# KEY DIAGRAM

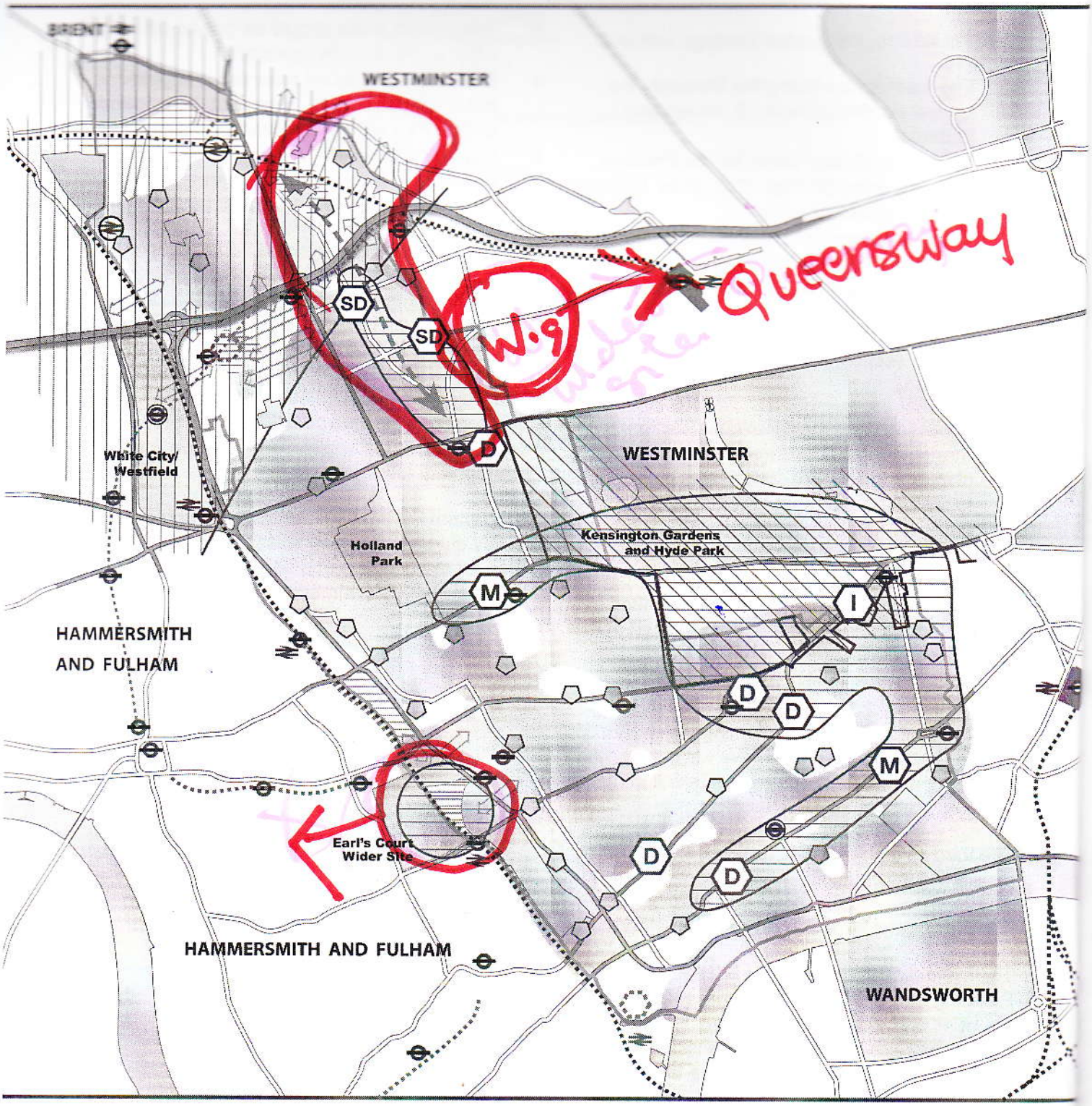
New stations

Metropolitan Open Land/Cemeteries

Kensal Notting Hill Gate Connection

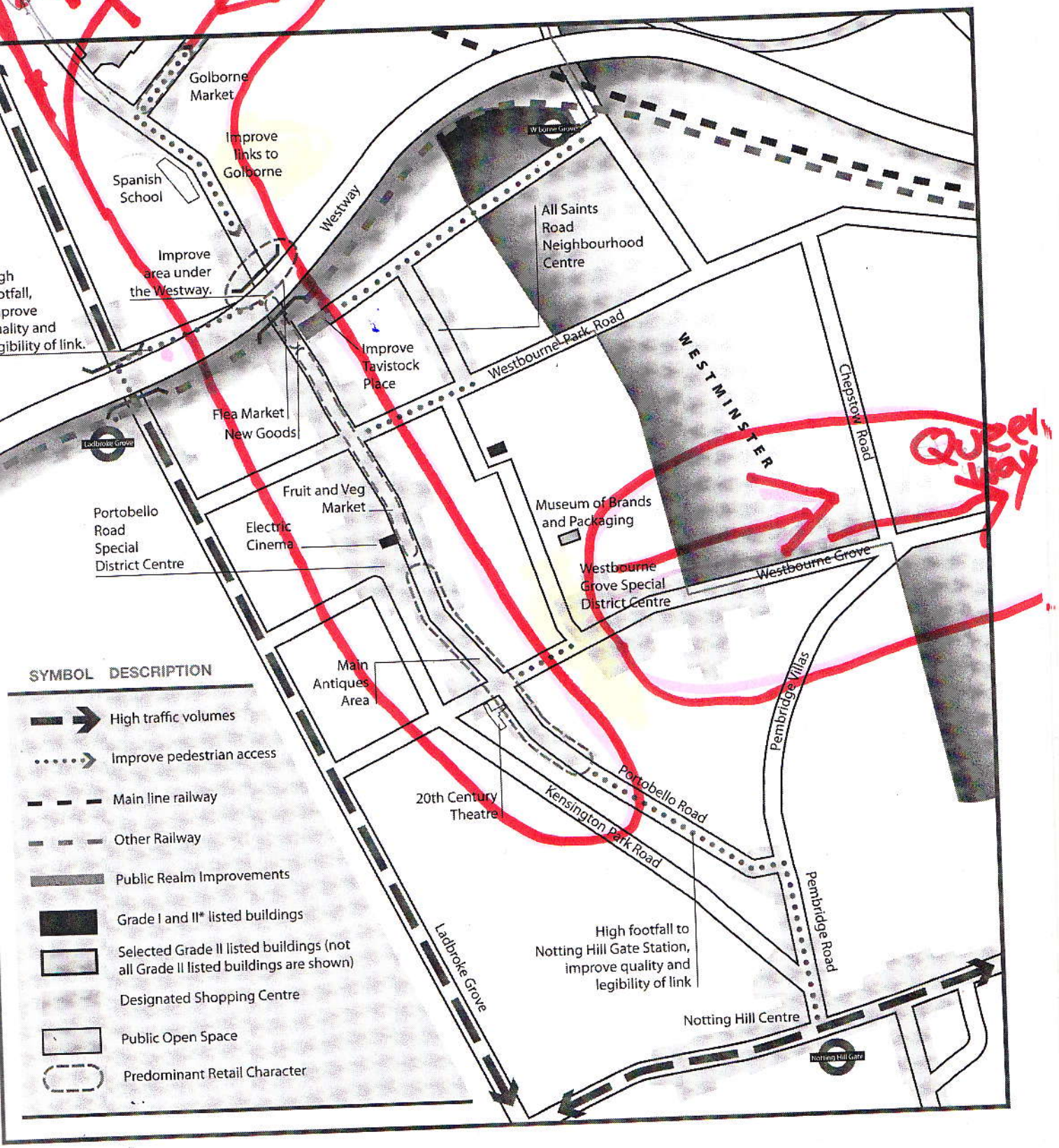
Thames and Grand Union Canal showing bridges

Broad locations of development



# 7 PORTOBELLO/NOTTING HILL

## y Issues and Potential Opportunities



REP/233936/3

# Portobello and Golborne Road Markets

Note: Map not to scale. Not all streets are shown.

## MARKET HOURS

Different stalls operate on different days.
Please see key for details.

Monday, Tuesday, Wednesday 08.00 – 19.00

Thursday 08.00 – 13.00

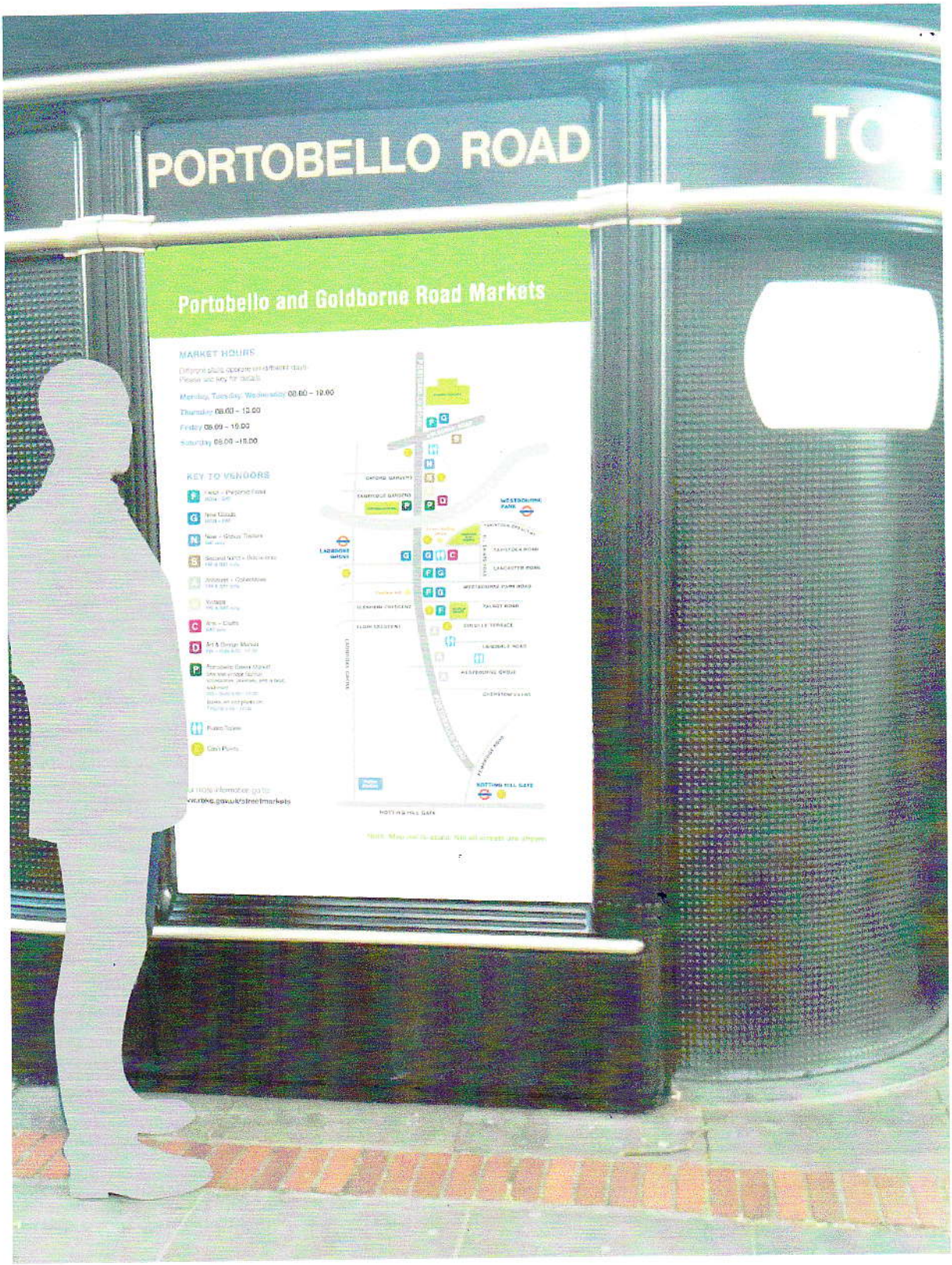
Friday 08.00 – 19.00

Saturday 08.00 –19.00

## KEY TO VENDORS

- **F** Fresh + Prepared Food — MON – SAT
- **G** New Goods — MON – SAT
- **N** New + Casual Traders — SAT only
- **S** Second hand + Bric-a-brac — FRI & SAT only
- **A** Antiques + Collectibles — FRI & SAT only
- **V** Vintage — FRI & SAT only
- **C** Arts + Crafts — SAT only
- **D** Art & Design Market — FRI – SUN 8.00 - 17.30
- **P** Portobello Green Market — new and vintage fashion, accessories, jewellery, bric-a-brac, and more — FRI – SUN 8.00 - 17.30; books, art and plants on: THURS 9.30 - 17.30
- Public Toilets
- **E** Cash Points


For more information go to: **ww.rbkc.gov.uk/streetmarkets**


PORTOBELLO ROAD
Portobello and Goldborne Road Markets
MARKET HOURS
Monday, Tuesday, Wednesday 08.00 – 18.00
Thursday 08.00 – 13.00
Friday 08.00 – 19.00
Saturday 08.00 –18.00
KEY TO VENDORS
WESTBOURNE PARK
LADBROKE GROVE
NOTTING HILL GATE

PORTOBELLO/NOTTING HILL remains an extremely confusing title for a . . chapter in which "Notting Hill" is barely referred to again, the map fails accurately to depict as an Area...(see map submitted at PublicEnquiry)... and *where another chapter heading is actually* Notting Hill *Gate.*

In addition, this is further,and irrelevantly, interpreted to include "Westbourne Grove".

- Not only is this **in direct non-conformity with the London Plan**, where "Westbourne Grove" is correctly identified as a "major"town centre, in conjunction with Queensway (which abutts it at right angles, in exactly the same way that Golborne Road abutts Portobello, forming a natural convergence and junction).

The majority of Westbourne Grove is within Westminster, where this designation (correctly) pertains. The remaining Kensington fragment...consisting actually of only one, small, single block parade of shops between Ledbury Road and Colville Road, ends substantively in the two housing estates and public lavatory which divide Westbourne Grove from Portobello.
As the "high end fashion retailing"(CV7) of Westbourne Grove in no way serves this most immediate local constituancy, one can only conclude that it is best served within its London Plan designation, with the current vulnerabilities of the post recessional international fashion market, with its crashing empires, Estate Agents boards and empty shops we have become so familiar with in this small strip - left to
"retain its difference from Portobello Road"(CV7)
The simple precedent for this rest in the borderblurring* union at Earls Court with Hammersmith and Fulham, elsewhere in the Core Strategy, and depicted on the **KEY DIAGRAM.**
Clearly the **Portobello Key Issues Diagram**, on page 65, would also need to be changed - as would the **KEY DIAGRAM itself**, and some of the others.
*Test of Soundness (ii)specifically refers to the need for effectivenessPPS12 and "coherance with the strategies of neighbouring authorities"
Key Questions
"are there any cross-boundary issues that should have been addressed and, if so have they been adequately addressed?"
They have, in this case, not been addressed at all.

The UNSOUNDNESS of not doing so has already resulted in the infamous catastrophe of the highend fashion AllSaints development on the corner of Portobello - (this section was called Archer Street originally - not even part of Westbourne Grove - until the war).

Furthermore, although the LDF make repeated references (correctly) to linkages between Portobello and Golborne Road Markets* (indeed, locals tend to regard them as extensions of one another) - they not only divide them by their designations (District and Neighbourhood, although Portobellos "Neighbourhood" dimension is already far more in need of protection than is Golbornes) but by referring to a gap between them which does not exist !
7.1.1 (old version)
"Golborne Road ***which lies some 300 metres to the north of ..Portobello"***
It also excludes entirely the interesting cluster of shops, restaurants etc at the very top of Portobello, beyond the ***crossing with Golborne*** -as depicted on the excellent local 'streetmarkets' *map-produced by RBKC ***itself*** (attached). Due probably to lower rents, this section has some nascent independent local enterprises - a rarebooks/photography gallery/publisher grown up in the area, a world class haberdashery (Temptation Alley), a unique Iranian restaurant - all of whom could seriously do with acknowledgement and support from the Council, for whom, (in spite of all the rhetoric of the expensive and much vaunted Retail Commission) they clearly do not exist.(And who soon will live opposite the building site of Wornington Green.)

*This functional and functioning map is designed to be used on the ground. It correctly and adequately desribes the whole area as it is understood and lived on the ground. It is what it is designed to do. (Attached)
This is the essential diagram required to depict "Portobello" in its widest sense, and what is obviously, and confusingly, intended by the LDF term of "Notting Hill".
Why can this not be used rather than the misleading and inaccurate diagrams?

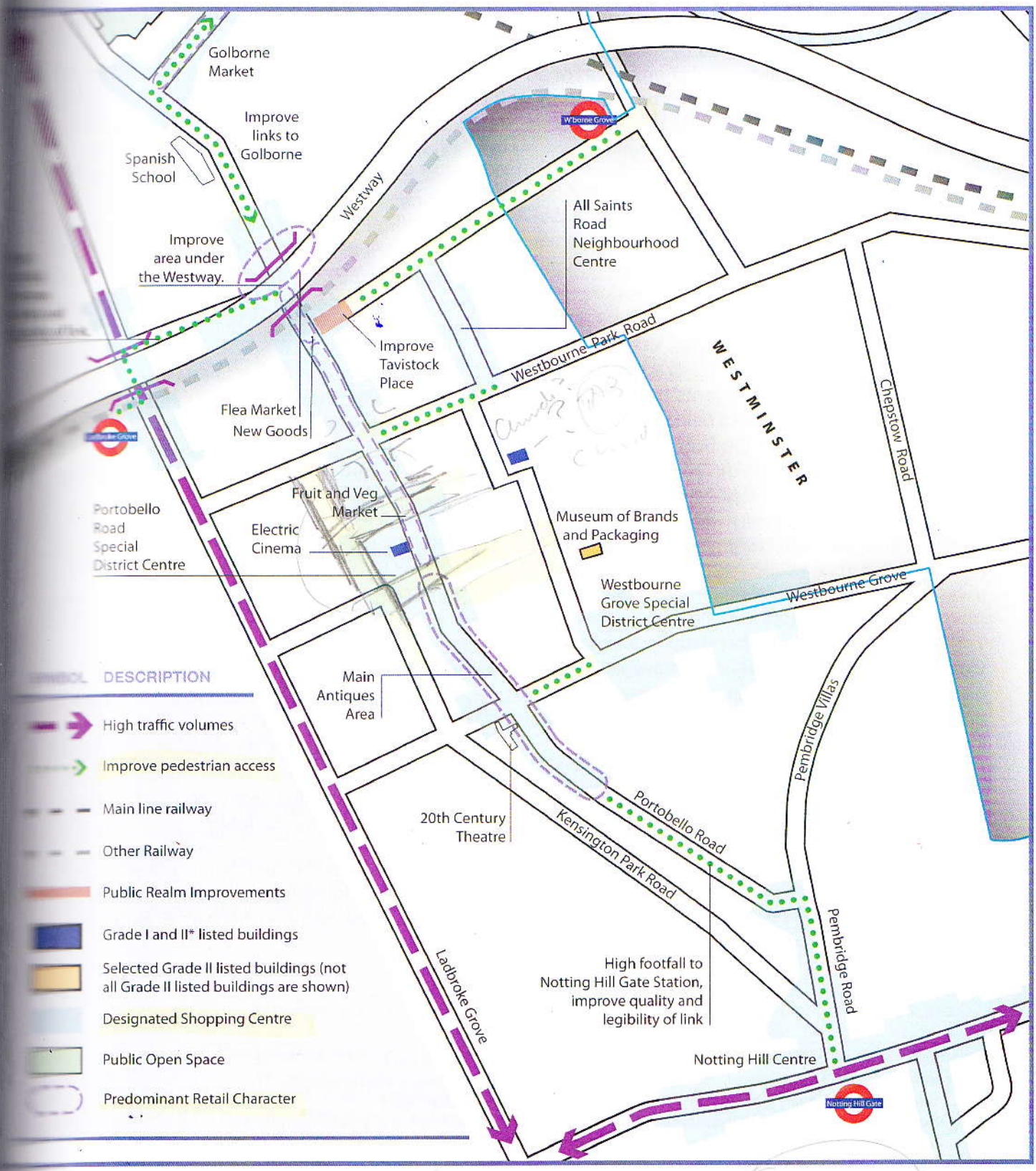
Sadly, and with the best of intentions, the Core strategy as is fails to address its own UDP primary strategy, ***to preserve and enhance,*** both in "Keeping Life Local" and (not as significantly failing) "Fostering Vitality", which makes many, much appreciated references to Local Life.

*

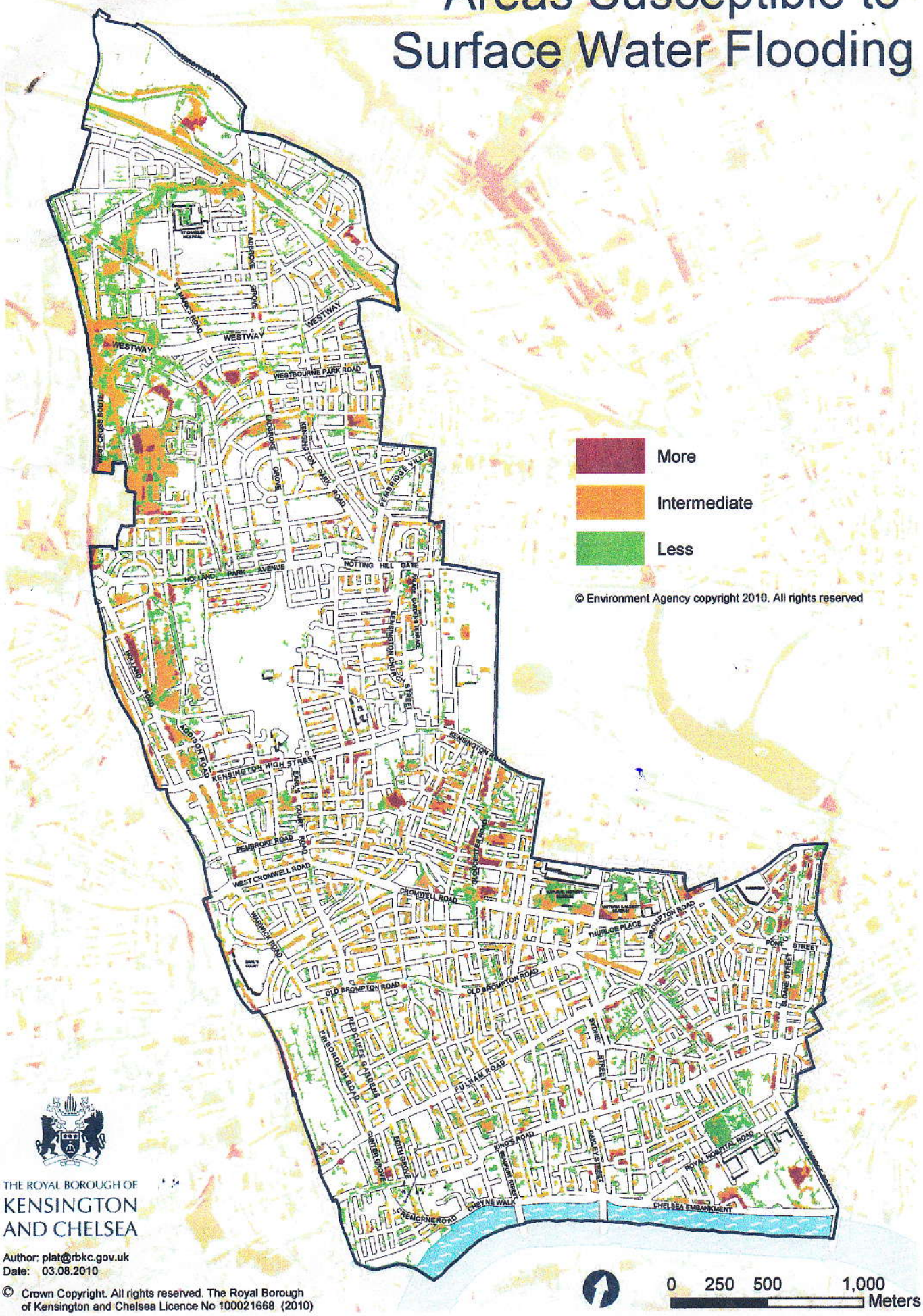
# PORTOBELLO/NOTTING HILL

## ...es and Potential Opportunities

MANY STREETS OMITTED



# Areas Susceptible to Surface Water Flooding




THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

Author: plat@rbkc.gov.uk
Date: 03.08.2010

# MAP 17
## Surface Water Flooding

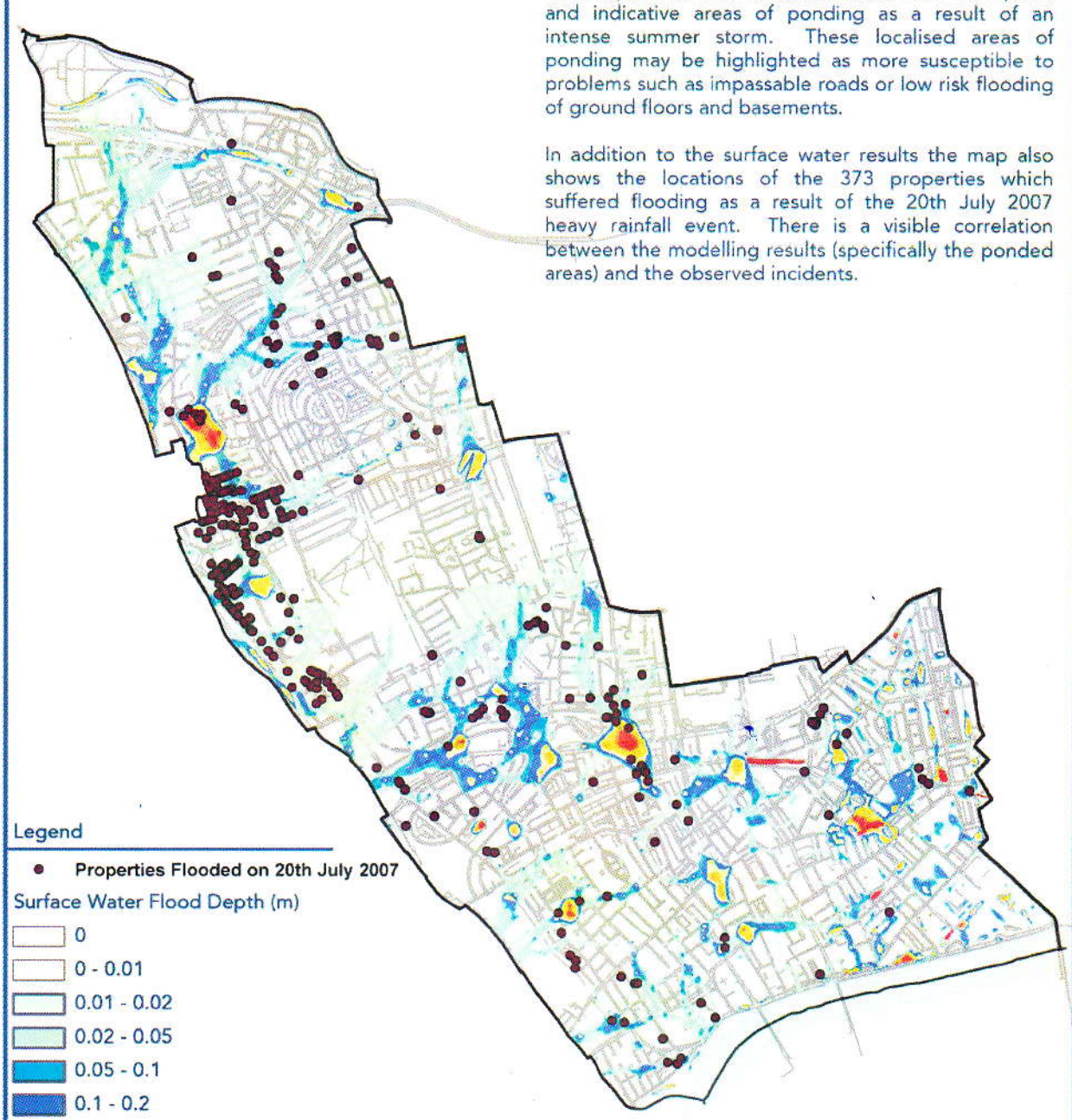
ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

North

Surface water flooding from an intense summer storm across the natural catchments contributing to the Borough was modelled.

This map shows the indicative surface water flow paths and indicative areas of ponding as a result of an intense summer storm. These localised areas of ponding may be highlighted as more susceptible to problems such as impassable roads or low risk flooding of ground floors and basements.

In addition to the surface water results the map also shows the locations of the 373 properties which suffered flooding as a result of the 20th July 2007 heavy rainfall event. There is a visible correlation between the modelling results (specifically the ponded areas) and the observed incidents.



Legend

- Properties Flooded on 20th July 2007

Surface Water Flood Depth (m)

- 0
- 0 - 0.01
- 0.01 - 0.02
- 0.02 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.5
- 0.5 - 0.6
- > 0.6

0 500 1,000
Metres



jba Entec

I continue to feel, as I made clear to Chris Banks on the telephone, that on the final day of the Public Hearing we were all exhausted, and did not ultimately do justice to the final lap of the LDF, in particular as far as regards **Matter 9a**, which, no doubt due to the exhaustion, was not discussed at all.

This is unfortunate as there remain a number of significant inconsistancies.
eg. The Thames Water factual statement (p6)
"The ***most important aspect of refining the hydraulic model*** was an independent project to identify and quantify the increased surface run-off over the last 4 decades. The results indicate that the ***impermeable land*** in the wider catchment supplying Counters Creek has increased by about 17% since 1971 - ***FAR HIGHER than had hitherto been expected."***
***"We need to work closely with the boroughs to minimise any further increases to the impermeable area***,by ensuring that ...(SUDSetc..and basement planning applications are rigorously appraised." ***Feb 2009***
In the RBKC ***May 2009*** SPD adoption document we read in 1.6

"Respondants raised concern that subterranean development increases the risk of sewer and surface water flooding. ***Officers advice: In some instances basement extensions under gardens with impermeable surfaces may increase run off. However, THE IMPACTS OF THIS ARE VERY SMALL*** unless combined with an extreme rainfall event and an insufficient sewer network." (!)

In addition there are many aspects flagged up in the Ove Arup report but not carried over to the SPD ***or*** the Core strategy of the LDF especially pertinent to Matter 9a. (see attached)

As the Inspector made clear to us, the Core Strategy is an accomplished and ambitious document, and enormous credit to Mrs. Tollit and her team is due. But for those of who have to work from the ground up over the longterm with what is finalised here, there remains much disquiet.
Perhaps the very ambition of integration within the document has led to some of its problems at point of delivery.
It is at times difficult (certainly for a layperson) to negotiate, and falls short in terms of some of its detail (eg Portobello, subterranean development and the many complex forms of floodrisk which are affected by it (surface,sewer and groundwater) particularly in the North of the borough.

As the revised London Plan is so imminent - it would seem madness to foreclose when so much has been achieved.
There are a number of issues which are simply not quite 'cooked'.

MATTERs 9a and 9b

KEY QUESTIONS

**9a. - Renewing the Legacy - (policy CL2)**

5. Is the risk from surface water and sewer flooding such that there should be a moratorium ***in the Counters Creek catchment area*** (North Kensington) until the Thames Water improvements have been implemented?

**9b. - Respecting Environmental Limits - (policy CE2)**

2. Is there a need for a specific policy to ensure all proposals for basement developments *in areas at risk* incorporate measures to reduce vulnerability?

Although Mrs.Tollits amendments (new para.after 36.3.18*) respond to the hearing discussions, they do not ultimately address the issues sufficiently and the LDF therefore remains UNSOUND.

This is because, given the wealth of information ***already available*** (see attached) RBKC has simply failed to act upon what we all now know.
This is in direct conflict with their own SFRA ***Feb 2008*** which states in its conclusions and recommendations -
"The recent surface water and sewer flooding highlight the risk posed to boroughs"
"Future climate change predictions imply that this type of flooding is becoming more frequent - therefore the Councils ***need to become PROACTIVE in mitigating against the risk*** and PROVIDE GUIDANCE to residents"

The Core Strategy also completely fails to address ***Cumulative Effects*** as highlighted in their Sustainability Appraisal Report prepared by Scott Wilson in Oct 2009 (p11 Non Technical Summary)

**"as defined in pps25"* and *"as agreed with the Environment Agency"* both remain resolutely TOP-DOWN bodies of knowledge.

This is clearly an issue where local circumstances, the geology, topography and, most signicantly, the hydrology are fundamental.
In addition the condition of the Counters Creek sewer and its conjunction with the main Brent/Camden stormsewer(see Thames Water report) are pivotal to the resolution of these problems. update due in 2020
IN VIEW OF THE FACT THAT A MASSIVE AMOUNT OF DEVELOPMENT IS PLANNED (Kensal, Latimer, Wornington etc) IN THE COUNTERS CREEK CATCHMENT (***some of it beginning now***) it would seem essential for this to be incorporated.

There is provision for inconsistancy with national policy within the tests of Soundness..***if there is LOCAL justification .***
There is clearly AMPLE local justification - Geographical, geological, hydrological, historical, architectural, environmental, ***developmental***
Their own Climate Change Strategy 2008-2015 "5.4...believes that in the future the ***local impacts*** could be: more frequent flooding from torrential rain, excessive run-off and ***overflowing drains;"*** Within the LDF RBKC would seem to have been quite singularly UNPROACTIVE in addressing this issue which has devastated so many of us.

WHY does the SPD NOT address the impacts on surrounding properties and cumulative effects that Ove Arup flags up?
Why is the RBKC inconsistant with Thames Water's Counters Creek report?
Why has the definative international study on the subject "Hidden Aspects of urban planning" RTPI/ECTP **2002** not been referred to?
How come RBKC is one of only 5 boroughs with "no records of drainage" to submit to Drain London Forum....despite having exported their original Bazalgette sewer drawings(still accurate) to their local studies library *directly opposite their offices, and* three post flood public meetings with Thames Water and their Counters Creek report ?

There is a large body of historical material as to the "boggy" nature of the ground (Hippodrome Racecourse closed as a result of it 1841), "two small tributaries(of CountersCreek) that rise just west of Ladbroke Grove", "the springs that gave rise to the streams or marshes south of the higher ground", "It is certain that a watercourse lies under the back gardens"etc.
Much of this is confirmed by the Environment Agency GROUNDWATER FLOODING CALL MAP - (submitted to RBKC Feb 2008),
(see attached/hearings submission)
**PPS25** refers to Flooding from Groundwater
C7 "In very wet winters, rising water levels may lead to the flooding of normally dry land, ***as well as reactivating flow in'bournes' - intermittent streams that flow only for part of the time,*** when groundwater levels are high"
How come RBKC seems ***oblivious to, and uninterested in*** these things?
Many of these matters have been submitted as objections to planning applications, ignored and overridden by planning officers, who granted them.
Since the floods of July 2007(which Map 17of the SPD shows to be remarkably similar to a diagram of flooding in 1981 on the cover of the borough newsletter(attached)) they have consistantly failed to deal adequately with these risks and impacts both in terms of the planning permissions they have continued to grant - and now within the LDF.

There remain a plethora of examples.

Finally with the appearance of the ***JUNE 2009*** Environment Agency map discussed at the hearing, (worryingly inconsistant in some particulars with Map 17 of the SFRA, although broadly similar, as with 1981 diagram), we have a starting point.
Unfortunately the Core Strategy is not it.

A moratorium in the Counters Creek catchment area would be a beginning.

**OVE ARUP report** Jan 2008

## 1. Introduction

### 1.1 SCOPE

"In devising the project, RBKC has recognised that it is a relatively novel form of multidisciplinary study, as it combines both geotechnical, structural, hydrogeological and town planning elements.
The Council has therefore designed the project to be in ***TWO*** phases

. Phase 1 - ***Scoping*** Study
AND
***. PHASE 2 - Implementation Stage...***
*...would include the preparation* ***of draft policies for possible inclusion in the LDF,*** *and a report justifying these recommendations.*

## 2. SUBTERRANEAN DEVELOPMENT

### 2.1 Typesof...

"Basements under residential properties and their gardens
In general, household basement projects ***are not of a size or cost to attract major engineering design or construction firms....***
Where a new residential basement is close to other houses, ***ESPECIALLY IN TERRACES, the potential risk of damage to adjacent properties is often of greater concern*** to neighbouring owner-occupiers than would be the case in a non-residential, business district.

This scoping study therefore considers:
***the specific LOCAL effects of residential sub.dev.***

### 2.2 construction methodology

"the subject of foundation stability, and its potential variation with soil type (section5.2 and Appendix A)
waterproofing...*Even well-built concrete basement walls will not keep out dampness in the longterm.."*

**2.2.1.3 underpinning using piling**

"(more invasive in terms of noise and vibration..)
uniformly spaced around the perimeter of the building
***in order to avoid asymmetries, which may otherwise cause LOCALISED DIFFERENTIAL SETTLEMENTS."***
FOR EXAMPLE THE IMPACT ON NEIGHBOURING PROPERTIES!
Such as all of us who have had to endure the enforced partial underpinning under the party wall act have suffered, in terms of irrevocable damage to our houses, now a tail that waggles on the London Clay forever against the onewall (for us) underpinned "hardsport" of the party wall.

**2.2.2** ***"ground movement cannot realistically be reduced to zero"***

## 2.3 SUMMARY OF PRINCIPLE ISSUES FOR CONSIDERATION

**. Movements in the ground**

Underground construction ***will ALWAYS - inherantly and unavoidably -*** cause some movement in the surrounding ground.....

...potential for damaging adjacent structures...halo of potential damage

IMPLICATIONS OF DAMAGE INDUCED BY GROUND MOVEMENTS including the potential for legal proceedings arising from damage to third-party property and structures ARE SIGNIFICANT.

**. Cumulative effects**

of several underground developments in a given street could potentially differ from the impact of the initial "pioneer" basement...

**. Clay Soils (foundation depth)**

The problems of seasonal ground settlement (in dry summers) and GROUND HEAVE (in wet winters) IS WELL KNOWN.

In the case of a pair of properties that share a party wall (SUCH AS TERRACED HOUSES), ***it is appropriate to consider whether deepening the footings of the party wall could adversely affect the structure on the other side of the wall in a clay soil area.***

+

*It is appropriate to discuss and consider* ***whether stiffening the footings on one side of the party wall adversely affect the structure that shares the party wall, as there could arise an increased potential for differential settlements across the wall if the loading on the foundations were to change significantly in future.*** *This should be considered when planning, designing and implementing basement works at a party wall.*

+

**. Environment**

The environmental "footprint" of a basement is not trivial *and should be viewed in light of RBKC,s Environment Strategy.*

**3.2.2 Northern part of the borough: London Clay** has a *relatively* low permeability to ground water.

In essence,London Clay presents an *almost* complete barrier to groundwater.

***In practice,*** this barrier ***is not complete:***

***GROUNDWATER CAN PERMEATE SLOWLY THROUGH LONDON CLAY*** *(typically at about the same speed that human hair grows)*and more quickly along any fissures and cracks in the clay.

**3.3.2 Surface water: risk of flooding**

**5.1 Underground water**

The coralling of the Westbourne and Counters Creek into sewers; the sealing-off to rainfall of the ground surface by pavements and buildings; and leakage from water mains and sewers have all acted ***to alter groundwater levels and flow regimes.***

Within the upper surfaces of the London Clay, ***localised ancient river channels are sometimes encountered.***

Once basement sidewalls had been formed across the channel, forming a seal of obstruction, ***the groundwater channel within the soil in the channel would cease to flow....***and another preferential flow route would take over.

**7 CONCLUSIONS**

**1.** Subterranean development in the BOROUGH ***cannot be viewedin isolation from other planning issues, ...***the protection of heritage structures, conservation areas, environmental protection, ***flood risks etc***

**4. There is genuine risk of damage to neighbouring structures and infrastucture if excessive ground movements occur...**

**7.** The potential LONG TERM impact of a subterranean development abutting a shared party wall *tends to be more significant in clayey soils...*

***It is appropriate for the Council to consider whether EXPLICIT ADDITIONAL PROVISION SHOULD BE MADE in the planning requirements for subterranean developments ADJACENT TO SHARED PARTY WALLS ON CLAY SOILS."***

***+ MAPS***

***figure 2.4 ( RBKC planning 27.10.2006)subterranean infrastructure***

***figure 3.5 ( RBKC planning 30.11.2006) water courses***

***+ mitigation methods suggested by Ove Arup.***

***standards of workmanship etc.***

**UNENFORCEABLE therefore UNSOUND**

**PPS25 annex C (2006?) FORMS OF FLOODING States:**
C1.Flooding....IN A WIDE VARIETY OF LOCATIONS.
A number of forms of flooding present a range of different risks.
with Climate change...to become more damaging.

C2. The limits of flood risk areas cannot be defined precisely because floods can arise from different combinations of weather, sources, rainfall patterns, ***local topography*** and patterns of development.

C3. Flooding can come from rivers and the sea, ***directly from rainfall on the ground surface*** and ***from rising groundwater, overwhelmed sewers and drainage systems.***

**Flooding from Land**
C6. Intense Rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can run quickly off land and result in ;local flooding. In developed areas, this floodwater can be polluted with domestic sewage where foul sewers surcharge and overflow.
***Local topography and built form can have a strong influence on the direction and depth of flow.***
The design of development down to a micro-level can influence or exacerbate this.**Overland flow paths should be taken into account in spatial planning for urban developments.**
Flooding can be exacerbated if development increases the percentage of impervious areas.

**Flooding from Groundwater**
C7...In very wet winters, rising water levels may lead to the flooding of normally dry land, ***as well as reactivating flow in 'bournes' - intermittent streams that only flow for part of the time, when grounwater levels are high.***
Groundwater flooding may take weeks or months to dissipate because groundwater flow is much slower than surface flow and water levels thus take much longer to fall.

**Flooding from Sewers**
C8. In urban areas, rainwater is frequently drained into surface water sewers or sewers containing both surface and waste water known as "combined sewers". Flooding can result....When this happens to combined sewers, ***there is a high risk of land and property flooding with water contaminated with raw sewage*** as well as pollution of rivers due to discharge from combined sewer overflows.

**NEW BASEMENT DEVELOPMENT and EXTENSIONS GUIDANCE NOTE**
**London Borough of Camden : *FEB 2009***
45. Groundwater

***Basement development may affect groundwater flows,*** and even though the displaced water will find a new course around the area of obstruction ***this may have other consequences for nearby buildings, trees etc.*** Emerging evidence shows that even ***where there are a number of consecutively constructed basement developments,*** the groundwater flows will find a new path.
Given the nature of the ground in many higher parts of the borough, basement development ***has the potential to cause harm through the diversion of groundwater.***
The Council may therefore ***require a Hydrology report*** to be submitted with proposals.

**HIDDEN ASPECTS of URBAN PLANNING**
**surface and underground development**
***2002*** (ThomasTelford for RTPI/ECTP)

***ALL underground development has some interaction with the ground or groundwater)*** on, or within which it is constructed.
***-increasing need for planners and developers to understand geotechnical and geo-environmental issues***

**"p.42 Deep basements**
*HEAVE* movements can occur due to basement excavation and ground unloading. ***In stiff low-permeability clays HEAVE movements can continue for DECADES*** after the end of construction.
The effects of excavation on nearby structures is described on
**"p.44 Protection of existing structures**
***is often a legal requirement."***

**BELGRAVIA RESIDENTS' ASSOCIATION**
**POLICY for BASEMENTS *March 2008***

There are environmental and other issues which need to be considered, ***such as IMPACT on the overall housing stock*** in the Belgravia area.

ENVIRONMENTAL

The water table can be severely impacted by basement excavationa.

IMPACT ON NEIGHBOURS

**damage to the fabric of buildings** - Basement excavationsd give rise to unique issues of HEAVE (the process by which London Clay can push up neighbouring properties) and **issues of lateral forces acting on terraced properties *which can cause them to collapse.***

**ENVIRONMENT AGENCY *Feb 2008***
***(to accompany groundwater Map)***

There is a natural drainage channel flowing from EAST to WEST....
This may have formed a tributary of Counters Creek at some stage.
***This drainage will be heavily influenced by the surface water drains of road networks and the sewerage system,*** and the real surface flow may vary greatly to the topography alone.

There may well be shallow groundwater caused by **drift depositing...**
London Clay will prevent water seeping down into lower geology.
...exact locations are difficult to determine without a site investigation....to make a proper assessment of de-watering.

**THAMES WATER *Feb 2009***
***COUNTERS CREEK***
***Strategic Sewer Flooding Alleviation - Study findings***

The mechanism of flooding in the Counters Creek catchment is ***different to most instances of sewer flooding - levels inthe deeper storm relief sewers rise following rainfall in the wider catchment.***
increased surface run-off..since 1971...17%...far higher than expected.

Our conclusion..improving network supply capability (2020?)
However ***we need to work closely with the boroughs*** to ***minimise any further increases to the impermeable area ...ensuring BASEMENT PLANNING APPLICATIONS in the catchment ARE RIGOROUSLY APPRAISED.***

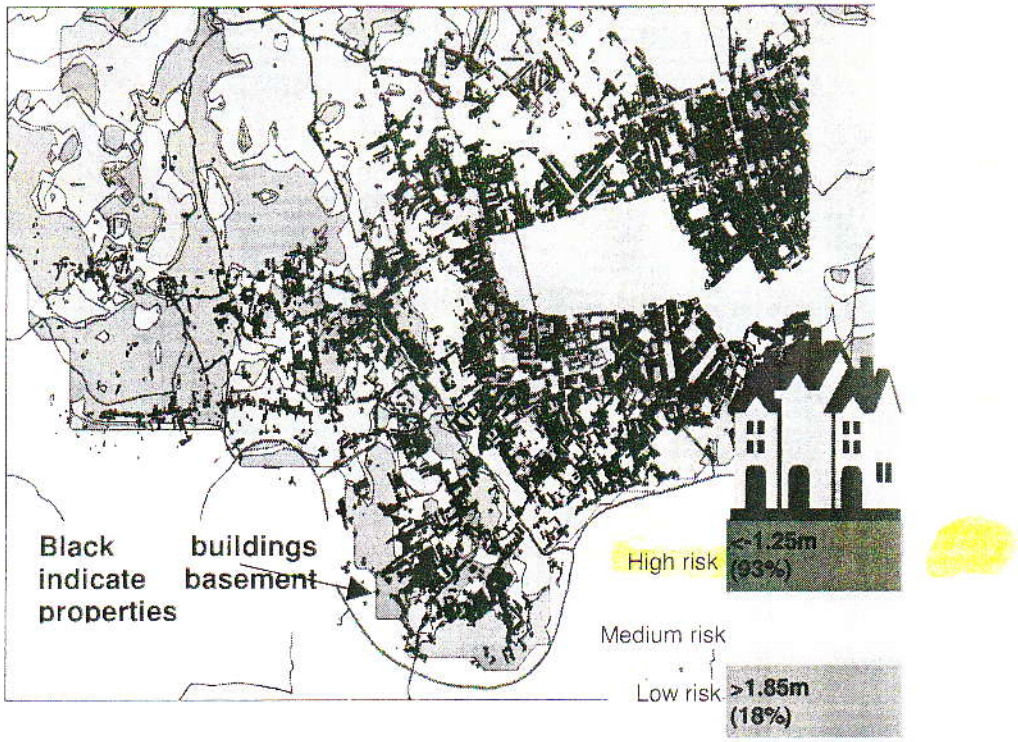



**Figure 3: Results from hydraulic modelling**

A key assumption in the model is that 70% of basements are actually connected to the sewerage network. This figure was arrived at by calibrating the modelled results with actual flooding incidents. The results from the model are presented below and indicate that over 7,000 properties will be at risk of internal flooding from a 1 in 10 or more frequent event by 2020. The model also shows that average sewage levels in the Counters Creek area have risen from around 2.13m below ground level in 1971, to 1.92m below ground level in 2008. This is a rise of more than 10% and a sufficient increase to cause sewage to overtop a doorstep of a basement previously at a low risk of flooding.

| | 1971* | 2007 | 2020** |
|---|---|---|---|
| 2 in 10 risk | 5423 | 5438 | 5628 |
| 1 in 10 risk | 1144 | 1829 | 2162 |
| 1 in 20 risk or greater | 1823 | 2189 | 2222 |

** 1971 model excludes the Local Storage Tank Solution in Greyhound Road W6 and Strategic extension of North Western SRS to Camden*
*** 2020 model assumes a 5% increase in impermeability for the period 2007 – 2020 (based on a straight-line extension of the increase over the period 1971 - 2007 of 6.5% minus an allowance of 1.5% for implementation of SUDS)*

**Table 1: Results from hydraulic modelling of Counters Creek**

Whilst there is a disparity between reported flooding incidents and the number of properties modelled to be at risk, the results demonstrate that there has been a substantial erosion of headroom in the storm relief network since 1971. If nothing is done to alleviate this risk, we will have to respond to a catastrophic sewer flooding

## The need for catchment solutions

In AMP5, sewer flooding alleviation will predominantly be delivered by local solutions (such as pumped offline storage) reducing the risk of flooding to small clusters of properties. Our AMP5 programme represents the maximum possible reduction to the DG5 register using local solutions within a Cost Benefit Assessment framework.

In some cases, where the source of flooding is due to the incapacity of a trunk sewer or interceptor sewer or storm overflow sewer and not the local sewerage network, the cost of a local solution becomes prohibitively expensive and not cost beneficial to deliver. This is because the size of the tanks required to attenuate the storm flow become very large and impractical to construct in urban areas. In such circumstances, catchment solutions are required to alleviate the current risk of sewer flooding and to prevent new properties from flooding in the future.

It is intended that our preferred option to alleviate the risk of flooding in the Counters Creek will be the first of several proactive solutions at the catchment level. We intend to prevent widespread sewer flooding from occurring in the future.

## The Counters Creek catchment

There are over 37,000 basement properties in the Counters Creek area, all of which lie within the flood plain of the River Thames. Many of these basements have only become habitable since the reduction in risk of fluvial flooding due to the construction of the Thames Barrier in the early 1980s.

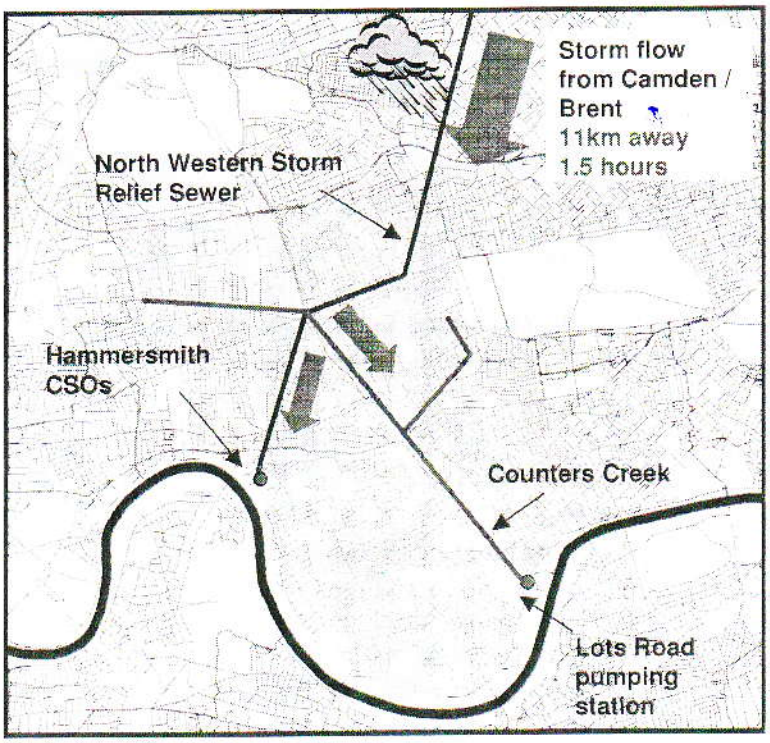



Figure 1: Catchment characteristics that give rise to sewer flooding

**BELGRAVIA RESIDENTS' ASSOCIATION**
**POLICY for BASEMENTS *March 2008***

There are environmental and other issues which need to be considered, ***such as IMPACT on the overall housing stock*** in the Belgravia area.

ENVIRONMENTAL

The water table can be severely impacted by basement excavationa.

IMPACT ON NEIGHBOURS

**damage to the fabric of buildings** - Basement excavationsd give rise to unique issues of HEAVE (the process by which London Clay can push up neighbouring properties) and **issues of lateral forces acting on terraced properties *which can cause them to collapse.***

**ENVIRONMENT AGENCY *Feb 2008***
***(to accompany groundwater Map)***

There is a natural drainage channel flowing from EAST to WEST....
This may have formed a tributary of Counters Creek at some stage.
***This drainage will be heavily influenced by the surface water drains of road networks and the sewerage system,*** and the real surface flow may vary greatly to the topography alone.

There may well be shallow groundwater caused by **drift depositing...**
London Clay will prevent water seeping down into lower geology.
...exact locations are difficult to determine without a site investigation....to make a proper assessment of de-watering.

**THAMES WATER *Feb 2009***
***COUNTERS CREEK***
***Strategic Sewer Flooding Alleviation - Study findings***

The mechanism of flooding in the Counters Creek catchment is ***different to most instances of sewer flooding - levels inthe deeper storm relief sewers rise following rainfall in the wider catchment.***
increased surface run-off..since 1971...17%...far higher than expected.

Our conclusion..improving network supply capability (2020?)
However ***we need to work closely with the boroughs*** to ***minimise any further increases to the impermeable area ...ensuring BASEMENT PLANNING APPLICATIONS in the catchment ARE RIGOROUSLY APPRAISED.***