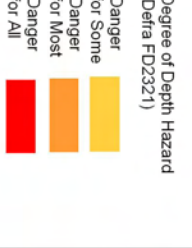


**BOLTON LEVEL 1 UPDATE
BOLTON LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

**BOLTON TOWN CENTRE -
PREDEVELOPMENT
FLOOD HAZARD MAP
1% CLIMATE CHANGE
AEP EVENT**

**Bolton Town Centre
Key Development
Opportunities Area**

River Centrelines



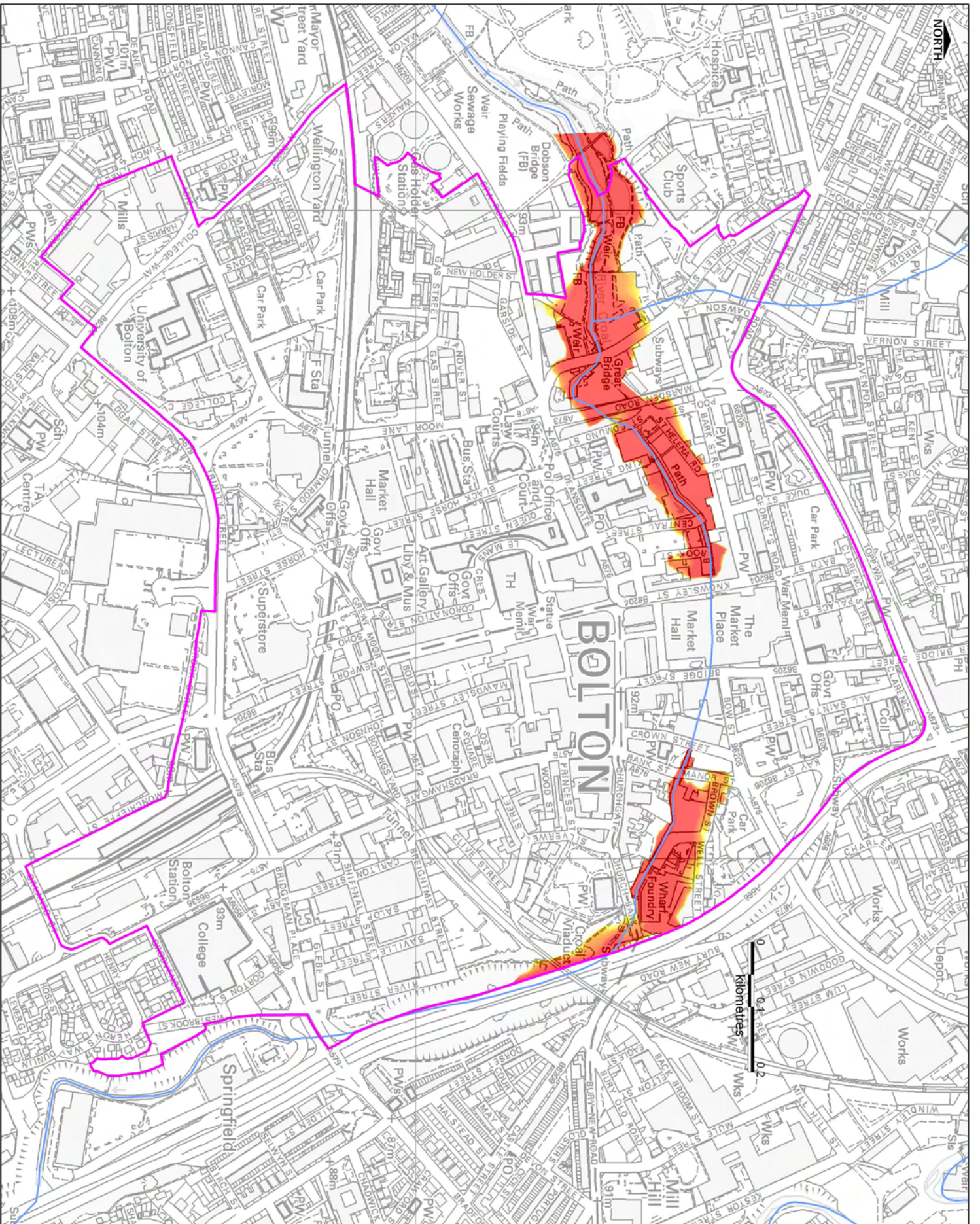
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Project Number	D125481	Project Name	AS SHOWN
Client	MJC	Project Manager	AR
Design Stage	100% 1:1000	Design Date	17/12/09





Scott Wilson
54 Fife House
Manchester
M1 4HS

D125481 - Figure 6-4






**BOLTON LEVEL 1 UPDATE
& LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

**BOLTON TOWN CENTRE -
PREDEVELOPMENT
FLOOD HAZARD MAP
0.1% AEP EVENT**

-  Bolton Town Centre - Key Development Opportunities Area
-  River Centrelines

**Degree of Depth Hazard
(Delta FD2321)**

-  Danger for Some
-  Danger for Most
-  Danger for All

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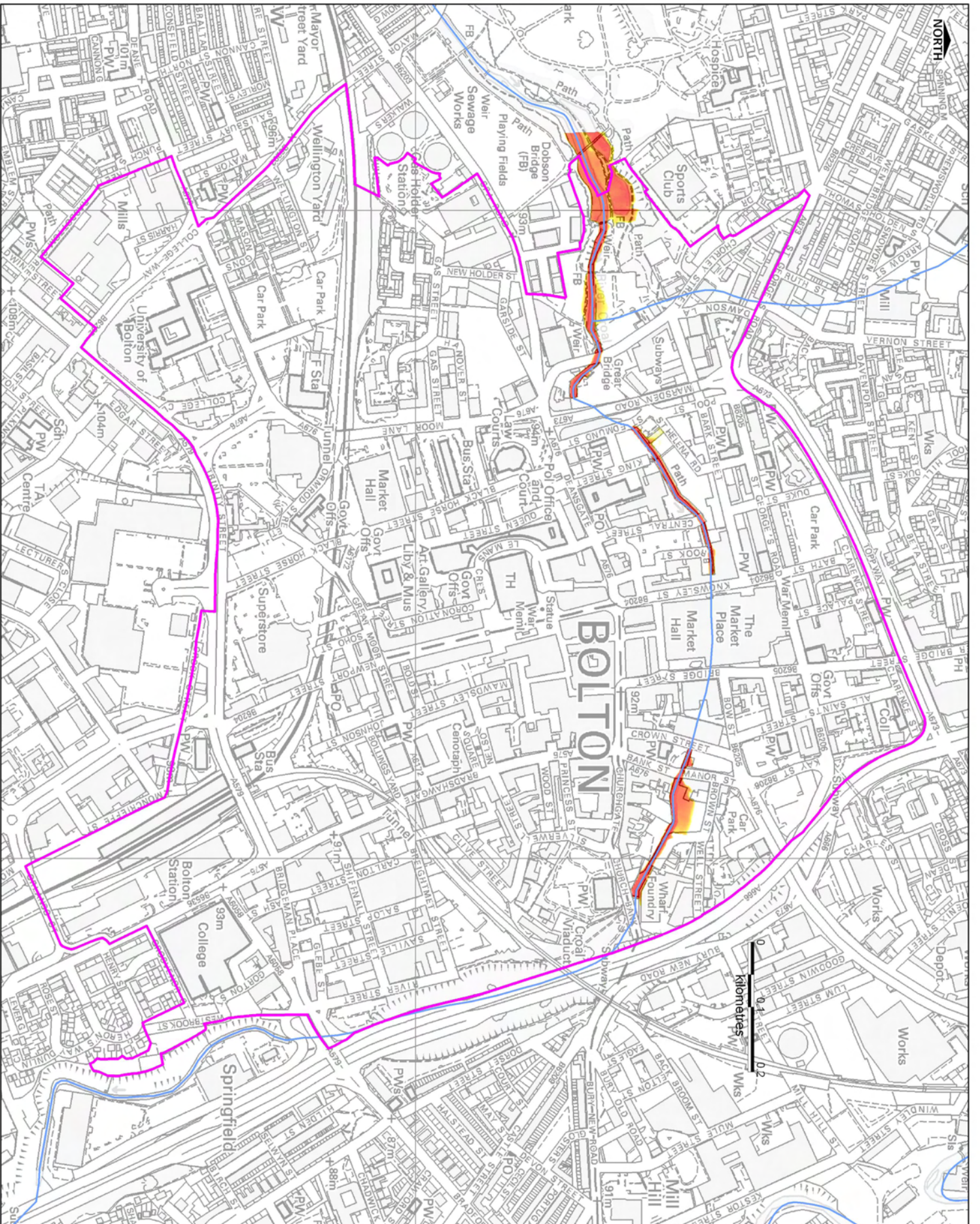
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Project Number	D125481	Version	AS SHOWN
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Design / Check	100% / 100%	Design / Check	17 / 12/09



Scott Wilson
54 Fife House
Manchester
M1 4HS





**BOLTON LEVEL 1 UPDATE
BOLTON LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

**BOLTON TOWN CENTRE -
POST DEVELOPMENT
FLOOD HAZARD MAP
1% AEP EVENT**

- Bolton Town Centre
Key Development
Opportunities Area
- River Centrelines

**Degree of Depth Hazard
(Delta FD2321)**

- Danger for Some
- Danger for Most
- Danger for All

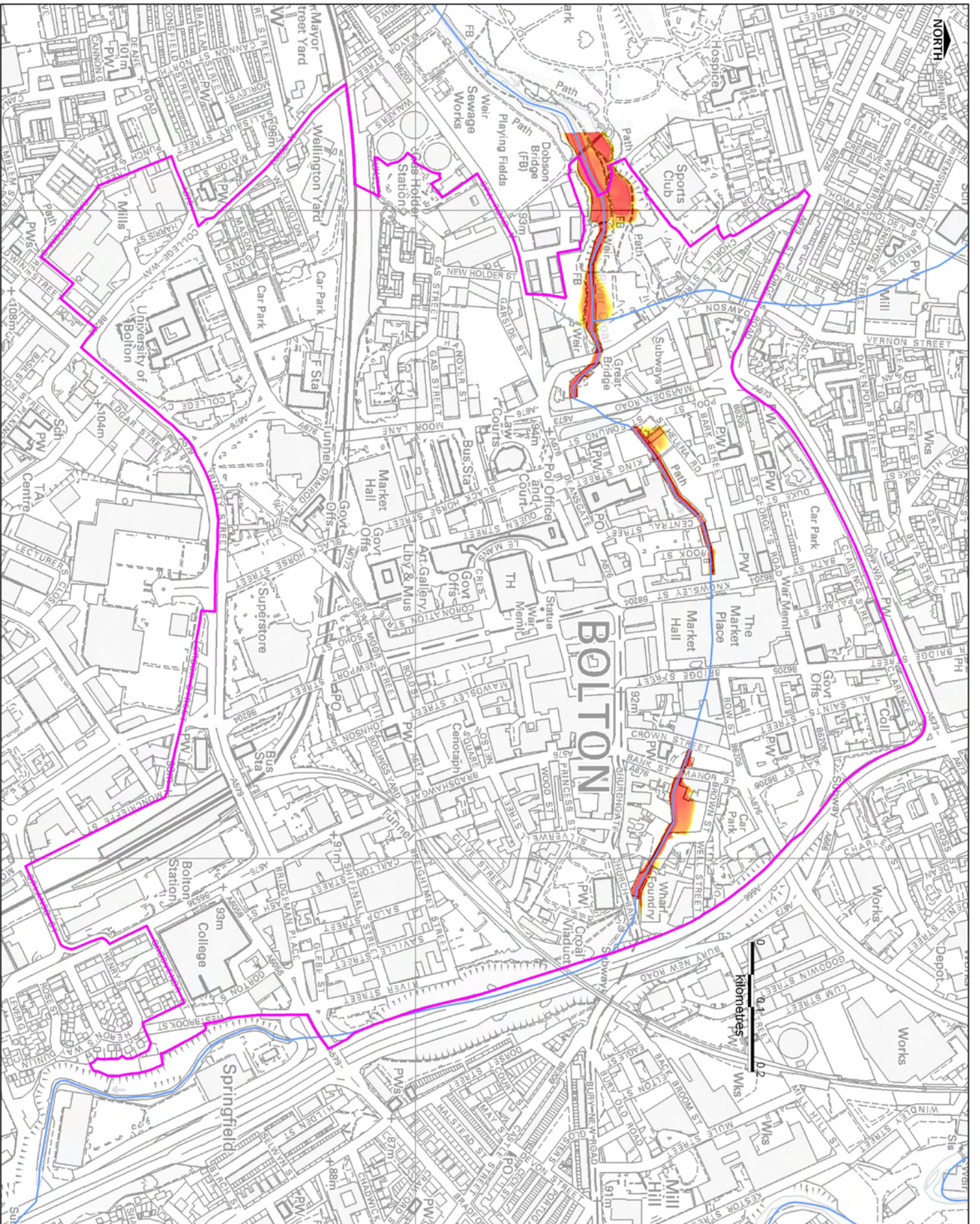
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Client	MJC	Prepared by	AR
Design / Check	100% / 100%	Drawn by	17.12.09



Scott Wilson
54 Peel House
Manchester
M1 0HS



**BOLTON LEVEL 1 UPDATE
BOLTON LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

**BOLTON TOWN CENTRE -
POST DEVELOPMENT
FLOOD HAZARD MAP
1% CLIMATE CHANGE
AEP EVENT**

**Bolton Town Centre
Key Development
Opportunities Area**

River Centrelines

**Degree of Depth Hazard
(Delta FD2321)**

- Danger for Some
- Danger for Most
- Danger for All

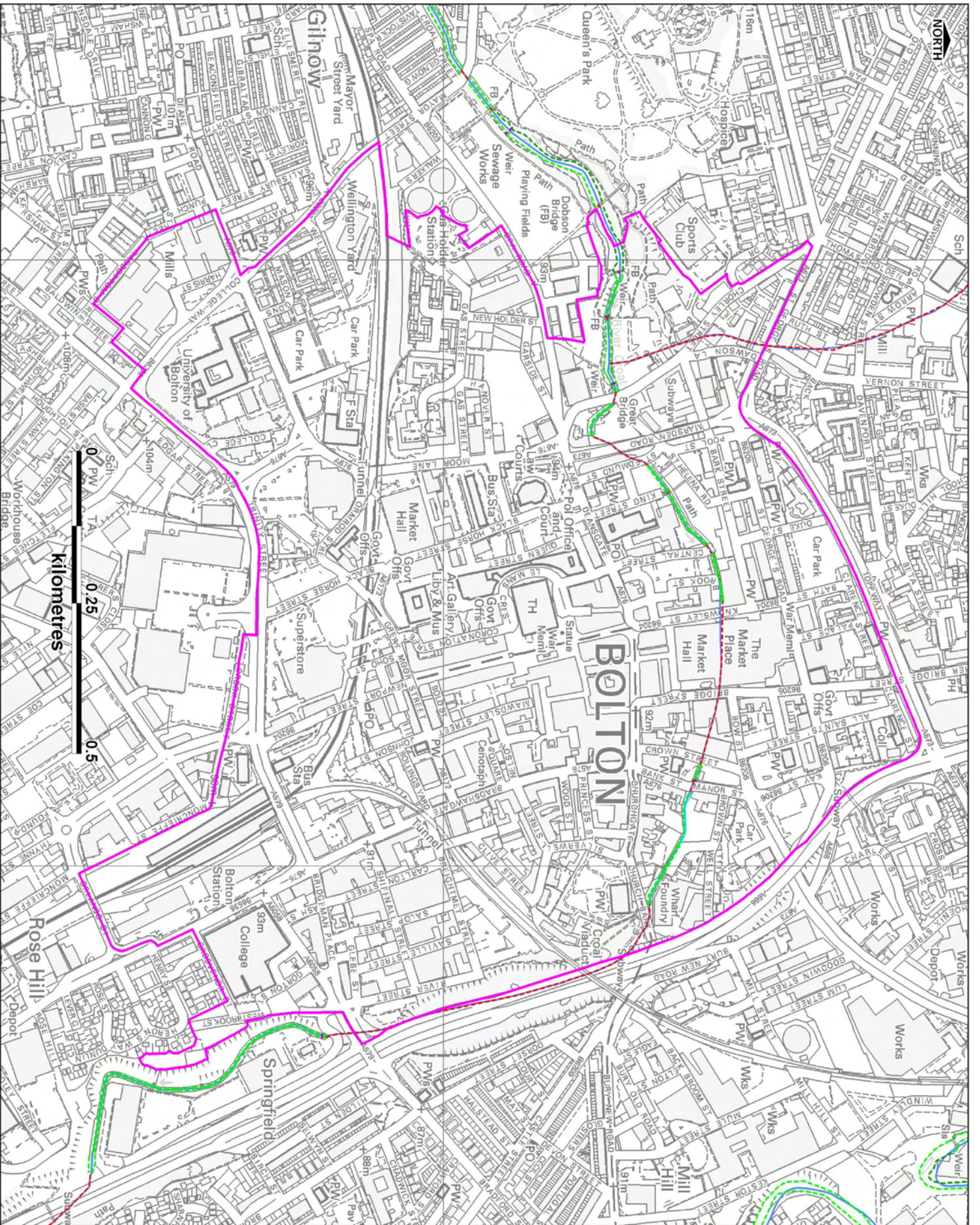
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Client	MJC	Prepared by	AR
Design / Check	100% / 100%	Drawn by	17.12.09



Scott Wilson
54 Portland Street
Manchester
M1 4BS

D125481 - Figure 6-7



BOLTON LEVEL 1 UPDATE & LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

BOLTON TOWN CENTRE FLOOD DEFENCE PROVISION

- Bolton Town Centre Key Development Opportunities Area
- River Centrelines
- Defences by Asset Type (MFCCD)**
- Covered Channel
- Food Defence Structure
- Maintained Channel
- Natural Channel
- Non-Flood Defence Structure
- Raised Defence (man-made)
- Raised Defence (natural)

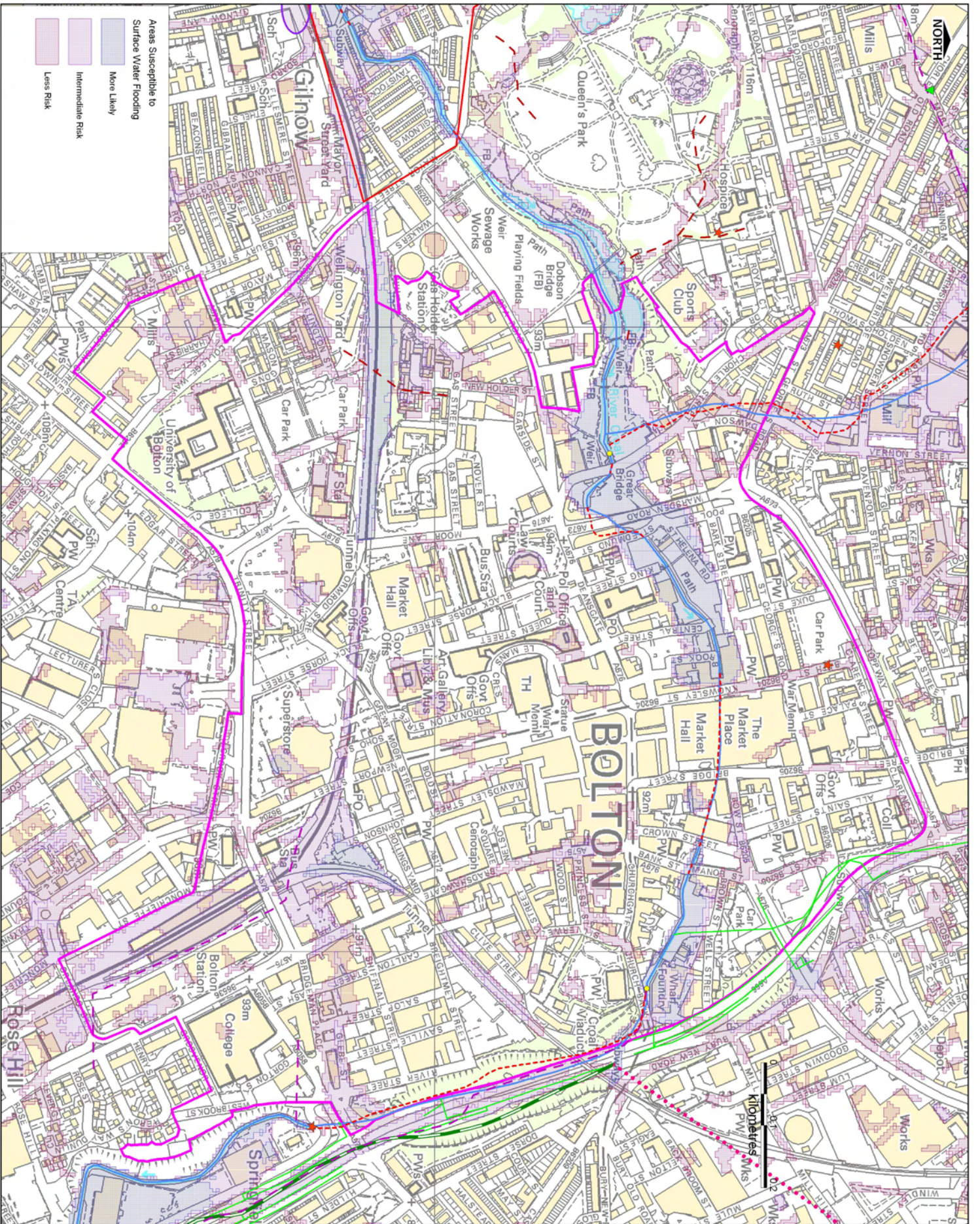
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Client	HB	Prepared by	AR
Design Check	2009 T. CHOK	Organised by	2011.09



Scott Wilson
54 Princess Street
Manchester
M1 6HS





Areas Susceptible to Surface Water Flooding

- More Likely
- Intermediate Risk
- Less Risk



BOLTON LEVEL 1 UPDATE & LEVEL 2 STRATEGIC FLOOD RISK ASSESSMENT

BOLTON TOWN CENTRE - OTHER SOURCES OF FLOODING

- Bolton Town Centre Key Development Opportunities Area
- River Catchment
- Suspected Canal Feeder
- EA Debris Screens
- Highway Drains
- Canals
- Culverted Rivers
- Culverted Watercourses
- Diverted Watercourses
- Natural (Mills & Reservoirs)
- Reported Incidents of Historical Flooding
- Environment Agency
- BMBC
- BMBC Land Damage Problem Areas
- BMBC Interim Flood Locations
- Highway
- Repeated
- Single Significant
- Repeated Significant
- Significant

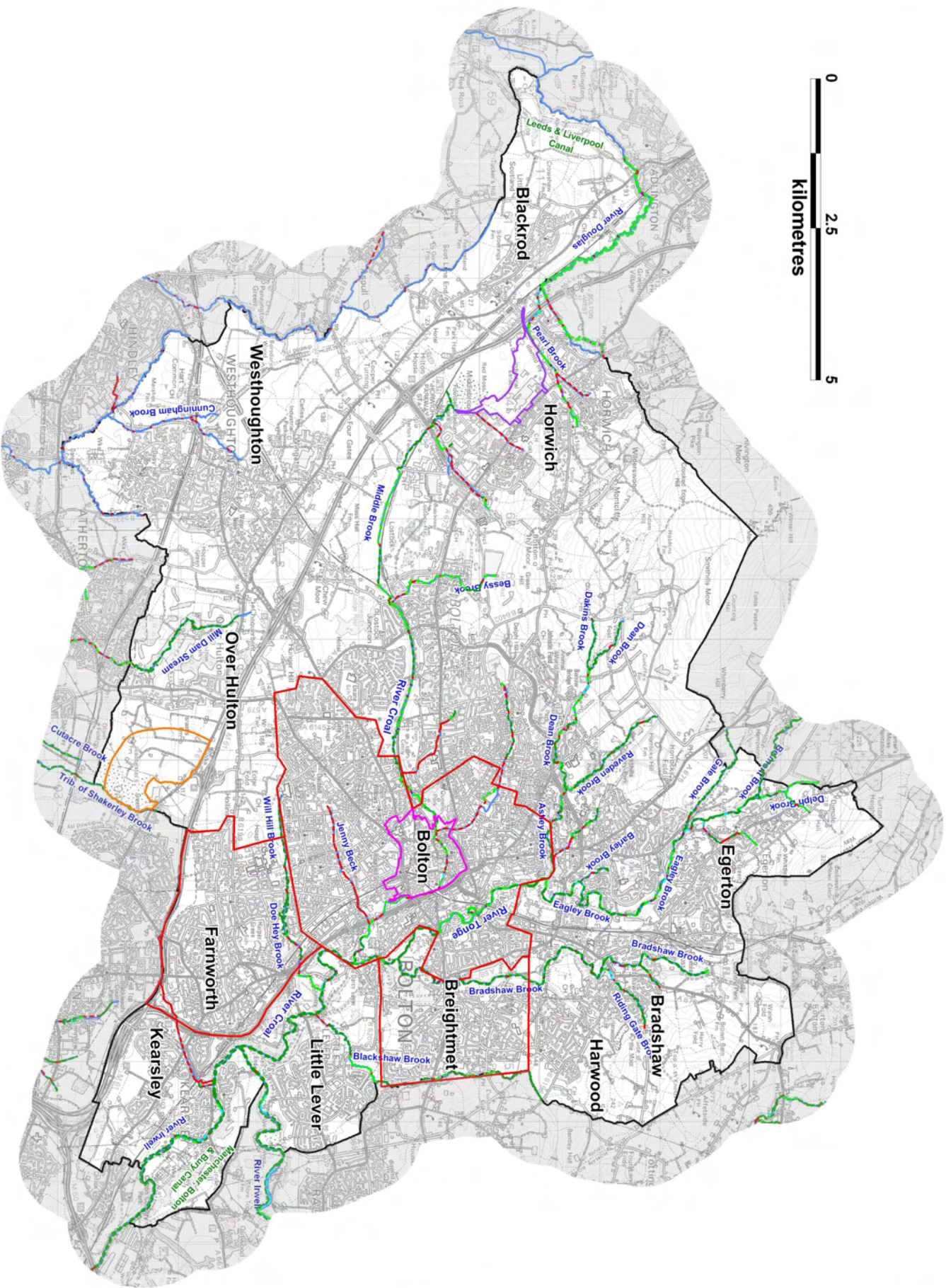
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Bolton Council

Scott Wilson
54 Princess Street
Mantoloking, Bolton
MB9 6HS

Project Number: D125481
Client: AS SHOWN
Design Stage: 20/11/09



**BOLTON LEVEL 1 UPDATE
& LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

**BOLTON OVERVIEW -
FLOOD DEFENCE
PROVISION**

- Legend**
- Bolton District Boundary
 - Bolton Town Centre Key Development Opportunities Area
 - Loco Works, Horwich Core Strategy Area
 - Cutare Development Site
 - Renewal Areas - Inner Bolton, Farnworth & Breightmet
 - River Centrelines
- Defences by Asset Type (NF/CDD)**
- Culverted Channel
 - Food Defence Structure
 - Natural Channel
 - Natural Channel
 - Barr-Food Defence Structure
 - Barr-Food Defence (manmade)
 - Raised Defence (natural)

Notes

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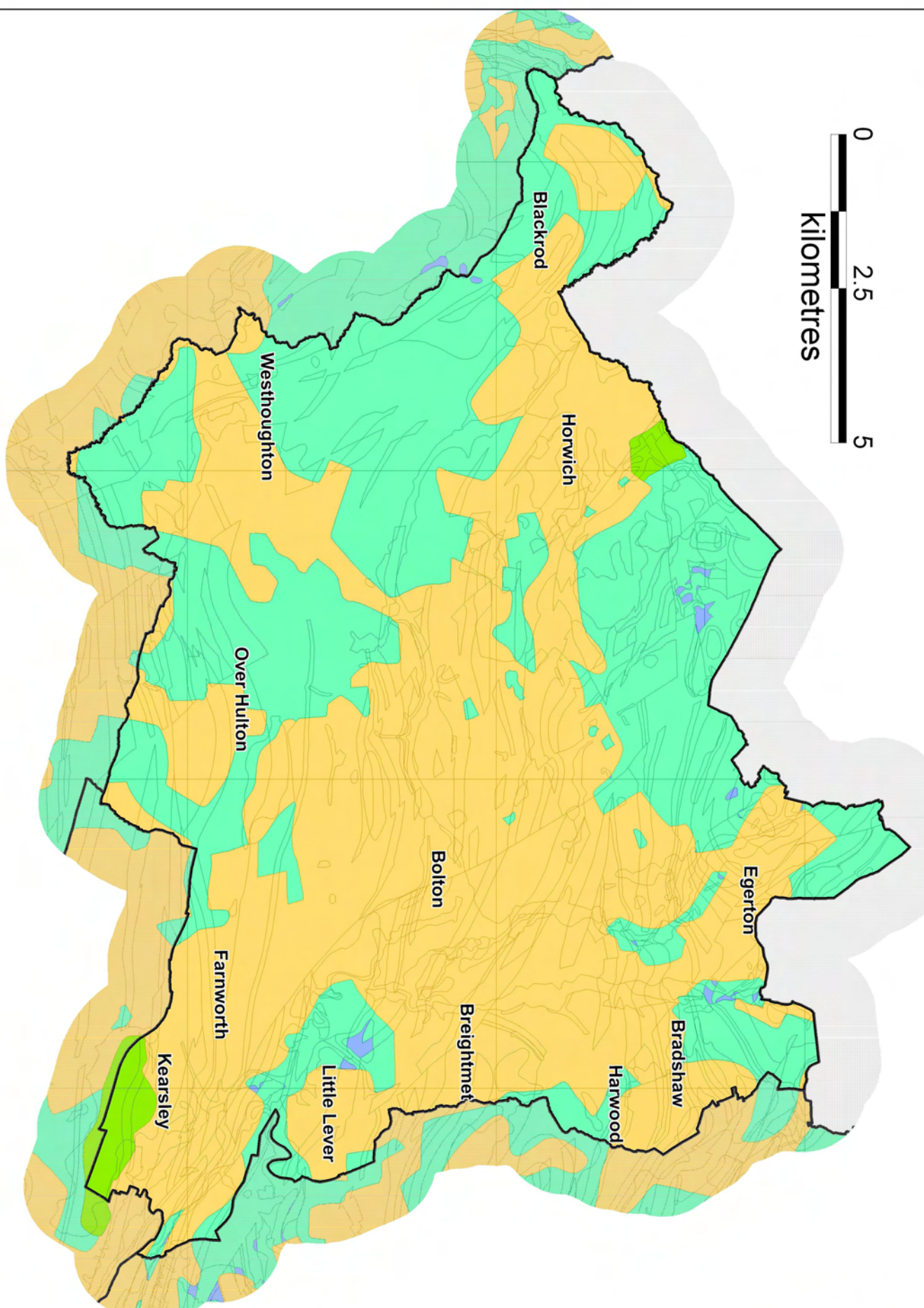
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Client	HB	Reviewed by	AR
Issue / Check	Issue / Check	Checked by	26/11/09



Scott Wilson
54 Princess Street
Mantchester
M1 6HS

D125481 - Figure 7-1



**BOLTON LEVEL 1 UPDATE
& LEVEL 2 STRATEGIC
FLOOD RISK ASSESSMENT**

SUDS MAP

- SUDS Recommendations**
- Attenuation Systems
 - Attenuation - above GDF
 - Attenuation - above GDF
 - Attenuation - investigate, potentially vulnerable aquifer
 - Infiltration Systems
 - No Data - Further Investigation Required

Methodology for deriving SFRA SUDS Map
Scott Wilson, 2009 has been prepared for
the SFRA for Strategic Flood Risk Assessment.

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PROJECT/CLIENT	DATE	STATUS
D125483	26/11/09	AS SHOWN
MC	26/11/09	AR
2009/1/09	26/11/09	26/11/09

Scott Wilson
54 Princess Street
Manchester
M1 6HS

Scott Wilson

Bolton Council