Riverside Topographic Assessment Methodology

Introduction

Six breach scenarios were previously modelled at what were deemed to be the six most high risk locations along the River Thames in the London Borough of Wandsworth, as agreed with the Environment Agency's Flood Risk Mapping and Data Management Team located at the Thames Barrier.

However, the Environment Agency subsequently raised concerns that the modelling did not adequately assess the risk of flooding as a result of breaches in other areas along the river.

Therefore an assessment of the topographical levels along the river frontage (and the areas immediately inland) was conducted in order to categorise each area of riverfront in terms of potential flooding from breaches in the flood defences.

This information can be used in conjunction with the previous, detailed breach modelling to determine the appropriate level of assessment required for locations along the River Thames in the London Borough of Wandsworth.

Overview

Many areas of the Borough can be eliminated immediately from concern because they are located well above the 1 in 1000 year tidal level. The outline of this area is shown in Figure A1 which shows the areas potentially at risk from inundation lying within the 'flood cell'.

The Digital Terrain Map (DTM) for the Borough, with a cell size of 0.5 metres by 0.5 metres, was derived during the previous breach modelling and is shown in Figure A2. This figure gives a very clear overview of the areas and categories of risk from a purely topographical point of view.

There are two notable low areas within the flood cell (the area at risk of inundation):

- Battersea Park, directly inland of the river between Chelsea Bridge and Albert Bridge; &
- The large strip of low land to the southeast of the train lines, towards Clapham.

There are also two smaller patches of low land to the west, adjacent to the river upstream of Albert Bridge.

In order for breaches in the riverfront defences to cause widespread flooding, there needs to be pathways for the floodwaters. That is, low lying areas of land that provide floodwaters with the storage volumes and potential to travel further and cause more damage and inundation. A breach at some locations may only cause a minimum amount of inundation if the areas of land adjacent to the river are relatively high (or none at all if the land is higher than the tide itself).

The aim of the this study, therefore, was to assess the levels along (and adjacent to) the riverfront, as well as the potential pathways and storage areas associated with each possible breach location, in order to associate an overall risk category to each area along the River Thames within the London Borough of Wandsworth.

Topographic Matrix

In order to assess the levels behind the flood defences along the riverfront (where a breach would occur), and the levels directly adjacent to a breach, a simple matrix was constructed along the River Thames.

The outline of the river's edge was initially traced. Then, a series of parallel lines were buffered inwards at distances of 10, 25, 50, 100, 200, 300 and 400 metres along the entire river frontage within the study area.

Figure C-6 shows a plan of the riverside area near Battersea Park. The thick black line is the river's edge itself and the parallel lines are shown in red.

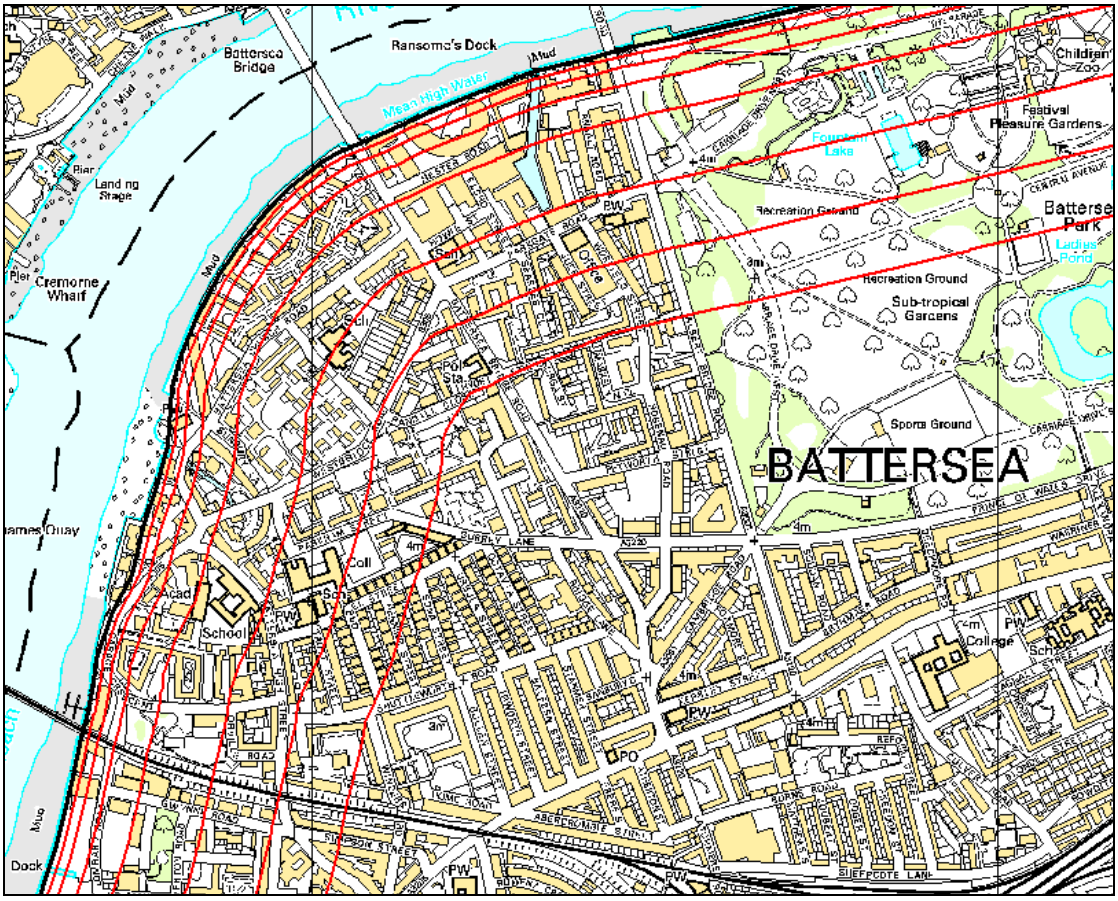

FIGURE C-6: EXAMPLE OF BUFFERED PARALLEL LINES ALONG RIVER'S EDGE

Each of the parallel lines was then divided up into 20 metre segments. As the parallel lines wind to the left and right, the lengths of the lines are approximately of equal length (plus or minus around 5-10 metres). So there are an equal number of points along the length of each line.

In total, seven sets of 264 points were defined along the 5260 metres of river frontage between Wandsworth Bridge and the edge of the Borough near Vauxhall Bridge.

The elevation (in metres above Ordnance Datum) at each of these points was then extracted from the Digital Elevation Model (DTM) data to create a basic matrix or grid for the strip of land running along the River Thames.

Analysis of this data, and visual inspection of the DTM data (see Figure A2), were the primary tools used to assess the risk category for each of the 20 metre segments of the river.

The data is presented in Tables C-5 to C-25. Note that only the data for the 10, 25, 50 and 100 metre buffers is shown as the data from further inland was not particularly used in the final process.

Data Analysis

The extracted data was initially inspected, point by point, in conjunction with the DTM data (see Figure A2) to correct any obvious errors or inconsistencies. This can occur when land excavations were in progress when the DTM data was recorded or if the DTM data is otherwise poor or incomplete.

Once all of the data was believed to be acceptable and consistent, all data where levels were above the peak 1 in 1000 year tide levels were identified. Note that the peak 1 in 1000 year tide levels vary slightly along the length of the study area (refer to the breach modelling methodology for further details). For this stretch of the river, the levels for the 1 in 1000 year event range from approximately 5.35 metres AOD near Wandsworth Bridge in the southwest to approximately 5.26 metres AOD near Vauxhall Bridge in the northeast. Although slight, this variation was taken into account.

All points that were higher than these peak levels were deemed to remain dry during a 1 in 1000 year tide event. All lengths of riverfront where the land is 'dry' at least 25-50 metres back from the river's edge were then categorised as Riverside Category 1 (RC-1).

The extent of each of these RC-1 areas was also confirmed by a more detailed investigation of the DTM data using a colour palette that only displayed data above the local 1 in 1000 year peak level. An example is shown in Figure C-7, where the blue cells are those that are higher than 5.34 metres AOD.

For all other lengths of the riverfront (that is, those that are below the 1 in 1000 year flood level) a point by point inspection was carried out to determine a suitable breach invert/sill level, should one occur, for each location. This was done using the same method as the breach modelling analyses, whereby a worst case scenario is assumed. The force of water flowing through the breach is assumed to scour out the land behind the defences to the lowest level behind the breach, within a distance of 25-50 metres inland.

The tables presented from page xv onwards also list the assumed breach levels derived above. It should be noted that a very conservative approach has been used to assess these levels in terms of the amount of scouring that could potentially occur.

FIGURE C-7: EXAMPLE OF RAISED GROUND ABOVE FLOOD LEVEL ALONG RIVER EDGE (HIGHLIGHTED IN BLUE)

Volume Calculations

To gain a general indication of the volume of water that could potential flow through breaches at the various levels determined above (as listed in Tables C-5 to C-25) a relationship was determined using the 1 in 1000 year extreme tidal curve (see Figure C-8), the Broad Crested Weir Equation and an assumed breach width of 20 metres for a range of breach levels.

The Broad Crested Weir Equation (Ref: Open Channel Hydraulics, Van Te Chow) used is listed below:

$$\text{Flow } [m^3/s] = 1.55 \times \text{breach width } [20m] \times \text{depth } [m]^{1.5}$$

The depth in this equation is calculated by subtracting the breach level from the tide level at each time interval in the tide curve shown in Figure C-8. The volumes for each time interval while the tidal level is above the breach level are summed to give a total breach volume.

Such volumetric calculations are indicative only and do not represent what would happen in a real breach scenario, nor do they concur with the results of the previous breach modelling exercises for this area. This is because in real life there are obstructions, deviations and friction losses that would significantly reduce the volumes that would flow through the 'weir' created by a breach scenario.

However, it once again provides a worst case scenario for breaches in the flood defences and can be used as a guide in determining the maximum inflow volumes anticipated from such breaches.

Figure C-9 shows the relationship derived for breach level against total *maximum* volume that could pass through a breach of that level.

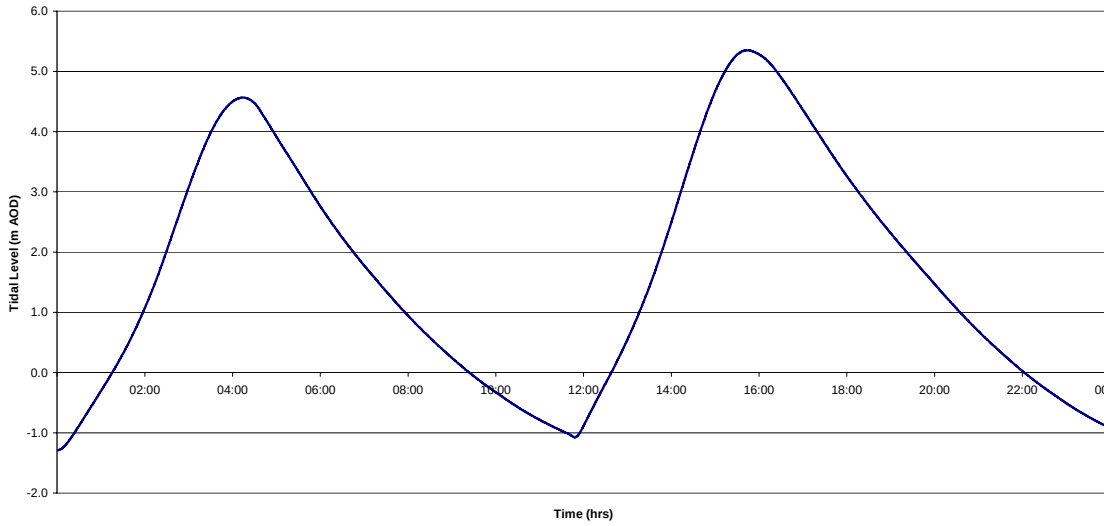

FIGURE C-8: 1 IN 1000 YEAR EXTREME TIDAL CURVE

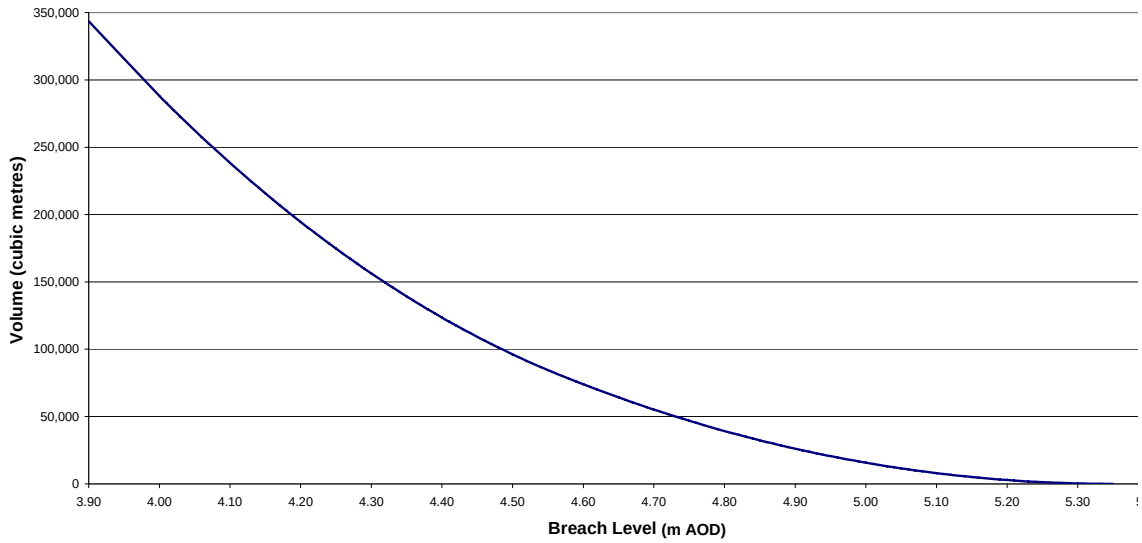

FIGURE C-9: MAXIMUM BREACH VOLUME FOR EACH ASSUMED BREACH LEVEL

Detailed Analysis

Once the assumed breach levels had been assigned for each 20 metre 'slice' of the river frontage, the sections could be further defined by riverside categories.

These riverside categories were defined principally according to their assumed breach level, according to the relationship in Table C-4 below. However, once again, a visual inspection of the DTM was also involved on a point by point basis. This required that possible flow paths and general topographical characteristics of the land behind the defences were also taken into account.

It should be noted that the riverfront categories do not in any way relate to the probability of a defence breach occurring, which has not been assessed in this study. The category has been determined purely based on topography behind the defences and represents the potential consequences of a breach occurring at each specific point.

TABLE C-4: DEFINITION OF RIVERSIDE CATEGORIES

Riverside Category	Assumed Breach Level [m AOD]	Potential Peak Depth of Flow through breach (1 in 1000 year event) [m]
RC-1	> 5.3	0
RC-2	4.8 – 5.3	0.5 – 0
RC-3	4.3 – 4.8	1.0 – 0.5
RC-4	< 4.3	>1.0

Note: Although 5.3 metres AOD has been used to define the 'RC-1' category above, the actual local 1 in 1000 year levels (5.26 to 5.35 metres AOD) were used when greater detail was required

There were now eight distinct reaches of RC-1 land (as previously defined) and several other reaches that contained areas of mixed categories (as newly defined according to Table C-4, above).

These mixed areas were then divided into ten distinct reaches of their own. These were generally defined by similar characteristics in the levels behind their defences and similar probable flood flow paths.

The location of the reaches is shown in Figure A3.

The DTM topography data and the final assessed risk category for each of the ten separate river reaches is shown in Figures A3 to A23 in Appendix A. Comparing the two figures for each section demonstrates the derivation of the categories. However, as previously mentioned, at times 'corrections' were made based on errors or inconsistencies in the DTM or by further investigation into the characteristics of the area via site photos, local knowledge or online aerial photos.

It should be noted that although there are some areas of low lying land behind the defences in Reach 6, this reach is all defined as RC-1 as there is a significant storage volume available in Battersea Park. Battersea Park is approximately 500,000 square metres in area, and the land is generally at least two metres lower than the surrounding land. Hence there is likely to be approximately 1,000,000 cubic metres of available storage in the park, which is far greater than the storage required for any realistic breach level (assuming a 20 metre breach width) – see Figure C-9. Therefore, River Reach 6 is all defined as RC-1.

Conclusion

An assessment of the risks associated with breaching of the flood defences was made for each point along the Thames River frontage within the London Borough of Wandsworth.

Each part of the river frontage was defined a riverside category according to the assumed level of any potential breach and the characteristics of the land behind the breach. The categories are not in any way based upon the probability of defence failure.

This information should be used, with case by case judgement, in conjunction with the previously completed detailed breach modelling study, in order to assess the residual risk to individual sites.

Riverside Assessment Data Tables

Notes

- Points of high ground (above 1 in 1000 year level) are highlighted in green.
- Breach locations categorised as RC-1 are italicised.
- Breach locations previously modelled as part of SFRA are coloured grey with the breach location code shown in brackets.

TABLE C-5: RIVER REACH 1

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
0	523525.4	176238.9	5.46	4.99	4.75	4.43	4.80	RC-3
1	523537.9	176224.0	5.03	4.95	3.22	5.40	4.80	RC-3
2	523550.4	176209.1	4.80	4.98	4.44	2.32	4.80	RC-3
3	523563.1	176194.3	4.71	5.03	6.04	2.24	4.70	RC-3
4	523575.9	176179.6	4.55	4.99	5.26	5.22	4.60	RC-3
5	523588.6	176164.9	4.25	4.82	5.05	5.56	4.60	RC-3
6	523601.2	176150.0	4.32	4.81	4.84	5.77	4.50	RC-3
7	523613.8	176135.1	4.22	4.47	4.59	4.97	4.45	RC-3
8	523626.2	176120.1	4.06	4.55	4.61	5.01	4.30	RC-3
9	523638.7	176105.1	4.64	4.55	4.73	5.24	4.60	RC-3
10	523651.2	176090.2	4.83	5.36	5.13	5.59	4.70	RC-3
11	523663.9	176075.4	4.40	4.92	4.98	6.01	4.40	RC-3
12	523676.6	176060.6	4.28	4.75	4.95	6.17	4.30	RC-3
13	523689.3	176045.9	4.28	4.94	5.21	6.27	4.30	RC-3
14	523702.0	176031.1	4.22	4.89	5.91	6.46	4.30	RC-3
15	523714.7	176016.3	4.17	4.88	5.35	6.58	4.30	RC-3
16	523727.3	176001.5	4.14	4.52	5.51	6.68	4.30	RC-3
17	523739.9	175986.6	4.14	4.78	5.71	6.54	4.30	RC-3
18	523752.5	175971.7	4.20	4.63	5.79	6.56	4.30	RC-3
19	523765.4	175957.1	4.13	4.68	5.41	6.74	4.30	RC-3
20	523778.7	175942.9	4.22	4.65	5.55	6.82	4.30	RC-3
21	523792.6	175929.2	4.20	4.44	5.65	6.84	4.30	RC-3
22	523806.6	175915.7	4.13	4.81	5.69	7.11	4.30	RC-3
23	523820.5	175902.0	4.25	5.21	5.84	7.06	4.30	RC-3
24	523834.3	175888.2	4.40	4.96	5.98	7.26	4.40	RC-3
25	523848.0	175874.5	4.30	4.99	5.94	7.38	4.30	RC-3
26	523861.9	175860.7	4.30	4.86	5.94	7.32	4.30	RC-3
27	523875.9	175847.2	4.27	5.00	6.18	7.33	4.30	RC-3
28	523890.2	175834.0	4.27	5.00	6.26	7.54	4.30	RC-3

29	523904.5	175820.7	4.24	5.29	6.27	7.73	4.30	RC-3
30	*523919.1*	*175807.8*	*4.35*	*5.37*	*6.54*	*7.60*		*RC-1*
31	*523934.2*	*175795.5*	*4.35*	*5.39*	*7.16*	*7.77*		*RC-1*
32	*523949.5*	*175783.4*	*4.55*	*5.51*	*7.15*	*7.72*		*RC-1*
33	*523965.2*	*175771.9*	*4.58*	*6.31*	*6.87*	*7.66*		*RC-1*
34	*523981.7*	*175761.5*	*4.46*	*6.18*	*7.01*	*7.76*		*RC-1*
35	*523997.8*	*175750.5*	*4.44*	*6.05*	*6.75*	*7.86*		*RC-1*
36	*524013.4*	*175738.9*	*4.49*	*6.02*	*6.84*	*7.98*		*RC-1*
37	*524028.7*	*175726.9*	*4.54*	*5.92*	*6.69*	*7.79*		*RC-1*
38	*524043.8*	*175714.5*	*4.87*	*6.11*	*4.93*	*7.51*		*RC-1*
39	*524058.5*	*175701.8*	*5.42*	*6.17*	*4.95*	*7.44*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-6: NO RISK REACH (BETWEEN REACHES 1 AND 2)

Point	*Easting*	*Northing*	*Extracted Level Values (m AOD)*				*Assumed Breach Height (m AOD)*	*Riverside Category*
			A (10m)	*B (25m)*	*C (50m)*	*D (100m)*		
40	*524073.4*	*175688.5*	*5.54*	*6.19*	*6.72*	*7.63*		*RC-1*
41	*524087.2*	*175674.0*	*6.40*	*6.16*	*5.88*	*7.81*		*RC-1*
42	*524102.7*	*175661.2*	*7.11*	*5.63*	*7.08*	*7.61*		*RC-1*
43	*524119.4*	*175650.1*	*7.70*	*6.98*	*5.34*	*7.49*		*RC-1*
44	*524136.6*	*175639.8*	*8.12*	*8.18*	*5.02*	*6.93*		*RC-1*
45	*524153.6*	*175629.1*	*5.54*	*8.42*	*7.61*	*6.48*		*RC-1*
46	*524170.3*	*175617.9*	*5.39*	*5.58*	*7.43*	*6.29*		*RC-1*
47	*524187.1*	*175607.0*	*5.59*	*6.06*	*7.17*	*6.65*		*RC-1*
48	*524204.4*	*175596.7*	*5.84*	*6.31*	*7.16*	*7.11*		*RC-1*
49	*524222.1*	*175587.3*	*7.16*	*7.18*	*7.13*	*6.99*		*RC-1*
50	*524240.1*	*175578.4*	*6.51*	*7.12*	*7.18*	*7.85*		*RC-1*
51	*524258.2*	*175569.8*	*5.55*	*5.85*	*6.49*	*8.29*		*RC-1*
52	*524276.4*	*175561.4*	*5.35*	*5.43*	*6.52*	*8.44*		*RC-1*
53	*524294.7*	*175553.0*	*6.02*	*5.84*	*6.40*	*8.68*		*RC-1*
54	*524313.0*	*175544.8*	*6.44*	*6.38*	*7.38*	*8.79*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-7: RIVER REACH 2

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
55	524330.3	175536.6	6.93	6.77	8.63	8.91		RC-1
56	524348.0	175528.3	4.56	6.68	8.61	9.05		RC-1
57	524365.7	175520.0	4.77	6.59	8.61	8.99		RC-1
58	524383.4	175511.6	4.53	6.14	8.94	9.01		RC-1
59	524401.0	175503.2	4.79	5.92	8.77	9.17		RC-1
60	524418.6	175494.8	5.04	6.22	8.29	9.06		RC-1
61	524436.3	175486.4	5.12	7.58	11.47	9.19		RC-1
62	524453.9	175478.0	5.16	5.84	8.78	9.38		RC-1
63	524471.6	175469.8	4.77	6.48	8.70	9.05		RC-1
64	524489.4	175461.6	5.14	6.58	8.86	8.65		RC-1
65	524507.1	175453.4	5.42	6.47	7.87	8.82		RC-1
66	524524.8	175445.1	5.07	6.14	8.68	8.73		RC-1
67	524542.4	175436.6	4.94	6.39	8.68	8.14		RC-1
68	524559.9	175427.9	4.91	6.19	7.57	7.89		RC-1
69	524577.4	175419.2	4.95	6.15	8.80	7.81		RC-1
70	524595.0	175410.7	5.31	5.76	8.61	8.26		RC-1
71	524612.8	175402.7	5.10	5.83	6.44	7.22		RC-1
72	524630.8	175395.2	5.05	5.55	6.88	6.22		RC-1
73	524649.1	175388.3	5.11	5.18	5.59	7.50		RC-1
74	524667.5	175381.8	5.14	5.31	5.77	7.66		RC-1
75	524686.1	175375.8	5.11	5.23	6.06	8.01		RC-1
76	524704.8	175370.0	4.96	5.22	6.21	8.26		RC-1
77	524723.5	175364.5	4.97	5.20	6.33	8.49		RC-1
78	524742.3	175359.2	4.99	5.12	6.34	8.71		RC-1
79	524761.2	175353.9	5.06	5.13	6.41	8.77		RC-1
80	524780.0	175348.8	5.08	5.12	6.51	8.77		RC-1
81	524798.9	175343.7	4.90	5.03	6.54	8.77		RC-1
82	524817.8	175338.6	5.02	4.93	6.72	8.60		RC-1

83	*524836.7*	*175333.7*	*4.63*	*4.75*	*6.79*	*8.45*		*RC-1*
84	*524855.6*	*175329.0*	*4.81*	*4.56*	*6.71*	*8.34*		*RC-1*
85	*524874.6*	*175324.5*	*4.65*	*4.20*	*6.76*	*8.26*		*RC-1*
86	*524893.7*	*175320.5*	*4.47*	*4.43*	*6.42*	*8.01*		*RC-1*
87	*524912.9*	*175316.8*	*4.75*	*4.38*	*6.04*	*7.58*		*RC-1*
88	*524932.1*	*175313.2*	*4.62*	*4.37*	*5.65*	*7.27*		*RC-1*
89	*524951.3*	*175309.5*	*4.85*	*4.38*	*5.57*	*7.02*		*RC-1*
90	*524970.5*	*175305.7*	*4.64*	*4.42*	*5.52*	*6.79*		*RC-1*
91	*524989.7*	*175301.9*	*4.72*	*4.92*	*5.45*	*6.40*		*RC-1*
92	525008.9	175298.4	4.73	4.52	5.26	6.21	4.90	RC-2
93	525028.2	175295.5	4.73	4.92	5.21	6.07	5.00	RC-2
94	525047.6	175293.5	5.36	5.28	5.13	5.75	5.20	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-8: RIVER REACH 3

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
95	*525067.2*	*175290.9*	*5.12*	*6.04*	*5.84*	*6.19*		*RC-1*
96	*525086.1*	*175288.6*	*6.21*	*6.44*	*6.71*	*5.74*		*RC-1*
97	*525105.1*	*175286.3*	*5.60*	*6.54*	*4.96*	*5.54*		*RC-1*
98	*525124.0*	*175284.0*	*5.47*	*6.36*	*5.00*	*5.43*		*RC-1*
99	525143.0	175281.8	5.38	4.90	4.13	5.43	4.90	RC-2
100	525161.9	175279.6	5.32	4.84	4.47	5.33	4.80	RC-2
101	*525180.9*	*175277.4*	*5.47*	*5.72*	*5.92*	*5.23*		*RC-1*
102	*525197.7*	*175282.3*	*5.81*	*5.51*	*5.87*	*4.94*		*RC-1*
103	*525213.0*	*175291.2*	*5.77*	*6.33*	*6.92*	*5.39*		*RC-1*
104	*525232.7*	*175291.2*	*6.42*	*7.66*	*5.72*	*6.28*		*RC-1*
105	*525252.3*	*175291.3*	*6.70*	*7.63*	*7.66*	*7.29*		*RC-1*
106	*525271.9*	*175291.6*	*6.89*	*7.60*	*7.59*	*6.98*		*RC-1*
107	*525291.6*	*175292.2*	*6.65*	*7.62*	*7.65*	*7.16*		*RC-1*
108	*525311.2*	*175293.3*	*7.25*	*8.03*	*7.39*	*7.29*		*RC-1*
109	*525330.8*	*175294.8*	*6.78*	*7.79*	*7.40*	*7.12*		*RC-1*

110	*525350.3*	*175296.6*	*6.80*	*7.62*	*7.38*	*6.83*		*RC-1*
111	*525369.9*	*175298.4*	*6.60*	*6.95*	*7.06*	*6.86*		*RC-1*
112	*525389.5*	*175299.9*	*6.50*	*6.72*	*6.94*	*6.76*		*RC-1*
113	*525409.1*	*175301.1*	*6.49*	*6.86*	*6.79*	*6.44*		*RC-1*
114	*525428.7*	*175301.9*	*6.38*	*6.66*	*6.52*	*6.53*		*RC-1*
115	*525448.3*	*175302.7*	*6.33*	*6.48*	*6.48*	*6.35*		*RC-1*
116	525468.0	175303.8	*River Wandle confluence (P1)*					
117	525487.5	175305.2	*River Wandle confluence (P1)*					
118	525507.1	175307.2	5.50	5.11	5.41	5.38	5.00	RC-2
119	525526.6	175309.5	5.46	5.15	4.94	5.08	5.00	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-9: NO RISK REACH (BETWEEN REACHES 3 AND 4)

Point	*Easting*	*Northing*	*Extracted Level Values (m AOD)*				*Assumed Breach Height (m AOD)*	*Riverside Category*
			A (10m)	*B (25m)*	*C (50m)*	*D (100m)*		
120	*525545.8*	*175313.0*	*5.95*	*6.08*	*6.08*	*5.97*		*RC-1*
121	*525565.4*	*175316.6*	*5.78*	*6.09*	*5.93*	*6.71*		*RC-1*
122	*525585.0*	*175320.3*	*5.90*	*6.10*	*6.15*	*7.07*		*RC-1*
123	*525604.5*	*175324.0*	*5.97*	*6.10*	*6.04*	*6.78*		*RC-1*
124	*525624.1*	*175327.7*	*5.93*	*6.09*	*6.09*	*6.79*		*RC-1*
125	*525643.7*	*175331.4*	*5.93*	*6.13*	*5.96*	*6.77*		*RC-1*
126	*525663.2*	*175335.0*	*5.95*	*6.06*	*6.11*	*6.81*		*RC-1*
127	*525682.8*	*175338.6*	*6.00*	*6.05*	*6.12*	*6.10*		*RC-1*
128	*525702.4*	*175342.2*	*6.72*	*6.25*	*6.12*	*6.01*		*RC-1*
129	*525722.0*	*175346.0*	*6.29*	*5.90*	*5.98*	*6.08*		*RC-1*
130	*525741.4*	*175350.2*	*6.12*	*6.36*	*6.93*	*6.78*		*RC-1*
131	*525760.7*	*175354.9*	*5.85*	*6.42*	*6.54*	*6.47*		*RC-1*
132	*525779.9*	*175360.2*	*5.83*	*6.08*	*6.30*	*6.54*		*RC-1*
133	*525799.0*	*175365.9*	*5.85*	*5.91*	*6.07*	*6.40*		*RC-1*
134	*525818.0*	*175372.0*	*5.83*	*5.98*	*6.30*	*6.93*		*RC-1*
135	*525836.8*	*175378.5*	*5.74*	*6.05*	*6.44*	*6.92*		*RC-1*
136	*525855.6*	*175385.2*	*5.77*	*6.29*	*6.66*	*6.76*		*RC-1*

137	*525874.3*	*175392.1*	*5.84*	*6.83*	*6.79*	*6.89*		*RC-1*
138	*525892.9*	*175399.2*	*5.87*	*6.61*	*5.99*	*6.79*		*RC-1*
139	*525911.4*	*175406.5*	*5.87*	*5.80*	*5.48*	*6.00*		*RC-1*
140	*525929.9*	*175413.9*	*6.24*	*5.68*	*5.56*	*5.34*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-10: RIVER REACH 4

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
141	525949.1	175421.5	5.23	4.48	4.87	4.97	4.50	RC-3
142	525968.3	175429.0	4.47	4.62	4.50	5.09	4.50	RC-3
143	525986.9	175437.6	4.99	4.67	4.37	5.35	4.60	RC-3
144	526004.9	175447.6	4.57	4.62	4.20	5.95	4.50	RC-3
145	526022.6	175458.1	4.65	4.30	5.14	6.58	4.50	RC-3
*146**	*526040.4*	*175468.4*	*5.57*	*8.57*	*7.59*	*6.36*	*4.84*	*RC-1*
147*	526058.0	175479.0	*4.58*	*4.56*	*4.54*	*4.75*	*4.54*	***RC-1****
148*	526075.4	175490.2	*4.56*	*4.62*	*4.95*	*4.89*	*4.60*	***RC-1****
149*	526092.5	175501.5	*4.38*	*4.42*	*4.62*	*4.13*	*4.30*	***RC-1****
150*	526109.6	175513.0	*4.03*	*4.14*	*4.45*	*4.11*	*4.30*	***RC-1****
151*	526126.6	175524.6	*4.37*	*4.27*	*4.30*	*4.56*	*4.30*	***RC-1****
152*	526143.7	175536.1	*4.28*	*4.30*	*4.30*	*5.08*	*4.30*	***RC-1****
153*	526160.8	175547.5	*4.66*	*4.60*	*4.60*	*4.89*	*4.60*	***RC-1****
154*	526177.9	175558.8	*4.69*	*4.60*	*4.60*	*4.43*	*4.60*	***RC-1****
155*	526195.2	175570.0	*4.62*	*4.60*	*4.60*	*5.10*	*4.60*	***RC-1****
156*	526212.7	175580.9	*4.70*	*4.60*	*4.60*	*4.54*	*4.60*	***RC-1****
157*	526230.2	175591.8	*4.52*	*4.60*	*4.60*	*4.70*	*4.60*	***RC-1****
158*	526247.2	175603.3	*4.67*	*4.60*	*4.62*	*4.47*	*4.60*	***RC-1****
159	526263.4	175616.0	4.82	4.98	5.00	4.85	4.85	RC-2
160	526278.6	175629.9	4.85	5.26	5.31	4.45	4.85	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

* It has been agreed the Environment Agency that the LiDAR data is out of date for these points due to recent construction of new riverside development which has raised the riverside ground levels, therefore an RC-1 category has been assigned.

TABLE C-11: NO RISK REACH (BETWEEN REACHES 4 AND 5)

Point	*Easting*	*Northing*	*Extracted Level Values (m AOD)*				*Assumed Breach Height (m AOD)*	*Riverside Category*
			A (10m)	*B (25m)*	*C (50m)*	*D (100m)*		
161	*526293.1*	*175644.1*	*5.38*	*5.58*	*5.22*	*4.41*		*RC-1*
162	*526306.6*	*175659.1*	*5.50*	*6.39*	*5.97*	*4.87*		*RC-1*
163	*526320.3*	*175673.9*	*5.68*	*6.70*	*6.08*	*4.78*		*RC-1*
164	*526334.2*	*175688.6*	*5.53*	*6.77*	*6.40*	*5.00*		*RC-1*
165	*526348.3*	*175703.0*	*5.41*	*7.00*	*6.16*	*5.10*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-12: RIVER REACH 5

Point	**Easting**	**Northing**	**Extracted Level Values (m AOD)**				**Assumed Breach Height (m AOD)**	**Riverside Category**
			A (10m)	**B (25m)**	**C (50m)**	**D (100m)**		
166	526360.6	175717.2	4.74	4.62	2.53	5.77	4.80	RC-2
167	526373.1	175733.4	4.76	5.03	5.29	5.71	4.80	RC-2
168	526385.8	175749.5	4.81	5.38	5.33	5.63	4.80	RC-2
169	526398.8	175765.4	4.79	5.52	5.39	5.14	4.87	RC-2
170	526411.5	175781.5	4.83	5.51	5.21	5.11	4.89	RC-2
171	526423.4	175798.2	4.88	5.19	5.08	5.08	4.80	RC-2
172	526434.8	175815.2	4.96	5.47	5.36	5.09	4.94	RC-2
173	526445.8	175832.5	4.91	5.41	5.34	5.15	4.93	RC-2
174	526456.3	175850.2	4.82	5.21	5.02	5.03	4.87	RC-2
175	526465.9	175868.3	4.85	5.22	5.27	5.17	4.85	RC-2
176	526475.7	175885.3	4.86	4.95	4.99	5.01	4.90	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-13: RIVER REACH 6

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
177	526483.3	175903.4	4.65	4.39	4.58	4.54	4.50	RC-3
178	526490.9	175921.4	4.60	4.25	4.36	4.64	4.30 (P2)	RC-3
179	526498.4	175939.5	4.85	4.51	4.30	4.57	4.30 (P2)	RC-3
180	526505.9	175957.7	4.94	4.94	4.45	4.26	4.90	RC-2
181	526513.4	175975.8	5.00	5.22	4.84	4.50	4.90	RC-2
182	526521.2	175993.8	5.05	5.06	4.96	4.68	5.00	RC-2
183	526529.2	176011.7	5.14	5.02	4.97	4.55	5.00	RC-2
184	526537.4	176029.5	5.24	5.01	4.86	4.77	5.00	RC-2
185	526545.2	176047.5	5.10	4.92	4.84	5.09	4.90	RC-2
186	526552.2	176065.9	5.18	5.00	4.72	4.97	5.00	RC-2
187	526559.4	176084.2	5.37	5.24	5.00	4.70	5.10	RC-2
188	526568.4	176101.6	5.40	5.02	4.83	4.47	5.00	RC-2
189	526579.7	176117.6	5.25	4.82	4.41	4.32	4.90	RC-2
190	526590.8	176133.8	5.26	4.91	4.50	4.30	4.90	RC-2
191	526599.3	176151.4	5.25	5.11	4.76	3.99	5.10	RC-2
192	526605.9	176170.0	5.27	5.10	4.77	4.13	5.10	RC-2
193	526612.0	176188.6	5.31	5.11	4.49	4.21	5.12	RC-2
194	526618.5	176207.1	5.36	5.17	4.72	4.23	5.20	RC-2
195	526625.0	176225.6	5.47	5.57	5.11	4.29	5.30	RC-2
196	526630.9	176244.3	5.58	5.57	4.87	4.64	5.30	RC-2
197	526636.0	176263.3	5.44	5.12	5.09	4.84	5.20	RC-2
198	526640.6	176282.3	5.00	5.00	3.96	5.04	5.00	RC-2
199	526645.0	176301.4	5.00	5.00	4.77	4.75	5.00	RC-2
200	526649.3	176320.6	5.00	5.00	4.86	4.66	5.00	RC-2
201	526653.5	176339.7	4.70	5.00	4.97	4.59	4.70	RC-3
202	526657.6	176358.9	4.50	4.70	4.74	4.17	4.50	RC-3
203	526661.7	176378.1	4.50	4.67	4.73	4.34	4.50	RC-3

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-14: NO RISK REACH (BETWEEN REACHES 6 AND 7)

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
204	*526666.4*	*176399.2*	*7.00*	*7.12*	*4.67*	*8.38*		*RC-1*
205	*526671.2*	*176418.3*	*6.85*	*5.05*	*4.63*	*9.79*		*RC-1*
206	*526675.7*	*176437.5*	*6.26*	*5.84*	*4.58*	*6.13*		*RC-1*
207	*526679.8*	*176456.8*	*7.13*	*5.82*	*4.62*	*5.19*		*RC-1*
208	*526683.4*	*176476.2*	*6.36*	*5.29*	*4.75*	*5.68*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-15: RIVER REACH 7

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
209	526687.5	176496.7	5.03	4.69	4.69	4.79	4.65	RC-3
210	526689.2	176517.7	4.23	4.62	4.78	5.00	4.60	RC-3
211	526693.3	176538.4	4.21	4.61	4.74	4.84	4.60	RC-3
212	526699.8	176558.5	4.54	4.68	4.83	4.72	4.70	RC-3
213	526708.0	176578.1	4.72	4.54	4.68	4.57	4.70	RC-3
214	526717.7	176597.0	4.66	4.68	4.81	4.61	4.70	RC-3
215	526728.1	176615.5	4.58	4.59	4.79	4.72	4.60	RC-3
216	526737.6	176634.3	4.77	4.86	4.33	4.72	4.80	RC-3
217	526744.9	176653.9	4.60	5.39	5.11	4.90	4.80	RC-3
218	*526750.1*	*176674.3*	*5.63*	*5.31*	*4.84*	*4.58*		*RC-1*
219	*526754.7*	*176695.0*	*5.51*	*5.38*	*4.89*	*4.57*		*RC-1*
220	*526760.0*	*176715.5*	*4.53*	*5.57*	*5.14*	*4.60*		*RC-1*
221	526766.6	176735.6	3.93	5.12	4.88	4.56	4.90	RC-2
222	526773.4	176755.6	5.00	5.02	4.82	4.35	4.90	RC-2
223	526779.5	176775.7	4.83	4.81	4.41	4.45	4.20 (P3)	RC-4
224	526784.5	176796.2	4.64	4.80	4.69	3.93	4.20 (P3)	RC-4

225	526789.1	176816.9	5.15	5.06	4.01	4.33	4.70	RC-3

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-16: NO RISK REACH (BETWEEN REACHES 7 AND 8)

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
226	526793.4	176835.1	5.70	5.18	5.06	4.30		RC-1
227	526793.5	176854.9	5.27	5.40	5.20	4.40		RC-1
228	526794.2	176874.7	4.94	5.19	5.24	4.58		RC-1
229	526795.9	176894.4	4.75	5.40	5.27	5.10		RC-1
230	526798.8	176913.8	4.63	5.39	5.79	5.16		RC-1
231	526803.5	176932.9	5.12	5.57	5.90	5.01		RC-1
232	526809.6	176951.7	5.01	5.69	6.07	5.15		RC-1
233	526816.3	176970.3	4.91	5.74	6.11	4.98		RC-1
234	526823.3	176988.7	5.39	5.91	5.69	4.53		RC-1
235	526830.8	177006.9	5.18	5.18	4.75	4.50		RC-1
236	526838.8	177024.9	5.23	5.69	4.81	4.46		RC-1
237	526847.6	177042.6	5.19	5.61	4.73	4.19		RC-1
238	526857.0	177059.9	5.29	5.45	5.31	4.37		RC-1
239	526866.9	177076.9	5.39	5.38	5.35	4.15		RC-1
240	526877.4	177093.7	5.20	5.59	5.28	4.22		RC-1
241	526888.2	177110.1	5.25	5.50	4.93	4.13		RC-1
242	526899.5	177126.3	5.30	5.47	4.89	4.36		RC-1
243	526911.1	177142.2	5.21	5.51	5.46	4.26		RC-1
244	526923.2	177157.8	5.19	5.59	5.39	4.41		RC-1
245	526936.0	177172.8	5.21	5.70	4.96	4.46		RC-1
246	526949.6	177187.1	5.30	5.60	4.97	4.30		RC-1
247	526963.9	177200.6	5.30	5.42	5.09	4.46		RC-1
248	526978.7	177213.7	5.22	5.58	5.28	4.38		RC-1
249	526993.9	177226.3	5.15	5.64	5.22	4.21		RC-1
250	527009.7	177238.1	5.27	5.65	5.12	4.16		RC-1
251	527026.4	177248.5	5.29	5.98	5.82	4.53		RC-1

252	*527043.9*	*177257.6*	*5.80*	*6.81*	*6.27*	*4.56*		*RC-1*
253	*527061.9*	*177265.5*	*7.11*	*6.54*	*5.64*	*4.21*		*RC-1*
254	*527080.4*	*177272.5*	*6.30*	*6.19*	*6.40*	*4.13*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-17: RIVER REACH 8

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
255	527098.8	177280.0	4.82	4.42	4.26	3.95	4.40	RC-3
256	527114.6	177288.0	4.68	4.47	4.36	3.95	4.45	RC-3
257	527130.5	177295.8	5.39	4.75	4.41	3.92	4.90	RC-2
258	527146.6	177303.1	5.31	5.01	4.52	3.96	5.00	RC-2
259	527162.9	177310.0	5.00	5.18	4.79	3.95	4.90	RC-2
260	527179.3	177316.6	5.57	4.75	4.70	3.78	4.80	RC-2
261	527195.8	177323.1	4.98	5.21	4.70	4.00	5.20	RC-2
262	527212.3	177329.5	5.03	5.12	4.59	4.29	5.10	RC-2
263	527228.7	177336.0	5.34	4.99	4.54	4.49	5.00	RC-2
264	527245.1	177342.8	5.19	4.82	4.42	4.64	4.90	RC-2
265	*527261.4*	*177349.7*	*5.70*	*5.70*	*5.57*	*4.73*		*RC-1*
266	*527277.7*	*177356.5*	*5.75*	*5.73*	*5.25*	*4.66*		*RC-1*
267	*527294.2*	*177362.9*	*5.74*	*5.71*	*3.74*	*4.70*		*RC-1*
268	527310.9	177368.8	5.76	5.58	4.70	4.56	(S2)	RC-4
269	527327.8	177373.9	5.07	4.81	4.10	4.81	4.80	RC-2
270	527345.0	177378.4	5.15	5.07	5.36	4.01	5.10	RC-2
271	527362.2	177382.3	5.04	5.10	5.22	4.94	5.10	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-18: NO RISK REACH (BETWEEN REACHES 8 AND 9)

Point	*Easting*	*Northing*	*Extracted Level Values (m AOD)*				*Assumed Breach Height (m AOD)*	*Riverside Category*
			A (10m)	*B (25m)*	*C (50m)*	*D (100m)*		
272	*527380.6*	*177387.2*	*4.99*	*5.33*	*5.28*	*4.82*		*RC-1*
273	*527402.4*	*177392.5*	*5.66*	*5.48*	*5.15*	*4.55*		*RC-1*
274	*527424.3*	*177398.1*	*5.53*	*5.87*	*5.34*	*4.50*		*RC-1*
275	*527446.2*	*177403.3*	*6.69*	*6.37*	*5.44*	*4.27*		*RC-1*
276	*527468.2*	*177407.8*	*5.42*	*5.62*	*4.77*	*4.32*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-19: RIVER REACH 9

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
277	527486.3	177411.8	5.36	4.71	4.08	3.75	4.50	RC-2
278	527505.9	177415.8	5.54	4.21	4.17	4.59	4.20	RC-2
279	527525.4	177420.0	4.74	4.49	4.96	2.78	4.70	RC-2
280	527544.9	177424.3	4.95	4.32	5.34	3.00	4.30	RC-2
281	527564.4	177428.8	4.81	4.30	4.25	2.91	4.30	RC-2
282	527583.8	177433.4	4.75	4.26	4.08	2.91	4.30	RC-2
283	527603.2	177438.0	4.73	4.39	5.17	3.70	4.55	RC-2
284	527622.7	177442.7	4.90	4.37	4.36	4.53	4.45	RC-2
285	527642.1	177447.4	5.02	4.43	4.26	4.26	4.50	RC-2
286	527661.5	177452.0	4.95	4.68	4.22	4.13	4.60	RC-2
287	527681.0	177456.6	4.98	4.78	4.30	4.11	4.81	RC-2
288	527700.4	177461.2	5.08	4.88	4.69	3.62	4.85	RC-2
289	527719.8	177465.8	5.02	4.94	4.86	4.34	4.90	RC-2
290	527739.3	177470.4	5.16	4.98	4.75	3.59	4.90	RC-2
291	527758.7	177474.9	5.14	5.03	4.75	3.59	4.90	RC-2
292	527778.2	177479.5	5.10	5.06	4.64	2.90	4.90	RC-2
293	527797.6	177484.0	5.02	5.02	4.69	2.58	5.00	RC-2

294	527817.1	177488.6	5.04	4.88	4.72	4.91	4.90	RC-2
295	527836.5	177493.2	5.10	4.92	4.53	5.67	4.90	RC-2
296	527856.0	177497.8	5.16	5.05	4.68	4.05	5.00	RC-2
297	527875.4	177502.4	5.22	5.06	4.81	4.66	5.00	RC-2
298	527894.8	177507.1	5.08	5.07	4.94	5.01	5.00	RC-2
299	527914.3	177511.7	5.19	5.43	5.12	4.68	5.20	RC-2
300	527933.7	177516.4	5.36	5.43	5.16	4.70	5.20	RC-2
301	527953.1	177521.1	5.08	5.16	5.01	5.10	5.05	RC-2
302	527972.5	177525.9	5.10	5.22	4.93	4.84	5.09	RC-2
303	527991.9	177530.6	5.15	4.97	6.01	4.03	5.00	RC-2
304	528011.3	177535.3	5.13	5.03	4.71	4.37	5.00	RC-2
305	528030.7	177540.1	5.17	5.02	4.64	5.09	5.00	RC-2
306	528050.1	177544.8	5.04	4.86	4.76	3.19	4.90	RC-2
307	528069.5	177549.5	5.13	4.98	4.53	3.25	5.00	RC-2
308	528089.0	177554.3	5.21	5.13	4.91	3.42	5.10	RC-2
309	528108.4	177559.0	5.07	5.16	4.85	3.53	5.07	RC-2
310	528127.8	177563.7	5.08	5.09	4.93	3.87	5.08	RC-2
311	528147.2	177568.4	5.06	4.91	5.08	5.14	5.00	RC-2
312	528166.6	177573.1	5.03	5.07	4.92	4.00	5.03	RC-2
313	528186.0	177577.7	4.99	4.82	4.70	4.71	4.94	RC-2
314	528205.5	177582.4	5.20	5.16	4.89	4.31	5.10	RC-2
315	528224.9	177587.0	5.17	5.15	4.84	4.72	5.11	RC-2
316	528244.4	177591.6	5.16	5.11	4.74	5.38	5.10	RC-2
317	528263.8	177596.1	5.22	5.16	5.05	4.52	5.10	RC-2
318	528283.3	177600.7	5.20	5.13	4.95	3.99	5.00	RC-2
319	528302.7	177605.2	5.19	5.03	5.10	3.77	5.10	RC-2
320	528322.2	177609.8	5.04	5.06	5.58	3.65	5.04	RC-2
321	528341.6	177614.4	5.03	5.19	4.65	4.38	5.03	RC-2
322	528361.0	177619.0	5.14	5.28	4.50	3.59	5.14	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-20: NO RISK REACH (BETWEEN REACHES 9 AND 10)

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
323	528378.8	177623.9	5.37	5.40	6.09	5.98		RC-1
324	528400.1	177630.3	5.35	5.72	5.27	8.40		RC-1
325	528421.4	177636.6	5.62	6.08	5.95	7.76		RC-1
326	528442.8	177642.6	5.82	6.75	6.76	8.70		RC-1
327	528464.2	177648.5	5.80	7.58	7.16	8.13		RC-1
328	528485.7	177654.1	5.80	8.60	7.66	4.76		RC-1
329	528507.2	177659.7	5.88	9.04	8.00	9.01		RC-1
330	528528.7	177665.2	6.03	7.53	8.59	10.92		RC-1
331	528550.2	177670.9	6.00	8.37	9.28	7.33		RC-1
332	528571.7	177676.7	10.44	10.09	9.46	9.02		RC-1
333	528593.1	177682.6	9.61	5.21	5.06	5.83		RC-1

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-21: RIVER REACH 10

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
334	528612.6	177684.3	5.02	4.78	2.80	3.32	3.90	RC-1*
335	528631.7	177685.7	5.03	4.46	2.96	2.95	3.90	RC-1*
336	528650.9	177686.5	4.96	3.69	2.78	3.01	3.90	RC-1*
337	528670.0	177686.3	4.75	4.64	2.72	3.07	3.90	RC-1*
338	528689.2	177685.7	5.01	3.76	2.94	3.11	3.90	RC-1*
339	528708.4	177685.4	5.07	5.11	11.12	10.78		RC-1
340	528727.5	177685.7	10.95	10.84	10.97	10.86		RC-1
341	528746.7	177686.2	10.96	11.03	11.03	11.01		RC-1
342	528765.8	177686.7	4.77	4.81	4.78	3.47	4.70	RC-3
343	528785.0	177686.8	4.74	4.75	4.75	3.44	4.30	RC-3
344	528804.2	177686.0	4.81	4.90	4.70	4.30	4.30 (S3)	RC-3
345	528823.2	177683.7	4.81	4.77	4.69	4.25	4.30 (S3)	RC-3

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

* It has been agreed the Environment Agency that the LiDAR data is out of date for these points due to recent construction of new riverside development which has raised the riverside ground levels, therefore an RC-1 category has been assigned.

TABLE C-22: NO RISK REACH (BETWEEN REACHES 10 AND 11)

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
346	528841.5	177680.6	5.43	5.18	4.91	4.24		RC-1
347	528860.4	177677.1	5.41	5.37	4.85	4.13		RC-1
348	528879.3	177673.6	5.23	5.47	5.00	4.26		RC-1
349	528898.2	177670.2	5.29	5.49	4.95	4.20		RC-1
350	528917.2	177667.0	5.42	5.37	5.03	4.20		RC-1
351	528936.2	177663.9	5.44	5.36	4.97	4.20		RC-1
352	528955.2	177660.9	4.90	5.34	4.78	4.20		RC-1
353	528974.2	177657.6	5.41	5.34	4.86	4.20		RC-1

354	*528993.0*	*177653.8*	*5.42*	*5.32*	*4.86*	*4.20*		*RC-1*
355	*529011.7*	*177649.2*	*5.66*	*5.77*	*5.02*	*4.20*		*RC-1*
356	*529030.1*	*177643.6*	*5.41*	*3.93*	*6.05*	*4.15*		*RC-1*

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-23: RIVER REACH 11

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
357	529048.4	177639.9	5.02	4.97	4.73	4.09	4.90	RC-2
358	529068.7	177637.1	5.13	5.06	4.65	4.32	5.00	RC-2
359	529088.7	177633.3	5.27	5.22	4.82	4.38	5.10	RC-2
360	*529108.4*	*177627.7*	*5.43*	*5.65*	*5.65*	*4.36*		*RC-1*
361	*529127.9*	*177621.5*	*5.60*	*5.32*	*5.39*	*5.21*		*RC-1*
362	*529147.7*	*177616.8*	*5.40*	*4.30*	*5.15*	*5.40*		*RC-1*
363	*529167.9*	*177613.8*	*5.40*	*4.20*	*5.27*	*5.53*		*RC-1*
364	*529188.2*	*177611.5*	*5.38*	*5.22*	*5.34*	*8.47*		*RC-1*
365	*529208.6*	*177608.9*	*5.22*	*5.52*	*5.30*	*5.34*		*RC-1*
366	*529228.8*	*177606.1*	*5.40*	*5.45*	*5.25*	*5.14*		*RC-1*
367	*529249.1*	*177603.7*	*5.30*	*5.19*	*5.14*	*4.71*	*5.22*	*RC-1*
368	*529269.4*	*177602.5*	*5.24*	*5.25*	*5.13*	*4.97*	*5.24*	*RC-1*
369	*529289.8*	*177602.6*	*5.32*	*5.31*	*5.40*	*4.76*	*5.32*	*RC-1*
370	*529310.3*	*177603.2*	*5.25*	*5.34*	*5.17*	*4.83*	*5.30*	*RC-1*
371	529330.7	177603.7	5.28	4.80	4.97	5.04	4.95	RC-2
372	529351.2	177603.7	5.19	5.17	4.89	5.01	5.05	RC-2
373	529371.6	177603.3	5.16	5.15	5.02	5.05	5.10	RC-2
374	529392.0	177603.1	5.11	5.10	5.13	5.19	5.10	RC-2
375	529412.5	177603.7	5.19	5.08	5.12	3.80	5.10	RC-2
376	529432.8	177605.2	5.04	5.00	5.04	4.15	5.00	RC-2
377	529453.1	177608.0	5.00	5.30	4.93	4.31	5.00	RC-2
378	529473.2	177611.8	5.70	5.12	5.15	3.92	5.10	RC-2
379	529493.1	177616.4	5.34	5.11	4.93	3.81	5.10	RC-2

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-24: RIVER REACH 12

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
380	529512.0	177621.3	4.77	4.56	3.55	3.85	4.50	RC-3
381	529532.2	177625.3	4.78	4.65	3.50	3.99	4.50	RC-3
382	529552.3	177630.1	4.37	3.94	3.32	4.00	4.00	RC-4
383	529571.6	177636.9	4.02	3.92	3.37	3.98	3.90 (P4)	RC-4
384	529590.4	177645.4	4.32	3.65	3.73	4.01	3.90 (P4)	RC-4
385	529609.4	177653.3	5.04	4.48	3.48	4.01	4.10	RC-4
386	529629.0	177659.8	5.56	3.53	3.52	3.78	4.30	RC-3
387	529647.8	177667.9	6.94	3.91	3.62	3.85	4.50	RC-3
388	529665.0	177679.3	6.71	4.45	4.34	3.82	4.50	RC-3
389	529682.8	177689.7	7.68	4.55	3.80	3.82	4.50	RC-3
390	529701.8	177697.5	7.43	4.54	3.91	3.85	4.50	RC-3
391	529721.6	177703.4	5.69	4.44	3.81	3.76	4.50	RC-3
392	529741.5	177708.2	4.76	4.09	4.26	4.11	4.50	RC-3
393	529761.5	177713.2	4.28	4.10	4.14	4.29	4.20	RC-4
394	529781.4	177719.4	4.82	4.27	4.33	4.26	4.20	RC-4
395	529800.1	177727.9	5.11	4.47	4.49	3.73	4.30	RC-3
396	529816.4	177740.0	4.23	4.48	4.59	3.98	4.50	RC-3
397	529830.9	177754.7	4.36	4.33	4.38	3.86	4.30	RC-3
398	529845.4	177769.6	4.66	4.36	4.28	4.86	4.40	RC-3
399	529861.0	177783.1	4.48	4.37	3.88	4.14	4.40	RC-3
400	529877.5	177795.3	4.75	4.44	3.85	4.86	4.40	RC-3
401	529894.4	177807.1	4.90	4.33	3.90	4.85	4.40	RC-3
402	529912.4	177817.0	4.60	4.36	3.95	4.80	4.30	RC-3
403	529931.9	177823.9	4.53	4.24	4.02	4.81	4.30	RC-3

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green

TABLE C-25: RIVER REACH 13

Point	Easting	Northing	Extracted Level Values (m AOD)				Assumed Breach Height (m AOD)	Riverside Category
			A (10m)	B (25m)	C (50m)	D (100m)		
404	529949.7	177830.7	4.16	4.29	4.09	4.63	4.20	RC-4
405	529966.1	177837.3	4.16	4.18	4.47	4.50	4.20	RC-4
406	529982.3	177844.3	4.71	4.37	4.31	4.13	4.35	RC-3
407	529998.2	177852.1	5.41	4.49	4.19	3.81	4.40	RC-3
408	530013.7	177860.6	5.54	4.55	4.32	3.83	4.50	RC-3
409	530028.6	177870.0	5.62	4.57	4.19	3.92	4.60	RC-3
410	530043.2	177880.0	5.48	4.77	4.14	4.22	4.75	RC-3

Note: Ground levels above the 1 in 1000 year tidal flood level are highlighted in green