Breckland

JBA Consulting Suite 1B, First Floor, N Coleshill House, 1 Station Road, Fakenham Coleshill, B46 1HT Aylsham +44 (0) 16754 37750 info@jbaconsulting.com Reepham gham King's Lynn Nor eicester itry × Dereham Cambridge Ipswich Swaffham Nor Legend Breckland Boundary Downham Market Areas in Breckland (separated for Hingham Wymondham the purposes of Appendix E) Watton Attleborough, Buckenhams and Snetterton & Wayland, Ellingham and Great Hockham Bawdeswell, Swanton Morely and North Attleborough Elmham Dereham Central and Toftwood, Dereham North and Neatherd & Dereham West, Necton and Gressenhall East Harling, Garboldisham and Kenninghall, Thetford Central and East, Thetford North & Thetford South Brandon Hockering, Mattishall and Cranworth & Shipdham, Bradenham and Saham Thetford Toney Mundford, Weeting and Forest Watton Diss Swaffham Whissonsett, Litcham and Narborough 10 20 30 km 0 Contains OS data © Crown copyright and Eye database right (2024)

For the purposes of summarising flood risk across Breckland, Figure E 1 details the seven separate areas analysed in this appendix.

Figure E 1: Map of separated areas within Breckland



Area: Bawdeswell, Swar	iton Morely and North Elmham
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flood risk follows the flow route of the River Wensum and its tributaries, including the Black Water and Penny Spot Beck. 8.4% of the area is within Flood Zone 2 and 7.1% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across the entire area. Settlements which are at the greatest fluvial flood risk include Lyng, Worthing and North Elmham as the River Wensum and Black Water flow through these locations.
	as along the B1145 and the B1110. This flooding occurs during the 3.3%, 1% and 0.1% AEP fluvial flood events as well as the 5% and the 0.5% tidal flood events.
	Mapping showing these flood extents can be seen in Appendix A.
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are significant flow paths during the 0.1% AEP event along roads through Bawdeswell and North Elmham. Flow paths also form during the 3.3%, 1% and 0.1% AEP events along the railway line between North Elmham and south of Hoe.
	Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water.
	The Norfolk Rivers Internal Drainage Board is situated in this area and follows the flow route of the River Wensum.
Existing Defences	Natural high ground along the River Wensum and Black Water, on both sides.
Reservoir Inundation Risk	This area is not impacted by reservoir flooding in both the 'Dry Day' and 'Wet Day' scenarios.
Historic, Recorded	From the EA's Recorded Flood Outlines shapefile:
Flood Events	There are no recorded flood outlines in this area.
	From the EA's Historic Flood Map shapefile:
	Flooding has occurred along the River Wensum from Lyng to 860m south of Guist.
	From Norfolk County Council (LLFA) Flooding Incidents shapefile:
	Number of internal incidents: 6
	Number of external incidents: 16
	Cause of incidents: surface water flooding
	See Appendix A for more detailed mapping.
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Wensum, Penny Spot Beck and Black Water.



Area: Whissonsett, Litcham, Narborough and Swaffham		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding to follow the route of the watercourses in the area which include the River Wensum, Black Water, Panford Beck and River Nar. Flooding also extends from the River Nar on to adjacent land, predominantly to the west and south-west of Narborough. 2.8% of the area is within Flood Zone 2 and 2.4% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area.	
	The 2015 Upper Nar hydraulic model does not show any major flooding within this area. The only areas where water extends beyond the watercourses' channels and their immediate vicinities are when the 3.3%, 1% and 0.1% AEP events cross Hall Lane to the east of the A1065, and Beeston Road to the east of Litcham.	
	The 2015 Lower Nar hydraulic model does not show any major flooding within this area. The only area where water extends beyond the watercourses' channels and their immediate vicinities are when the 3.3%, 1% and 0.1% AEP events cross the Main Road to the north of Narborough and encroach land to the east of this road.	
	The 2017 Upper Wensum hydraulic model shows flooding remains along the watercourses. There is some flooding along Holt Road during the 3.3%, 1% and 0.1% AEP fluvial flood events as well as the 5% and 0.5% AEP tidal flood events.	
	Mapping showing these hood extents can be seen in Appendix A.	
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are significant flow paths in Swaffham and Whissonsett; those situated in the latter settlement also cross Raynham Road, Mill Lane, Dereham Road and Brisley Road to the south of Whissonsett during the 1% and 0.1% AEP events. Major flow paths also cross main roads in this area during the 3.3%, 1% and 0.1% AEP events including the A1065, A47 and B1145.	
	Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water.	
	According to the Breckland District Council Water Cycle Study (2017), there are 130 properties at risk of surface water flooding in Narborough.	
	The Norfolk Rivers Internal Drainage Board is situated in this area and follows the flow route of the River Wensum, River Nar and Black Water. The East of the Ouse Polver and Nar Internal Drainage Board is located in the east of this area, covering Narborough and a section of the A47.	
	There are two surface water models covering this Policy Area. See Appendix A for more detailed mapping.	
Existing Defences	Natural high ground along both banks of the Black Water watercourse to the east and north-east of Beetley, and natural high ground along both banks of the River Nar from the Breckland border north of Marham Fen to Main Road to the north of Narborough.	



Area: Whissonsett, Litcham, Narborough and Swaffham		
Reservoir Inundation Risk	 Reservoirs where the 'Dry Day' and 'Wet Day' extents impact the area: Hamrow Farm – Dry and Wet Day flood extents affect a section along the River Wensum to the north-west of Whissonsett. Wet Day flooding also extends across Raynham Road 	
	 Narford Lake: Dry and Wet Day flood extents affect the section of the River Nar which flows to the north and west of Narborough. Battles East: Dry and Wet Day flood extents affect an area of land to the south-west of Narborough along the Breckland border. Wet Day flooding also affects an area of land to the west of Narborough. 	
	 Manor Farm Reservoir (Wells): Dry and Wet Day flood extents affect a section of the River Nar which flows along the Breckland border to the north of South Acre. 	
	 Fourteen Acre Field: Dry and Wet Day flood extents affect a section of Beachamwell Road to the south-west of Swaffham. 	
	See Appendix A for more detailed flood extents for each of the reservoirs affecting Breckland.	
Historic, Recorded	From the EA's Recorded Flood Outlines shapefile:	
Flood Events	There are no recorded flood outlines in this area.	
	From Norfolk County Council (LLFA) Flooding Incidents shapefile:	
	Number of internal incidents: 13	
	Number of external incidents: 44	
	Cause of incidents: fat deposits, blocked drain	
	See Appendix A for more detailed mapping.	
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Wensum, River Nar and Black Water. Areas at moderate risk in Narborough, parts of Swaffham, and across the A1065 and the A47.	



Area: Dereham Central and Toftwood, Dereham North and Neatherd, Dereham West, Necton and Gressenhall		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding to follow the routes of the watercourses in this area which include the River Tud, River Wissey, and an unnamed watercourse which flows through Wendling and Dereham before converging with the River Wensum approximately 7km north of Dereham. 10.4% of the area is within Flood Zone 2 and 6.8% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area. The 2017 River Tud hydraulic model does not show any major flooding within this area. Flooding remains within channel or on adjacent land with some flooding present along Westfield Road during the 0.1% AEP fluvial flood event and the 0.5% AEP tidal flood event. There is also some flooding along Yaxham Road and Mattishall Road during the 3.3%, 1% and 0.1% AEP fluvial flood events, as well as the 5% and 0.5% AEP tidal flood events. The 2015 Upper Wissey hydraulic model shows flooding to predominantly remain within channel, with the exception being to land to the south-west of Necton and within the south of this village along Elizabeth Drive and Hale Road during the 3.3%, 1% and 0.1% AEP events. The 2017 Upper Wensum hydraulic model shows flooding remains in close proximity to the watercourses. There is some flooding along Longham Road, Rushmeadow Road, Dereham Road and Gressenhall Road during the 3.3%, 1% and 0.1% AEP fluvial flood events as well as the 5% and 0.5% AEP tidal events. Mapping showing these flood extents can be seen in Appendix A.	
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are significant flow paths during the 3.3%, 1% and 0.1% AEP events in Necton and Wendling. Major flow paths also cross the A47 during these AEP events. There are also flow paths in Dereham and Gressenhall which form during the 1% AEP event. Flow paths along the railway line through Dereham occur during the 1% and 0.1% AEP events. Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water. According to the Breckland District Council Water Cycle Study (2017), there are 610 properties at surface water flood risk in East Dereham. The Norfolk Rivers Internal Drainage Board is situated in this area and follows the flow route of the River Tud and unnamed watercourses.	
Existing Defences	Natural high ground along both banks of the River Tud from the west of Clippings Green to the Mid Norfolk railway line. This natural high ground continues along both banks of the unnamed watercourse which converges with the River Tud at this railway line. Natural high ground along both banks of the unnamed watercourse from Great Fransham to east of Gressenhall. This natural high ground does not extend along the unnamed watercourse which flows through Dereham.	
Reservoir Inundation Risk	This area is not impacted by reservoir flooding in both the 'Dry Day' and 'Wet Day' scenarios.	



Area: Dereham Central and Toftwood, Dereham North and Neatherd, Dereham West, Necton and Gressenhall	
Historic, Recorded Flood Events	 From the EA's Recorded Flood Outlines shapefile: There are no recorded flood outlines in this area. From Norfolk County Council (LLFA) Flooding Incidents shapefile: Number of internal incidents: 59 Number of external incidents: 142 Cause of incidents: blocked ditches, See Appendix A for more detailed mapping.
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Tud and River Wissey, and parts of Gressenhall. Parts of Necton are at high risk.



Area: Shipdham, Bradenham and Saham Toney & Hockering, Mattishall and Cranworth		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding follows the route of the River Yare, Tud, Wissey and the Blackwater River. Flooding also extends from unnamed watercourses which converge with the Rivers Tud and Yare. 5.6% of the area is within Flood Zone and 4.2% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area. The 2015 Upper Wissey hydraulic model shows flooding remains on land in close proximity to the watercourses during the 3.3%, 1% and 0.1% AEP events. The 2017 River Tud hydraulic model shows flooding largely remains in channel. There are some areas where flooding extends onto Dereham Road, land to the north of Station Road, and land to the west of Mill Road during the 3.3%, 1% and 0.1% AEP fluvial flood events as well as the 5% and 0.5% AEP tidal flood events. The 2014 River Yare hydraulic model shows flooding is confined to land adjacent to the watercourses. Some flooding occurs along Mill Road, Low Street, Higham Road, Southburgh Road, River Lane, Woodrising Road and Watton Road (A1075) during the 3.3%, 1% and 0.1% AEP events. Flooding also occurs at Hall Farm and River Farm during these AEP events.	
	Mapping showing these flood extents can be seen in Appendix A.	
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are significant flow paths during the 3.3%, 1% and 0.1% AEP events in Saham Toney, Hockering, Shipdham and Mattishall. Flow paths during these events also cross and follow sections of the B1135 and the railway line between Yaxham and south of Hardingham. Hale Road and Church Street to the south of Bradenham are crossed by flow paths which converge with the River Wissey. These are particularly extensive during the 0.1% AEP event. Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water. According to the Breckland District Council Water Cycle Study (2017), there are 100 properties at risk of surface water flooding in Saham Toney. The Norfolk Rivers Internal Drainage Board is situated in this area and follows the flow route of the River Tud and River Yare.	
Existing Defences	Natural high ground along both banks of the Blackwater River, the Rivers Wissey and Tud, and the unnamed watercourse which converges with the River Tud at the Mid Norfolk railway line.	
Reservoir Inundation Risk	This area is not impacted by reservoir flooding in the 'Dry Day' scenario. Reservoirs where the 'Wet Day' extent impacts the area: South Pickenham: Flood extent affects a small section along the River Wissey approximately 1.4km south of North Pickenham.	





Area: Shipdham, Bradenham and Saham Toney & Hockering, Mattishall and Cranworth		
Historic, Recorded Flood Events	 From the EA's Recorded Flood Outlines shapefile: There are no recorded flood outlines in this area. From the EA's Historic Flood Map shapefile: Flooding has occurred along a small section of the River Yare and Blackwater River to the south-east of Thuxton adjacent to the eastern Breckland boundary. The flooding along the Blackwater River crosses Low Street. From Norfolk County Council (LLFA) Flooding Incidents shapefile: Number of internal incidents: 38 Number of external incidents: 72 Cause of incidents: heavy rainfall, utility company damaging surface water pipe. 	
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Tud, Blackwater River and River Wissey, and parts of Saham Toney and North Pickenham. Parts of Mattishall are at moderate risk.	



Area: Mundford, Weeting and Forest & Watton		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding to follow the routes of the River Wissey, Little Ouse River, River Gadder, Lode Dike, Spring Drain, and Oxborough Drain, as well as following the routes of some unnamed watercourses which converge with the River Wissey. Flooding also extends from the Little Ouse River to the north through Weeting. 12.7% of the area is within Flood Zone 2 and 10.6% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area. The 2015 Upper Wissey hydraulic model shows flooding to remain in channel and on land adjacent to the watercourses. Some flooding occurs along Swaffham Road, Water End, Home Lane, Watton Road and Foulden Road during the 3.3%, 1% and 0.1% AEP events. The 2015 Middle Wissey hydraulic model shows flooding occurs along Swaffham Road and Foulden Road during the 3.3%, 1% and 0.1% AEP events. Flooding predominantly remains in close proximity to the watercourse, however, there is substantial flooding on land north of Cranwich during the 1% and 0.1% AEP events. The 2015 River Little Ouse hydraulic model shows flooding remains in close proximity to this watercourse. There is some flooding along Santon Road during the 3.3%, 1% and 0.1% AEP events.	
	Mapping showing these flood extents can be seen in Appendix A.	
Surface Water Flood Risk	Surface water flood risk is mainly concentrated in the south and along the River Wissey to the north-west of Mundford. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are flow paths during the 3.3%, 1% and 0.1% AEP events in Foulden and Watton as well as along the railway line in the south along the Breckland boundary. The majority of the A1065 is unaffected during the 3.3% and 1% AEP events, however, there are areas of ponding on this road as well as a flow path crossing this road in the north.	
	Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water.	
	According to the Breckland District Council Water Cycle Study (2017), there are 100 properties at risk of surface water flooding in Weeting.	
	The Stringside Internal Drainage Board is situated along a section of the western boundary of Breckland between Beachamwell and Oxborough.	
Existing Defences	Natural high ground along both banks of the River Wissey and an unnamed watercourse which converges with the River Wissey approximately 600m south of Hilborough. This natural high ground extends from the confluence of these two watercourses to Swaffham Road in the west of Watton. Natural high ground along both banks of the Little Ouse River.	



Summary of Flood Risk in Breckland

Reservoir Inundation Risk Reservoirs where the 'Dry Day' and 'Wet Day' extents impact the area:

 Piggeries Field, Ikburgh: Dry and Wet Day flood extents affect areas in close proximity to the River Wissey between the Breckland border and Swaffham Road (A1065). This flood extent also extends north of the River Wissey across Cockley Cley Road. Wet Day flooding also follows the River Wissey for approximately 7.2km to the north of Mundford.

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- Buckenham Tofts Upper: Dry Dry flood extent affects a section of the River Wissey between land to the east of Watermill Broad Nature Reserve and the
 confluence of the River Wissey. Wet Day flood extent affects a section of the River Wissey from land 1.6km south-west of Foulden to the confluence of
 the River Wissey. Dry and Wet Day flooding also affects an unnamed watercourse to the west of Stanford.
- South Pickenham: Dry Day flood extent affects the flow route of the River Wissey from Watermill Broad Nature Reserve to South Pickenham. Wet Day flood extent also affects the flow route of the River Wissey but from land 1.8km west of Foulden to South Pickenham.
- Stanford Water: Dry Day flood extent affects the flow route of the River Wissey from land to the east of Watermill Broad Nature Reserve to the confluence with the unnamed watercourse approximately 345m north of Buckenham Lane. This flood extent then continues east along the unnamed watercourse to Stanford Water. Wet Day flood extent affects a section of the Lode Dike and Oxborough Drain and follows the flow route of the River Wissey for approximately 14.0km to the confluence with the unnamed watercourse approximately 345m north of Buckenham Lane. This flood extent of the River Wissey for approximately 14.0km to the confluence with the unnamed watercourse approximately 345m north of Buckenham Lane. This flood extent then continues east for 2.9km along the unnamed watercourse to Stanford Water.
- Highmoor Drove: Dry and Wet Day flood extents affect land in close proximity to the flow route of the River Wissey, Lode Dike, Oxborough Drain and an unnamed watercourse which flows to the south of Foulden. These flood extents also extend from land north of Whittington to land east of Northwold.
- Reaches Farm: Dry and Wet Day flood extents affect the flow route of the River Wissey, Lode Dike and Oxborough Drain. The flood extents extend from land north of Whittington to a section of the River Wissey approximately 1.4km north of Northwold (Dry Day), and to a section of the River Wissey north of Little London Road (Wet Day).
- Top Strong Land: Dry and Wet Day flooding extends along the River Gadder for approximately 3.0km. These flood extents also extend across land to
 the north of the River Gadder (with the Wet Day extent reaching land along an unnamed watercourse approximately 720m south of Beachamwell) as
 well as following the Oxborough Drain which converges with the River Wissey. Wet Day flooding also extends along the Lode Dike and the River Wissey
 for approximately 7.0km.
- Warren Gun Breck: Flood extents affect a section of the Lode Dike and River Wissey for approximately 3.7km (Dry Day) and 4.8km (Wet Day). Dry and Wet Day flooding also extends along the Oxborough Drain and Spring Drain before stretching further to the north-east across Oxborough Road and Mundford Road.
- Honey Pots (Field 6): Dry and Wet Day flooding extends along the Oxborough Drain and Spring Drain before stretching north-east of these watercourses across Oxborough Road. The Wet Day flood extent also affects the Lode Dike and the River Wissey for approximately 4.2km.
- Cley Breck North: Dry and Wet Day flooding extends along the River Gadder from Oxborough to approximately 1.7km north-east of Gooderstone.
- Caldecote Farm: Flood extents follow the flow route of an unnamed watercourse to the south of Shingham (Dry Day) and through Shingham and south to Lode Dike (Wet Day). The Dry Day flood extent also stretches across land to the south of this watercourse whilst Wet Day flooding continues along Lode Dike and the River Wissey for approximately 6.6km to the north of Northwold.
- Warren Farm Beachamwell: Dry Day flood extent follows the flow route of an unnamed watercourse to the south of Beachamwell which extends across Beachamwell Road and east towards Drymere. The Wet Day flood extent affects Beachamwell and Shingham and follows the flow route of an unnamed watercourse to the south of Beachamwell which converges with the Lode Dike. Flooding also follows the River Wissey for approximately 5.1km to the north of Northwold.
- Fourteen Acre Field: The Dry Day flood extent affects a small section of Beachamwell Road to the north-east of Beachamwell. The Wet Day flood extent affects land in the east of Beachamwell and follows the flow route of an unnamed watercourse which converges with the Lode Dike. Flooding then



Area: Mundford, Weeting	Area: Mundford, Weeting and Forest & Watton		
	continues along the River Wissey for approximately 5.2km to land north of Northwold. Reservoirs where only the 'Wet Day' extent impacts the area:		
	 Stradsett Lake: Flood extent affects the flow route of the Lode Dike and the River Wissey to land approximately 750m north of Northwold. Graftham Water: Flood extent affects the section along the Breckland boundary where the Lode Dike converges with the River Wissey. See Appendix A for detailed flood extents for each of the reservoirs affecting Breckland. 		
Historic, Recorded Flood Events	From the EA's Recorded Flood Outlines shapefile: March 1947- unknown cause of flooding. From Norfolk County Council (LLFA) Flooding Incidents shapefile: Number of internal incidents: 82 Number of external incidents: 122 Cause of incidents: heavy rainfall, blocked gully.		
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Wissey and River Gadder. Parts of the following settlements are also affected: Weeting, Croxton, Mundford, Foulden, Oxborough, Gooderstone, Great Cressingham, South Pickenham and Beachamwell.		



rea: Wayland, Ellingham and Great Hockham, Attleborough & Buckenhams and Snetterton		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding follows the routes of the River Thet, River Whittle and several unnamed watercourses. The latter converge with the aforementioned rivers as well as the River Wissey. 20.4% of the area is within Flood Zone 2 and 17.0% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area. The 2015 Upper Wissey hydraulic model shows flooding to remain in channel and on land adjacent to the watercourses. Some flooding occurs along Ovington Road, Church Street, Bridge Street and Broadmoor Road during the 3.3%, 1% and 0.1% AEP events. The 2015 River Thet hydraulic models shows flooding to remain in channel and on land adjacent to the watercourses. Some of the roads which are flooded include: Scoulton Road, Ellingham Road, Caston Road, Attleborough Road, The Street, Duke's Lane, Mere Road, Rockland Road, Watton Road, Thetford Road, Hargham Road, London Road (A11), New Buckenham Road, Haugh Road and Castle Hill Road. This flooding occurs during the 3.3%, 1% and 0.1% AEP events. Mapping showing these flood extents can be seen in Appendix A.	
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. There are flow paths during the 3.3%, 1% and 0.1% AEP events in Banham and Attleborough. Flow paths are also present along the B1077, B1113 and A11. Where the A11 has the highest elevation to the north of Queen's Road, ponding occurs in the lower lying spots either side of this bypass during all three AEP events. During the 0.1% AEP event, a flow path forms along the railway line to the south-east of Snetterton Motor Racing Circuit. Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water. According to the Breckland District Council Water Cycle Study (2017), there are 230 properties at risk of surface water flooding in Attleborough. The East Harling Internal Drainage Board is situated in this area and follows the flow route of the River Thet, River Whittle and several unnamed watercourses.	
Existing Defences	Natural high ground along both banks of the River Thet which extends along the banks of an unnamed watercourse which converges with the River Thet approximately 900m south of Swangey Lane. This natural high ground ends when the unnamed watercourse crosses the A11.	
Reservoir Inundation Risk	 Reservoirs where the 'Dry Day' and 'Wet Day' extents impact the area: Larkshall 25m Gallon: Dry and Wet Day flood extents affect the flow route of an unnamed watercourse which converges with the River Thet 660m north of the A11. These extents are confined to this watercourse until they reach East Wretham where flooding extends to the south and crosses Thetford Road (A1075). Hall Farm Reservoir Illington: Dry and Wet Day flood extents affect a similar area to Larkshall. Flooding along the unnamed watercourse does not extend as far however, ending north of Illington. These flood extents also cross Illington Road to the south of the aforementioned village. Flooding follows the flow route of the River Thet, which flows into the neighbouring area of East Harling, Garboldisham and Kenninghall. Bridgham Reservoir: Dry and Wet Day flood extents affect a section of the River Thet to the south of the A1. Flooding also extends along an unnamed watercourse across Watton Road and north of Harling Road station. Kirk Hall Farm: Dry and Wet Day flood extents affect a section of the River Thet approximately 670m north of Snetterton. These extents then follow the flow route of an unnamed watercourse, which converges with the River Thet, for approximately 2.1km. Wet Day flooding also follows the flow route of an unnamed watercourse, which converges with the River Thet, for approximately 470m west of the A11. 	



Area: Wayland, Ellingham and Great Hockham, Attleborough & Buckenhams and Snetterton		
Historic, Recorded Flood Events	 From the EA's Recorded Flood Outlines shapefile: September 1968 - unknown cause of flooding. 	
	 From Norfolk County Council (LLFA) Flooding Incidents shapefile: Number of internal incidents: 141 Number of external incidents: 116 Cause of incidents: heavy rainfall, blocked drain, inadequate culvert and ditch condition. 	
JBA Groundwater Emergence Map	High risk areas remain near the River Thet, River Whittle and several unnamed watercourses. Moderate risk areas include parts of Attleborough and most settlements to the south and west of this town.	



Area: East Harling, Garboldisham and Kenninghall, Thetford South, Thetford North & Thetford Central and East		
Fluvial and Tidal Flood Risk	The Environment Agency's Flood Map for Planning (FMfP) shows flooding follows the routes of the River Thet, Little Ouse River, River Waveney and the Hundred River. Flooding also follows the route of several unnamed watercourses which converge with the River Waveney (east of South Lopham), Little Ouse River (at Garboldisham), River Thet (south of A11 along the Breckland railway line) and River Wittle (at Kenninghall). 25.3% of the area is within Flood Zone 2 and 21.0% is within Flood Zone 3. The EA's FMfP ignores the presence of flood defences so it is unlikely to be representative of actual flood risk across all of the area. The 2015 River Little Ouse (MP4) hydraulic model shows flooding to remain on land in close proximity to the watercourses. Here is some flooding across Thetford to roads close to the Little Ouse River and the River Thet, including Bridge Street, Mill Lane, Nun's Bridges Road and Castle Street. This flooding occurs during the 3.3%, 1% and 0.1% AEP events. The 2015 River Thet hydraulic model shows flooding to remain in close proximity to the watercourses. There is some flooding across and 0.1% AEP events.	
	The 2015 Little Ouse (MP12) hydraulic model shows flooding to largely remain along the southern Breckland boundary and in close proximity to the watercourses. There is some flooding along TheInetham Road, Common Road, Hopton Road, Water Lane, The Street, Knettishall Road, Rushford Road and Euston Road. This flooding occurs during the 3.3%, 1% and 0.1% AEP events.	
Surface Water Flood Risk	Surface water flood risk is extensive. Flooding is channelled by topography into the watercourses listed in the fluvial and tidal flood risk section. Significant flow paths form during the 1% and 0.1% AEP events along roads in East Harling and Thetford. Significant flow paths are also present along the A134, A1066 and B1111 during the 0.1% AEP event. The railway line running through Thetford is mainly affected by flooding during the 1% and 0.1% AEP events, however, there is a small area of ponding along the line approximately 200m east of Thetford station. Surface water flooding is also impounded to the north of this infrastructure in the Woodlands area of Thetford during all three AEP events. This results in significant ponding in this residential area, including at Drake Primary School. Users should refer to Appendix A mapping for more detail on which areas have the greatest risk of flooding from surface water. According to the Breckland District Council Water Cycle Study (2017), there are 420 properties in Thetford and 180 properties in Kenninghall that are at risk of automatical area.	
	The East Harling Internal Drainage Board is situated in the north of this area along the River Thet and several unnamed watercourses. The Waveney Lower Yare and Lothingland Internal Drainage Board is located along the River Waveney and Hundred River in the south-east corner of this area.	
Existing Defences	Natural high ground along both banks of the Little Ouse River and the River Thet.	



Area: East Harling, Garboldisham and Kenninghall, Thetford South, Thetford North & Thetford Central and East	
Reservoir Inundation Risk	 Reservoirs where the 'Dry Day' 'Wet Day' extents impact the area: Shadwell Park Lake: Dry and Wet Day flood extents affect land in close proximity to the Little Ouse River from the north-west of Thetford to the confluence with the River Thet. These flood extents then continue along the River Thet east of Thetford for approximately 4.3km. Wet Day flooding also extends 2.4km further south along the Little Ouse River. Bridgham Reservoir: Dry and Wet Day flood extents affect land in close proximity to the Little Ouse River in Thetford along to its confluence with the River Thet. This flooding then continues along the entire length of the River Thet in this area. Flooding also extends across a section of land between the River Thet and the Breckland railway line, which includes the village of Bridgham. The Wet Day flooding extends further south along the Little Ouse River to the southern Breckland boundary. Hall Farm Reservoir: Dry and Wet Day flood extents affect a small section of the River Thet to the north-west of East Harling. Flooding also affects a section of land to the north of the A11 which crosses Illington Road. Dolphin Farm Reservoir: Dry and Wet Day flood extents affect a section of the Little Ouse river which flows along the southern Breckland boundary for approximately 5.9km (Dry Day) and 14.4km (Wet Day). These flood extents then extend north and cross the A1066 west of Riddlesworth. Redgrave Park: Flood extents affect approximately 10.7km (Dry Day) and 12.2km (Wet Day) of the Little Ouse River which flows along the southern Breckland boundary to the River Waveney
Historic, Recorded Flood Events	 From the EA's Recorded Flood Outlines shapefile: March 1947 - unknown cause of flooding. September 1968 – unknown cause of flooding. From Norfolk County Council (LLFA) Flooding Incidents shapefile: Number of internal incidents: 63 Number of external incidents: 64 Cause of incidents: blocked drains.
JBA Groundwater Emergence Map	The areas with groundwater levels within 0.5m of the surface remain near the flow routes of the River Thet, River Waveney, Little Ouse River and parts of Thetford, Garboldisham, Kenninghall, East Harling and Bridgham. Moderate risk affects large areas south and west of East Harling, including along the railway line between Harling Road and Thetford.