APPENDIX A

Ponders End Flood Risk Maps

PE1 – Site Map and River Names
PE2 – Digital Terrain Model
PE3 – Bedrock and Superficial Deposits
PE4 – Flood History
PE5 – Environment Agency Flood Zones
PE6 – 100 Year +CC Flood Flows
PE7 – EA Defended Flood Maps
PE8 – EA Defended Outline with 2D Flows – 20yr
PE9 – EA Defended Outline with 2D Flows – 100yr
PE10 – EA Defended Outline with 2D Flows – 100yr +CC
PE11 – EA Defended Outline with 2D Flows – 1000yr
PE12 – 2D Model Depth Map 100yr +CC
PE13 – 2D Model Velocity Map 100yr +CC
PE14 – 2D Model Height Map 100yr +CC
PE15 – 2D Model Flood Hazard Map 100yr +CC
PE16 – Flood Defences
PE17 – Surface Water Flooding 1 in 30 Year Event
PE18 – Surface Water Flooding 1 in 200 Year Event
PE18 - Surface Water Flooding 1 in 200 Year Event
London Borough of Enfield Level 2 SFRA

Depth (m)
- 0.05
- 0.10
- 0.25
- 0.50

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office under licence number 100015761. Unauthorised reproduction or editing creates a criminal offence under the Copyright, Designs and Patents Act 1988.
APPENDIX B

Lee Navigation Flood Hydrographs (from Environment Agency Lee model)

Taken from node CBA56 on the Lee Navigation adjacent to Ponders End

B1 100 yr plus climate change hydrographs for tributary critical storm (red) and Lee critical storm (blue)

B2 1000 yr hydrographs for tributary critical storm (red) and Lee critical storm (blue)
APPENDIX C

Brimsdown Ditch Hydraulic Analysis

Drawing No WN/FRAJ/001 1 in 100yr CC (Plus Climate Change) & 1 in 1000yr Flood Extents through surcharging of culvert manholes
APPENDIX D

Meridian Water Flood Risk Maps

MW1 – Site Map and River Names
MW2 – Digital Terrain Model
MW3 – Bedrock and Superficial Deposits
MW4 – Flood History
MW5 – Environment Agency Flood Zones
MW6 – 100 Year +CC Flood Flows
MW7 – EA Defended Flood Maps
MW8 – EA Defended Outline with 2D Flows – 20yr
MW9 – EA Defended Outline with 2D Flows – 100yr
MW10 – EA Defended Outline with 2D Flows – 100yr +CC
MW11 – EA Defended Outline with 2D Flows – 1000yr
MW12 – 2D Model Depth Map 100yr +CC
MW13 – 2D Model Velocity Map 100yr +CC
MW14 – 2D Model Height Map 100yr +CC
MW15 – 2D Model Flood Hazard Map 100yr +CC
MW16 – Flood Defences
MW17 – Surface Water Flooding 1 in 30 Year Event
MW18 – Surface Water Flooding 1 in 200 Year Event
MW3 - Bedrock and Superficial Deposits

London Borough of Enfield Level 2 SPRA

ALLUVIUM
ENFIELD SILT FORMATION
KEMPTON PARK GRAVEL FORMATION
Lee Navigation Flood Hydrographs (from Environment Agency Lee model)

Taken from node CBA21 on the Lee Navigation 0.5km upstream of Meridian Water

E1 100 yr plus climate change hydrographs for tributary critical storm (red) and Lee critical storm (blue)

E2 1000 yr hydrographs for tributary critical storm (red) and Lee critical storm (blue)
APPENDIX F

Level 1 SFRA Recommendations

1. Direct new development to areas of low flood risk, giving highest priority to Flood Zone 1.

2. Where application of the Sequential Test to the Council’s list of allocated sites identifies the requirement to apply the Exception Test, conduct a more detailed Level 2 SFRA. The scope of this assessment will be increased to include consideration of the impact of flood risk management infrastructure on the frequency, rate of onset, depth and velocity of flooding.

3. Site-specific Flood Risk Assessments are to be carried out and submitted to the Environment Agency for approval for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development, other than minor development, located in Flood Zones 2 and 3.

4. Use the Sequential Test within sites to inform layout by locating the most vulnerable elements of a development in the lowest risk areas. Hence, use open spaces within developments which have a residual flood risk to act as flood storage areas.

5. Ensure that buildings with residual flood risk are designed to be flood compatible or flood resilient.

6. Ensure development is safe.

7. Preserve overland flood flow routes where applicable and ensure there is no net loss of flood storage on site.

8. Where developments are proposed in areas identified as being at risk of groundwater flooding, further investigation should be carried out to determine the extent of risk and the feasibility of options for prevention or mitigation of flooding. A groundwater flood risk assessment should be produced and the Environment Agency consulted where such developments involve the creation of useable space below ground, such as basement dwellings and underground car parks.

9. Guidance on appropriate construction techniques is to be issued in the forthcoming Enfield Design Guide for developments in groundwater flood risk areas that do not involve the creation of useable space below ground.

10. Ensure all stakeholders work together to manage surface water and sewer flooding. It is critical that drainage authorities, including Enfield Council and Thames Water, carry out effective regular and long-term maintenance of the highway drainage and sewerage networks.
11. A regular inspection regime of the various surface water flood alleviation schemes across the borough should be implemented to ensure that these critical assets are in satisfactory condition.

12. Production of Reservoir Flood Plans are due to commence in 2008 under the auspices of the Environment Agency, these will provide detailed information on the residual risk of breach or overtopping of all statutory reservoirs. The SFRA should be reviewed to reflect this information as it becomes available.

13. Policies that seek to restore river corridors by creating or maintaining undeveloped strips alongside rivers, removing culverts where opportunities exist, and opposing future culverting of rivers should be implemented in order to provide more space for rivers to flow and flood naturally. The forthcoming Development Management Document will provide guidance on these issues.

14. In general, opportunities should be sought to set back development from the river edge to enable sustainable and cost effective flood risk management options.

15. SUDS should be a requirement for all new developments on brownfield and greenfield sites, in order to reduce the risk of flooding. This should include small-scale developments as well as major ones to mitigate against the cumulative effect of numerous minor developments.

16. All new development sites greater than 1 hectare in size require surface water discharge rates to be restricted to the greenfield runoff rate, with on-site attenuation provided for the 1 in 100 year event.

17. For smaller sites that do not necessitate a full surface water flood risk assessment, it is recommended that generic methods for determining storage requirements or other suitable SUDS techniques are devised on a local scale and implemented appropriately on a site by site basis. The forthcoming Enfield Design Guide will provide guidance on ensuring SUDS are implemented to a scale appropriate to the size of the development.

18. In areas where highway drainage systems are known to be under pressure due to a prevalence of impermeably paved front gardens, suitable options to alleviate these issues should be investigated. For example, residents desiring to park vehicles on their own property could be encouraged to use permeable surfacing materials or provide other SUDS techniques to compensate for any reduction in green space.
19. The Council should seek to raise flood awareness in the areas exposed to flood risk, for example by publicising information regarding the level and nature of the threat and highlighting warning systems such as the Environment Agency’s Floodline Warnings Direct system.

20. The Council should review and update its Borough Flood Plan in light of the information provided in this report. The location of vulnerable institutions, emergency services and critical infrastructure, such as major roads, in relation to areas identified as being at risk of flooding should be considered in detail.

21. The relevant local planning authorities for the areas of the Lee catchment upstream of Enfield should work in partnership with the Environment Agency to ensure that flood risk in the Lee valley is not increased in the future due to inappropriate development.

22. Where opportunities exist to improve or create sustainable flood defences on the tributaries of the Lee, the London Borough of Enfield should work with the Environment Agency to further investigate these options.