

## Appendix C: Summary of flood risk in the Black Country.

The table below summarises the flood risk in a number of locations within the Black Country Authorities. Due to the size of each borough they have been split into areas by grouping wards together.

Settlement/ Area	Fluvial Flood Risk	Existing Flood Defences	Area Susceptible to Groundwater Flooding				Reservoir inundation risks	Surface Water Flood Risk	Historic, Recorded Flood Events
			<25%	≥25% <50%	≥50% <75%	≥75%			
<b>Wolverhampton</b>									
North Wolverhampton including Oxley, Elton Hall and Bushbury Hill.	The Flood risk in these wards follows the main watercourses, with flooding surrounding Waterhead brook and the Staffordshire and Worcestershire canal. Flooding from the latter follows the topography rather than the canal and the flood zone (2 and 3) cuts across Pendeford. Bushbury is also affected by fluvial flooding in this area. Flood zone 3 matches the extents of flood zone 2 and the Centre of Wolverhampton city is free from fluvial flooding.	No Defences	✓	✓	✓	✓	None	<p>Within the 30 year events there are flow paths that impact Pendeford, draining towards the Birmingham and Shropshire union Canals, particularly affecting Marsh Lane and Three Tuns Lane. Bushbury towards the Waterhead Brook and Underhill are also impacted by a flow path in this return period.</p> <p>SWF has a much wider impact within the 100 and 1000-year events with the majority of the area being impacted by large areas of ponding or flow paths. The major flow paths impact Pendeford (a much wider area than within the 30 year), Wood Hayes and Fordhouses.</p>	<p>History of Surface water Flooding in Black Brook way and Amanda Avenue, Ashmore Park, Low Hill, Hobnock Road, New Cross Hospital and the Wolverhampton Ring Road.</p> <p>Fluvial flooding from Pendeford Brook in 1998.</p> <p>Fluvial Flooding from Oxley Brook in Eccleshall Avenue.</p>
North East Wolverhampton	Small amount of Flood zones 2 and 3 off Waddens Brook Lane over the border and into Walsall.	No Defences	✓	✓	✓	✓	None	<p>There is one main flow path within the 30-year events, impacting Ashmore Park and Wood end and draining towards the Wyrley and Essington Canal. There is ponding across the area with the main impacted areas being March End and Wednesfield.</p> <p>This ponding develops into flow paths within the 100 and 1000-year events with the major flow path</p>	None

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								impacting Wednesfield, draining north impacting many properties, towards the Canal.	
South East Wolverhampton and Bilston	Flood zones 2 and 3 are associated with the River Tame and Darlaston Brook in this area. Properties from Broad lane to Loxdale in the immediate areas of the watercourses are impacted by both zones 2 and 3.	6 Walls.  Brick lined channel, Left and Right banks. Flood wall on by-pass channel. Small overflow side weir, both sides of the river. Dunstall Water Bridge. brick floodwall. aqueduct wall.	✓	✓	✓	✓	None	Within the 30 year events Blakenhall, Monmore Green, Goldthorn Park, Lanesfield and Deepfields are all impacted by smaller flow paths. There is isolated ponding across this area within this return period.  These flow paths develop into the 100 and 1000-year events with the worst affected areas being Lanesfield/ Ettingshall and Parkfield.	Groundwater flooding in Newbolds, Scotlands, Merry Hill, Bradmore and Blakenhall.
West Wolverhampton	Flooding associated with the Smestow Brook and the Staffordshire and Worcestershire Canals. Properties surrounding these watercourses are most impacted with Wightwick and Claregate being the most impacted.	No Defences	✓				Rough Hill, Ettingshall, Lanesfield, Spring Vale, Parkfield and Freezeland are all partially located within the flood extents of the Sedgley Beacon Southern Reservoir. The flow path also follows the Birmingham canal in this area.	The flooding in this area noticeably follows the topography of the area with the flow paths draining towards the Smestow Brook. Merridale is the most impacted by flow paths in all flooding return periods. Pennfields, Merry Hill (mostly impacted by large ponding in the 30-year), Penn and Claregate are all impacted from the 30-year events.  Wightwick also has properties impacted by the flow path within the 100 and 1000-year events.	Surface water Flooding (1998) in Penn.  Surface Water flooding (date Unknown) Penn Road, Tettenhall and Wightwick.
<b>Dudley</b>									
North Dudley including Sedgley and Coseley.	The majority of this area is within Flood Zone one, however, fluvial flooding is associated with 2 unnamed watercourses which flow into Birmingham Canal. Properties around Swan Village and West Coseley are impacted particularly on Perkins close and Hilary Crescent.	No Defences	✓	✓	✓	✓	Greenleighs and the Birmingham are partially located within the flood extents of the Sedgley Beacon Southern Reservoir. Wrens nest, Priory, Swan Village and West Coseley are all partially located	Within the 30-year events there are surface water flow paths that impact Wrens Nest Road and properties around Bramford (particularly beechfield grove) Swan village and West Coseley flowing towards Birmingham Canal. Across the rest of North Dudley there is ponding,	2007 – Gornal. High intensity storm produced excessive run off from large open space area towards residential properties.  June 2016 – High Intensity Storm caused surface water

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							within the flood extents of Shavers End no2 Reservoir.	which are fairly isolated within the 30-year events.  Within the 100 and 1000-year events a flow path develops in Dudley, particularly affecting properties around Priory and the Black Country Living Museum. West Coseley is heavily impacted by the 1000-year flow path which also extends to impact Woodsellon and Upper Gornal.	and sewer flooding across the metropolitan area.
Dudley and Kingswinford	The fluvial flooding in this area is associated with unnamed watercourses which flow into the Smestow Brook downstream. The flood Zones are predominately confined to the floodplain in this area. There are some properties at risk between The Straits and Lower Cornal from Ladbroke Grove to the Alley and in Wall Heath. The properties in Wall Heath are predominately impacted by flood zone 2 which extends much further than flood zone 3 in this area.	No Defences	✓	✓	✓	✓	London Fields, Russell's Hall and up to Coopers Road are all partially within the flood extents of Shavers End no2 Reservoir. Kingswinford and Bromley are within the flood extent of Fens Pool- Upper Pool. Parts of Bromley, especially around Pensett Road is impacted by flood extents from Fens Pool, Lower Middle and Upper.	The east of this area is at a higher elevation and flow paths and surface water flooding mostly impact the centre to the west of this area of Dudley. The flow paths in the 30-year extent mostly impacts rural areas, impacting Russell's Hall road, Overfield road and Middlepark road in Russell's Hall. There is isolated ponding across Dudley.  Flow paths and ponding increases in the 100 and 1000year events. Most of the flooding impacts more rural areas in the lower elevations to the west of this area. A flow path does develop in Kingswinford particularly affecting wall heath, following the topography of the areas. The majority of Russell's hall and Lower Gornal is impacted within the 100-year events.	Kingswinford 2007 & 2008 - High intensity rainfall resulted in flooding caused by excessive run off towards low area.
Brierley Hill, Stourbridge and Netherton	Fluvial flooding in this area is associated with the River Stour and Black brook and the properties in the surrounding vicinity to this river are at risk from Flood Zones 2 and 3. The majority of the flooding is confined to the flood plain, however properties and roads between Bower Lane and Cradley Forge, off Bagley street in Stambermill. There is increased impact from fluvial flooding around Stourbridge Canal between Longboat Lane	1 Wall.  Flood wall that protects industrial units in Amblecore.	✓	✓	✓		Wordesly is partially located within the flood extents of Fens Pool – Upper pool.  Brierly Hill and Mushroom Green and the river Stour are partially within the flood extents of Lodge Farm Reservoir.	SWF is dominated by the topography of this area, with flow paths draining into the River Stour Valley. In the north of the area SWF is generally ponding, with the flow paths typical of the lower elevations in this area.  Stourbridge is impacted by flow paths in the 30-year events, partially around Broadway and Mamble Road between Wollaston and Old Swinford. There is also a	2008 – Rushall Close, Wordesly. Combined flooding from ordinary watercourse and culvert blockage plus excessive high run off.  2008 – Canal Street - Fluvial flooding from the River and Canal overtopping. Surface Water flooding from runoff.

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	and the High Street in Stourbridge. Between Bradley Road, along Birch Drive and Mable road and from South Road to the A451 and from the A451 to Sheraton Grange there is an area of Flood zone 3, potentially an overland flood route from a blocked culvert. There are also some flooding around Mushroom Green and Brierley hill, although the majority does not impact properties.							<p>flow path impacting Lye, Withymore Village and one associated with Ludgbridge brook.</p> <p>The impact increases in the 100 and 1000-year events, with the aforementioned places in the lowest topography's affected the greatest. The majority of the area not impacted by the flow paths is impacted by ponding in these return periods.</p>	<p>Annual Event – Birmingham Street. Flooding from runoff from the surrounding high ground.</p> <p>2007 - Hawbush Road, Bromford Primary School. High intensity storm results in run off from surrounding land</p> <p>June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.</p>
Halesowen	Fluvial flooding in this area is associated with Lutley Gutter and the River Stour. There are some properties impacted by flooding along Lutley Mill Road in Halesowen but most of the flooding is in within the flood plain.	<p>1 Wall 1 Embankment 1 Wall/ Embankment</p> <p>A private floodwall, built to benefit one property. New Flood Embankment now in place on River Stour. Maintained channel and gabion wall with flood bank for flood attenuation area.</p>	✓	✓			None	<p>There are three main flow paths that follow the topography to drain into the River Stour, impacting areas around Lutley Gutter, partially around Hasbury and Alexandria Road. Furlong Lane in Cradley and around the River Stour near Earls Way and Grange hill roads. These areas are impacted by the 30-year extents but this impact increases with the 1000-year events.</p> <p>SWF noticeable increase in the Northern corner of this area around Hill and Cakemore and Hurst Green with flow paths developing down Longlane and Narrow Lane.</p>	<p>2007 &amp; 2008 - High intensity rainfall following sustained wet period resulting in River out of bank and surface run off together with culvert blockage.</p> <p>2007 &amp; 2008- Flooding mainly associated with excessive highway run off to low area (Manor Way)</p> <p>June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.</p>
<b>Sandwell</b>									
Rowley Regis, Blackheath, Smethwick and Cradley Heath	The majority of this area is within Flood Zone 1 with any fluvial flooding associated with and unnamed watercourse that is a tributary of the River Tame. Properties around Titford and Causeway Green are particularly affected, with Ashes Road, Pound Road and Brook road being most impacted. There is also an area of flood zone 2 around Black patch.	<p>2 Embankments. 2 Walls.</p> <p>Brandhall embankment and a Dam / Embankment protecting properties around heron road and Causeway Green. Small embankments to prevent flooding from trash screen blockage to Ashes Road Screen.</p> <p>Pre-cast concrete Flood Wall. Langley</p>	✓	✓	✓	✓	Black Patch and Merry Hill are partially located within Rotton Park reservoir flood extents.	<p>There is limited impact from SWF in this area within the 30-year events, with the majority of the flooding is isolated ponding. There are a couple of minor flow paths in causeway Green along Titford lane from Brandhall and along Timblemill Brook. Flooding becomes more pronounce in the 100 and 100-year events. The areas most impacted being Portway, Langley, Titford, Causeway Green, Merry Hill and Smethwick.</p>	<p>June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.</p> <p>Flooding from surcharged manholes along culverted watercourses/ surface water sewers – Rosefield Road and Watery Lane, Smethwick.</p> <p>Highway Flooding across Smethwick which also entered a factory in Rabone Lane.</p>



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		and wall protecting properties around Haysech.							
Oldbury	The majority of fluvial flooding in this area is associated with the River Tame with properties in Horseley Heath and Dudley Port heavily affected by flood zones 2 and 3. There is also an area of flood zone 2 in Oldbury, concentrated around Sandwell and Dudley train station.	<p>3 Wall (Toll end Wall overlaps into Wednesbury)</p> <p>1 Wall/ Embankment</p> <p>1 Embankment</p> <p>Pairs of defences on both banks of the River Tame. Walls protecting properties surrounding the Sandwell and Dudley Train station. Defences protecting Balaji Avenue and Union Road from high Levels and finally a Private floodwall off Joseph Street.</p> <p>Embankments protecting properties in Horsley heath and sheepwash storage lake from high levels.</p>	✓	✓	✓	✓	Horseley Heath is Partially located within n the flood extends of Sheepwash Country Park Reservoir.	<p>There are no major flow paths in this area in the 30-year event. There are areas of isolated flooding across Oldbury and the surrounding area.</p> <p>Flow paths do develop in the higher return periods, although they follow the topography and therefore do not travel a great distance. The main areas impacted are surrounding the River Tame, Oldbury, Dudley Port, Toll End and Horseley Heath. The whole area is impacted by areas of ponding in all return periods.</p>	<p>June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.</p> <p>Flooding from Brandhall Brook (unknown date) in Brook Road, Titford.</p> <p>Backing up of flows at culvert entrance caused flooding on PennCricket Lane, Titford.</p>
Tipton and Wednesbury	There is an area of fluvial flooding in the immediate areas of an unnamed watercourse (tributary of the River Tame) in Tipton. There is also flooding associated with the watercourse in Wednesbury. Areas around Ocker Hill and Mesty Croft are particularly affected.	<p>3 wall/ embankment</p> <p>1 Wall (Toll end wall crosses into the Oldbury boundary)</p> <p>Embankments along the river from the Walsall boundary line along the river through Mesty Croft. Runs along the north bank of the River and separates from a body of water. Ocker Hill storage lake embankment and inlet weir and walls to protect properties off smith road.</p> <p>Pairs of defences on both banks of the River Tame.</p>		✓	✓	✓	<p>Goldhill and the River Tame are partially located within the flood extents of sheepwash country park reservoir.</p> <p>The River Tame, east of the train line, is partially impacted by flooding from Bescot Reservoir.</p>	<p>There are no major flow paths within the 30-year extents, with the majority of the flowing following the River Tame. There is isolated ponding across the whole area.</p> <p>Surface water flooding follows a pattern of flow paths following streets with ponding impacting the properties. The areas most impacted are Gospel Oak, Wood Green, The Woods, Mesty Croft and Friar Park.</p>	June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.

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West Bromwich	Flooding here is associated with the River Tame, mostly impacting the floodplain but the flood zones cross the M6 motorway and flood zone 3 affects properties around Manorford avenue and Keverley Grove. Flood zone 2 extends further and impacts the neighbouring streets, especially Stanhurst Way.	<p>4 Embankments 1 Embankment/ Wall.</p> <p>Embankments on both sides of the river Tame, separating from the Forge Mill Lake. Earth Embankment parallel to the train line between the Tame and the line. Embankments both sides of the Tame protecting properties in Keverley Grove and Manorford Avenue and the train lines from high levels.</p> <p>Wall on the North bank of the Tame with embankments either side of the train line.</p>	✓	✓	✓	✓	<p>Dartmouth Boating lake, Sandwell Valley Storage Lake, Bescot and Swan Pool reservoirs all have flood extents that impact this area, however they all predominantly impact rural areas.</p> <p>Hamstead is very partially located within these flood extents.</p>	<p>The flow path that impacts this area in the 30-year events is in an area of lower topography to the east of West Bromwich surrounding the M6 Motorway. This area, apart from the motorway is rural and therefore this flow path has a limited impact. There's some isolated ponding across the area, particularly in yew tree and Grove Vale.</p> <p>Flow paths develop in the 100 and 100 year events in Yew Tree, Grove Vale, Hall end, Hateley Heath and Lyndon. There is also a flow path that impacts the areas around forge mill lake, but this doesn't impact properties. There is ponding in these return periods across West Bromwich and the surrounding area.</p>	<p>June 2016 – High Intensity Storm caused surface water and sewer flooding across the metropolitan area.</p> <p>Biddleston Grove, Brakendale Drive and Spruce Road, Yew Tree - Blockage of grid at upstream end of culverted watercourse.</p> <p>Monksfield Avenue, Grove Vale- Overtopping of Red House Park pool/possible blockage of outfall grid.</p> <p>Hamstead - Flooding from the Gorse Farm Woods as overland flow. A culvert blockage also occurred.</p> <p>Chatsworth Road, - Overland surface water flows from higher land and groundwater flows. Beaconsfield Street - Blockage of grid.</p>
<b>Walsall</b>									
Walsall Centre and East.	Flooding in this area is associated mainly with the river Tame and Ford Brook and its associated tributary with areas of flood zones 2 and 3 impacting The Delves and Bescot. The Centre of Walsall is mostly impacted by flood zone 2 along the Ford Brook.	Earth Embankment parallel to the train line between the river and the line.	✓	✓	✓	✓	<p>Bourne Vale and Barr Common are located within the flood extents of Barr Beacon no2. There are some properties located within Barr beacon no1 and 2 although the extents impact mostly rural areas.</p>	<p>There are 3 major flow paths in the 30 year events, which follow the key watercourses in the area, ford brook and tributaries of the river tame. There is also a flow path from Bar common draining north east out of the council boundary. There is also ponding across the area, with Pheasly and Streetly being the most effected.</p> <p>The majority of the area is impacted by some form of surface water flooding within the 100 and 1000 year events. Walsall centre is the most impacted as the majority of the flow paths follow the topography to drain towards Ford Brook. The number of areas impacted by ponding</p>	

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								increases greatly in these return periods.	
Darlaston, Willenhall and Bloxwich.	There are areas of flood zone 2 and 3 along the River Tame, Sneyd Brook and Walsall Canal. Willenhall, Chapel Green, Country Bridge and Shepwell Green are all heavily impacted by fluvial flooding. The Area north of Darlaston Green is also impacted by the flood zones, although fewer properties are impacted here. Properties in the immediate areas surrounding Sneyd Brook are impacted by the flood zones, especially within Leamore and Dudley's fields.	Embankments both sides of the River protecting properties in Keverley Grove and Manorford Avenue and the train lines from high levels.	✓	✓	✓	✓	Dudley's fields is partially located within the flood extents of Sneyd Reservoir.	<p>The surface water flooding in this areas follows the topography with the edges draining into the centre towards Ford Brook. Walsall wood, Holly Bank and Rushall are all impacted by these flow paths. There is isolated ponding across the rest of the area.</p> <p>In the 100 and 1000-year events there is ponding around the edges with major flow paths following the tributaries of the Ford Brook. Brownhill sis most impacted by the ponding but Pelsall and Clayhanger are also affected. Walsall wood, Shelfield, Holly Bank and Leighswood are impacted by flow paths in these return periods.</p>	Surface Water runoff exacerbated by poor drainage systems (2009 & 2010) Darlaston Road, Including Station Street and Kendricks Road.
Brownhills and North Walsall.	The flood zones in this area are primarily affected by Ford Brook and its tributaries. The majority of the flood zones impact open spaces but there are some properties at risk in Clayhanger and Rushall.	Wall on the North bank of the river with embankments either side of the train line.	✓	✓	✓	✓	New Town is partially located within the flood extents of Chasewater Reservoir.	<p>There are no major flow paths in the 30 year events but the ponding follows what will become flow paths in the later return periods. Chapel Green, County Bridge, Leamore and Wallington Heath are all impacted by flooding in the 30-year events.</p> <p>The majority of the area is impacted by flow paths in the 100 and 1000-year events, these areas include, but are not limited to, Blakenhall heath, Leamore, Bently, Shepwell Green, Spring Bank, Ashmore Lake, New Invention amd Short Heath. Bloxwich and Dudley's Fields are both more impacted by ponding.</p>	