



Land between Gondar House and  
South Mansions, Gondar Gardens,  
West Hampstead

## Flood Risk Assessment

*For ANX Developments Ltd*

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Date: 30 April 2021

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# DOCUMENT CONTROL SHEET

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## 1. INTRODUCTION

This report has been prepared by Hydrock Consultants Limited on behalf of ANX Developments Ltd in support of a Planning Application to be submitted to Camden Council for a proposed residential development at land between Gondar House and South Mansions on Gondar Gardens in West Hampstead.

This Flood Risk Assessment report has been prepared to address the requirements of the National Planning Policy Framework (NPPF), the accompanying Flood Risk and Coastal Change Planning Practice Guidance (NPPG), and the Camden Local Plan (specifically policies: A5 - Basements, and, CC3 - Water and Flooding), through:

- Assessing whether the site is likely to be affected by flooding.
- Assessing whether the proposed development is appropriate in the suggested location.
- Presenting any flood risk mitigation measures necessary to ensure that the proposed development and occupants will be safe, whilst ensuring flood risk is not increased elsewhere.

The report considers the requirements for undertaking a Flood Risk Assessment as detailed in the NPPF, the NPPG, and the Camden Local Plan, and is considered appropriate to the scale and nature of the proposed development, as set out by Camden Council in their request for a Flood Risk Assessment for the site.

## 2. SITE INFORMATION

### 2.1 Location and Setting

The site is situated between Gondar House and South Mansions on Gondar Gardens in West Hampstead, within the West Hampstead Ward in the London Borough of Camden. The site has direct frontage to Gondar Gardens and comprises an end of terrace plot, defined by a large concrete hardstanding area and grassed area.

The site has postcode NW6 1QD, and grid reference TQ 24789 85226.

The site is bounded by: residential properties to the north (South Mansions) and south (1 Hillfield Road, and 1, 2 and 3 Gondar Gardens (Gondar House)); the rear of properties along Hillfield Road to the east; and, Gondar Gardens to the west.

A site location plan is included at Appendix A.

### 2.2 Topography

The site is located on the southern side of a south-easterly falling slope, such that ground levels fall south-eastward across and within the vicinity of the site.

Ground levels fall around 2.3m from the northern to southern site boundaries.

Hillfield Road falls eastward (away from the site), with Gondar Gardens falling steeply southward adjacent to the site.

A Topographical Survey of the site is included at Appendix A.

### 2.3 Proposed Development

The scheme proposes the construction of a new residential building containing four properties, comprising:

- House 1 & House 2: three bed duplex properties, with a living room at basement level, a kitchen/dining space and a study at ground floor level, two bedrooms and a bathroom at first floor level, and a master bedroom and ensuite at second floor level.
- Flat 1: one bed duplex property, with a bedroom and a bathroom at basement level, and a lounge/dining space and a kitchen at ground floor level.
- Flat 2: two bed duplex property, with two bedrooms and a bathroom at first floor level, and a lounge/dining space and a kitchen at second floor level.

The proposed scheme also includes private outdoor spaces, along with external bin and cycle storage facilities.

Proposed scheme drawings are included with the Planning Application.



### 3. ASSESSMENT OF FLOOD RISK

#### 3.1 Flood Zone Mapping

The entirety of the site and surrounding area are shown to be within Flood Zone 1, i.e. land having a less than 1 in 1,000 annual probability of fluvial or tidal flooding.

#### 3.2 Fluvial & Tidal Flooding

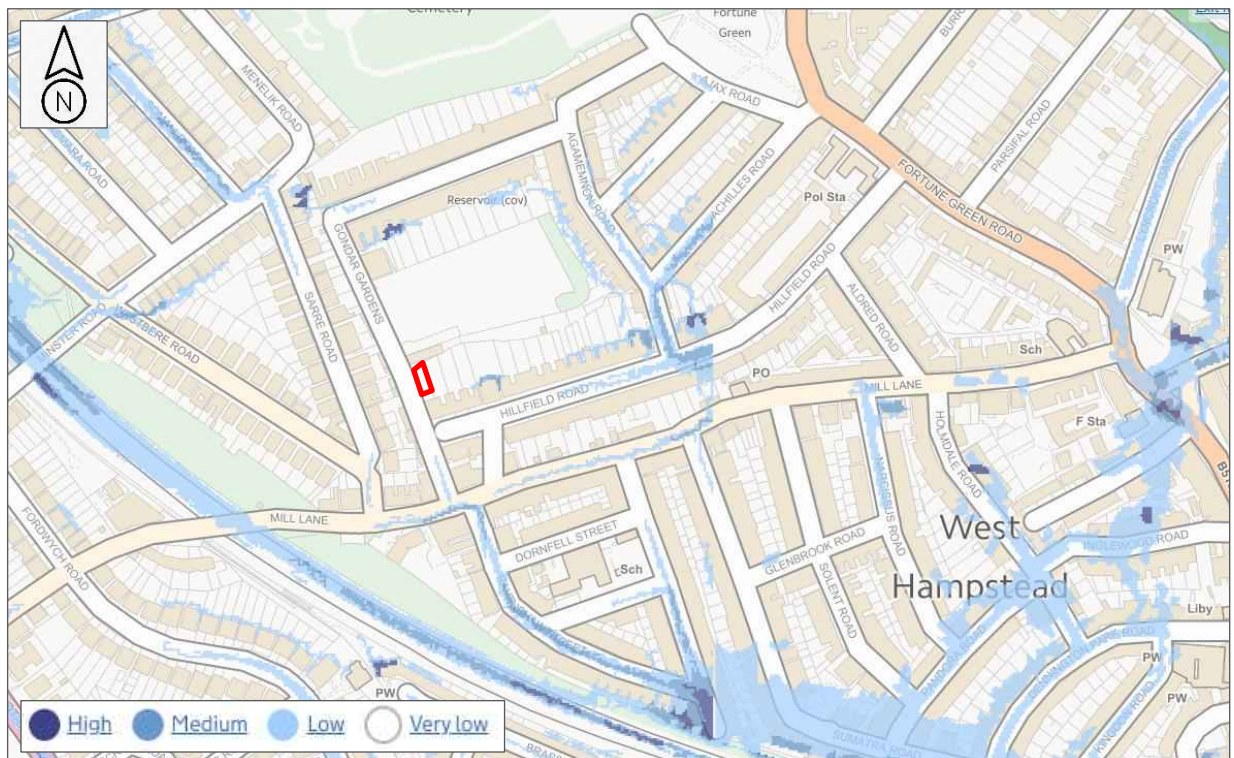
No watercourses are shown uphill or within the immediate vicinity of the site, and on this basis the site is concluded to be at negligible risk of fluvial and tidal flooding.

#### 3.3 Surface Water Flooding

Based on the Environment Agency's (EA's) Flood Risk from Surface Water mapping (Figure 1), the London Borough of Camden Strategic Flood Risk Assessment (SFRA) (relevant mapping from which is included at Appendix B), and the Camden Local Plan (relevant mapping from which is included at Appendix B), the site is shown to be:

- At 'very low' risk of surface water flooding.
- Within a 'Critical Drainage Area, but outside a 'Local Flood Risk Zone'.
- On a highway (Hillfield Road) designated as a 'Flooded Street' in 2002, with a single property having been recorded as previously been affected by flooding.

*Figure 1: EA Flood Risk from Surface Water Mapping*



The location of the previous flooding recorded on Hillfield Road / previously flood affected property is unknown. Given the topography of the surrounding area however, and available flood risk mapping (Figure 1 and Appendix B), the location of such flooding is likely to have been concentrated within the

lower-lying portion of Hillfield Road, at the junction with Agamemnon Road, as evidenced by the EA's Flood Risk from Surface Water mapping.

The catchment area to the immediate north of the site is relatively small (the summit of the hill is only around 50m to the north of the site) and predominately comprises a vegetated field (the existing residential property (South Mansions) to the immediate north of the site is positively drained and therefore not anticipated to result in any significant 'unmanaged' surface water run-off). The rate and volume of any surface water run-off from this area is therefore likely to be minimal, with rainfall preferentially infiltrating, and on this basis, there is considered to be a negligible risk of any significant surface water overland flows being generated uphill of the site and directed onto the site.

Gondar Gardens (highway to the immediate west of the site) falls relatively steeply southward adjacent to the site. Any overland surface water flows along the highway will therefore be directed downslope, and by-pass the site. Given the highway gradient, and the presence of raised kerbs between Gondar Gardens and the site, there is considered to be a negligible risk of surface water flows along Gondar Gardens flowing onto the site.

Based on the above, the site is concluded to be at low risk of surface water flooding.

### 3.4 Groundwater Flooding

A Ground Investigation undertaken in relation to Planning Application 2019/3109/P for a separate proposed development at 1 Hillfield Road (and therefore considered applicable to this proposed scheme) identified a 0.2m to 0.8m thickness of Made Ground overlying the London Clay Formation, with no groundwater encountered.

A Geotechnical and Geoenvironmental Interpretative Report and Basement Impact Assessment (also submitted in support of Planning Application 2019/3109/P) noted that *"this is likely due to the relatively impermeable nature of the London Clay. It is possible that shallow perched groundwater is present within the Made Ground, although, if present, it is not expected to be laterally pervasive. Groundwater was noted during the monitoring visits in WS03 at 4.02m bgl. This is anticipated to be representative of perched water within the London Clay Formation, possibly as a result of inflow from ground level, and is not considered to be indicative of a continuous groundwater body"*.

The Basement Impact Assessment concluded that *"the water table is expected to be below the proposed basement formation level"*. The proposed basement level as part of this scheme is at a higher level than that proposed as part of Planning Application 2019/3109/P, and therefore the same conclusion is considered to apply to this proposed scheme.

The SFRA (relevant mapping included at Appendix B) records several previous groundwater flooding incidents within the vicinity of the site. No such incidents are however recorded uphill of the site, with those closest to the site located within the lower-lying portion of Hillfield Road, at the junction with Agamemnon Road.

On the basis of the above, the site is concluded to be at low risk of groundwater flooding.

### 3.5 Infrastructure Failure Flooding

The SFRA indicates that the site is located within a postcode area that has experienced one previous incidence of internal property sewer flooding, though no external flooding incidents have been recorded.

Whilst the location of the previous internal property flooding incident is unknown, given the topography of the surrounding area, and available flood risk mapping (Figure 1 and Appendix B), the location is likely to have been within a surrounding lower-lying area.

It is also noted that the existing gradient of the highways adjacent to the site means that any surcharged overland sewer flows will likely be directed southward / eastward away from the site.

No other potential sources of infrastructure failure flooding have been identified within the immediate vicinity or uphill of the site, and on this basis the site is concluded to be at low risk of infrastructure failure flooding.



## 4. NPPF REQUIREMENTS

### 4.1 Sequential and Exception Tests

This assessment has demonstrated that the site is on land designated as Flood Zone 1 by the EA's Flood Map for Planning, and is at low risk of flooding from all other potential sources.

Paragraph 033 of the NPPG states that *"Nor should it normally be necessary to apply the Sequential Test to development proposals in Flood Zone 1"*.

The NPPG Flood Risk Vulnerability and Flood Zone Compatibility matrix (Table 3 of the NPPG) also indicates that all forms of development are *"appropriate"* in Flood Zone 1 without application of the Exception Test.

On the basis of the above, the application of the Sequential and Exception Tests are concluded to not be required in this instance.

### 4.2 Mitigation Measures

Whilst an Exception Test is not explicitly required under the NPPG, the following section details measures considered necessary to mitigate any 'residual' flood risks, to ensure that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, akin to the requirements of section 'b' of the Exception Test, as outlined in the NPPF.

#### 4.2.1 Resistance and Resilience Measures

Given the low risk of flooding identified to be posed to the site, no specific flood resistance or resilience measures are considered necessary.

It is however recommended, as a matter of course, that the proposed basement level be designed and constructed to be Grade 3 waterproof, in accordance with BS8102 for habitable spaces. This is assumed to be achieved using a waterproof additive in the basement concrete combined with a drained cavity system or liquid waterproofing membrane, though this should be subject to specialist detailed design.

#### 4.2.2 Safe Access and Egress

On the basis of the low risk of flooding identified to be posed to the site, there should be no need to evacuate the site for flood risk purposes. Nevertheless, a route leading from the site via the existing surrounding highway network is considered to offer a 'safe' access route to and from the site if required, based on the EA's Flood Map for Planning and Flood Risk from Surface Water mapping showing surrounding highways to be at low / very low risk of flooding.

#### 4.2.3 Flood Risk within Catchment

The site has been demonstrated to be at low risk of flooding, and therefore outside a functioning floodplain. On this basis, the proposed development is not considered to increase flood risk within the catchment through a loss of floodplain storage, and accordingly no mitigation measures are considered necessary in this respect.

#### 4.2.4 *Drainage Strategy*

It is understood that a Surface Water Drainage Strategy for the proposed development has been prepared separately and is included with the Planning Application. That document should be consulted with respect the existing and proposed means of surface water drainage at the site.

## 5. CONCLUSIONS

This report has considered the flood risk posed to the site from a variety of sources of flooding, and the methodology adopted is considered appropriate to the scale and nature of the proposed development, as set out by Camden Council in their request for a Flood Risk Assessment for the site.

A detailed assessment of flood risk has identified that the site is within Flood Zone 1, and is at low risk of flooding from all sources assessed.

In accordance with the NPPF and NPPG, the application of the Sequential and Exception Tests are concluded to not be required in this instance.

Given the low risk of flooding identified to be posed to the site, no specific flood resistance or resilience measures are considered necessary. It is however recommended, as a matter of course, that the proposed basement be designed and constructed to be Grade 3 waterproof, in accordance with BS8102 for habitable spaces.

It has also been demonstrated that a means of 'safe' access is possible to and from the site, and that the proposed development is not considered to increase flood risk within the catchment through a loss of floodplain storage.

It is understood that a Surface Water Drainage Strategy for the proposed development has been prepared separately and included with the Planning Application, and that document should be consulted with respect the existing and proposed means of surface water drainage at the site.

This report therefore demonstrates that, in respect of flood risk, the proposed residential development of the site:

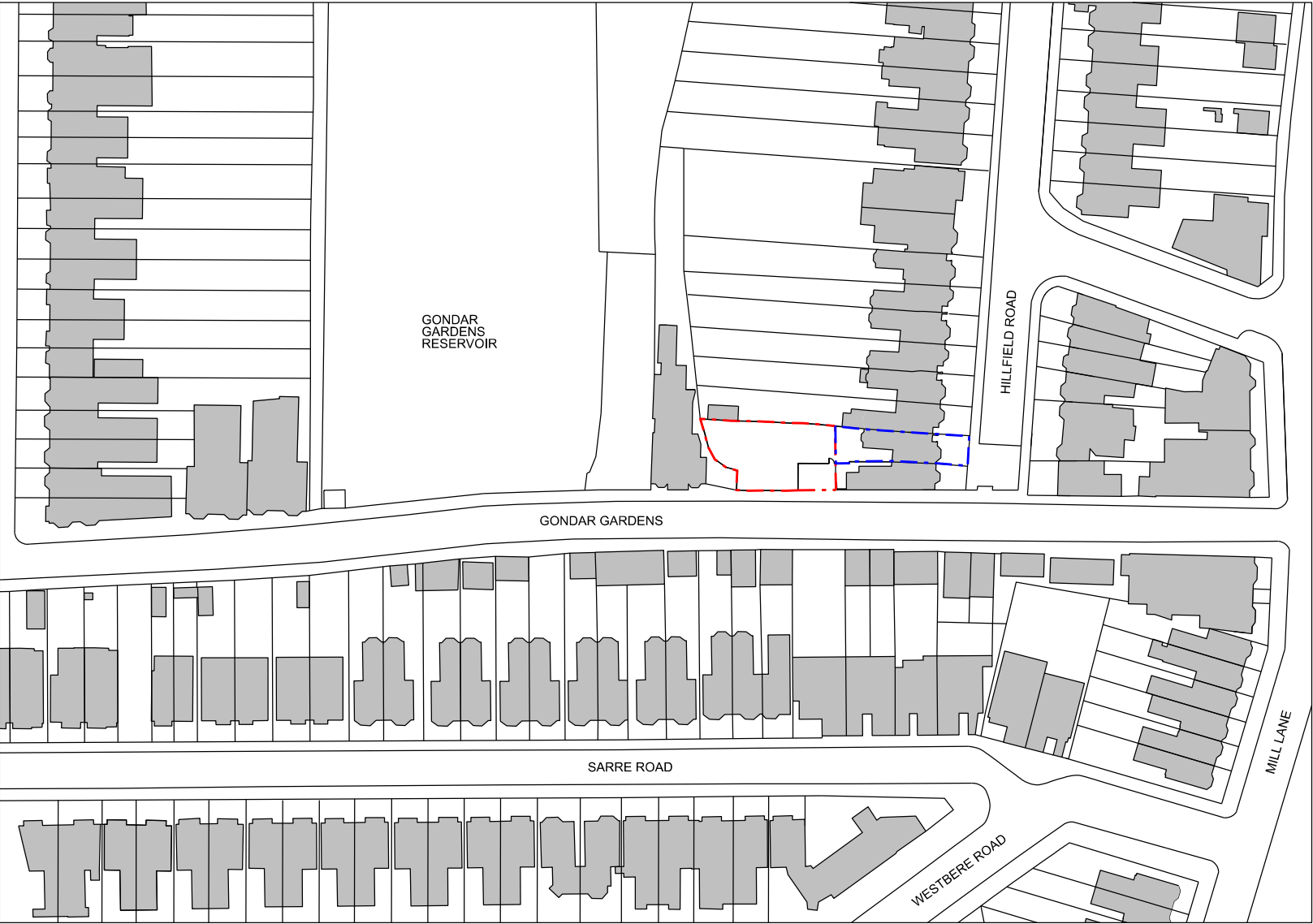
- Is suitable in the location proposed.
- Will be adequately flood resistant and resilient.
- Remains safe for any occupants for the lifetime of the proposed development.
- Will not increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage or impedance of flood flows.

On this basis, the Planning Application submitted for the site is concluded to meet the flood risk requirements of the NPPF, the NPPG, and policies A5 - Basements, and, CC3 - Water and Flooding, of the Camden Local Plan.

*Hydrock Consultants Limited*

## Appendix A - Site

Reference	Title
024-EP001	Site Location Plan
MEA1hillfieldTOPO	Basic Topographical Survey



01 SITE LOCATION PLAN  
1:1250

25 m 50 m



- 01 Extent of site - - - - -
- 02 Site under same ownership - - - - -

REV.	NOTES	DATE
00	PRE-APP	12.02.2021
01	NOTES ADDED	08.03.2021

TITLE  
SITE LOCATION PLAN

DRAWING NO.  
024- EP001

REVISION  
01

DATE  
08.03.2021

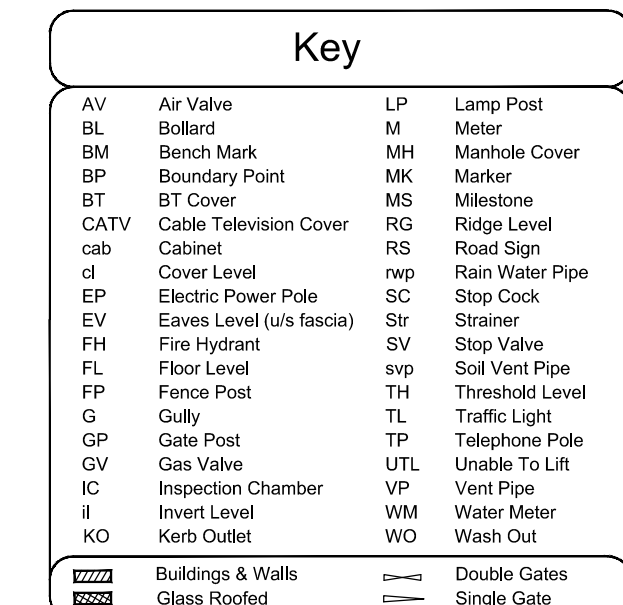
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1:1250 @ A3

**Tikari Works**  
Block K 175 Bermondsey St. London SE1 3UW  
studio@tikari.co.uk 020 300 52406

PROJECT  
GONDAR GARDENS

STATUS  
PRE-APP





# Linetypes

Bank	=====
Building	=====
Drop kerb	-----
Channel	-----
Electric	-----
Fence	-----
Foliage	=====
FWS (estimated size)	=====
Grid Cross	+
Hedge	=====
Kerb	=====
Manhole	□ ○ △
Pipe	=====
Ridge	=====
SWs (estimated size from surface)	=====
Telephone	=====
Track/Path	=====
Tree Canopy	=====
Verge	=====
Water line	=====
Wall	=====



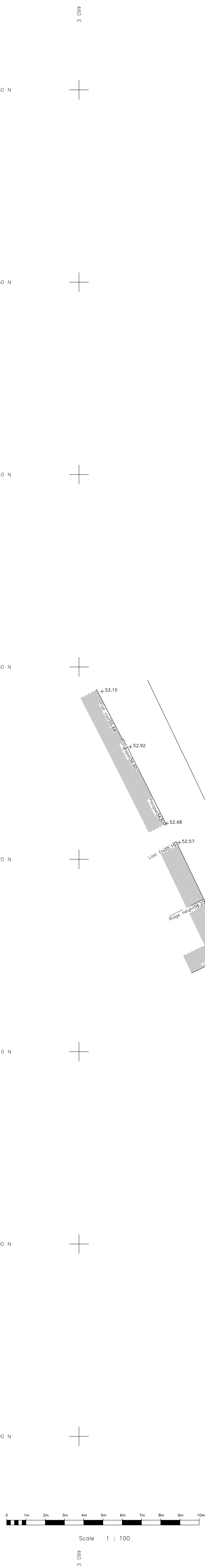
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1 Hillfield Road  
London, NW6

Drawing Title:  
**Basic Topographical Survey**

Client:  
Adam Bier  
Agent:  
Martin Evans Architects

Date: 11th February 2019		Scale: 1:100 @ A1
Grid Orientation Magnetic North	Sheet ID ME11h1fieldTOPO	Rev None

Site Level Datum Arbitrary Entrance @ 50.00m	Surveyed By BS	Drawn By BS
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## Appendix B - Flood Risk

Reference	Title
Figure 3 iv	London Borough of Camden Strategic Flood Risk Assessment - Updated Flood Maps for Surface Water Flooding (uFMfSW)
Map 6	Camden Local Plan - Historic Flooding and Local Flood Risk Zones
Figure 6	London Borough of Camden Strategic Flood Risk Assessment - Critical Drainage Areas / Local Flood Risk Zones
Figure 4e	London Borough of Camden Strategic Flood Risk Assessment - Increased Susceptibility to Elevated Groundwater
Figure 5a	London Borough of Camden Strategic Flood Risk Assessment - DG5 Internal Sewer Flooding
Figure 5b	London Borough of Camden Strategic Flood Risk Assessment - DG5 External Sewer Flooding





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### LEGEND

- London Borough Camden Boundary
- Critical Drainage Area
- Flooded Streets (2002)
- Flooded Streets (1975)

### LBC Historic SW Flooding Record No. Properties affected

- 1
- 2

### Risk of Flooding from Surface Water

- High (1 in 30 year)
- Medium (1 in 100 year)
- Low (1 in 1000 year)
- Very Low (<1 in 1000 year)

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Revision Details

By: Check Date: Suffix:

Purpose of Issue: FINAL

Client: Camden

Project Title:  
LONDON BOROUGH OF  
CAMDEN STRATEGIC FLOOD  
RISK ASSESSMENT

Drawing Title:  
Updated Flood Maps for Surface Water  
Flooding (uFMfSW)

Drawn	Checked	Approved	Date
CB	JS	MT	03/07/2014

URS Internal Project No. 47070547	Scale at A3 1:15,000
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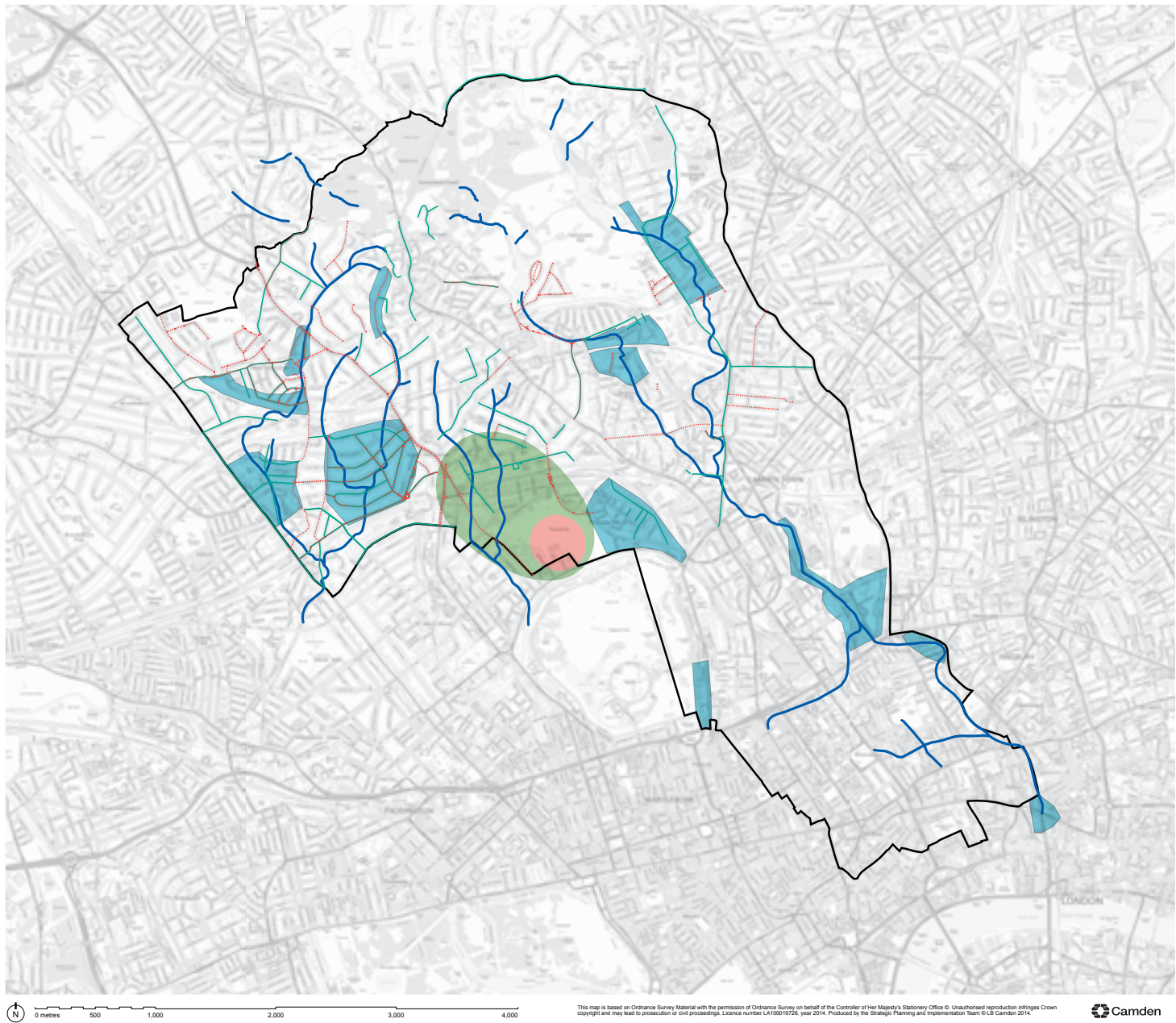


Drawing Number FIGURE 3 iv	Rev 1
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0 0.5  
KILOMETRES



Map 6: Historic flooding and Local Flood Risk Zones



- Local flood risk zone
- Historic water course
- Flooded street 1975, 2002
- Environment Agency groundwater source protection zone:
- Inner zone (zone 1)
- Outer zone (zone 2)
- Borough boundary

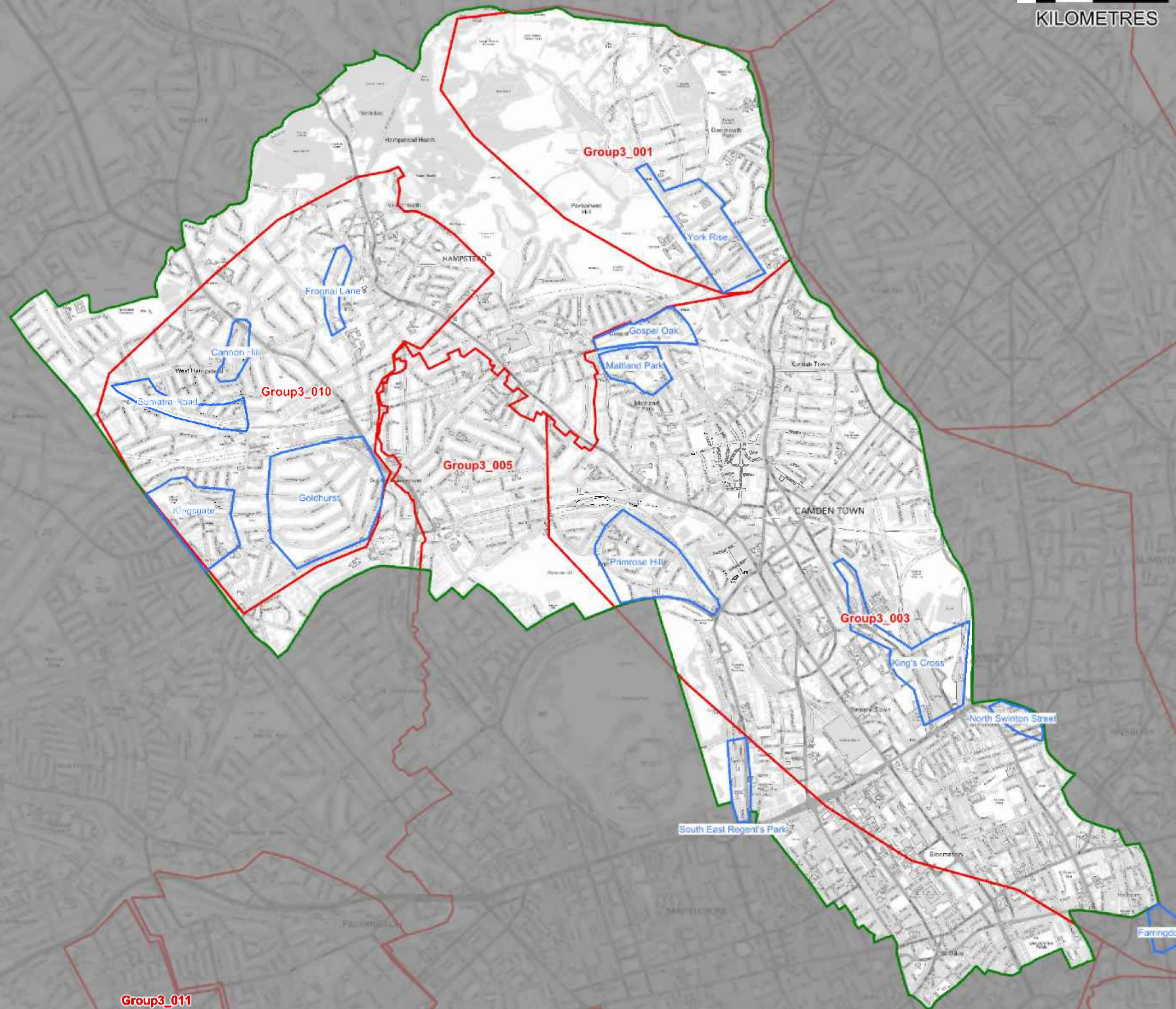




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### LEGEND

- London Borough Camden Boundary
- Critical Drainage Area
- Local Flood Risk Zone



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By: Check: Date: Suffix:

Purpose of Issue: FINAL



Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: Critical Drainage Areas / Local Flood Risk Zones

Drawn: CB/EB Checked: EY Approved: MT Date: 04/06/2014

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Drawing Number: FIGURE 6 Rev: Rev 2





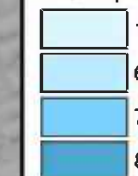
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# LEGEND

London Borough  
Camden Boundary

LBC Historic GW Flooding Record  
No. Properties affected



Increased Susceptibility to  
Elevated Groundwater

Environment Agency  
groundwater flood  
incidents

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Rev

N:\Water\Current Projects\47070547 Camden SFRA Update (ghs)\0700 WIP\0705 GIS\_Data\01 WIP\01\_03-Project\_Files\WORS

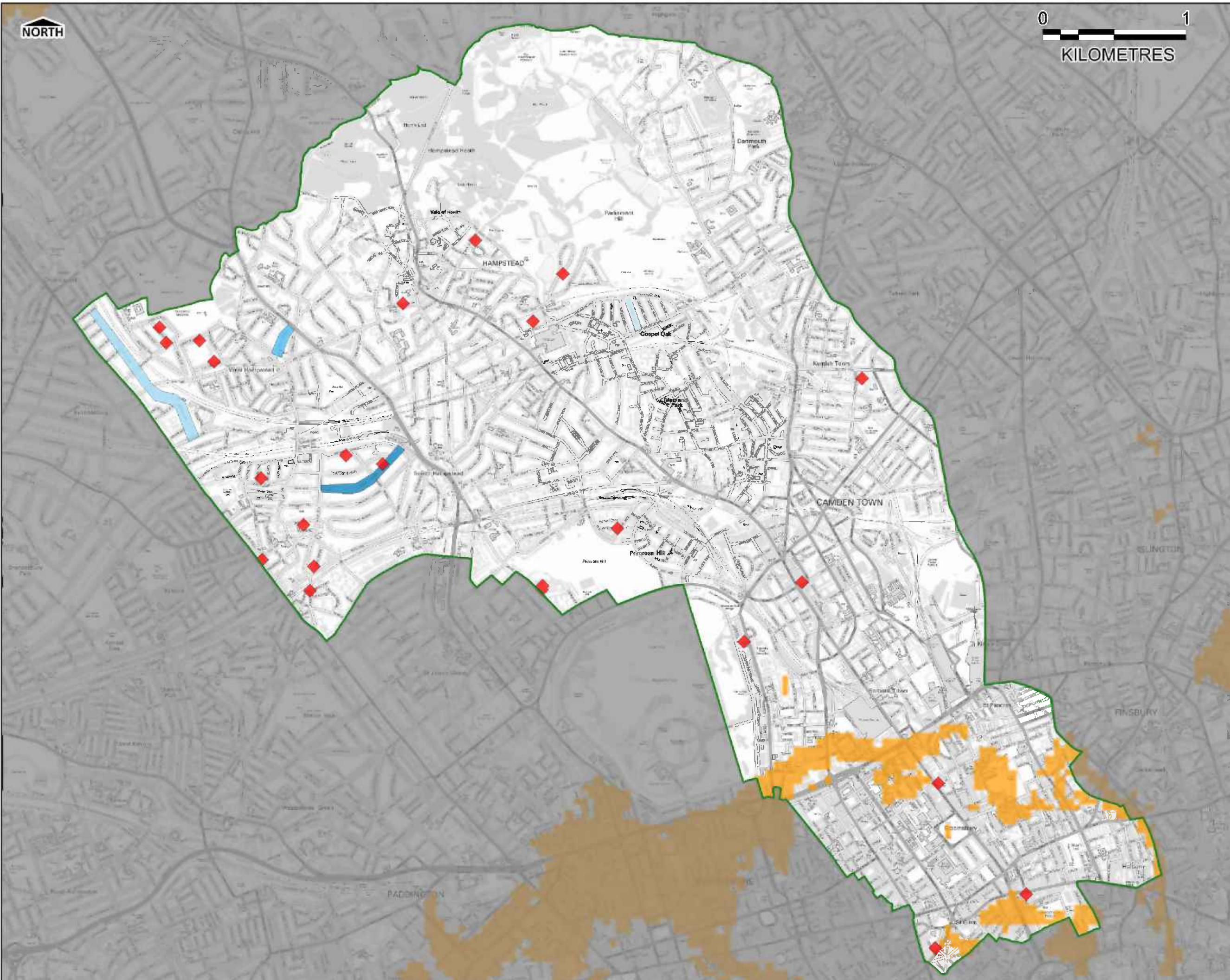


FIGURE 4e

Rev 1



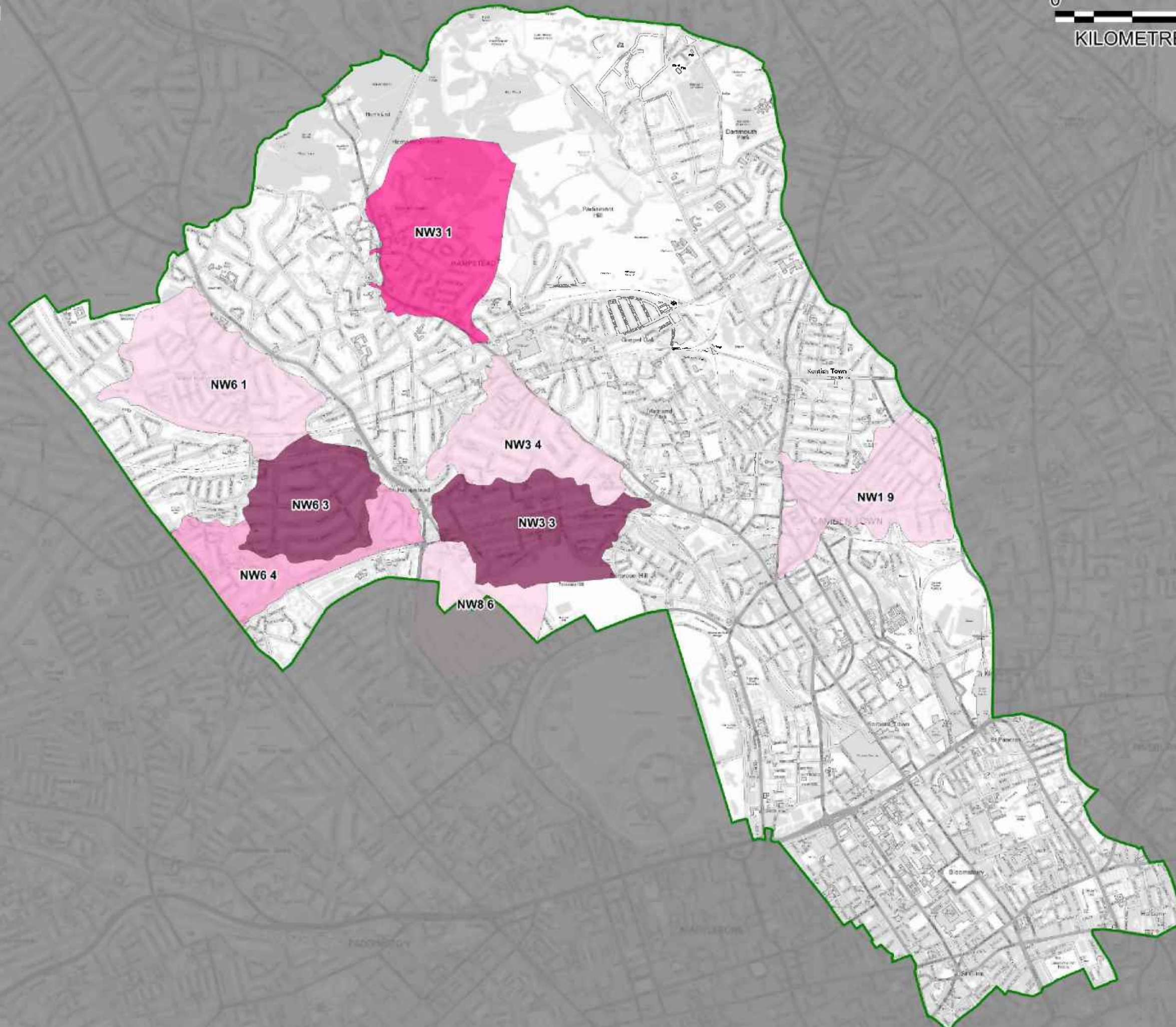
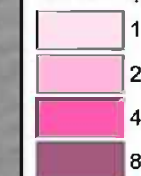


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#### LEGEND

London Borough  
Camden Boundary

Internal Sewer Flooding  
No. of Properties affected



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FIGURE 5a

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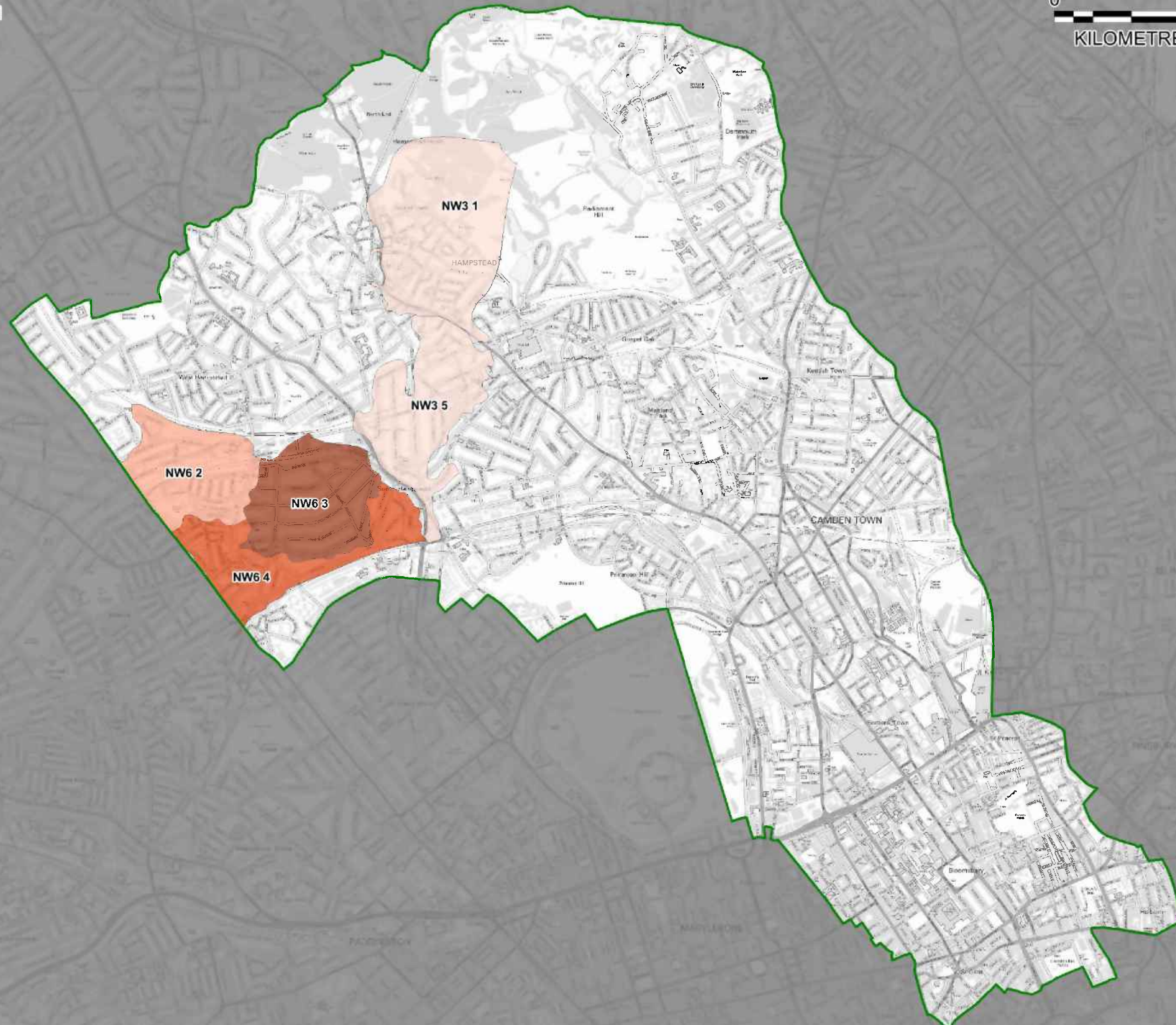


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#### LEGEND

London Borough  
Camden Boundary

Exterior Sewer Flooding  
No. of Properties affected



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Revision Details

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Purpose of Issue

FINAL

Client

Camden

Project Title

LONDON BOROUGH OF

CAMDEN STRATEGIC FLOOD

RISK ASSESSMENT

Drawing Title

DG5 External Sewer Flooding

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Approved MT

Date 03/07/2014

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FIGURE 5b

Rev 1