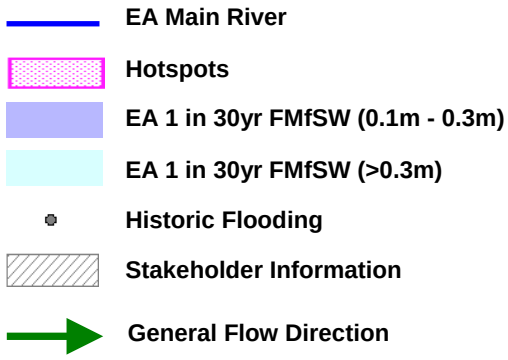
Appendix D – Summary of Intermediate Risk Assessment (Hotspots Storyboard)

Maidstone & Malling Surface Water Management Plan – Hotspots Storyboard

Notes:

1. Each Hotspot reviewed has been taken from a combination of individual stakeholder meetings, historic and EA FMfSW datasets.
2. Each Hotspot area has been amended marginally to conform to the higher level of detail required for this analysis.
3. All historic flooding incidents comprise of a combination of SWMP anecdotal data which has not been fully filtered so should only be used as a guide.
4. A brief economic assessment has been undertaken for each hotspot area by determining how many address points fall within a 5m buffered zone of the shallow 1 in 30yr EA FMfSW.

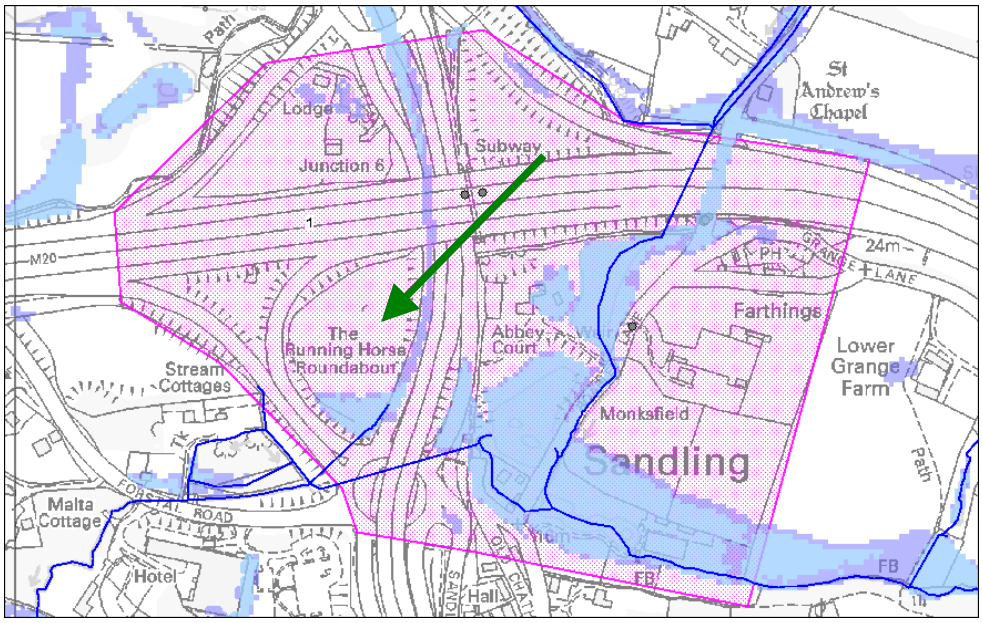
LEGEND for Flooding Data Figures:



Abbreviations:

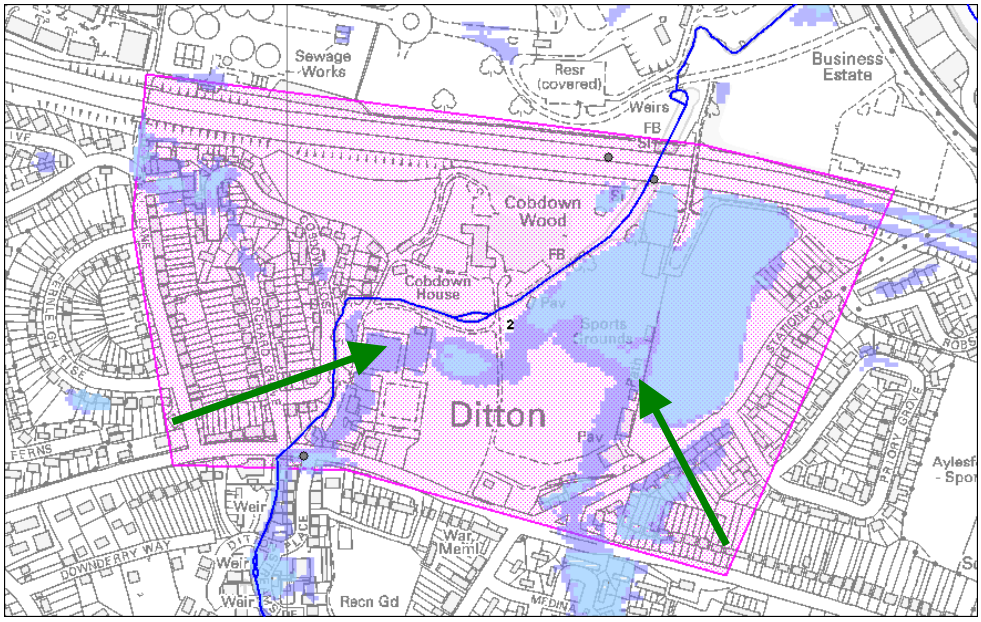
KCC – Kent County Council
MBC – Maidstone Borough Council
TMBC – Tonbridge & Malling Borough Council
SW – Southern Water
EA – Environment Agency
HA – Highways Agency

Hotspot ID	Area	Stake-holder
01	M20, Junction 6	Maidstone Borough Council



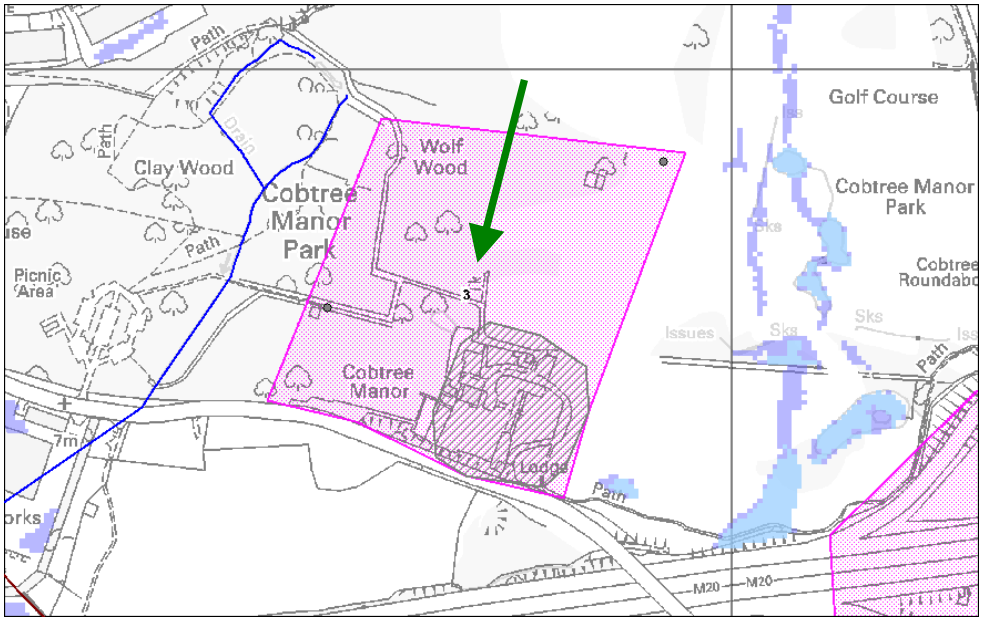
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.28	**Actual Flooding:** Flooding incidents along the M20 and in Boarley Lane. **Modelled Flooding:** Flooding of properties in Boarley Lane. **Stakeholder Info:** The one historic flooding incident is believed to be caused by a significant fluvial event and is not associated to surface water flood risk. The motorway culvert may be acting as a restriction on the watercourse and exacerbating fluvial flood risk. **Mapped Features:** Urban and Key Trunk Road. **Main type of Receptors:** Pumping Station and Trunk road.	**Initial Assessment:** No Significant Risk **Source:** Watercourse **Pathway:** Highway **Receptors:** Trunk Road **Recommendation:** No further work required
Actual Flooding			
No. of Flooding Incidents	8		
Occurrence	2002,2009, 2010,2011		
Source of Data	MBC & HA		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	19		

Hotspot ID	Area	Stake-holder
02	M20, Near Larkfield	Tonbridge & Malling Borough Council



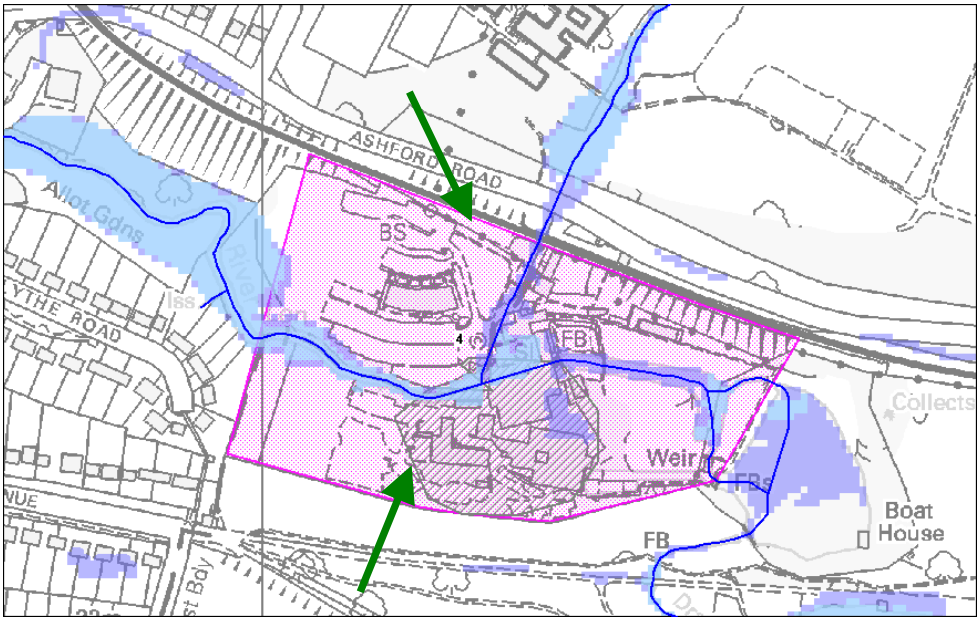
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.35	**Actual Flooding:** Flooding incidents along the M20, near Larkfield and in Ditton Place. **Modelled Flooding:** Flooding of properties in Station Road, Ditton Place and Bell Lane. **Stakeholder Info:** TMBC stated properties on Cobdowne Close had experienced local flooding but this was caused by fluvial flooding and the issue has since been resolved. There is no known flooding of the playing fields adjacent to the sports centre. **Mapped Features:** Urban and Key Trunk Road. **Main type of Receptors:** Pumping Station, Trunk road and Residential.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Watercourse **Pathway:** Overland Flow **Receptors:** Residential Properties
No. of Flooding Incidents	3		
Occurrence	2006, 2010, Periodic		
Source of Data	TMBC & HA		
Predicted Flooding			**Recommendation:** No further work required
No. of buildings within the EA's 1 in 30yr shallow flood extent	94		

Hotspot ID	Area	Stake-holder
03	Aylesford	Maidstone Borough Council



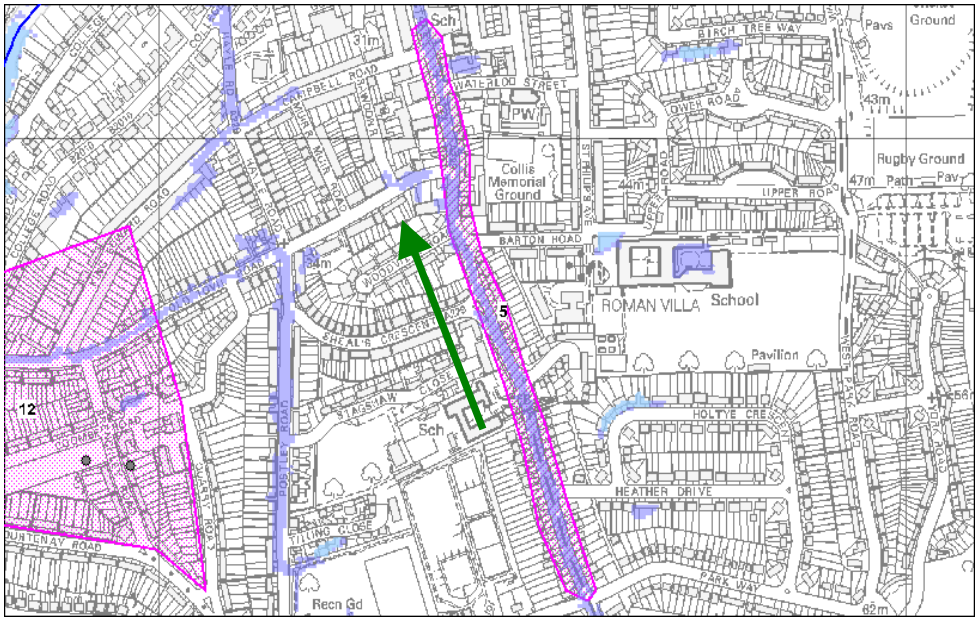
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.10	**Actual Flooding:** Flooding of Cobtree Manor due to low lying land. **Modelled Flooding:** None. **Stakeholder Info:** MBC stated there has been curtilage flooding and the area is low-lying and ditches are poorly maintained, ditch improvements work has been undertaken which has resolved the flood risk. **Mapped Features:** Rural **Main type of Receptors:** Residential.	**Initial Assessment:** Risk Identified **Source:** Drainage Ditches **Pathway:** Overtopping ditch **Receptors:** Residential Properties **Recommendation:** Improve awareness of ditch maintenance and clearance **Existing Schemes:** Ditch clearance **Possible Options:** Continued ditch maintenance.
Actual Flooding			
No. of Flooding Incidents	4		
Occurrence	2004,2005, 2008		
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	0		

Hotspot ID	Area	Stake-holder
04	Maidstone	Maidstone Borough Council



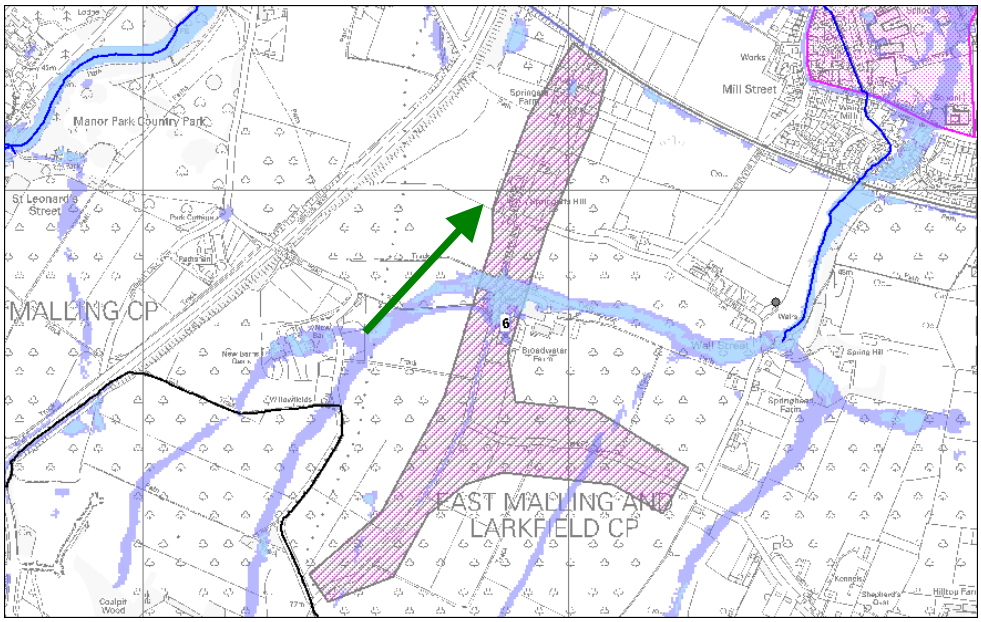
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.06	**Actual Flooding:** Curtilage flooding of Turkey Mill. **Modelled Flooding:** Overtopping of the River Len. **Stakeholder Info:** MBC stated there has been curtilage flooding at the Mill, there is a possible natural spring in area which emerges approximately 60-70yards from the mill. **Mapped Features:** Semi-urban. **Main type of Receptors:** Commercial.	**Initial Assessment:** Risk Identified **Source:** Watercourse & Spring **Pathway:** Overtopping & overland flow **Receptors:** Residential Properties **Recommendation:** Further investigation required to assess water table and spring location **Possible Options:** Management of overland flows to prevent flooding from spring
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence			
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	20		

Hotspot ID	Area	Stake-holder
05	Maidstone	Maidstone Borough Council



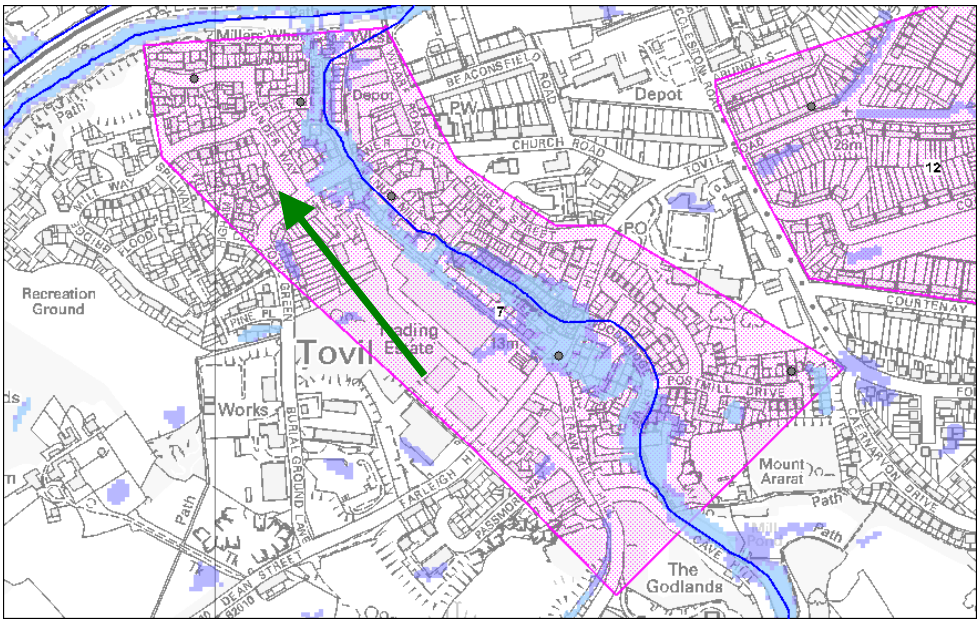
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km²)	0.03	**Actual Flooding:** Flooding incident along the A229. **Modelled Flooding:** Flooding across both carriageways of A229. **Stakeholder Info:** Highway drains become overloaded during heavy rainfall. Highway known to become impassable with most severe flooding occurring at the junction of Sheals Crescent and Loose Road. Believed to only be highway flooding, but MBC state this is on a key main road into Maidstone. **Mapped Features:** Urban and Key Road. **Main type of Receptors:** Key Road.	**Initial Assessment:** Risk Identified **Source:** Surface run-off **Pathway:** Highway **Receptors:** Highway **Recommendation:** Further investigation required to assess overland flow management and surface water storage. **Possible Options:** Upstream attenuation of surface water runoff in open playing fields and prioritised gully maintenance.
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence			
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	37		

Hotspot ID	Area	Stake-holder
06	West Malling	Tonbridge & Malling Borough Council



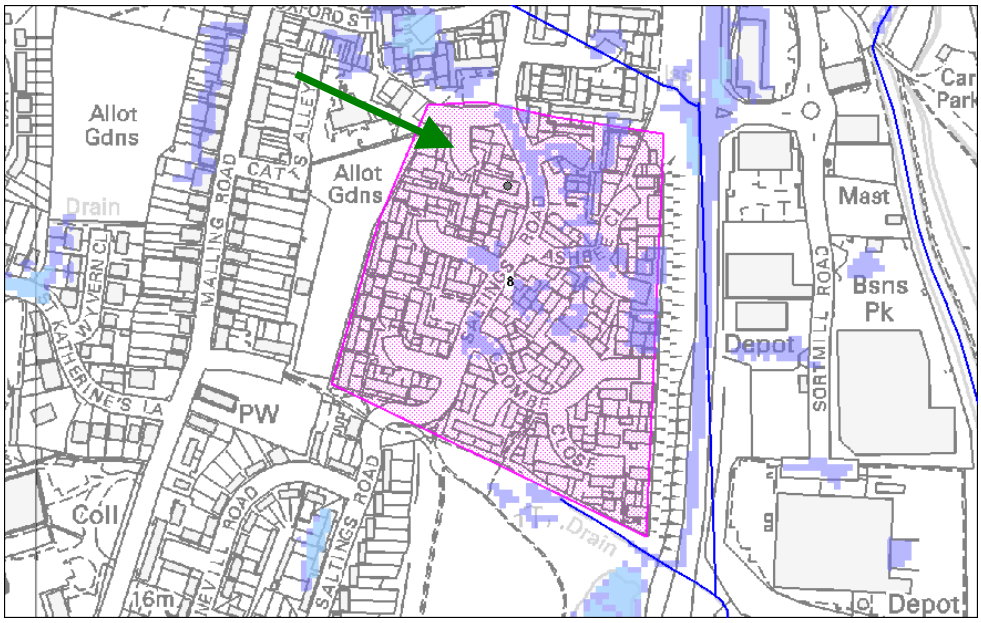
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.25	**Actual Flooding:** Highway flooding in Pikey Lane. **Modelled Flooding:** Flooding of highway in Pikey Lane and of Farms in Broadwater Road. **Stakeholder Info:** TMBC stated highway flooding occurs possibly caused by runoff from surrounding land into poorly maintained highway drainage ditches. **Mapped Features:** Rural. **Main type of Receptors:** Agriculture and Residential.	**Initial Assessment:** Risk Identified
Actual Flooding			**Source:** Surface run-off **Pathway:** Highway **Receptors:** Highway
No. of Flooding Incidents	1		
Occurrence			
Source of Data	MBC		**Recommendation:** Awareness raising for landowners to maintain ditches accepting runoff from surrounding land. **Possible Options:** Awareness raising for landowners to maintain ditches accepting runoff from surrounding land.
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	17		

Hotspot ID	Area	Stake-holder
07	Tovil	Maidstone Borough Council



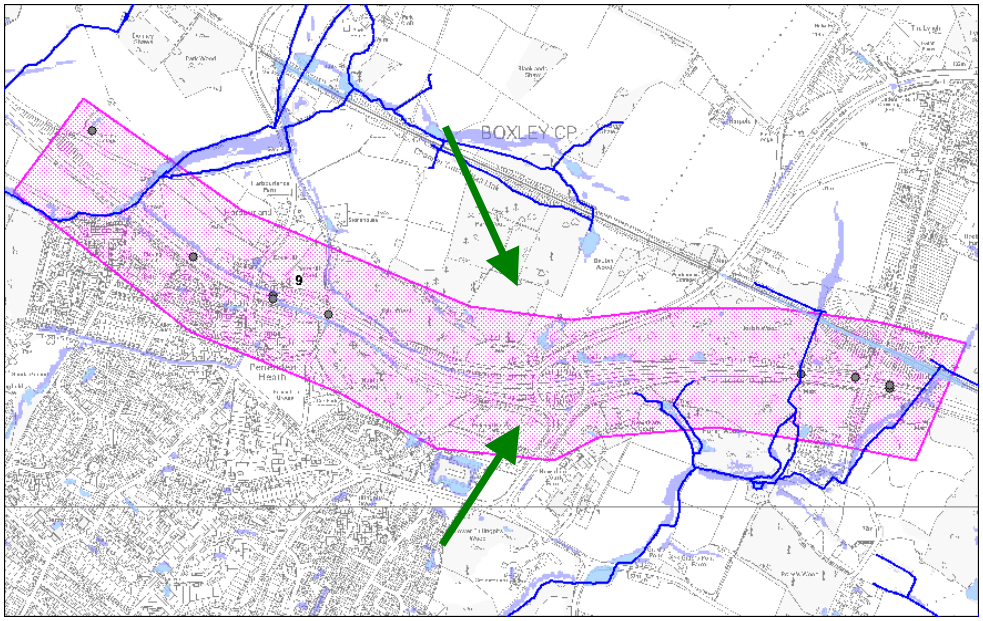
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.22	**Actual Flooding:** Overtopping of the River Loose. **Modelled Flooding:** Flooding of properties in Allnut Mill Close, Tovil Hill and Woodbridge Drive. **Stakeholder Info:** Local watercourse overtopping due to debris in channel, a one off issue. Flood risk is thought to be mainly caused by fluvial flooding. **Mapped Features:** Urban. **Main type of Receptors:** Residential and Industrial Estate.	**Initial Assessment:** No Significant Risk **Source:** Watercourse **Pathway:** Overtopping **Receptors:** Residential Properties **Recommendation:** No further work required
Actual Flooding			
No. of Flooding Incidents	6		
Occurrence	2001, 2005, 2006		
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	186		

Hotspot ID	Area	Stake-holder
08	Snodland	Tonbridge & Malling Borough Council



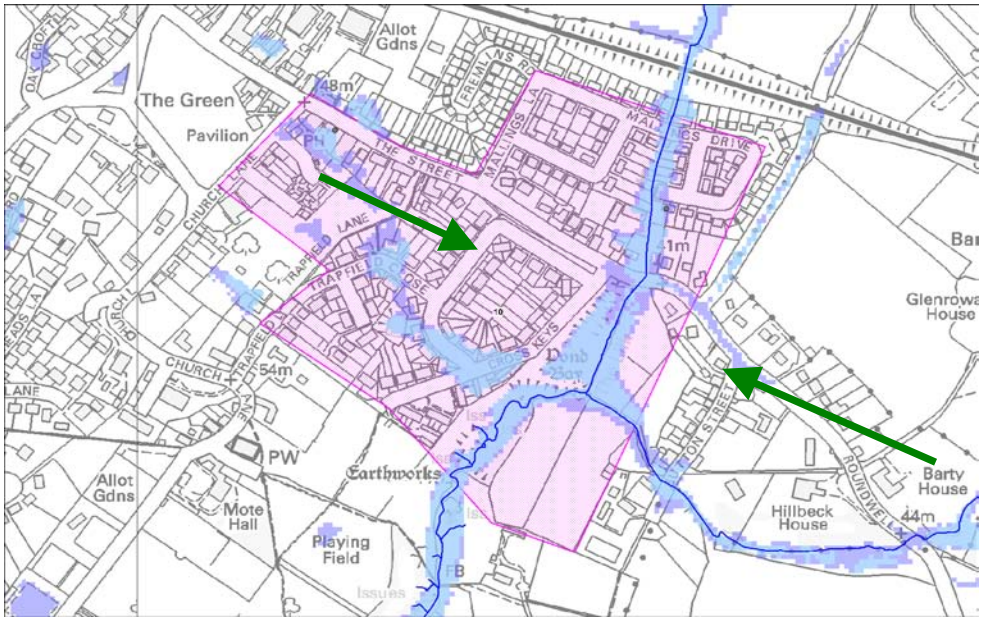
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.06	**Actual Flooding:** Overloaded sewers in Saltings Road. **Modelled Flooding:** Flooding of properties in Saltings Road and Ashbee Close. **Stakeholder Info:** No known surface water relating flood risk in the area. **Mapped Features:** Urban. **Main type of Receptors:** Residential.	**Initial Assessment:** No Significant Risk **Source:** Sewerage system **Pathway:** Highway **Receptors:** Residential properties **Recommendation:** No further work required
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence	2003		
Source of Data	SW		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	49		

Hotspot ID	Area	Stake-holder
09	M20, Junction 7	Maidstone Borough Council



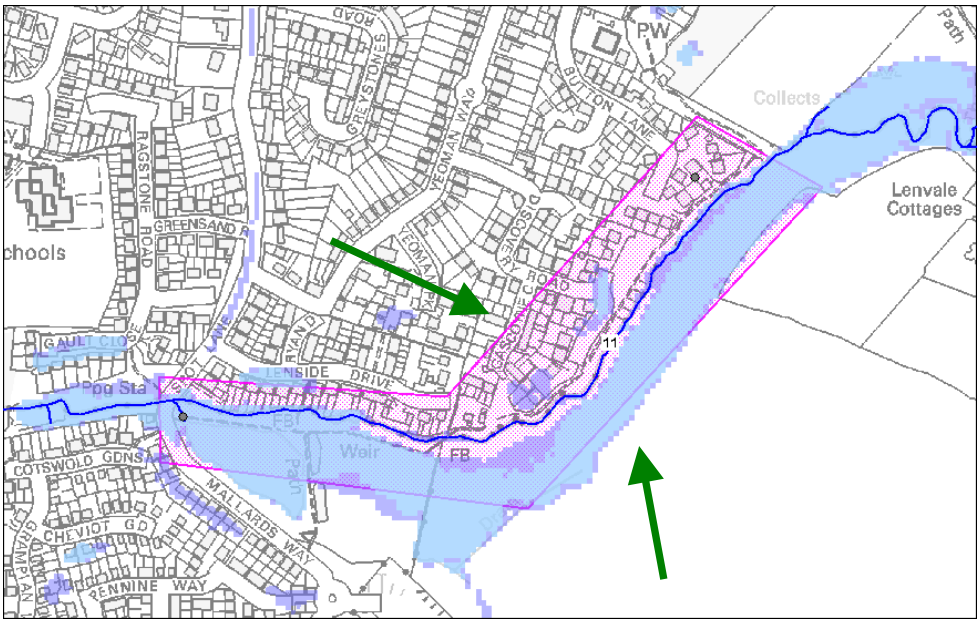
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	1.34	**Actual Flooding:** Flooding incidents along the M20 and in Grange Lane. **Modelled Flooding:** Flooding along M20. **Stakeholder Info:** No known specific surface water related flooding issues. **Mapped Features:** Urban and Key Trunk Road. **Main type of Receptors:** Pumping Station, Sewage Treatment Works and Residential.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Surface run-off **Pathway:** Highway **Receptors:** Highway
No. of Flooding Incidents	9		
Occurrence	2002,2007, 2009,2010		
Source of Data	MBC, HA		**Recommendation:** No further work required
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	37		

Hotspot ID	Area	Stake-holder
10	Bearsted	Maidstone Borough Council



Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km²)	0.16	**Actual Flooding:** Blockage of stream in Mallings Drive and flooding in The Street. **Modelled Flooding:** Flooding of properties in Mallings Drive, Cross Keys and The Street. **Stakeholder Info:** No known specific problems but there has been some changes in watercourse levels by landowners constructing features within the watercourse. **Mapped Features:** Urban and railway line. **Main type of Receptors:** Residential.	**Initial Assessment:** Risk Identified **Source:** Watercourse **Pathway:** Overtopping **Receptors:** Residential properties & highway **Recommendation:** Raise awareness to possible changes in watercourse levels which may impact on fluvial flood risk. **Possible Options:** Raise awareness to residents and possible removal of structures within watercourse. Attenuate flows upstream by throttling the railway culverts.
Actual Flooding			
No. of Flooding Incidents	2		
Occurrence	2000, 2006		
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	76		

Hotspot ID	Area	Stake-holder
11	Bearsted	Maidstone Borough Council

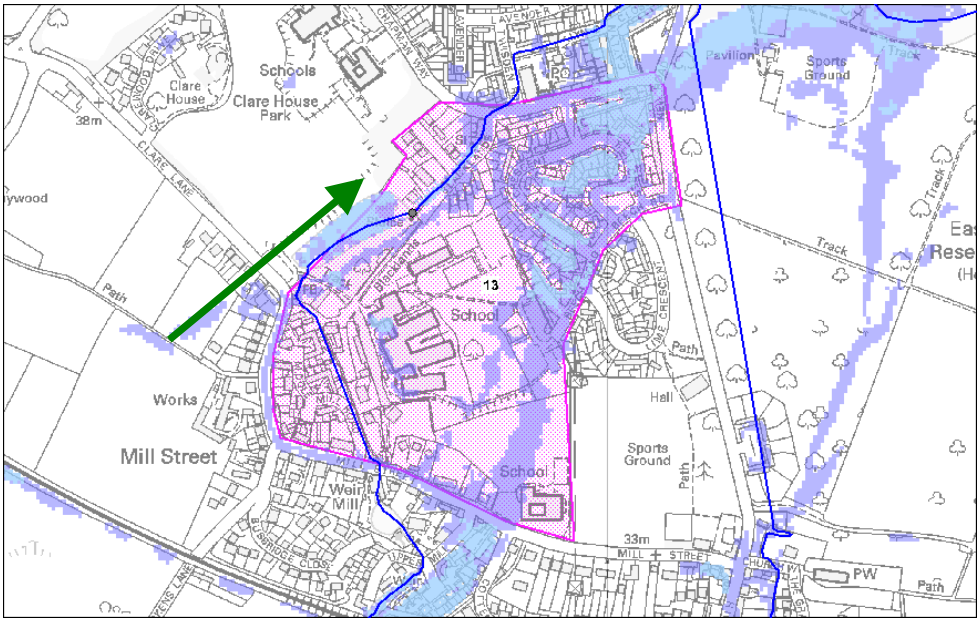


Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.08	**Actual Flooding:** Overtopping of the River Len due to a blockage. **Modelled Flooding:** Flooding of properties in Discovery Road and Lenside Drive. **Stakeholder Info:** No known surface water flood risk related issues. **Mapped Features:** Urban **Main type of Receptors:** Pumping Station and Residential.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Watercourse **Pathway:** Overtopping **Receptors:** Residential properties & highway
No. of Flooding Incidents	2		
Occurrence	1999, 2005		
Source of Data	MBC		**Recommendation:** No further work required
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	23		

Hotspot ID	Area	Stake-holder
12	Maidstone	Maidstone Borough Council

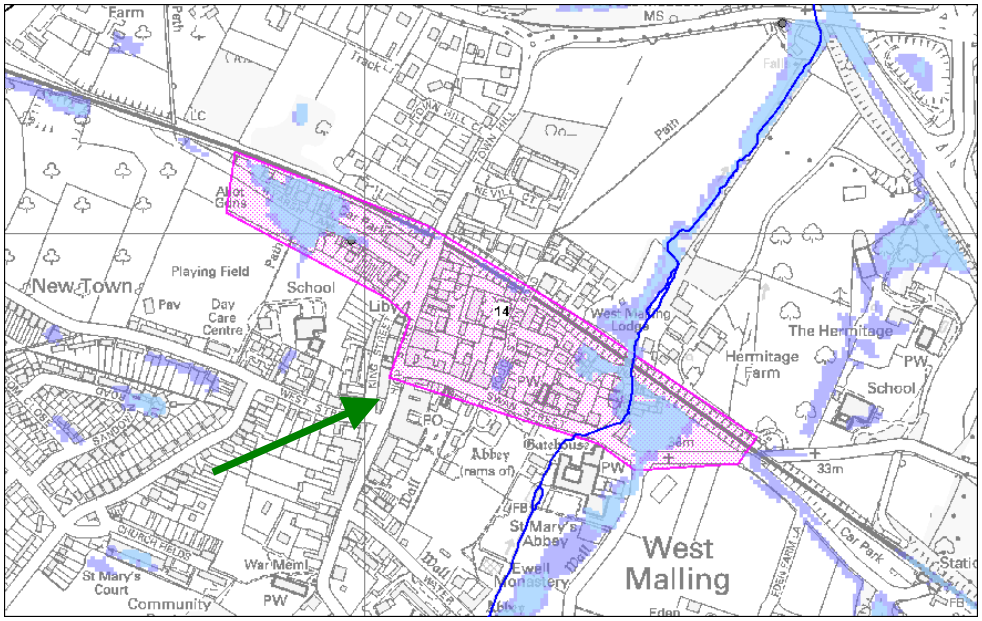
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.13	**Actual Flooding:** Overloaded sewers in Tovil Road, Coombe Road and Brenchley Road. **Modelled Flooding:** Flooding of properties in Old Tovil Road and College Road. **Stakeholder Info:** No known surface water related flooding issues. **Mapped Features:** Urban **Main type of Receptors:** Residential.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Sewerage system **Pathway:** Highway **Receptors:** Residential properties & highway
No. of Flooding Incidents	3		
Occurrence	2000, 2009, 2010		
Source of Data	SW		**Recommendation:** No further work required
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	48		

Hotspot ID	Area	Stake-holder
13	East Malling	Tonbridge & Malling Borough Council



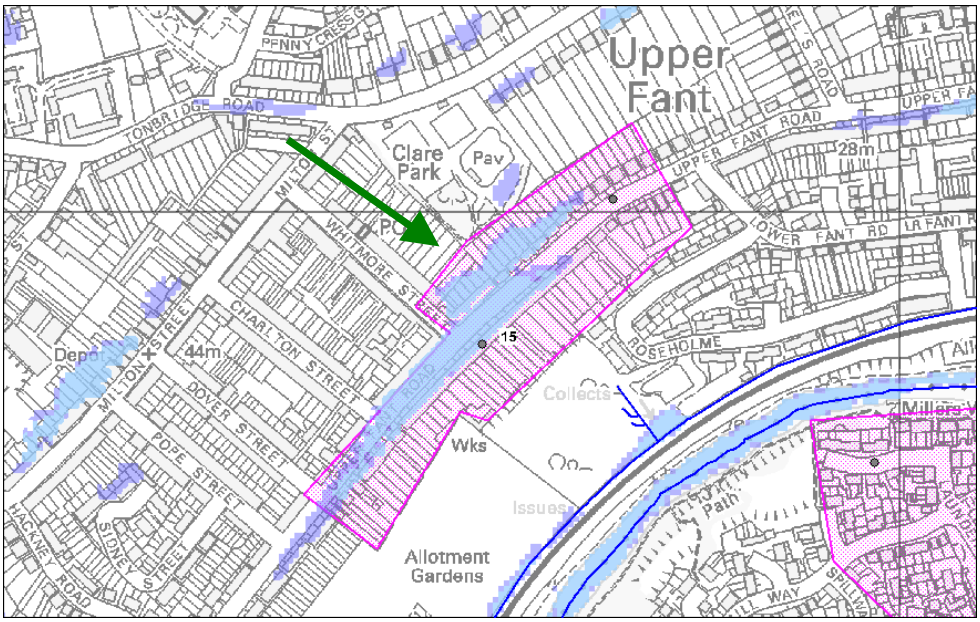
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.19	**Actual Flooding:** Overtopping of Clare Park Lake into Blacklands. **Modelled Flooding:** Flooding of properties in Blacklands, Elm Crescent and Beech Road. **Stakeholder Info:** TMBC stated during high flows in the watercourse the bypass channel is used which has overtopped in the past flooding the highway and basement properties on Blacklands. SW stated there is infiltration into the foul sewer resulting in Blacklands pumping station becoming overloaded. **Mapped Features:** Semi-urban and School. **Main type of Receptors:** Residential and School.	**Initial Assessment:** Risk Identified **Source:** Watercourse & Sewerage system **Pathway:** Overtopping **Receptors:** Residential properties & highway **Recommendation:** Further investigation required **Possible Options:** Upstream attenuation in rural areas and lining the foul sewers to prevent infiltration, however, laterals may still leak.
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence	Periodic		
Source of Data	TMBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	163		

Hotspot ID	Area	Stake-holder
14	West Malling	Tonbridge & Malling Borough Council



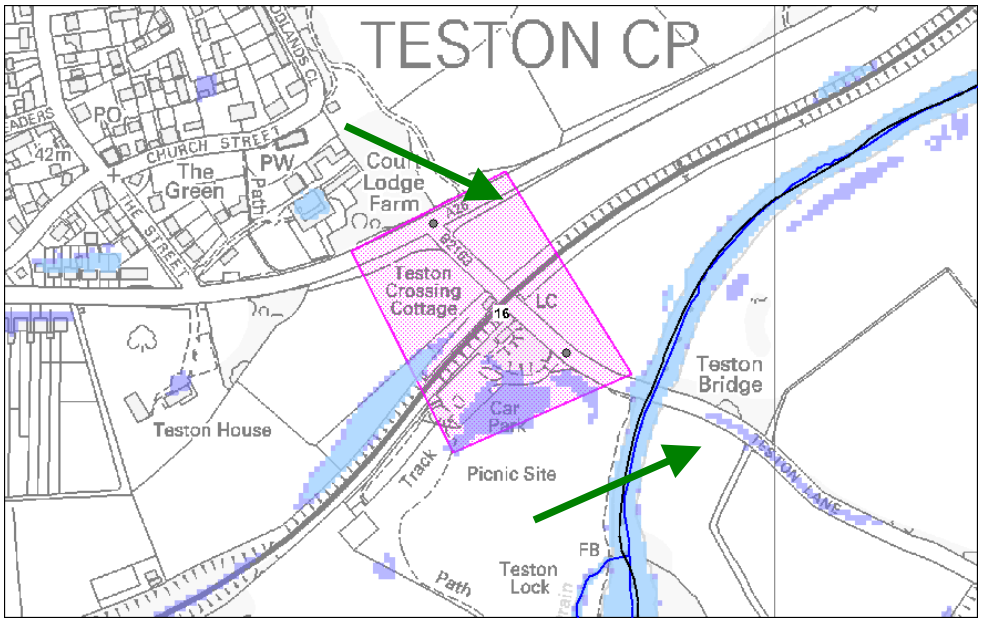
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.09	**Actual Flooding:** Flooding in Ryarsh Lane **Modelled Flooding:** Flooding of properties in Ryarsh Lane and Frog Lane. **Stakeholder Info:** TMBC stated there is some flood risk on Frog Lane which may be caused by the restricted culvert running under the railway line. TMBC also confirmed surface water flood risk is present on Swan Street adjacent to St Marys Abbey and at the junction with Lavenders Road caused by runoff which occurs periodically. SW confirmed there is heavy root ingress into the 300mm dia combined sewer which runs under the railway line embankment, this has resulted in curtilage flooding with the risk of internal flooding present. **Mapped Features:** Rural and Railway Line. **Main type of Receptors:** Residential.	**Initial Assessment:** Risk Identified **Source:** Watercourse **Pathway:** Highway **Receptors:** Residential properties, railway line & highway **Recommendation:** Investigate feasibility to accelerate sewer rehab work. **Existing Schemes:** Sewer rehab work is to be undertaken to remove roots from the sewer in the next 2 years. **Possible Options:** Relining the existing sewer to prevent future root ingress.
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence			
Source of Data	SW		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	58		

Hotspot ID	Area	Stake-holder
15	Maidstone	Maidstone Borough Council



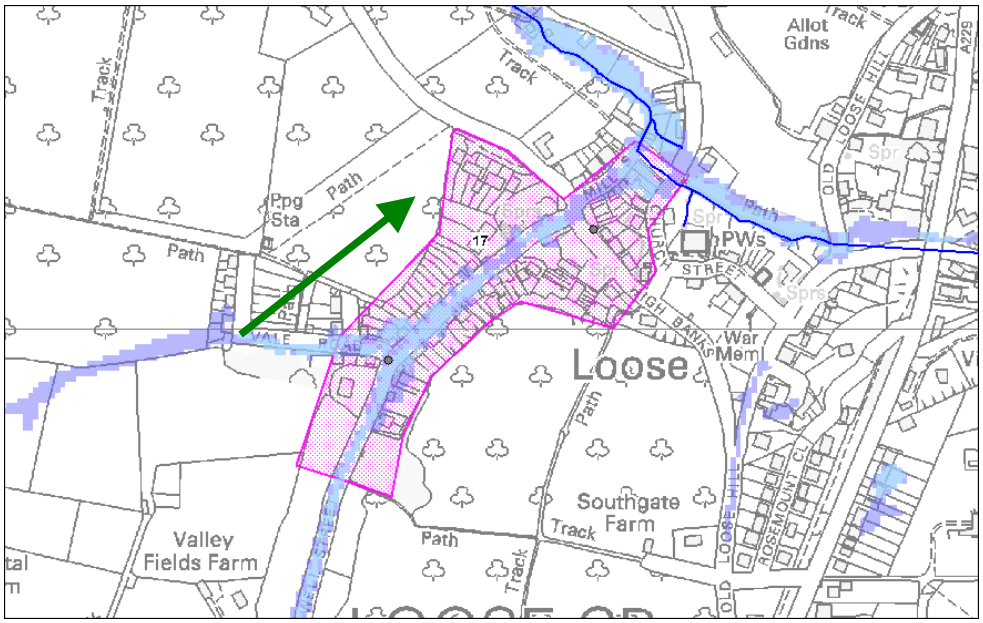
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.04	**Actual Flooding:** Flooding in Upper Fant Road. **Modelled Flooding:** Flooding of properties in Upper Fant Road. **Stakeholder Info:** No known surface water related flooding issues. **Mapped Features:** Urban. **Main type of Receptors:** Residential.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Surface runoff **Pathway:** Overland flow **Receptors:** Residential properties & highway
No. of Flooding Incidents	2		
Occurrence	2001		
Source of Data	MBC		
Predicted Flooding			**Recommendation:** No further work required
No. of buildings within the EA's 1 in 30yr shallow flood extent	124		

Hotspot ID	Area	Stake-holder
16	Teston	Maidstone Borough Council



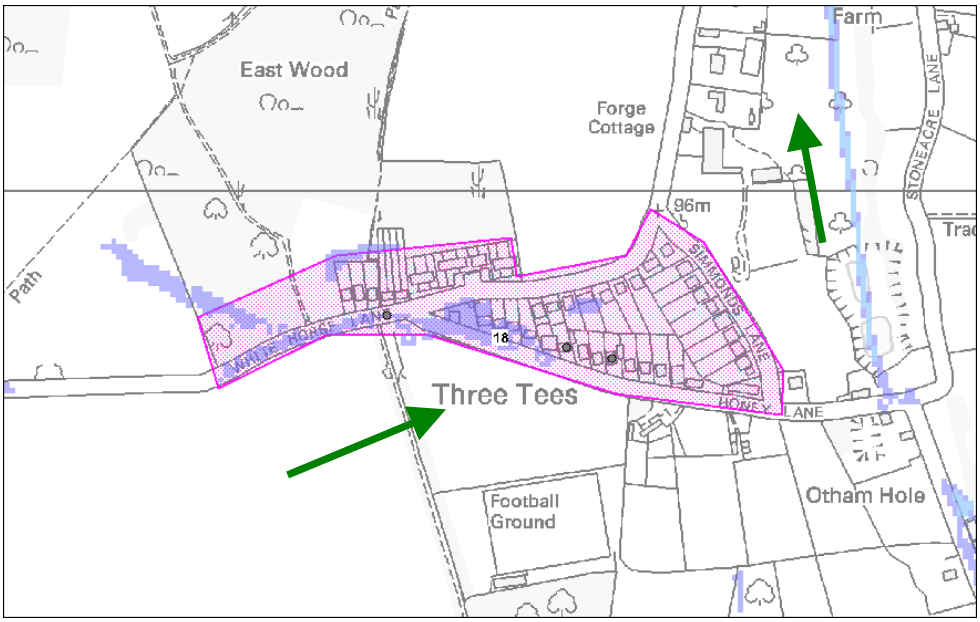
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.04	**Actual Flooding:** Highway flooding in Teston Lane. **Modelled Flooding:** Flooding of car park and land adjacent to the railway line. **Stakeholder Info:** No known surface water related flooding issues. **Mapped Features:** Rural and Railway Line. **Main type of Receptors:** Public Car Park.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Surface runoff **Pathway:** Overland flow **Receptors:** Highway & car park
No. of Flooding Incidents	3		
Occurrence	2001, 2004, 2005		
Source of Data	MBC		**Recommendation:** No further work required
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	1		

Hotspot ID	Area	Stake-holder
17	Loose	Maidstone Borough Council



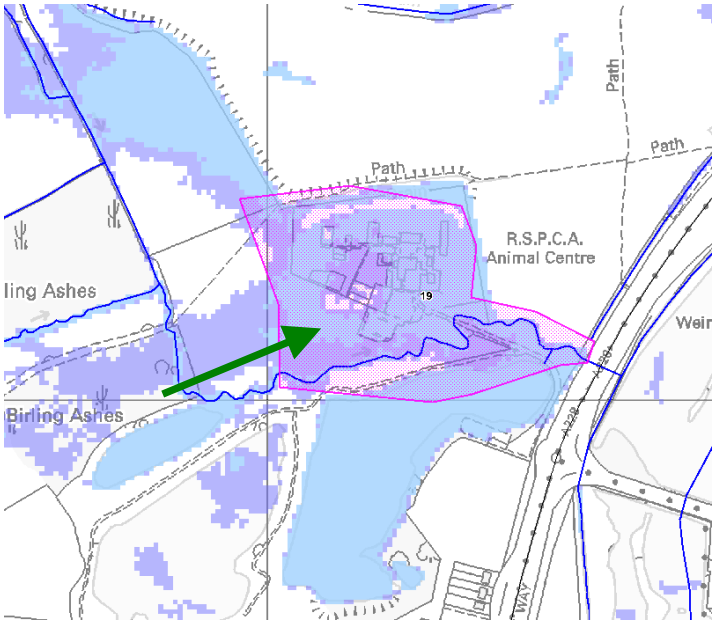
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.05	**Actual Flooding:** Flooding of highway Mill Street. **Modelled Flooding:** Flooding of properties along Mill Street and Vale Road. **Stakeholder Info:** Known heavy silting occurring on the Loose Stream which was de-silted in 2007. **Mapped Features:** Rural. **Main type of Receptors:** Residential.	**Initial Assessment:** Risk Identified **Source:** Watercourse **Pathway:** Overtopping **Receptors:** Residential properties & highway **Recommendation:** Confirm if proposed Parish scheme will resolve all flood risk in the area. **Existing Schemes:** Parish Council scheme grant for de-silting local watercourse and possible attenuation pond. **Possible Options:** Prioritised maintenance of existing watercourse.
Actual Flooding			
No. of Flooding Incidents	2		
Occurrence	2001, 2005		
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	58		

Hotspot ID	Area	Stake-holder
18	Otham	Maidstone Borough Council



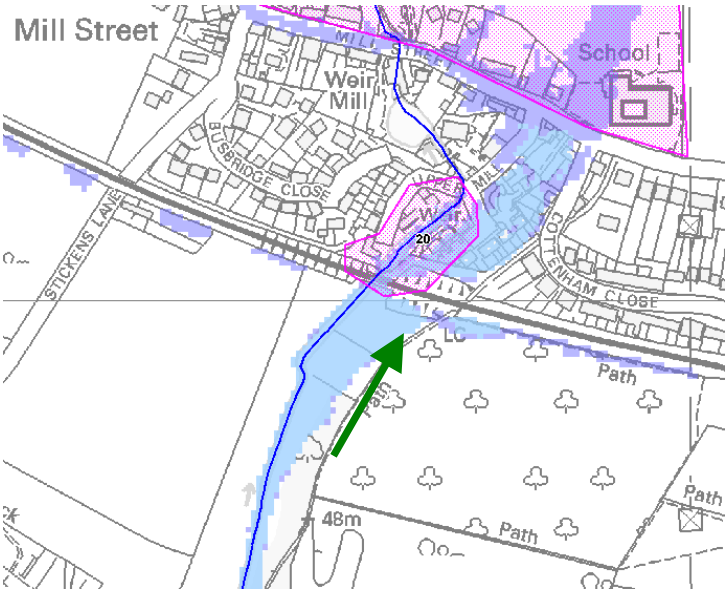
Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.05	**Actual Flooding:** One flooding event caused curtilage flooding along White Horse Lane. **Modelled Flooding:** Flooding of properties in White Horse Lane and Honey Lane. **Stakeholder Info:** No known surface water related flooding issues. **Mapped Features:** Rural **Main type of Receptors:** Residential.	**Initial Assessment:** No Significant Risk **Source:** Surface runoff **Pathway:** Overland flow **Receptors:** Residential properties & highway **Recommendation:** No further work required
Actual Flooding			
No. of Flooding Incidents	3		
Occurrence	2000, 2001, 2002		
Source of Data	MBC		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	14		

Hotspot ID	Area	Stake-holder
19	Birling	Maidstone Borough Council



Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	1.03	**Actual Flooding:** Blocked culvert resulting cartilage flooding of the RSPCA centre. **Modelled Flooding:** Flooding to commercial building. **Stakeholder Info:** No known surface water related flooding issues. **Mapped Features:** Rural **Main type of Receptors:** Commercial building.	**Initial Assessment:** No Significant Risk
Actual Flooding			**Source:** Surface runoff **Pathway:** Overland flow **Receptors:** Residential properties & highway
No. of Flooding Incidents	1		
Occurrence	2000		
Source of Data	IDB		
Predicted Flooding			**Recommendation:** Installation of trash screen to prevent future culvert blockages. **Possible Options:** Installation of trash screen to prevent future culvert blockages.
No. of buildings within the EA's 1 in 30yr shallow flood extent	0		

Hotspot ID	Area	Stake-holder
20	Mill Street	Maidstone Borough Council



Hotspot Information		Flooding Data	Conclusion
Hotspot Area (km^2)	0.34	**Actual Flooding:** Known flood risk from excessive vegetation growth within the channel reducing conveyance of flows. **Modelled Flooding:** Predicted flooding indicated at location of watercourse becoming culverted flooding residential premises. **Stakeholder Info:** Known flood risk from excessive vegetation growth within the channel reducing conveyance of flows. **Mapped Features:** Residential and Railway line **Main type of Receptors:** Residential.	**Initial Assessment:** No Significant Risk **Source:** Watercourse **Pathway:** Overtopping **Receptors:** Residential properties **Recommendation:** No further work required. **Existing Schemes:** Maintenance carried out by housing association.
Actual Flooding			
No. of Flooding Incidents	1		
Occurrence	2000		
Source of Data	IDB		
Predicted Flooding			
No. of buildings within the EA's 1 in 30yr shallow flood extent	0		

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