG1 2SN

FLOOD RISK ASSESSMENT

Project No	26-243-60
Revision No	00
Issue date	03/09/26

Control Sheet

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1 INTRODUCTION

1.1 Background

- 1.1.1 Calibro has been appointed to undertake a Flood Risk Assessment (FRA) for the renovation and conversion of part of the third floor of the existing Regents Gate office building for residential use.
- 1.1.2 This report refers to the conversion of part of the third floor of the existing building to form two apartments only and is to be considered under a Prior Notification submission.
- 1.1.3 The 2026 version of the National Planning Policy Framework (NPPF) requires that the planning system takes full account of flood risk. This requires that in Flood Zone 1, a site-specific FRA should inform and accompany all development proposals involving:
- Sites of one hectare or more;
 - Land which has been identified by the Environment Agency as having critical drainage problems; and
 - Land identified in a strategic flood risk assessment or the Flood Map for Planning as being at risk from any source, whether now or in the future.
- 1.1.4 The NPPF continues that FRAs should be appropriate to the scale, nature and location of development.
- 1.1.5 Part F7 of the NPPF explains that where development is proposed in a location known to be at risk from any form of flooding, now or in the future it should be refused unless:
- a. Within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons which justify a different arrangement;
 - b. The development will be safe throughout its lifetime taking account of the vulnerability of its users;
 - c. Any residual risk can be safely managed, and safe access and escape routes are included where appropriate, as part of an agreed emergency plan;
 - d. The development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; and
 - e. It can be demonstrated that flood risk will not be increased elsewhere.
- 1.1.6 The site falls within Flood Zone 1 but within areas of mapped surface water flooding and therefore, to adopt a precautionary approach, this FRA has been produced.

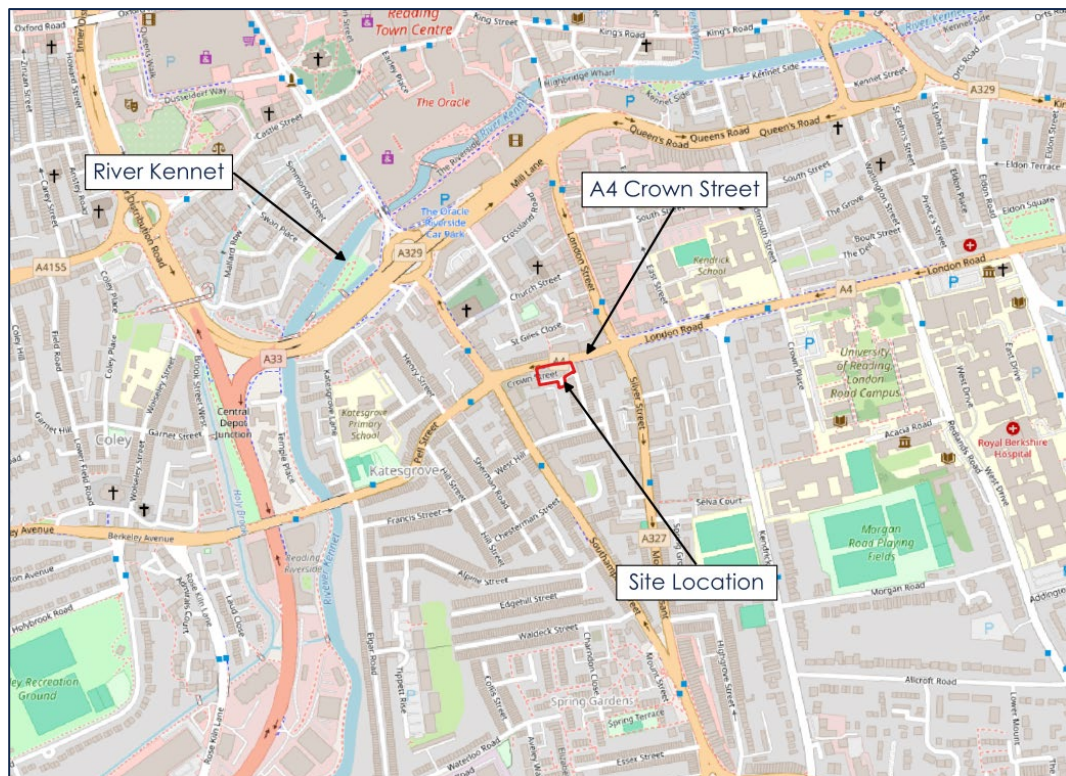
- 1.1.7 The report reflects a previous FRA (Calibro report reference 26-243-60-030) and its Addendum (report reference 26-243-60-001), both written to support application reference PL/26/0232, which was granted on appeal (Appeal Reference 6008519).
- 1.1.8 This assessment focusses on the risk from surface water flooding but considers the risks of all types of flooding to the site for the lifetime of the development. It assesses if there would be an impact of flooding to third parties, recommending mitigation if a risk is identified.

2 EXISTING SITE AND HYDROLOGY CHARACTERISTICS

2.1 Site Description

- 2.1.1 The specific proposals are located on the third floor of the existing Regents Gate building, hereafter known as 'the site'. The site is located in central Reading on the A4 Crown Street. The approximate coordinates at the centre of the site are 47178, 172840 and the closest postcode is RG1 2PQ. Figure 2-1 shows site location.

Figure 2-1 Site Location



- 2.1.2 The site comprises a three-storey office building with undercroft parking.

- 2.1.3 The site is located in a dense urban setting.

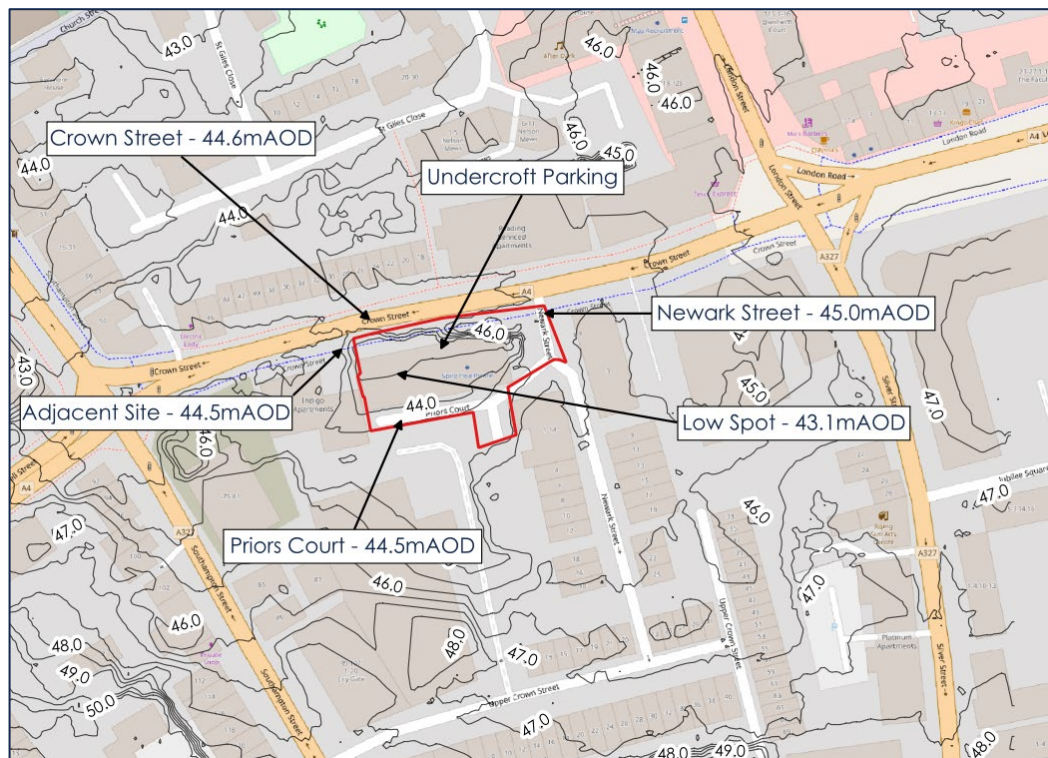
2.2 Hydrology and Topography

- 2.2.1 The River Kennet is located approximately 350m north of the existing building. There are no other known watercourses within the vicinity of the site.

- 2.2.2 The site and surrounding areas are likely to be served by an extensive drainage network, evidenced by the presence of manhole covers in Crown Street and gullies shown on the topographic survey of the site, provided in Appendix A.

- 2.2.3 The topographic survey has been augmented by LiDAR topographic data, shown in Figure 2-2.
- 2.2.4 The site and surroundings are relatively level, with a gentle fall to the west and north (i.e. towards the River Kennet). However, the defining feature of the topography is the undercroft parking which is in a depression compared to surrounding levels. The topographic survey shows the levels of the ground beneath the undercroft to vary but their lowest levels to be approximately 43.3mAOD
- 2.2.5 Levels around the site are 44.6mAOD to the north (Crown Street), 44.5mAOD to the west (adjacent site), 45.0mAOD to the east (Newark Street) and 44.5mAOD to the south (Priors Court).

Figure 2-2 Topography – 0.5m Contours



- 2.2.6 The sunken nature of the undercroft parking is demonstrated in Figure 2-3.

Figure 2-3 Undercroft Parking (Crown Street on the left of the image)



- 2.2.7 As shown in the topographic survey and demonstrated in Figure 2-3, the ground floor level of the building is at approximately 46.54mAOD so is elevated above surrounding areas. Access to the building is either stepped or ramped from Crown Street.

2.3 Geology and Soils

- 2.3.1 Geological data held by the British Geological Survey (BGS) shows that the site and surrounding area is underlain by 'Lambeth Group – Clay, silt and sand' bedrock and 'Taplow Gravel Member – Sand and Gravel' superficial deposits.
- 2.3.2 The BGS Hydrogeology aquifer classification (625k) records the bedrock geology under the site and immediate surrounding areas being a 'Low Productivity Aquifer'.

2.4 Site Proposals

- 2.4.1 The proposals, provided in Appendix B, are for the conversion of part of the third floor of the existing building from its existing Class E use to form two apartments.
- 2.4.2 The undercroft would be retained as parking for some residents throughout the building, not just the third floor. Access to the building would remain as existing.
- 2.4.3 Given the renovation nature of the proposals, there would be no alteration to the footprint of the site, its impermeable area or drainage arrangements.

3 FLOOD RISK

3.1 National Planning Policy Framework (NPPF)

3.1.1 In accordance with the NPPF, this FRA considers the following sources of flooding:

1. Tidal Flooding – from the sea;
2. Fluvial Flooding – from rivers and streams;
3. Surface Water Flooding – from intense rainfall events;
4. Groundwater flooding – from elevated groundwater levels or springs;
5. Flooding from sewers – from existing sewer systems; and
6. Artificial sources – from reservoirs, canals etc.

3.2 Flood Zones

3.2.1 The Flood Zones are based on the assessed probability of the site flooding from rivers and the sea, ignoring the presence of flood defences. The flood zone classifications from the Flood Risk and Coastal Change Planning Practice Guidance (PPG) are presented in Table 4-1 below.

Table 4-1 Flood Zone Classification

Flood Zone	Risk	Fluvial Flooding Chance	Tidal Flooding Chance
1	Low	> 1 in 1,000 year	
2	Medium	Between 1 in 100 and 1 in 1,000 year	Between 1 in 200 and 1 in 1,000 year
3	High	Up to 1 in 100 year	Up to 1 in 200 year
3b	Functional Floodplain	Land where water has to flow or be stored in times of flood. This is defined in the relevant SFRA.	

3.2.2 The Flood Map for Planning defines the site as falling within Flood Zone 1 and is therefore at Low risk of flooding from rivers. It is well beyond tidal limits.

3.3 Surface Water Flooding

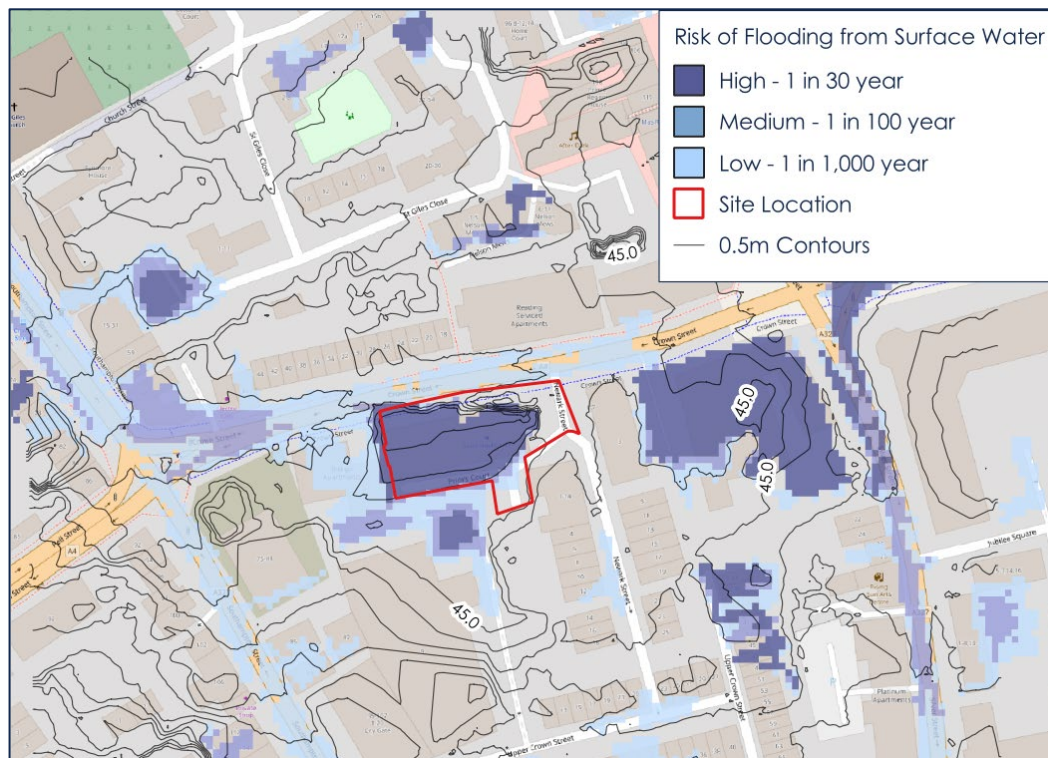
3.3.1 The Risk of Flooding from Surface Water (RoFSW) dataset indicates areas where surface water is likely to flow and accumulate. The mapping is derived by simulation of rainfall events over a digital terrain model (DTM) and includes an uplift of 20% to account for climate change.

3.3.2 According to the Environment Agency's National Flood Risk Assessment (NaFRA) 2 New National Modelling Methodology Statement, the RoFSW model build does not represent the underground drainage network. However, it accounts for drainage

systems by applying a loss rate (normally 18mm/hr) to the input hyetograph. The model simulation runtime is normally 6 hours more than the storm duration (which is 1, 6 or 18 hours).

- 3.3.3 Urban areas are modelled as being 100% impervious and the ground model uses the Digital Terrain Model from LiDAR data (i.e. Figure 2-2), i.e. essentially ignoring the presence of buildings.
- 3.3.4 The above means that in an urban setting, there are no losses to the ground or drainage systems from the model. Therefore, in areas where there are depressions in the ground, rainfall will accumulate across the model runtime, with no means of escape.
- 3.3.5 Although the rainfall rate is reduced in the three modelled events, the water cannot escape, which is very conservative or representative of a complete blockage of the drainage system, which is unlikely.
- 3.3.6 The RoFSW dataset, shown in Figure 3-1, demonstrates that the site is predicted to be at risk during the High, Medium and Low risk events.

Figure 3-1 RoFSW + 20% Climate Change Extents



- 3.3.7 Crown Street is predicted to not be flooded in the design 1 in 100 year plus climate change event. It is predicted to be inundated in the future 1 in 1,000 year event but detailed inspection of the data demonstrates the depth along Crown Street would be shallow, much less than 0.2m. Therefore, safe access and egress along Crown Street to the building would be possible even during future extreme flood conditions.

- 3.3.8 The RoFSW data shows that the depth of flooding in the undercroft would be no more than 600mm.
- 3.3.9 Clearly, therefore the third floor of the building would be significantly elevated above the flood depths, as would the ground floor of the building itself, as explained below.
- 3.3.10 Comparison of the RoFSW data with the information in Section 2.2 shows that the predicted flooding is due to the undercroft filling with rainfall in the model, which can't escape due to the impervious ground and lack of drainage, across the model duration.
- 3.3.11 Analysis of the patch of High flood risk to the south of the site is another localised depression where flood depths would be shallow, less than 200mm.
- 3.3.12 The building is elevated above the surrounding areas. In addition, there is a gap between it and Crown Street (as shown in Figure 2-3). This means that the building would remain comfortably above the likely flood depths even in a future extreme event with no chance for water to enter from overland flows. Consequently, all occupants, especially those on the third floor, would remain safe during flood events.
- 3.3.13 Furthermore, the topographic survey shows that the northern edge of the building is elevated above the northern edge of the adjoining footway and the Crown Street carriageway. This means that flows along Crown Street would be unlikely to flow into the undercroft.
- 3.3.14 Given the drainage in the undercroft, confirmed by the presence of gullies in the topographic survey, the depth of flooding predicted by the RoFSW model is assessed as being overestimated. In addition, the area of flooding predicted in the model is not particularly extensive. This means the volume of water to be drained across the modelled event is also not significant and it would be reasonable to presume the drainage would remove a considerable proportion of this flooding. The RoFSW would therefore represent flooding that would coincide with a complete blockage of the drainage system with a heavy rainfall event, which is very unlikely.
- 3.3.15 The site is therefore at **Very Low** risk from surface water flooding with no specific mitigation required. Site access issues are addressed below.
- 3.3.16 The risk of surface water flooding, and the reasons for reaching the above conclusion, is explained in greater detail in the previous FRA Addendum, which is provided in Appendix C.
- 3.3.17 Furthermore, the part F7 of the NPPF refers to development being in a location 'known to be' at risk of flooding. This part of the FRA, and the Addendum in Appendix C, demonstrates the risk is from mapped sources, not necessarily a 'known' risk supported by historical evidence.

3.4 Groundwater Flooding

- 3.4.1 The Reading SFRA has limited information regarding groundwater flooding. However, it notes that areas of the borough that are underlain by chalk can be susceptible to elevated groundwater during prolonged wet weather. This is not the case at the site as the underlying bedrock has limited productivity.
- 3.4.2 The hardstanding nature of the site and surrounds would limit the chance for groundwater emergence. The site is therefore assessed as being at **Very Low** risk of groundwater flooding with no mitigation required.

3.5 Flooding from Sewers

- 3.5.1 The site and surrounding areas are likely to be served by a strategic sewer system, maintained by Thames Water. Applying a precautionary assessment, in the unlikely event of blockage in the network, water would likely behave as predicted by the RoFSW and therefore the building would remain dry and is therefore at **Very Low** risk of sewer flooding with no mitigation required.

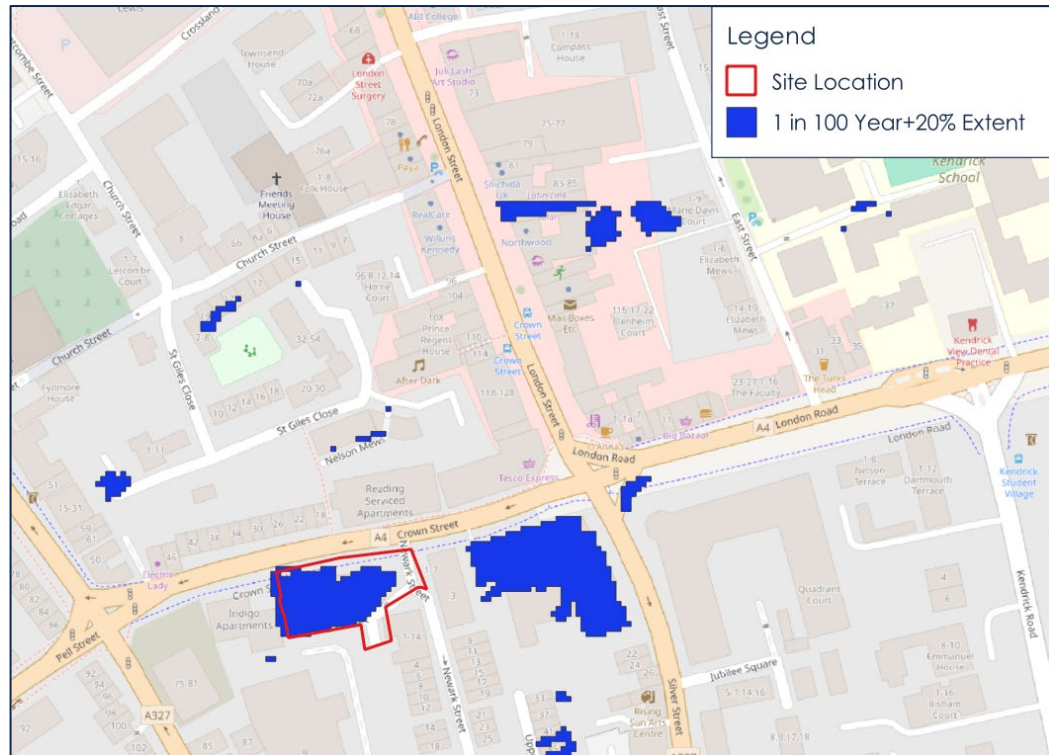
3.6 Flooding from Artificial Sources

- 3.6.1 The Environment Agency 'Reservoir Flood Extents' national dataset shows the site falls outside of areas predicted to flood in the event of a reservoir breach. There are no other artificial water bodies within the vicinity of the site, which is therefore assessed as being at **Negligible** risk of reservoir flooding with no mitigation required.

3.7 Access and Egress

- 3.7.1 There is no flooding predicted on Crown Street in the design 1 in 100 year plus climate change event. This means that safe access and egress would be possible and occupants would have voluntary and free movement during a design (future 1 in 100 year). This is a key consideration of the PPG (paragraph 47).
- 3.7.2 Looking beyond Crown Street, although patches of Medium risk (design flood of 1 in 100 year plus climate change), the roads are not completely inundated. This means access would be possible along these routes, particularly when filtering out the shallower, non-hazardous flooding below 0.2m, as demonstrated in Figure 3-2.

Figure 3-2 RoFSW + 20% Climate Change Extents, 0.2m Depth



- 3.7.3 It is unlikely that the drainage network serving the undercroft would be sufficient to drain all water during future High, Medium or Low rainfall events. However, flooding of the undercroft would likely be significantly less than the depths predicted by the RoFSW.
- 3.7.4 It is acknowledged that the undercroft would be used for car parking. Given the above analysis, the depth of flooding in the undercroft would likely be significantly shallower than the RoFSW model predicts. Furthermore, given the gently sloping ground, velocities would be low. As a result, the risk of damage to vehicles would likely be low. To fully quantify this would require detailed survey and/or modelling studies to be conducted, which is disproportionate.
- 3.7.5 Access considerations were investigated in greater detail by the previous FRA Addendum, provided in Appendix C.

3.8 Development Vulnerability

- 3.8.1 Table 2 of the Flood Risk and Coastal Change Planning Practice Guidance (PPG) defines which types of development are acceptable in each flood zone and is reproduced in Table 4-2. In accordance with Annex 3 of the NNPF, the proposals are considered to be More Vulnerable. The site is assessed as falling in Flood Zone 1. All forms, including More Vulnerable, of development are appropriate in Flood Zone 1.

Table 4-2 Flood Risk Vulnerability

Flood Zone	Flood Risk Vulnerability				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
1	✓	✓	✓	✓	✓
2	✓	Exception Test Required	✓	✓	✓
3a	Exception Test Required	✗	Exception Test Required	✓	✓
3b	Exception Test Required	✗	✗	✗	✓

- 3.8.2 Furthermore, this assessment demonstrates the risk of flooding posed to the building and its users would be low, particularly the third floor, and consequently the proposals are acceptable, despite the change in vulnerability from offices (Less Vulnerable) to dwellings (More Vulnerable).

4 IMPACT ON LOCAL DRAINAGE

- 4.1.1 The existing site is understood drain to an existing sewer network, as evidenced in the topographic survey.
- 4.1.2 The proposals comprise internal refurbishment only and would result in a no alteration to the impermeable footprint of the site. It is therefore proposed to retain the same general drainage arrangements for the site with no additional mitigation required.
- 4.1.3 This would result in negligible change to local drainage.

5 SUMMARY

- 5.1.1 It is proposed to convert part of the third floor of an existing office building (Regents Gate) to provide 2no. residential dwellings (apartments). There would be negligible change to the impermeable footprint of the site
- 5.1.2 The site (i.e., the Regents Gate building and undercroft parking area) is located in Flood Zone 1 and assessed to be at low risk from groundwater, sewers and artificial sources.
- 5.1.3 The site is shown by the RoFSW modelling to be at risk from surface water flooding.
- 5.1.4 However, investigation of the modelled flooding shows the predicted flooding to be occurring due to the RoFSW model not fully representing the underground drainage network. Therefore, water is becoming stuck in the undercroft with no means of draining away.
- 5.1.5 The modelling is therefore not representing the behaviour of rainfall on the site and surroundings, which would drain away and therefore not pond to the depth predicted by the modelling. However, without detailed survey and site-specific modelling (which is disproportionate), it cannot be fully concluded that the drainage system is sufficient to accommodate all of the design rainfall. Therefore, taking a precautionary approach, some flooding of the undercroft is possible, albeit to limited depths and velocities.
- 5.1.6 Such flooding would be shallower than the RoFSW model predicts and likely to be of low velocity, meaning the risk of car damage is low.
- 5.1.7 The building itself, and particularly the third floor, is elevated above surrounding ground levels. It is also set back from Crown Street with a void between the two. This means that the chance for water entry into the building interior is negligible.
- 5.1.8 Crown Street, and the highway network beyond, is predicted to be flood-free during the design 1 in 100 year plus climate change event. Consequently, occupiers would have free and voluntary movement during design flood conditions, a key requirement of the PPG.
- 5.1.9 The proposals would result in no alteration to the impermeable footprint of the site. It is therefore proposed to retain the same general drainage arrangements for the site with negligible impact on local drainage.
- 5.1.10 This FRA shows that the development will be safe for its lifetime, with negligible impact on flooding elsewhere, and it therefore meets the requirements of the 2026 iteration of the NPPF.

APPENDICES

APPENDIX A

Topographic Survey

172855mN

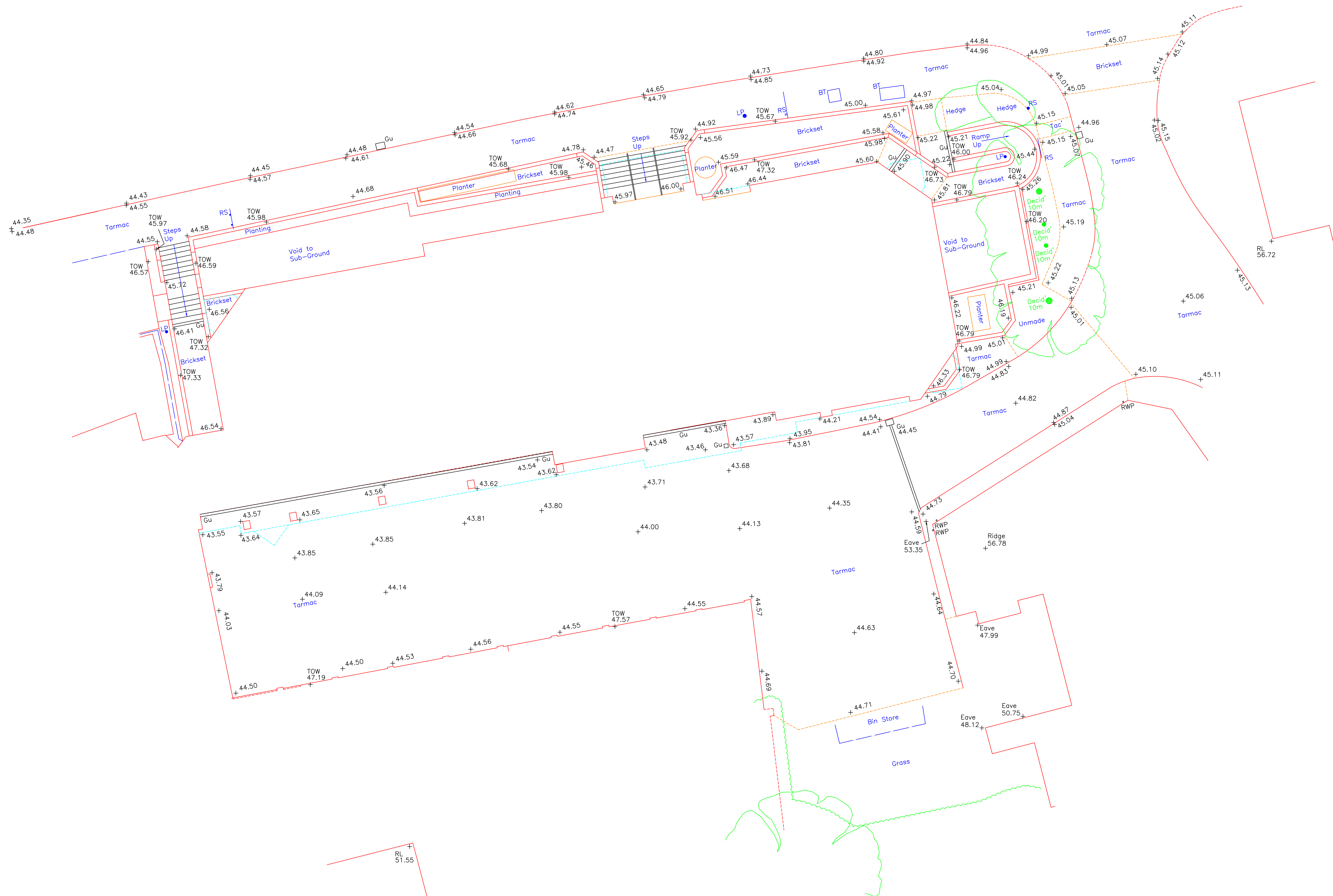
172845mN

172835mN

172825mN

172815mN

172805mN



NOTES:

While every effort has been made to correctly identify species of trees on the site, we advise that an arborist/bot to be consulted before any final decisions are made.

Grid coordinates are based on Ontario Survey Utilities GPS equipment

ABBREVIATION KEY - TOPOGRAPHIC SURVEY

AV	Air Valve
BO	Balford
BD	Block inlet Gully
BT	British Telecom
CB	Cable Drawing Slabs
CL	Cover Level
CATV	Cable Television Cover
DR	Double Road
DS	Double Road
DE	Dashed Line
ECB	Electric Cable Cabinet
EP	Electric Pole
EL	Electricity Pole
EX	Exhaust
FI	Fresh Air Inlet
FIH	Fire Hydrant
F/B	Flower Bed
GV	Gas Valve
GL	Gully
L	Large Column
LP	Large Post
MB	Mud Bed
MP	Manhole
MS	Service Marker
PK	Parking
R	Road
RD	Roadside Eye
RWP	Road Water Pipe
SC	Stop Clock
SW	Single Yellow Line
SY	Single Yellow Line
SV	Stop Valve
SVP	Stop and Vent Pipe
UCB	Underground Cable Cabinet
UTL	Telephone Cable
UL	Underground LIT
WG	Wet Gully
WM	Water Meter
WO	Wash Out

ABBREVIATION KEY - BUILDING SURVEY

○	Floor To Ceiling
AB	Floor To False Ceiling
AD	Air Brick
BS	Double Socket
Dh	Door Head Level
CEH	Ceiling Level
FL	Fire Alarm
FL	Floor Level
FS-	Floor To Sill
FS	Fume Box
GL	Ground Line
HL	Height
LS	Light Switch
RWP	Rain Water Pipe
SD	Smoke Alarm
SD	Smoke Detector
SH-	Sill To Head
SH	Single Socket
Stat	Thermostat
SW	Switch
SWI	Telephone/Outlet
TV	Urid/Cable Socket
UA-	Under Arch (centre)
UA	Under Opening
UB-	Under Beam
UD-	Under Duct
UD	Under Pipe
WL	Wall Light
WH-	Window Head Level
WH	Window Sill Level

Co-ordinate Table

ID	Easting	Northing	Height
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REV. SUFFIX	DATE	INITIAL	REVISION DETAILS

LEVELLING		DATUM			
Related to Ordnance Survey utilizing GPS equipment.					
CAD OPERATOR	PRFC	APPROVED BY	BED	DATE	08.07



SURVEY & ENGINEERING SERVICES

CUENT

Danks Badnell
Architects

LOCAT

Regents Gate,
25-41 Crown St.,
Reading
RG1 2SN

CHUKA

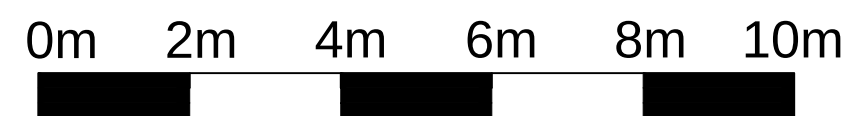
Topographic Survey

ORIGINAL JOB No.	JOB No.	020126

DRAWING NO.	REVISION SUFFIX
020126/Topo	
SCALE	DATE
1:100 @ A0	26th Jan 202

Registered Company No. 5366476

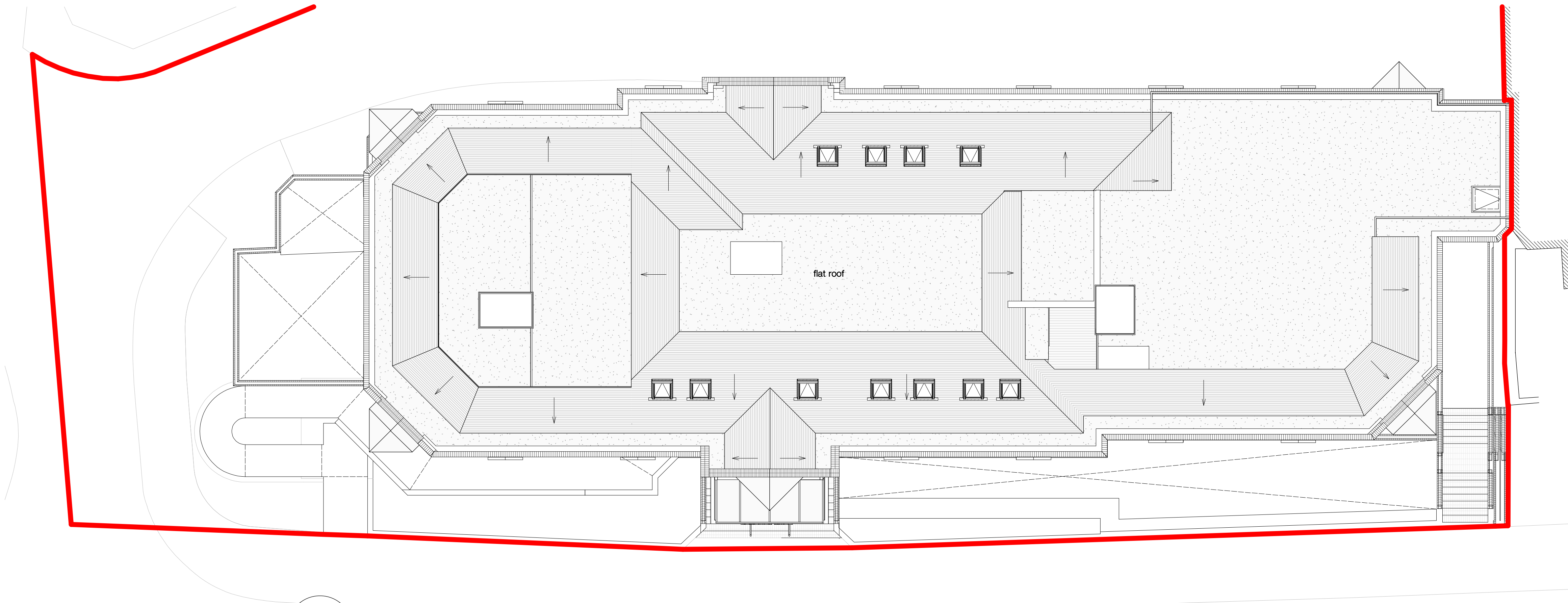
Tel No./Fax: +84 (0) 3636.62...



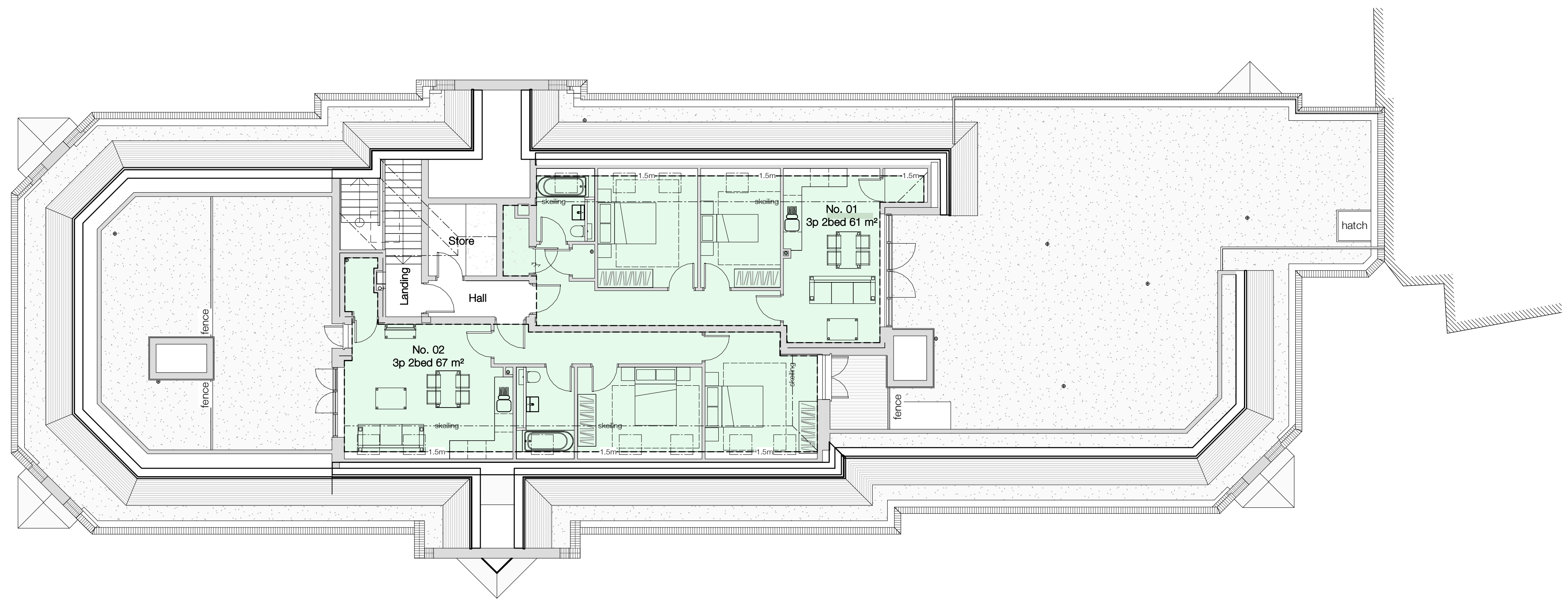
The Canary
 Lee Farm
 Lee Lane
 Pinkneys Green
 Maidenhead
 SL6 6PE

APPENDIX B

Existing Site Layout and Proposals



RF **PROPOSED PLANNING ROOF GA PLAN**
SCALE 1 : 100



03 **PROPOSED PLANNING THIRD FLOOR GA PLAN**
SCALE 1 : 100

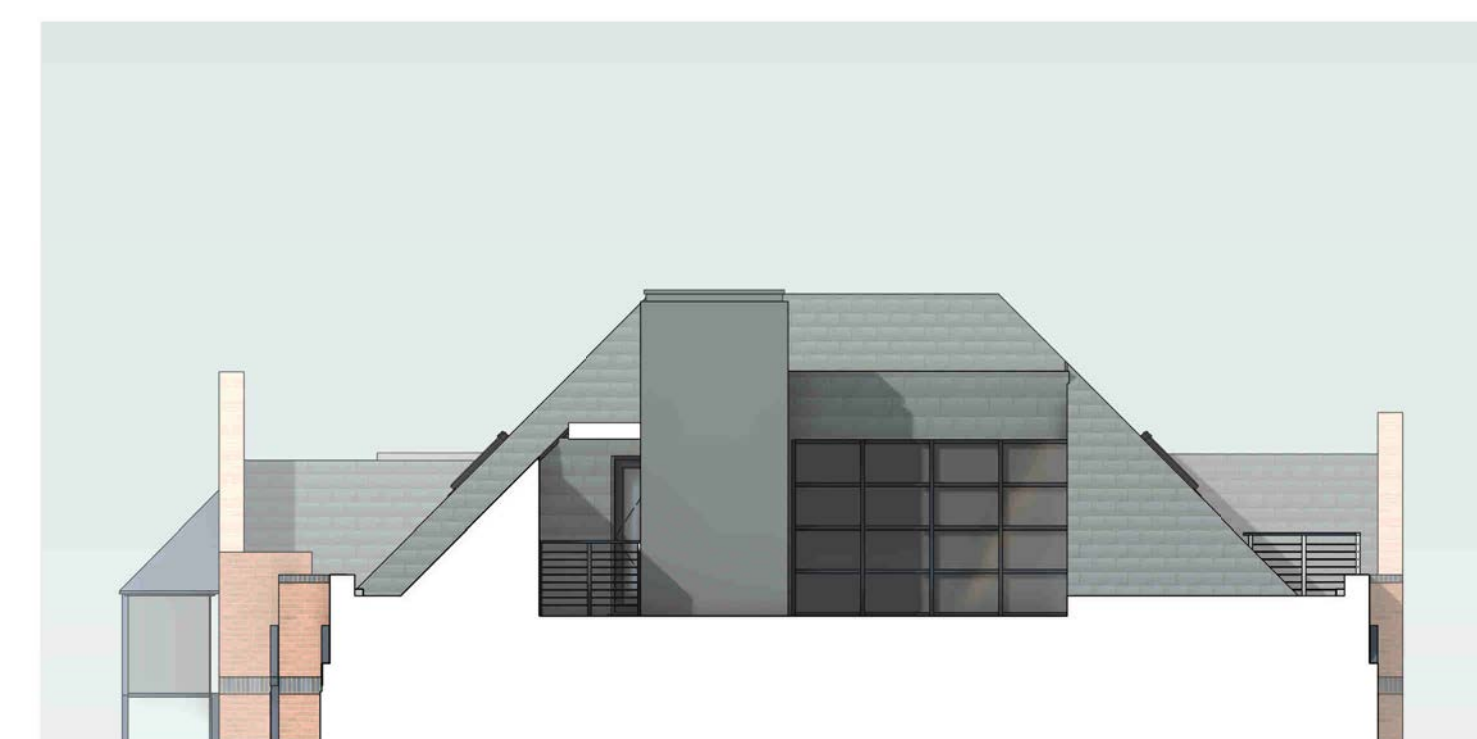
Planning



N PROPOSED PLANNING NORTH ELEVATION
SCALE 1 : 100



E PROPOSED PLANNING EAST ELEVATION
SCALE 1 : 100

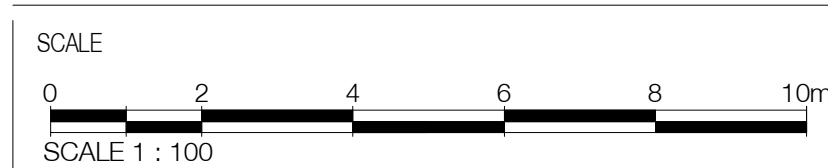


E1 PROPOSED PLANNING EAST ELEVATION
SCALE 1 : 100 | CUTTING THROUGH FLAT ROOF



E2 PROPOSED PLANNING EAST ELEVATION
SCALE 1 : 100 | CUTTING THROUGH FLAT ROOF

Planning



KEY PLAN

REVISIONS				PROJECT	
Rev.	Date	Description	By	TITLE	
/	29/07/2026	Planning issue	JMR	REGENTS GATE, CROWN ST., READING.	
				PROPOSED ELEVATIONS (1 of 2)	
				NUMBER 25-31-045-/	DATE 29/07/2026
				SCALE 1 : 100	PAPER A1

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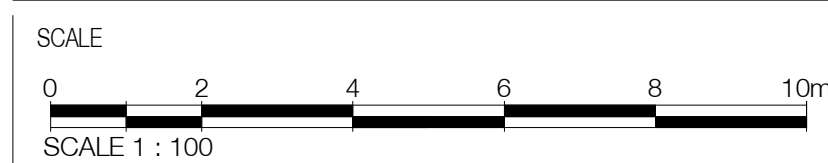
S **PROPOSED PLANNING SOUTH ELEVATION**
SCALE 1 : 100



W **PROPOSED PLANNING WEST ELEVATION**
SCALE 1 : 100



W1 **PROPOSED PLANNING WEST ELEVATION**
SCALE 1 : 100 | CUTTING THROUGH FLAT ROOF



KEY PLAN

REVISIONS			
Rev.	Date	Description	By
/	29/07/2026	Planning issue	JMR

PROJECT	REGENTS GATE, CROWN ST., READING.		
TITLE	PROPOSED ELEVATIONS (2 of 2)		
NUMBER	25-31-046-/	DATE	29/07/2026
SCALE	1 : 100	PAPER	A1

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Planning

APPENDIX C

Previous FRA Addendum

Title	FRA Addendum
Job Name	Regents Gate, Reading
Job Number	26-243-60
Date	22/04/2026

1 BACKGROUND

- 1.1.1 This Technical Note provides an addendum to the Flood Risk Assessment (FRA) written to support the Prior Approval application for renovation and conversion of the existing Regents Gate office building for residential use. The application was previously refused under Reading Borough Council planning reference PL/26/0232.
- 1.1.2 The primary conclusion of the FRA was that on account of the raised nature of the existing building, although the undercroft parking area could be susceptible to flooding in a 'design' rainfall event (1 in 100 year plus climate change), the building itself would remain dry. Similarly, the pedestrian exits from the building would be dry in the design event and facilitate safe access in the extreme, 1 in 1,000 year, event.
- 1.1.3 Furthermore, the FRA concluded the flooding predicted by the national-scale model in the undercroft is likely to be overestimated. This is on account of the modelling not accounting for underground drainage.
- 1.1.4 This report adds clarity and additional analysis to support the conclusions reached by the FRA.
- 1.1.5 Specifically, this addendum provides the following:
- A description of the national scale modelling in the context of how it overestimates the predicted flooding;
 - Analysis and calculations to better demonstrate the depths of flooding likely to gather in the undercroft; and
 - It addresses the reasons for refusal on the previous application.
- 1.1.6 This addendum focuses on the design flood event. The reason for this is that the Flood Risk and Coastal Change Planning Practice Guidance (PPG) makes frequent reference to the design event and its importance in the FRA process. For example, Section 5d asks 'What is the expected depth and level of the design flood?'.

- 1.1.7 The PPG defines the design flood event as 'Surface water flooding likely to occur with a 1% annual probability (a 1 in 100 year chance each year), plus an appropriate allowance for climate change'.

2 ADDRESSING REASONS FOR REFUSAL

2.1.1 As demonstrated in the FRA, supplemented by this addendum, the proposals are policy and guidance compliant. Nonetheless, the LPA gave reasons for refusing the previous application, which are addressed in this addendum. The LPA documentation is enclosed with this report.

2.1.2 In summary, the reasons were:

- Insufficient evidence to confirm safe access and egress along Crown Street;
- Incorrect assumption that the proposals would adopt a stay put policy in an emergency, when safe egress is available;
- No recommendation for flood resistant or resilient measure, nor sustainable drainage (SuDS).

2.1.3 These reasons are addressed below.

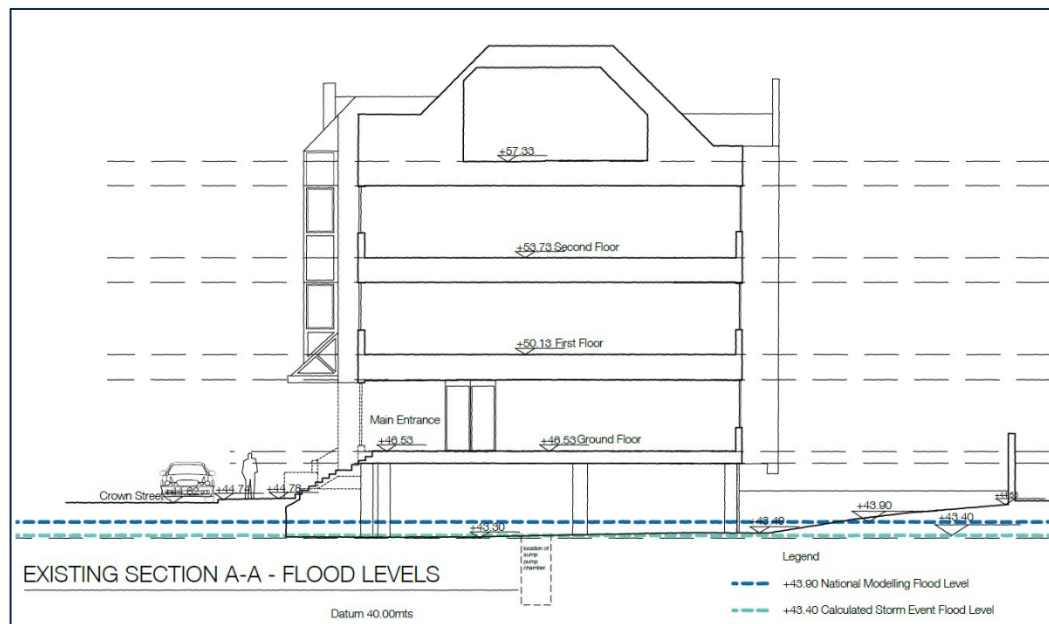
2.2 Safe Access

2.2.1 The FRA, supported by this addendum, provides significant body of evidence that confirms that in the design event, the access to and from the building as well as the local highway network would be flood free. Consequently, this facilitates free and voluntary movement of people in the design event, a key component of the PPG.

2.2.2 A section drawing, provided in Figure 2-1 and based on flood levels explained later in this report (Sections 3 and 4), demonstrates the relationship between the street level, the lower ground undercroft and the elevated ground floor level. This shows that Crown Street, the building ground floor, and the connections between, are all significantly elevated above the predicted flood levels at the site. This confirms there is continued safe access and egress for residents during at least the design flood event, which is defined above.

2.2.3 The above is demonstrated throughout this note, specifically Figure 2-1, and Sections 3.2, 4.2 and 4.3.

Figure 2-1 Flood Levels



2.3 Stay Put Policy

- 2.3.1 The safe access and egress to and from the site in design flood conditions means that the building would be safe and there would be voluntary movement of people available in at least design flood conditions. Therefore, there is no requirement for a stay put policy.

2.4 Flood Resilient Measures and SuDS

- 2.4.1 Flood resistant (preventing water entering a building) or resilient (accepting water entry but negating flood damage) measures are only needed for properties at risk of flooding. As demonstrated in this report and the FRA, the building would remain dry during at least design flood conditions, thereby there is no requirement for such measures.
- 2.4.2 The proposals are effectively change of use with no amendment to the building nor impermeable footprint of the site. Consequently, there would be no change to the runoff generated from the site nor its drainage arrangements. As a result, there is no need for drainage considerations or SuDS as part of the application.

2.5 Residual Risk

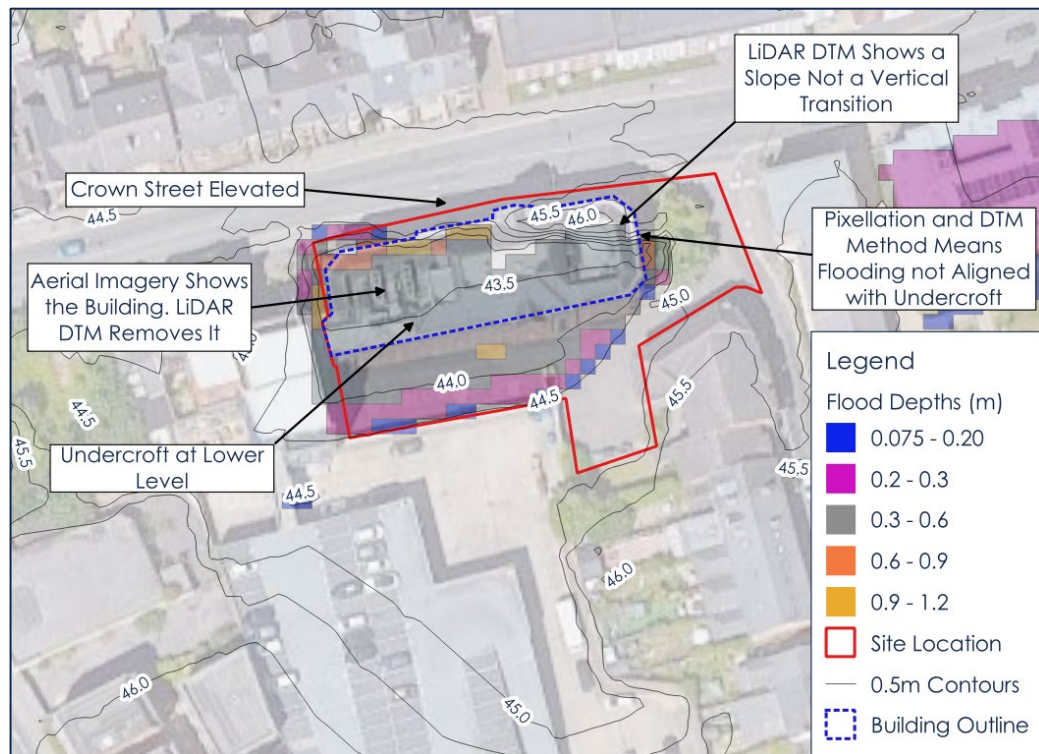
- 2.5.1 The only realistic residual flood issue at the site relates to the non-habitable undercroft parking area, for example in the highly unlikely event of an exceedance rainfall event combined with a local drainage blockage.

- 2.5.2 Even in such circumstances, the only risk would be to vehicle parking within the undercroft area, the building itself would remain dry and the pedestrian route to Crown Street would remain dry in this residual risk event.
- 2.5.3 The FRA, and this note, provides evidence that even in a blockage event, flooding during design rainfall would likely be shallow, in the region of 100mm. Any exceptional residual risk associated with the undercroft could be managed through straightforward building management measures related to vehicle parking including resident information, appropriate signage within the car park, and the temporary avoidance or relocation of vehicles during severe weather warnings.
- 2.5.4 Such measures are proportionate only to the parking area and are not required to make the residential accommodation, or its occupiers, safe.

3 NATIONAL SCALE MODELLING

3.1.1 This section provides a background to the national scale modelling, known as the Risk of Flooding from Surface Water (RoFSW). The modelling is undertaken and supplied by the Environment Agency. The results of the modelling local to the site in the design event are shown in Figure 3-1.

Figure 3-1 RoFSW 1 in 100 Year + 20% Climate Change Extents and Depths

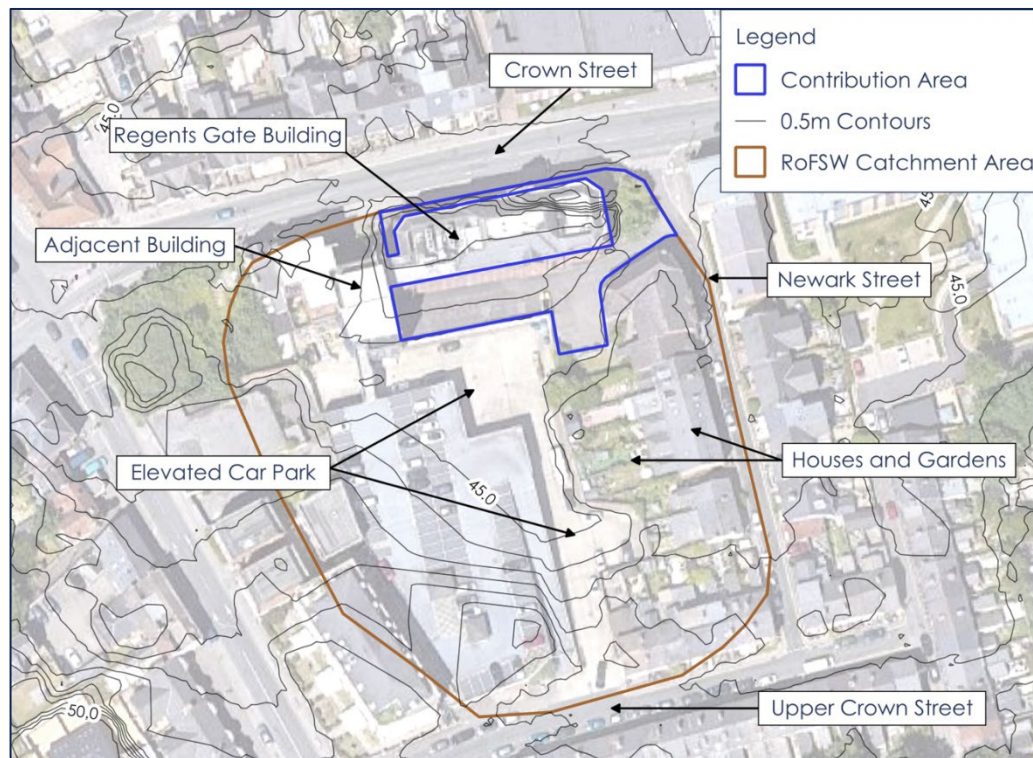


3.1.2 The RoFSW model simulates the behaviour of rain falling on the ground by applying rainfall onto a ground model. The model applies the following criteria:

1. Ground model derived from a Digital Terrain Model (DTM), which represents the ground surface topography and therefore filters out buildings, vegetation and similar raised surfaces.
2. Land cover in urban areas presumed to be impervious so no water falling on the ground is lost through infiltration and 100% of the rainwater becomes runoff;
3. Underground drainage is not represented in the model;
4. A reduction in the rainfall (defaulted to 18mm/hr) is applied to act as a surrogate for underground drainage;
5. The model is run with storm (rainfall event) duration of 1, 3 and 18 hours but with a total model runtime six hours longer than the storm duration;

6. The results provided (as shown in Figure 2-1) show the worst case flooding from either the 1, 3 or 18 hour storm event;
 7. The model applies a 20% uplift to rainfall to account for climate change.
- 3.1.3 The above is a summary of the model methodology, sourced from the Environment Agency's 'NaFRA2 New National Modelling – Method Statement'.
 - 3.1.4 Regarding item 1 and 2, this means that the national model presumes all rain falling on the site and surrounding areas contributes runoff. The catchment likely to be applied to the national model is presented in Figure 2-2. This runoff would flow north, overland, and pond in the undercroft due to the raised nature of Crown Street blocking any onward flow. The modelling ignores the presence of the roofs, including the site roof, gardens and the adjacent car park. In reality, all of these would collect and release water either to the ground or the drainage systems, i.e., escape the catchment, before reaching the undercroft. Consequently, the modelling is conservative.
 - 3.1.5 For example, the third party parking area to the south of the site is elevated, served by positive drainage and is understood to include a small upstand perimeter wall. These would result in water falling on the parking to be drained away and/or contained within the car park and not contribute overland flow to the site or undercroft.
 - 3.1.6 A more accurate catchment, or drainage contribution area, has been determined through an analysis of site conditions and readily available imagery and is presented in Figure 3-2.
 - 3.1.7 To derive a more accurate and representative catchment or contribution area, only areas external to the building and not covered by existing roofs, car parks or gardens has been measured. The small open section between the building and Crown Street would be in the rain shadow of either the building or highway, however, it has been included in the area assessment to ensure a conservative estimate.

Figure 3-2 Catchment Areas



- 3.1.8 In addition, regarding items 2 and 3, the model presumes that once water ponds in the undercroft it has no means of discharge, escape or exiting the model. As described in Section 3.3 of the FRA, this is clearly disproportionate given the presence of the drainage serving the undercroft, evidenced by the presence of gullies in the topographic survey, enclosed with this addendum.
- 3.1.9 Regarding item 4, an arbitrary loss is applied to the rainfall to act a proxy for the presence of urban drainage. Where areas are sloping, this defacto loss can be considered proportionate and reasonable to normalise resulting flooding. However, in situations like the site where water cannot escape the model despite the presence of real-life drainage, this defacto loss is not therefore a reasonable estimate of the design event.
- 3.1.10 Regarding item 5 and considering the above item descriptions, the model runs for more hours than the storm duration. This means that even when the simulated storm abates and rainfall input is no longer applied, the model is still routing runoff. For the site, this means that once the simulated rainfall stops, the model is still sending water to the undercroft, continuing to artificially raise flood levels that would in reality be draining away.
- 3.1.11 It is of course noted that there is a chance that the drainage systems serving adjacent areas or roofs is overwhelmed, particularly during a design event. However, a significant amount of rainfall would still be conveyed by the drainage systems meaning that such flows would be significantly less than the model's predictions.

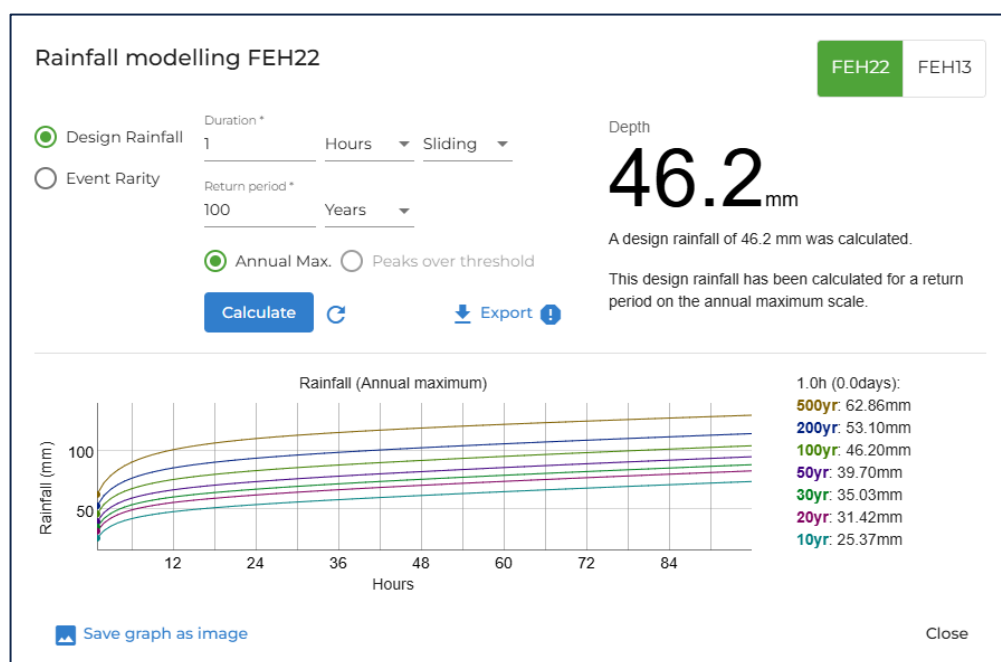
3.2 National Model Summary

- 3.2.1 The national modelling is conservative and overestimates flooding in situations such as those experienced at the site. The model presumes all rainfall becomes runoff and that a greater area contributes this runoff than in reality. The model also presumes no water can escape the model through drainage or infiltration, which not only exacerbates the runoff but also the ponding under the undercroft.
- 3.2.2 Based on an overlay of the RoFSW national model mapping and the base LiDAR data (upon which the model is based) indicates a flood depth of approximately 600mm. As shown in Figure 2-1, presuming the lowest level in the undercroft is 43.3mAOD results in a RoFSW modelled level of 43.9mAOD.

4 REFINED FLOOD DEPTHS

- 4.1.1 Given the above inaccuracies associated with the national scale, RoFSW, modelling a revised calculation of the likely flood depths under the undercroft in design flood conditions is presented in this report.
- 4.1.2 The revised approach applies rainfall generated from the Depth Duration Frequency (DDF) modelling obtained from the Flood Estimation Handbook (FEH), for the 1, 3 and 18 hour storm, matching the durations applied by the national scale modelling. An example of the DDF model output is provided in Figure 4-1.

Figure 4-1 FEH Depth Duration Frequency Model output



- 4.1.3 The DDF modelling is for present day events only, but, as noted in Section 1, the design rainfall event includes an uplift of 20%, which has been added to the DDF-derived rainfall, summarised in Table 4-1. The addition of 20% to represent climate change is consistent with the national scale modelling.
- 4.1.4 To calculate the volume and depth of water likely to flow to the undercroft, the same overland flow mechanisms as the national scale RoFSW modelling (i.e. 100% of rainfall becomes runoff and no losses from drainage or infiltration) have been applied. However, the DDF rainfall depths have been applied to the contribution area identified in Figure 3-2 rather than the RoFSW catchment area. This better reflects the actual area likely to contribute runoff to the undercroft, as explained in detail above.
- 4.1.5 A simple calculation of – Contribution Area (m²) x Rainfall Depth (m) has been used to estimate the depth of rain falling on the contribution area. The contribution area measures approximately 818m².

- 4.1.6 It is then presumed that 100% of this rainfall depth flows overland to the undercroft, which, as explained above, is unrealistic but conservative, resulting in a calculated volume of runoff generated from the contribution area, reported in Table 3-1.
- 4.1.7 Finally, to calculate the depth of flooding congregating under the undercroft, it is presumed the undercroft is level, which is conservative as the topographic survey shows some level changes. It is also presumed that the runoff would only congregate beneath the undercroft. The undercroft has an area of approximately 725m².
- 4.1.8 Presuming the volume of runoff calculated distributes evenly across the undercroft area, another simple calculation of - Runoff Volume (m³) x Undercroft Area (m²) would provide the likely depth of flooding beneath the undercroft, as reported in Table 4-1.

Table 4-1 Rainfall and Flooding Depths – 1 in 100 Year Event +20%

Event Duration (hrs)	DDF Rainfall Depth (m)	Runoff Volume (m ³)	Undercroft Flooding Depth (m)
1	0.06	45.3	0.06
3	0.07	58.2	0.08
18	0.10	78.6	0.10

- 4.1.9 The revised calculation of potential flooding depths shows that when considering a more realistic catchment or contribution area, the predicted flooding in the undercroft is minimal. It should be noted that the refined calculation still presumes no underground drainage to be present. With the drainage accounted for, the flooding is likely to be negligible.

4.2 Flood Levels

- 4.2.1 The enclosed topographic survey shows that levels of the undercroft vary but the lowest levels are approximately 43.3mAOD.
- 4.2.2 Based on the above analysis, this shows the flood level predicted by the national scale, RoFSW, modelling would be approximately 43.9mAOD with the level predicted by the revised calculation at approximately 43.4mAOD.
- 4.2.3 The FRA reported the Finished Floor Levels of the existing, and therefore proposed, building to be approximately 46.54mAOD, over 2.4m higher than the worst-case predicted flood level. This is demonstrated in the flood level plans enclosed with this report, with an extract provided in Figure 2-1.

4.2.4 This clearly demonstrates the building, and its occupiers, would remain dry and consequently safe from flooding in at least the design event.

4.2.5 As a result, the site complies with the PPG and NPPF by ensuring the site and its occupiers will be safe from flooding in at least the design event.

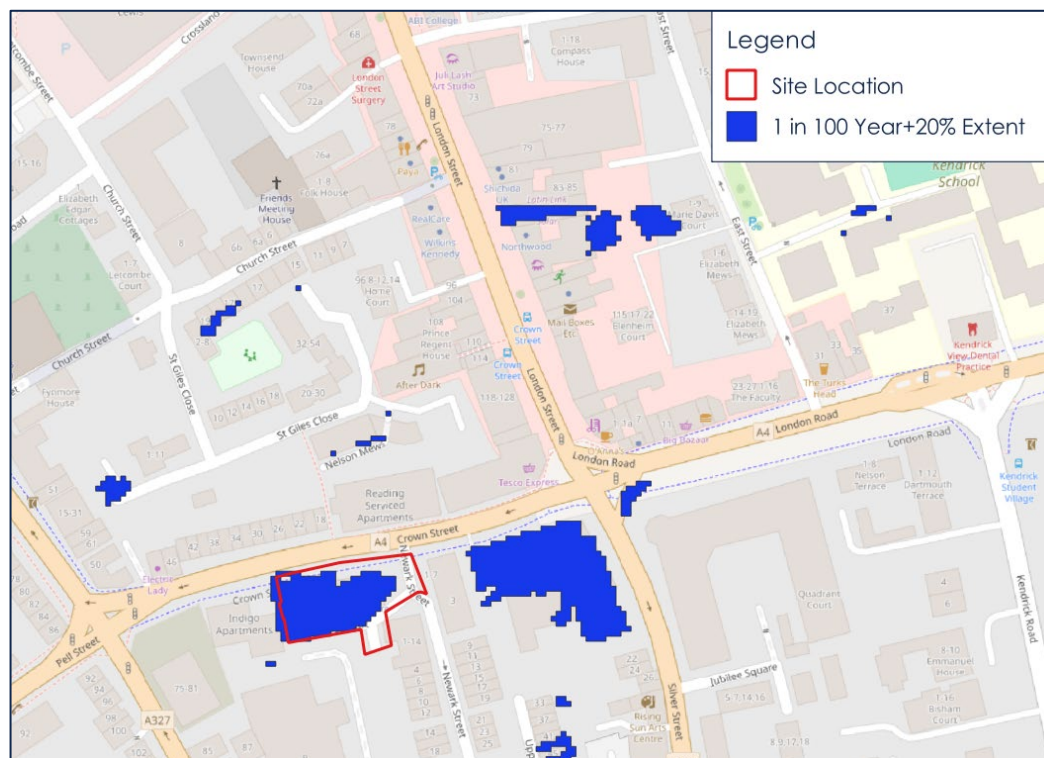
4.3 Flood Velocities

4.3.1 Flood velocity data is not readily available from the RoFSW modelling outputs. However, given the nature of the flood predictions, namely water flowing across gently sloping ground and collecting within the undercroft with no onward flow path, the associated velocities are assessed as likely to be low. In any event, this does not alter the conclusion on safe access and egress, because the route to Crown Street is shown to remain dry in at least the design event.

5 ACCESS AND EGRESS

- 5.1.1 The NPPF, for example paragraph 181, part e, states that applications should ensure they have 'Safe access and escape routes included where appropriate, as part of an agreed emergency plan'.
- 5.1.2 The PPG expands on this by stating that 'Access considerations should include the voluntary and free movement of people during a design flood'.
- 5.1.3 The FRA, and Figure 3-1, demonstrate that dry access is available from the site to Crown Street during the design event. Furthermore, Figure 5-1 shows that the local highway network would also be flood-free during the design event, meaning that the PPG recommendations can be met.

Figure 5-1 RoFSW + 20% Climate Change Extents, Greater Than 0.2m Depth



- 5.1.4 The FRA, supported in greater detail by this addendum, shows that the access to Crown Street is raised comfortably above the predicted overestimated and calculated flood levels. The overestimated and unrealistic flood level is estimated as approximately 43.9mAOD. The topographic survey shows the access from the building to be at least 46mAOD, falling to 44.8mAOD at the edge of Crown Street. This is 900mm above the overestimated and unrealistic flood level.

6 SUMMARY

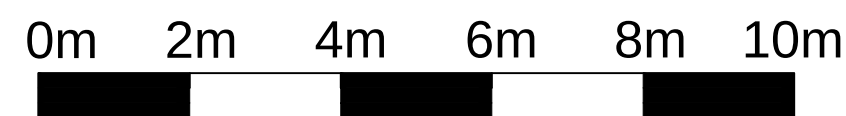
- 6.1.1 The national scale surface water modelling predicts the undercroft to be subject to 600mm of flooding in the design, 1 in 100 year +20% event. Based on lowest topographic levels at the site, this would result in flooding with a peak level of 43.9mAOD.
- 6.1.2 However, the analysis completed by the FRA, supported by additional evidence in this addendum, shows this flood depth and level to be overestimated and unrealistic.
- 6.1.3 A more accurate, but still conservative, calculation shows the depths in the undercroft to be no more than 100mm, therefore flood level of no more than 43.4mAOD. When accounting for the underground drainage that is present at the site, this flooding would, in reality, likely be negligible.
- 6.1.4 The existing and proposed building FFLs are raised significantly above both the overestimated and calculated flood depths.
- 6.1.5 Crown Street is shown by the national scale mapping to be dry in the design flood event. In addition, it is raised significantly above even the overestimated flood depth.
- 6.1.6 In summary, the site and its occupiers would be safe from flooding in at least the design event. Furthermore, dry access to Crown Street would be available in at least the design event.
- 6.1.7 The FRA and this addendum demonstrate, with evidence, that the proposals are policy and guidance compliant and the previous reasons for refusal are addressed.
- 6.1.8 Consequently, the site, and the proposals, comply with both NPPF and its accompanying PPG.

7 ENCLOSURES

Topographic Survey

Flood Levels Sections

LPA Decision Notice



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 SL6 8PE
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 e-mail: mail@wes-surveys.co.uk

TOWN AND COUNTRY PLANNING ACT 1990

**THE TOWN & COUNTRY PLANNING
(DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015**

To: Danks Badnell Architects Ltd.
Ms Eleanor Smith
Kings Stables
3-4 Osborne Mews
Windsor
West Berks
SL4 3DE

Application No: PL/26/0232
Application type: Prior approval Part 3 Class
MA: Commercial, business and service uses
to dwellinghouses

**Application to determine if prior approval is required for a proposed:
Change of use from Commercial, Business and Service (Use Class E) to Dwellinghouses
(Use Class C3)
Town and Country Planning (General Permitted Development) (England) Order 2015 (as
amended) - Schedule 2, Part 3, Class MA**

Applicant: REGENTS GATE READING LTD

READING BOROUGH COUNCIL as Local Planning Authority give notice that the prior approval of the local planning authority is **REFUSED** for the following development.

Proposal: Change of use of existing building from Class E (offices) to C3 (dwelling houses) to comprise 29 new apartments. Prior Notification under Class MA, Part 3 of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 2015.

At: REGENTS GATE, 25-41 CROWN STREET, READING, RG1 2PQ

For the attached reasons

PLEASE READ THE NOTES ISSUED WITH THIS DECISION NOTICE

Date: 7 April 2026



EH

**Acting Assistant Director, Planning,
Transport & Public Protection**

Application At: REGENTS GATE, 25-41 CROWN STREET, READING, RG1 2PQ

Application No: PL/26/0232

Application type: Prior approval Part 3 Class MA: Commercial, business and service uses to dwellinghouses

REASONS FOR REFUSAL

1. The submitted Flood Risk Assessment does not adequately assess the flood risks posed from the development. Therefore, the Council is not satisfied the proposed change of use of the building from office to residential would not increase the risk of flooding to the future occupants of the building, moving from a “less vulnerable” to more “more vulnerable” classification. As such, the development is contrary to condition MA.2 (c) of Part 3, Schedule 2 of the Town and Country Planning (General Permitted Development Order) (England) Order 2015 (as amended) and the advice contained within the NPPF 2024 (paragraph 181).

INFORMATIVES

1. The following plans were provided in support of this application:
 - 25/31/-12- A1 Proposed Plans
 - 25/31/-02-A1- Existing Plans
 - 25/31/-01-A3 Site Location Plan
 - 25/31/-14-A3 Refuse Arrangements
 - 25/31-03- A1 Existing Elevations

Date: 7 April 2026



EH

**Acting Assistant Director, Planning,
Transport & Public Protection**

2. The applicant was advised of the issues relating to this prior approval. The option to withdraw the application was provide before the issuing of the decision. However, this was not acted upon.

NOTES

APPEALS TO THE SECRETARY OF STATE

If you are aggrieved by the decision of the Council to refuse prior approval for the proposed development, then you can appeal to the Secretary of State under section 78 (1)(c) of the Town and Country Planning Act 1990 within 12 weeks of the date of this notice.

Appeals can be made online at: <https://www.gov.uk/appeal-householder-planning-decision>
If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000.

The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK.

Date: 7 April 2026



EH

**Acting Assistant Director, Planning,
Transport & Public Protection**

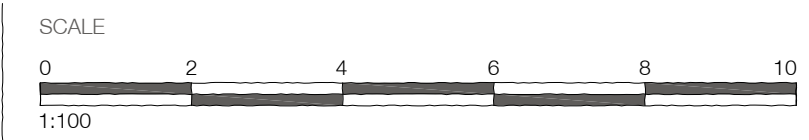
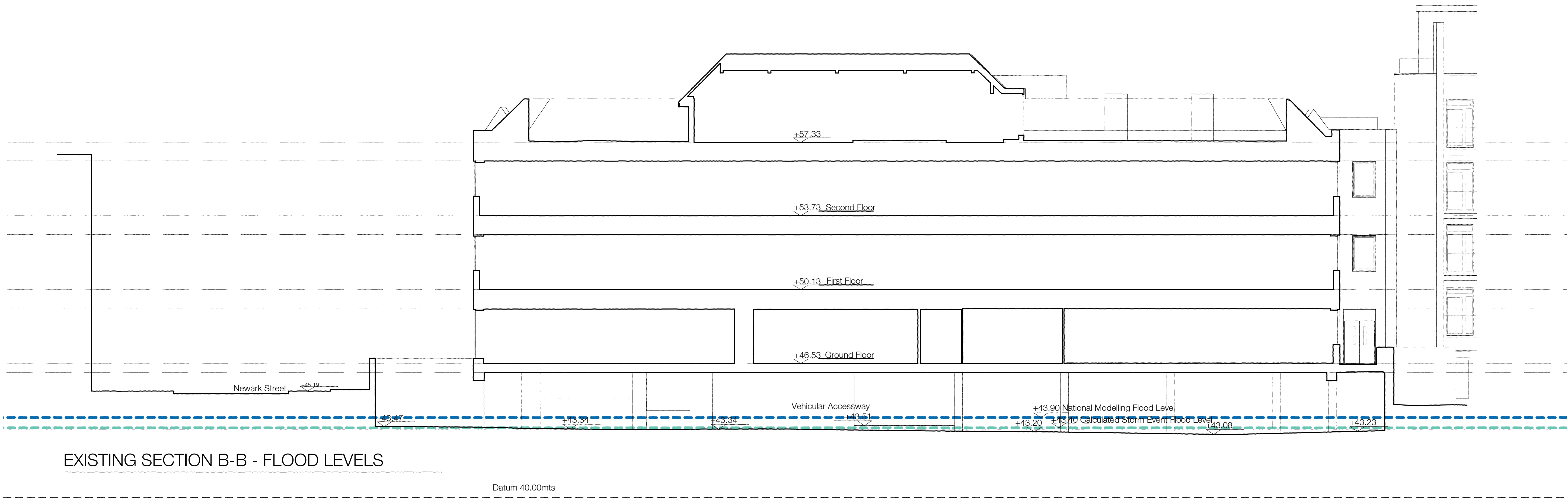
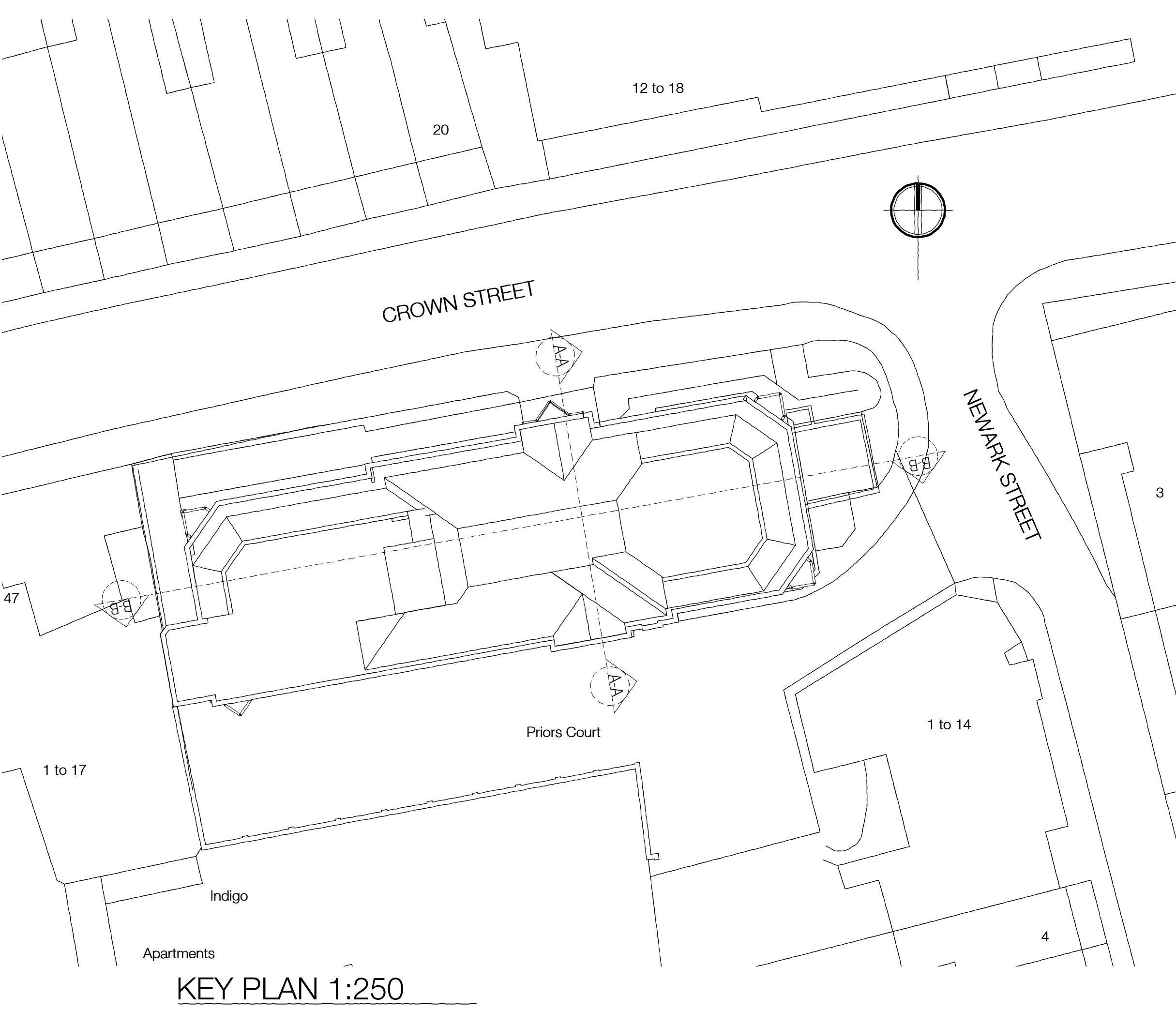
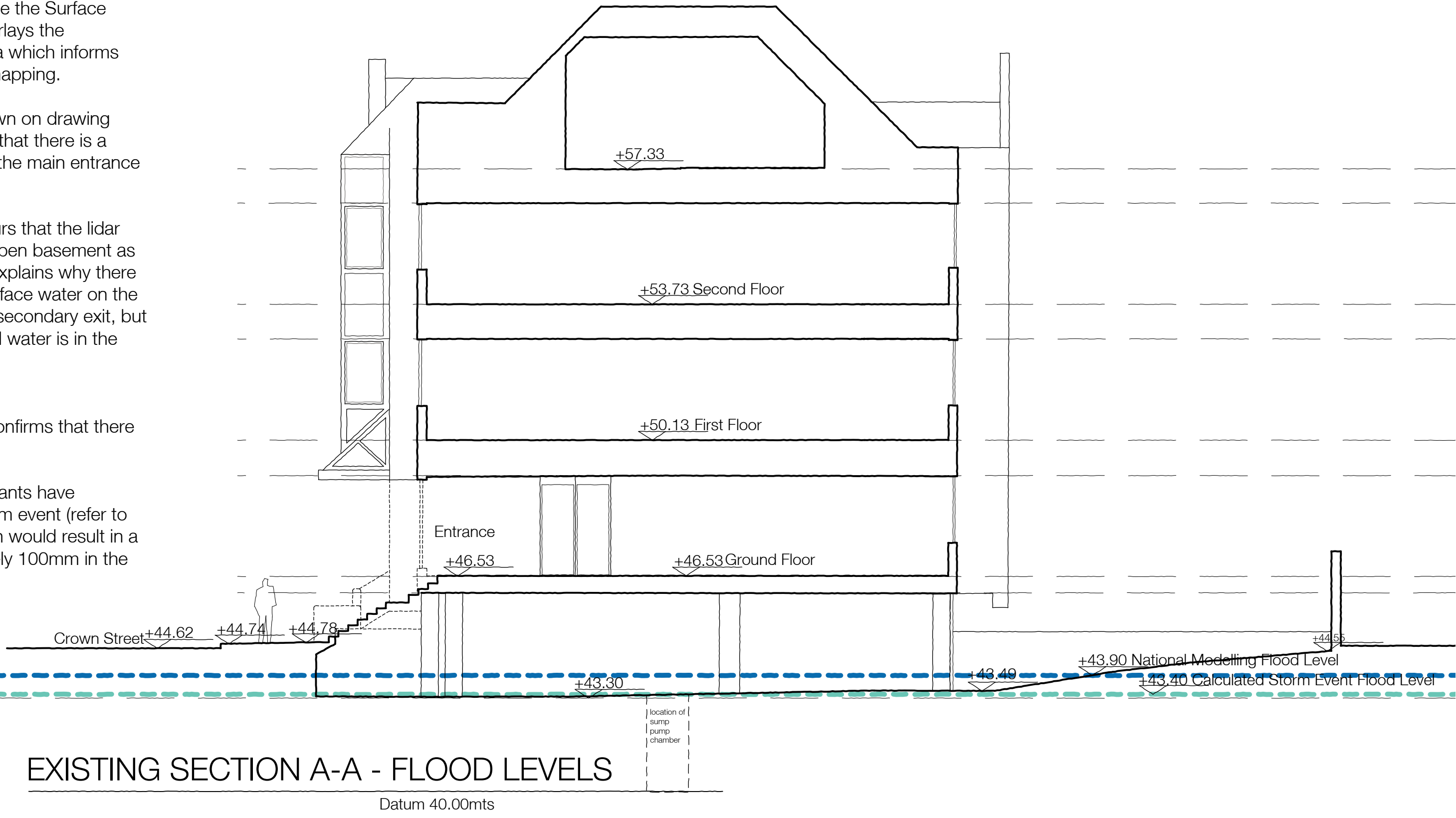
These sections should be read alongside the Surface Water Flood Depths drawing which overlays the topographical survey, the lidar level data which informs the flood depths, and the flood depth mapping.

The RoFSW EA depth mapping as shown on drawing number 25/31/09 Flood Level confirms that there is a clear and safe access and egress from the main entrance onto Crown Street.

However it is clear looking at the contours that the lidar mapping has incorrectly modelled the open basement as a steep slope not a straight wall. This explains why there is an area of 200mm and 300mm of surface water on the Crown Street Footpath adjacent to the secondary exit, but in reality this will not flood as all mapped water is in the undercroft lower ground car park.

The medium risk flood depth analysis confirms that there would be no flooding to Crown Street.

In addition to the above Calbro Consultants have calculated likely flood level during a storm event (refer to addendum by Calbro) as + 43.40 which would result in a surface water flood level of approximately 100mm in the lower ground undercroft.



KEY PLAN

REVISIONS
A LEVELS ADDED

15.04.26

SITE REGENTS GATE, READING
DRAWING EXISTING SECTIONS
NUMBER 25/31/04A
SCALE 1:100
DATE FEB '26
PAPER A1

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Registered in England & Wales: 9988524



Transport Planning | Flood Risk & Hydrology | Infrastructure & Drainage

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