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Site Category	Strategic Employment Sites
Site code	HOR9
Site name	Horley Business Park

Sources of flood risk Surface Water							
Current land use Proposed site use Proposed site use Proposed site use NPPF Flood risk vulnerability Less Vulnerable New attercourses exist within the site boundary. A main river watercourse and several ordinary watercourses are present to the west of the sites. The EA Historic Flood Map identifies that the north and east of the site have had two recorded fluvial flood incidents in 1960 and 1968. The B2036 to the east has recorded incidents of internal property damage from surface water flooding. Proportion of site at risk in Flood Zones F13b F23a F722 F21 0% 0% 24% 76% Available modelled data: Burstow Stream Model (Environment Agency, 2011) covers the west of the site, and the Upper Mole Model (Environment Agency, 2006) covers the west of the site. Flood characteristics: The site lies beyond the 1 in 100-year (1% AEP) flood extent of Tilgate Brook and Burstow Stream, but a large area of the northern and eastern area of the site lies in Flood Zone 2. Proportion of site at risk (RoFSW) 30-year 100-year 1,000-year 2% 3% 15% Description of surface water flow paths: The site shows potential for significant ponding at the north west of the site during 1 in 30-year (3.3% AEP) rainfall event and greater return periods. This extends in a band to the centre of the site. The tracks running across the site currently provide linear surface water flow paths during the 1 in 1,000-year (0.1%) event, however this is likely to change with the proposed development. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater levels at or very near the surface with the remaining area to the west having a negligible risk of groundwater flooding. The south east of the site falls within the maximum extent of flooding from reservoir failure.	Site details		528949, 141956				
Proposed site use Employment		Area	Greenfield				
Sources of flood risk Surface Water		Current land use					
Existing watercourses exist within the site boundary. A main river watercourse and several ordinary watercourses are present to the west of the sites. The EA Historic Flood Map identifies that the north and east of the site have had two recorded fluvial flood incidents in 1960 and 1968. The B2036 to the east has recorded incidents of internal property damage from surface water flooding. Proportion of site at risk in Flood Zones FZ3b FZ3a FZ2 FZ1		•					
Flood history Frash			Less Vulnerable				
Flood history had two recorded fluvial flood incidents in 1960 and 1968. The B2036 to the east has recorded incidents of internal property damage from surface water flooding.		_			-		
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Surface Water Description of surface water flow paths: The site shows potential for significant ponding at the north west of the site during 1 in 30-year (3.3% AEP) rainfall event and greater return periods. This extends in a band to the centre of the site. The tracks running across the site currently provide linear surface water flow paths during the 1 in 1,000-year (0.1%) event, however this is likely to change with the proposed development. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) The east of the site, approximately half the area, is considered to have groundwater levels at or very near the surface with the remaining area to the west having a negligible risk of groundwater flooding. The south east of the site falls within the maximum extent of flooding from reservoir failure.		Fluvial	Agency 2006) cov Flood characteri extent of Tilgate I	west of the steers the west of stics: The site Brook and Bur	site, and the Upper Mole M f the site. I lies beyond the 1 in 100-y stow Stream, but a large a	Model (Environment ear (1% AEP) flood	
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reservoir failure.		Surface Water	Flood characteri extent of Tilgate I and eastern area 30-yea 2% Description of sure The site shows period during 1 in 30-yea extends in a band. The tracks runnin paths during the five with the proposed. Areas Susceptib groundwater emissions.	west of the steers the west of the steers the west of the steers the west of the site. The site lies of the centre of the site lies of the sit	site, and the Upper Mole Me fithe site. The lies beyond the 1 in 100-yestow Stream, but a large as in Flood Zone 2. The of site at risk (RoFSW) 100-year 3% The provided linear of the site. The site currently provided linear of (0.1%) event, however this event and greater of the site.	dodel (Environment ear (1% AEP) flood area of the northern 1,000-year 15% The west of the site return periods. This is surface water flow is is likely to change (risk of	
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Canal The site is not located within 100m of a canal.		Surface Water Groundwater	Flood characteri extent of Tilgate I and eastern area 30-yea 2% Description of sure The site shows produring 1 in 30-yea extends in a band. The tracks runnin paths during the with the proposed. Areas Susceptib groundwater emergroundwater level west having a neger the south east of the groundwater area.	west of the steers the west of the steers the west of steers the west of steers the west of the site lies. Proportion of the	site, and the Upper Mole Me fithe site. It lies beyond the 1 in 100-yestow Stream, but a large as in Flood Zone 2. In of site at risk (RoFSW) 100-year 3% In ow paths: In grificant ponding at the nor rainfall event and greater of the site. In other in the site in the site currently provide linear (0.1%) event, however this every part of the site in the site i	dodel (Environment ear (1% AEP) flood area of the northern 1,000-year 15% The west of the site return periods. This extract water flow is is likely to change (risk of expending area to the maining area to the	



Site Category	Strategic Employment Sites			
Site code	HOR9			
Site name	Horley Business Park			

	Defences	Defence Type	Standard of	Protection	on Co	ondition
	20.0000	The site does not receive protection from flood defences.				
Flood risk	Culvert / structure blockage?					
infrastructure	management infrastructure Residual risk	Impounded water body failure?	The site is within the extent of flooding fro reservoir failure.			oding from
		Defence breach /		Breach	Zone	
		overtopping?	The site is defences.	not at	risk from	breach of
	Flood warning	The site lies within the "Burstow Stream at East and North Horley" flood warning area and Ilfield Brook, Upper River Mole, Gatwick Stream, Burstow Stream and Salfords Stream flood alert area.				
Emergency planning		Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
	Access and egress	Access and egress to this site which has a small risk of flooding property flooding from surface w the south could be considered.	g from surface v	water and	a recorded	l incident of
	Climate change allowances for	River Basin District	Ce	entral	Higher Central	Upper End
Climate	'2080s'	Thames 25% 35% 70%			70%	
Change	Implications for the site	Climate change is unlikely to sig of this site.	nificantly chang	je the Floo	od Zone cla	essification



Site Category	Strategic Employment Sites
Site code	HOR9
Site name	Horley Business Park

	Bedrock Geology	Wealdon Group, mudstone, siltstone and sandstone.		
	Superficial Geology	Sand and gravel river terrace deposits cover the whole of the site.		
	Soils	The south west of the site has slowly permeable loamy and clayey soils with impeded drainage, the north east of the site has naturally wet loamy soil with high groundwater.		
		SuDS should be designed around existing surface water flow paths and areas of ponding. Due to the existing flood risk to properties surrounding the site, surface water discharge should be restricted to greenfield runoff rates as a minimum.		
Requirement	SuDS	The slowly permeable soils present on the site and the high groundwater table may limit the opportunities for infiltration SuDS, however this large undeveloped site should be able to implement other SuDS features and designs.		
for drainage control and impact mitigation		Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as historic land site.		
	Opportunities for flood risk betterment	Opportunity to implement exemplar SuDS design following CIRIA and SCC guidance on runoff rates and volumes, contributing to the reduction of flood peaks downstream.		
	•	d Exception Test requirements		
	24% of the site is wi	thin Flood Zone 2 and also at risk of surface water flooding.		
Recommend- ations for Local Plan policy	sequentially within F If More Vul If Highly Vu	must be passed and it is expected that all built development will be located Flood Zone 1. The Exception Test will be required: Inerable and Essential Infrastructure is located in FZ3a ulnerable development is located in FZ2 or Flood Zone 3a plus climate change Infrastrucutre is located in Flood Zone 3b		
	Highly Vulr	ot be permitted in the following scenarios: nerable development within FZ3a or FZ3a plus climate change and FZ3b. erable and Less Vulnerable development within FZ3b.		



Site Category	Strategic Employment Sites
Site code	HOR9
Site name	Horley Business Park

Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers

Flood risk assessment:

- At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Groundwater flood risk in the north of the site should be investigated.
- Detailed modelling will be required to confirm Flood Zone and climate change extents. The
 Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling
 information for the site at the time of the flood risk assessment. They will advise as to
 whether existing detailed models need to be updated.
- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site Category	Urban Extensions
Site code	SSW2
Site name	Land at Sandcross Lane, South Park, Reigate

Site details	OS Grid reference	524954 148433 16.58Ha				
	Area					
	Current land use	Greenfield				
	Proposed site use	Urban Extension	site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses			ge ditch) flows from the nor inder Slipshatch Road.	thern end of the	
	Flood history		ite), and the no	een reported along Whiteha orth-eastern tip of the site is atabase.		
			Proportion of	site at risk in Flood Zone	s	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	0%	100%	
	Fluvial	site, and the Risk of Flooding from Surface Water mapping has been used proxy. Flood characteristics: Risk of flooding from Surface Water mapping suggests that localised flo may occur from the unnamed ordinary watercourse that flows across the statement of the surface water mapping suggests.				
Sources of			Proportion	n of site at risk (RoFSW)		
flood risk		30-ye		100-year	1,000-year	
		3%		7%	20.3%	
	Surface Water	Description of surface water flow paths: A significant surface water flow path follows the ordinary watercourse a the site from north west to south. Significant ponding is likely toward southern end of the site in a 1 in 30-year event, and more extensive flow ponding from a 1 in 100-year or 1 in 1000-year event.				
	Groundwater	Areas Susceptib groundwater em		vater Flooding Map class	risk of	
	Groundwater		ergence)		risk of	
	Groundwater Reservoir	groundwater em	ergence) groundwater flo	poding.	risk of	
		groundwater em Negligible risk of	ergence) groundwater flo at risk from res	poding. servoir flooding.	risk of	



Site Category	Urban Extensions
Site code	SSW2
Site name	Land at Sandcross Lane, South Park, Reigate

Defences		Defence Type	Standard	d of Protect	ion Co	ondition
	201011000	The site does not receive protection from flood defences.				
Flood risk management infrastructure	Residual risk	Culvert / structure blockage?	There are no structures on the site (identiat this stage) with the potential to blue However the Ordinary Watercourse crosses the site does exit the site viculvert under Slipshatch Road, so blockage risk may be present at this locat		I to block. ourse that site via a ad, so a	
		Impounded water body failure?		is not at ris eservoir failu	sk of inunda ire.	ition in the
		Defence breach /		Bread	h Zone	
		overtopping?	The site defences.	The site is not at risk from breach of defences.		
	Flood warning	The site lies outside the Flood Alert Area for the River Mole and its tributaries.				
Emergency planning	Access and egress	Access to the site is possible from three sides. However significant surface water flooding exists on Sliphatch Road on the so Whitehall Lane to the west and the northern part of Sandcross east.				thern side,
	Climate change	River Basin District		Central	Higher Central	Upper End
Climate	'2080s'	Thames		25%	35%	70%
Change	Implications for the site	Climate change is unlikely to cha	ange the Flo	ood Zone cla	assification o	f this site.



Site Category	Urban Extensions
Site code	SSW2
Site name	Land at Sandcross Lane, South Park, Reigate

	Bedrock Geology	Wealdon Group, Mudstone, Siltstone and Sandstone	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.	
		The low permeability of this site suggests that infiltration systems may not be appropriate. However, sloping nature of the site west to east) allows opportunities for SuDS which drain by gravity, and there is potential to utilise the existing watercourse.	
Requirement for drainage		Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.	
control and impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.	
J	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream and existing surface water flow paths leaving the site.	
	flood risk betterment	Opportunity to investigate the condition and capacity of the culvert at the southern edge of the site, and determine whether it can accept flows from the developed site. Culvert enlargement may be required if the asset is undersized.	
	Sequential Test an	d Exception Test requirements	
	The site is within Flood Zone 1 but does contain an Ordinary Watercourse and is at risk from surfac water flooding, which should be taken into account when carrying out the Sequential Test an Exception test if required.		
Recommend-	Recommendations for requirements of site-specific Flood Risk Assessment, including uidance for developers		
ations for Local Plan policy	 Flood risk assessment: At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage Impacts of the development on flood risk to the wider catchment should assessed. 		
	 Developme 	site design and making development safe: ent must seek opportunities to reduce overall level of flood risk at the site. e water drainage strategy should ensure that the development does not increase	



Site Category	Urban Extensions
Site code	SSW2
Site name	Land at Sandcross Lane, South Park, Reigate

flood risk elsewhere.
 Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
All development should adopt source control SuDS techniques to reduce the risk of
flooding due to post-development runoff. SuDS design should follow current best practice
(CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple
benefits including water quality, biodiversity, amenity, green infrastructure etc.
Drainage designs should 'design for exceedance' and accommodate existing surface water
flow routes, with development located outside of existing flood risk areas.



Site code	SSW7
Site name	Hartswood Nursery and land west Castle Drive, Reigate

Site details	OS Grid reference	525543 147882			
	Area	1.59Ha			
	Current land use	Greenfield, with f	arm building		
	Proposed site use	Urban Extension	Jrban Extension site		
	Flood risk vulnerability	More vulnerable			
	Existing watercourses	A sluice, identified as a main river on the detailed river network map starts in the north-west corner of the site.			etwork map starts in
	Flood history		face water has l	looding have been ident been recorded on Dover	
			Proportion of	site at risk in Flood Zo	ones
		FZ3b	FZ3a	FZ2	FZ1
		0.3%	0.3%	0.3%	99.7%
		The area of the	site is covere	d by the Middle Mole	Model currently being
	Fluvial	updated. Flood character Whilst the site pr	istics: redominantly ou of the site overla	d by the Middle Mole atside FZ2 and FZ3, a saps with FZ3. The impa	small area at the north-
Sources of	Fluvial	updated. Flood character Whilst the site privestern corner of	istics: redominantly ou f the site overla nsidered.	itside FZ2 and FZ3, a s	small area at the north- ct of climate change of
Sources of flood risk	Fluvial	updated. Flood character Whilst the site privestern corner of	istics: redominantly ou of the site overla nsidered. Proportion	itside FZ2 and FZ3, a saps with FZ3. The impa	small area at the north- ct of climate change of
	Fluvial	updated. Flood character Whilst the site pr western corner o this should be co	istics: redominantly ou if the site overla nsidered. Proportion	atside FZ2 and FZ3, a saps with FZ3. The impa	small area at the north- ct of climate change of
	Fluvial Surface Water	updated. Flood character Whilst the site pr western corner of this should be co 30-ye 2% Description of s Significant pondii	istics: redominantly ou of the site overlansidered. Proportion ear ourface water fl ng may be pres n a 1 in 30-ye	ntside FZ2 and FZ3, a saps with FZ3. The imparts of site at risk (RoFSV 100-year 3%) ow paths: sent at the northern endar event. A smaller flo	small area at the north-ct of climate change of V) 1,000-year 8% d of the site associated
		updated. Flood character Whilst the site privestern corner of this should be considered as a second	redominantly our fithe site overlansidered. Proportion ear ourface water fling may be presin a 1 in 30-year ene site in a 1 in one site in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in our flans in a 1 i	atside FZ2 and FZ3, a saps with FZ3. The imparts of site at risk (RoFSV 100-year 3%) ow paths: sent at the northern endar event. A smaller flo 1000-year event.	wy) 1,000-year 8% d of the site associated w path may cross the
	Surface Water	updated. Flood character Whilst the site privestern corner of this should be considered as a second	redominantly our fithe site overlansidered. Proportion ear ourface water fling may be presin a 1 in 30-year ene site in a 1 in one site in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in one site of the our flans in a 1 in our flans in a 1 i	atside FZ2 and FZ3, a saps with FZ3. The imparts of site at risk (RoFSV 100-year 3%) ow paths: sent at the northern endar event. A smaller flo 1000-year event.	wy) 1,000-year 8% d of the site associated w path may cross the
	Surface Water	updated. Flood character Whilst the site privestern corner of this should be considered as a second	redominantly our fithe site overlansidered. Proportion ear ourface water fing may be presen a 1 in 30-year ene site in a 1 in one site in a 1 in one site in a 1 in one gence) groundwater floor groundwater floor groundwater floor groundwater floor groundwater floor groundwater floor groundwater groundwa	atside FZ2 and FZ3, a saps with FZ3. The impart of site at risk (RoFSV 100-year 3%) ow paths: sent at the northern end ar event. A smaller flo 1000-year event.	wy) 1,000-year 8% d of the site associated w path may cross the



Site code	SSW7
Site name	Hartswood Nursery and land west Castle Drive, Reigate

	Defences	Defence Type	Standard of Protection	Condition	
	Dolollood	The site does not receive protection from flood defences.			
Flood risk		Culvert / structure blockage?			ed
management infrastructure	Residual risk	Impounded water body failure?	The site is not at risk or event of reservoir failure.	f inundation in t	he
		Defence breach /	Breach Zo	one	
		overtopping?	The site is not at risl defences.	from breach	of
	Flood warning	The north-west tip of the site lies within the "River Mole and its tributaries from Kinnersley Manor to South Hersham" Flood Alert Area.			
Emergency		Environment Agency flood warnings are now issued to individuals via the Flood Information Service.			
planning	Access and egress	The site can be accessed from a and an un-named road to the so Castle Drive has a significant ris	uth.		rth
	Climate change allowances for '2080s'	River Basin District		igher Uppe entral End	
Climate		Thames	25%	35% 70%	
Change	Implications for the site	Climate change is unlikely to cha	ange the Flood Zone classifi	cation of this site	



Site code	SSW7
Site name	Hartswood Nursery and land west Castle Drive, Reigate

	Bedrock Geology	Wealdon Group, Mudstone, Siltstone and Sandstone	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.	
		The low permeability of this site suggests that infiltration systems may not be appropriate. However, sloping nature of the site south to north) allows opportunities for SuDS which drain by gravity, and there is potential to utilise the existing drainage ditch to the north west.	
Requirement	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.	
for drainage control and impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.	
magation	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream and existing surface water flow paths leaving the site.	
	betterment	Opportunity to investigate the condition and capacity of the drainage ditch at the north-western edge of the site, and determine whether it can accept flows from the developed site.	
	Sequential Test an	d Exception Test requirements	
	99% of site is within Flood Zone 1 but at risk from surface water flooding, which should be taken in account when carrying out the Sequential Test and Exception test if required. The sequential test should be applied within the site.		
Recommend-	all built developme would be required:	nential Test is passed should the Exception Test be applied. It is expected that ent will be sequentially located within Flood Zone 1, but the Exception Test	
ations for Local Plan policy	 If More Vulnerable and Essential Infrastructure is located in FZ3a. If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. If Essential Infrastructure is located in Flood Zone 3b 		
	Development will no	t be permitted in the following scenarios:	
	FZ3b.	ulnerable development within FZ3a or Flood Zone 3a plus climate change and ulnerable and Less Vulnerable development within FZ3b.	
	- WIGIE VO	and Loos valuetable development within 1 Zob.	



Site code	SSW7
Site name	Hartswood Nursery and land west Castle Drive, Reigate

Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers

Flood risk assessment:

- At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Impacts of the development on flood risk to the wider catchment should assessed.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The surface water drainage strategy should ensure that the development does not increase flood risk elsewhere.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.
- Drainage designs should 'design for exceedance' and accommodate existing surface water flow routes, with development located outside of existing flood risk areas.



Site code	SSW9
Site name	Land at Dovers Farm, Woodhatch, Reigate

Site details	OS Grid reference	525946 147946				
	Area	6.10Ha				
	Current land use	Greenfield				
	Proposed site use	Urban Extension site	Jrban Extension site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses		itch is p	main river, is present at t resent on the southern sid it leaves the site.		
	Flood history			ded for the site. Earlswood proximately 200 m south o		
				site at risk in Flood Zor		
		FZ3b F2	Z3a	FZ2	FZ1	
		0.3% 0.	3%	0.5%	99.5%	
	Fluvial	The area of the site is covered by the Middle Mole Model currently being updated. Flood characteristics: The south-east corner of the site lies within FZ2 and FZ3 of Earlswood Brook.				
		updated. Flood characteristics:				
		updated. Flood characteristics: The south-east corner of	the site		of Earlswood Brook.	
Sources of		updated. Flood characteristics: The south-east corner of	the site	lies within FZ2 and FZ3	of Earlswood Brook.	
Sources of flood risk		updated. Flood characteristics: The south-east corner of	the site	lies within FZ2 and FZ3 of of site at risk (RoFSW)	of Earlswood Brook.	
	Surface Water	updated. Flood characteristics: The south-east corner of Pro 30-year 1% Description of surface A surface water flow paid joining up with the content of the surface of the surface water flow paid in the surface wat	water flath is prurse of ne site.	lies within FZ2 and FZ3 of of site at risk (RoFSW) 100-year 4% ow paths: resent from the north-we the drainage ditch, the lin the case of this south	1,000-year 14% st corner of the site, en flowing along the	
	Surface Water Groundwater	updated. Flood characteristics: The south-east corner of 30-year 1% Description of surface A surface water flow pa joining up with the corsouthern boundary of the may occur during a 1 in 3 Areas Susceptible to G groundwater emergence	water flath is prurse of ne site. 30-year	lies within FZ2 and FZ3 of of site at risk (RoFSW) 100-year 4% ow paths: resent from the north-we the drainage ditch, the lin the case of this south event.	1,000-year 14% st corner of the site, en flowing along the nern section, ponding	
		updated. Flood characteristics: The south-east corner of Pro 30-year 1% Description of surface A surface water flow paragioning up with the consouthern boundary of the may occur during a 1 in 3 Areas Susceptible to Groundwater emergence Negligible risk of groundwater.	water flath is prurse of ne site. 30-year	lies within FZ2 and FZ3 of of site at risk (RoFSW) 100-year 4% ow paths: resent from the north-we the drainage ditch, the lin the case of this south event.	1,000-year 14% st corner of the site, en flowing along the nern section, ponding s (risk of	



Site code	SSW9
Site name	Land at Dovers Farm, Woodhatch, Reigate

	Defences	Defence Type	Standard of Protect	ion Co	ondition	
	Bololiooo	The site does not receive protection from flood defences.				
Flood risk		Culvert / structure blockage?	The drainage ditch at the southern end of the site is likely to enter a culvert as it passes under the road.			
management infrastructure	Residual risk	Impounded water body failure?	The south-east corner of the site falls with the maximum extent of flooding from reservoir failure.			
		Defence breach /	Bread	ch Zone		
		overtopping?	The site is not at defences.	risk from	breach of	
Emergency	Flood warning	The south-east corner of the site lies within the "River Mole and its tributaries from Kinnersley Manor to South Hersham" Flood Alert Area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
planning	Access and egress The site can be accessed from Ashdown Road to the north the east, and an un-named minor road at the south wes Road is likely to experience surface water flooding in a 1 and Lonesome lane in a 1 in 30-year event.		est. Of thes	Of these Ashdown		
	Climate change allowances for	River Basin District	Central	Higher Central	Upper End	
Climate	'2080s'	Thames	25%	35%	70%	
Change Implications for the site		The Flood Zones in this location are presently derived from broadscale modelling, however it is understood that the watercourse has been included in update to the Middle Mole model and it is understood that there will be very limited impacts to the site as a result of climate change.				



Site code	SSW9
Site name	Land at Dovers Farm, Woodhatch, Reigate

	Bedrock Geology	Wealdon Group Mudstone, Siltstone and Sandstone.		
	Superficial Geology	No superficial deposits are known to exist on the site.		
	Soils	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.		
		The low permeability of this site suggests that infiltration systems may not be appropriate. However, sloping nature of the site east to west) allows opportunities for SuDS which drain by gravity, and there is potential to utilise both the existing drainage ditch to the north west and to discharge to the Earlswood Brook.		
Requirement for drainage control and	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.		
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream and existing surface water flow paths leaving the site. Opportunity to investigate the condition and capacity of the drainage ditch at the southern end of the site and its associated culverts, and determine whether		
		it can accept flows from the developed site.		
		d Exception Test requirements		
	the ordinary waters Sequential Test and			
Recommend- ations for Local Plan policy	Sequential Test and Exception test if required. The sequential test should be applied within the site. Only once the Sequential Test is passed should the Exception Test be applied. It is expected that all built development will be sequentially located within Flood Zone 1, but the Exception Test would be required: If More Vulnerable and Essential Infrastructure is located in FZ3a. If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. If Essential Infrastructure is located in Flood Zone 3b Development will not be permitted in the following scenarios: Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and FZ3b. More Vulnerable and Less Vulnerable development within FZ3b.			



Site code	SSW9
Site name	Land at Dovers Farm, Woodhatch, Reigate

Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers

Flood risk assessment:

- At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Impacts of the development on flood risk to the wider catchment should assessed.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The surface water drainage strategy should ensure that the development does not increase flood risk elsewhere.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.
- Drainage designs should 'design for exceedance' and accommodate existing surface water flow routes, with development located outside of existing flood risk areas.



Site code	NWH1
Site name	Land at Meath Green Lane, Horley

Sources of flood risk Surface Water						
Current land use Proposed site use Urban Extension site Flood risk vulnerability Existing watercourses Flood history Flood history Flood history Flood history Froportion of site at risk in Flood Zones FZ3b FZ3a FZ2 FZ1 39% 46% 55% 45% Available modelled data: The site lies within the area covered by the Burstow Stream Modelling study (Environment Agency 2011) Flood characteristics: A significant part of the site lies within Flood Zones 2 and 3 associated with Burstow Stream. Sources of flood risk Surface Water Groundwater Groundwater Areas Susceptible to Groundwater Flooding Map class (risk of groundwater flooding). Areas Susceptible to Groundwater Flooding Map class (risk of groundwater flooding). The sole is not at risk from reservoir flooding.	Site details		527439 144957			
Proposed site use Urban Extension site		Area	9.27Ha			
Sources of flood risk vulnerable		Current land use	Greenfield.			
Existing watercourses Burstow Stream forms the northern boundary of the site and is classified as a main river.		-	Urban Extension s	Urban Extension site		
Sources of flood risk Surface Water			More vulnerable			
Flouin history Flood instory Flooding is known to have occurred in 1968, 1990 and 2000. Proportion of site at risk in Flood Zones		_		rms the northern	boundary of the site an	d is classified as a
Fluvial Flu		Flood history				
Fluvial Flood dracteristics: A significant part of the site lies within Flood Zones 2 and 3 associated with Burstow Stream. Froportion of site at risk (RoFSW) 30-year 100-year 1,000-year 11% 23% 30% Surface Water Description of surface water flow paths: Significant ponding may occur close to the Burstow Stream in response to a 1 in 30-year event, and on the road where it crosses the Burstow Stream. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) The northern 2/3rds of the site is at negligible risk of groundwater flooding, however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. The site is not at risk from reservoir flooding.			ı	Proportion of si	te at risk in Flood Zon	es
Fluvial Available modelled data: The site lies within the area covered by the Burstow Stream Modelling study (Environment Agency 2011) Flood characteristics:			FZ3b	FZ3a	FZ2	FZ1
Fluvial The site lies within the area covered by the Burstow Stream Modelling study (Environment Agency 2011) Flood characteristics: A significant part of the site lies within Flood Zones 2 and 3 associated with Burstow Stream. Proportion of site at risk (RoFSW) 30-year 100-year 1,000-year 11% 23% 30% 30%			39%	46%	55%	45%
CEnvironment Agency 2011) Flood characteristics: A significant part of the site lies within Flood Zones 2 and 3 associated with Burstow Stream. Proportion of site at risk (RoFSW) 30-year 100-year 1,000-year 11% 23% 30% 30%			Available modelle	ed data:		- 1
Sources of flood risk Surface Water Description of surface water flow paths: Significant ponding may occur close to the Burstow Stream in response to a 1 in 30-year event, and on the road where it crosses the Burstow Stream. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) The northern 2/3rds of the site is at negligible risk of groundwater flooding, however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. Reservoir The site is not at risk from reservoir flooding.			A significant part of the site lies within Flood Zones 2 and 3 associated with			
Surface Water Description of surface water flow paths: Significant ponding may occur close to the Burstow Stream in response to a 1 in 30-year event, and on the road where it crosses the Burstow Stream. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) The northern 2/3rds of the site is at negligible risk of groundwater flooding, however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. Reservoir The site is not at risk from reservoir flooding.						u 3 associated with
Surface Water Description of surface water flow paths: Significant ponding may occur close to the Burstow Stream in response to a 1 in 30-year event, and on the road where it crosses the Burstow Stream. Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) The northern 2/3rds of the site is at negligible risk of groundwater flooding, however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. Reservoir The site is not at risk from reservoir flooding.	Sources of			· ·	•	
Groundwater Groundwater The northern 2/3rds of the site is at negligible risk of groundwater flooding, however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. Reservoir The site is not at risk from reservoir flooding.	flood risk			· ·	100-year	1,000-year
however the southern 1/3rd may experience groundwater levels at or very near the surface and is considered at risk of groundwater flooding. Reservoir The site is not at risk from reservoir flooding.	HOOG FISK	Surface Water	11% Description of su Significant ponding	rface water flow	100-year 23% v paths: se to the Burstow Strear	1,000-year 30% in in response to a 1
	HOOG FISK		Description of su Significant ponding in 30-year event, a	rface water flow g may occur clos nd on the road v	100-year 23% v paths: se to the Burstow Strear where it crosses the Burs er Flooding Map class	1,000-year 30% In in response to a 1 stow Stream. (risk of
Canal The site is not located within 100m of a canal.	HOOG FISK		Description of su Significant ponding in 30-year event, a Areas Susceptible groundwater eme The northern 2/3rd however the south	rface water flow g may occur clos nd on the road v e to Groundwatergence) ds of the site is ern 1/3rd may ex	100-year 23% y paths: se to the Burstow Stream where it crosses t	1,000-year 30% In in response to a 1 stow Stream. (risk of roundwater flooding, evels at or very near
	HOOG FISK	Groundwater	Description of su Significant ponding in 30-year event, a Areas Susceptible groundwater eme The northern 2/3rd however the south the surface and is	rface water flow g may occur clos and on the road v e to Groundwatergence) ds of the site is ern 1/3rd may ex considered at ris	100-year 23% v paths: se to the Burstow Strear where it crosses the Burstow stream stream is at negligible risk of groundwater leak of groundwater flooding sk of groundwater flooding sk of groundwater flooding stream is a stream of the	1,000-year 30% In in response to a 1 stow Stream. (risk of roundwater flooding, evels at or very near



Site code	NWH1
Site name	Land at Meath Green Lane, Horley

		Defence Type	Standard o	of Protecti	ion Co	ondition
	Defences	The site benefits from protection from the Upper Mole Flood Alleviation Scheme.				
Flood risk management		Culvert / structure blockage?	Burstow Stream flows under Meath Green Lane providing an opportunity for blockage.			
infrastructure	Residual risk	Impounded water body failure?	The site is not at risk of inundation in event of reservoir failure.		tion in the	
		Defence breach /		Breac	h Zone	
		overtopping?	The site is defences.	s not at	risk from	breach of
Flood warning Emergency planning		The site lies within the "Burstow Stream at East and North Horley" flood warning area and "Ilfield Brook, Upper River Mole, Gatwick Stream, Burstow Stream and Salfords Stream" flood alert area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
ps	Access and egress	The site can be accessed from This road lies within FZ3 where of flooding from surface water in also be available from the North	it crosses Bu this area in	urstow Stre a 1 in 30-y	eam, and is ear event.	also at risk Access will
	Climate change	River Basin District		Central	Higher Central	Upper End
Climate	'2080s'	Thames		25%	35%	70%
Change	Implications for the site	The floodplain in this location is therefore the Flood Zone 3a + 70 larger than the current Flood Zone	0% extent is o	•		



Site code	NWH1
Site name	Land at Meath Green Lane, Horley

	Bedrock Geology	Wealdon Group Mudstone, Siltstone and Sandstone.		
	Superficial Geology	No superficial deposits are known to exist on the site.		
	Soils	The majority of the site is covered by loamy soils with naturally high groundwater that are naturally wet. The northern part of the site has slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, with impeded drainage.		
Requirement		The low permeability of this site, naturally wet soils and high groundwater table suggest that infiltration systems may not be appropriate. SuDS should be designed to accommodate existing areas of fluvial and surface water flood risk. Drainage features at the south and southeast of the site should be designed to be resilient to fluvial flooding.		
for drainage control and impact mitigation	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.		
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream.		
	Sequential Test an	d Exception Test requirements		
	The Sequential Test must be passed. Only once the Sequential Test is passed should the Exception Test be applied. It is expected that all built development will be sequentially located within Flood Zone 1, but the Exception Test would be required:			
		/ulnerable and Essential Infrastructure is located in FZ3a.		
	 If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 			
	If Essential Infrastructure is located in Flood Zone 3b			
Recommend-	Development will not be permitted in the following scenarios:			
ations for	 Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and FZ3b. 			
Local Plan	 More Vulnerable and Less Vulnerable development within FZ3b. 			
policy	Recommendations for requirements of site-specific Flood Risk Assessment, including			
	guidance for devel	•		
	sources of	nning application stage, a site-specific flood risk assessment (considering all flooding) and surface water drainage strategy will be required. on with the Local Authority and the Environment Agency should be undertaken at		
	 Detailed m Environme 	odelling will be required to confirm Flood Zone and climate change extents. The nt Agency and LLFA should be consulted to obtain the latest hydraulic modelling for the site at the time of the flood risk assessment. They will advise as to		



Site code	NWH1
Site name	Land at Meath Green Lane, Horley

whether existing detailed models need to be updated.

 Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Existing surface water flow paths should be retained and incorporated within the site design.
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	NWH2
Site name	Land at Bonehurst Road, Horley

Site details	OS Grid reference	528298 144516	528298 144516				
	Area	5.09Ha					
	Current land use						
	Proposed site use						
	Flood risk vulnerability	More vulnerable					
	Existing watercourses	Burstow Stream for	orms the north-e	astern boundary of the s	ite.		
	Flood history	70% of the site flo boundary in Dece	mber 2013.	and Bonehurst road flood	·		
			Proportion of s	site at risk in Flood Zon	es		
		FZ3b	FZ3a	FZ2	FZ1		
		6%	7%	70%	30%		
		(Environment Agency 2011) Flood characteristics: A significant part of the site lies within Flood Zones 2 and 3 associated with Burstow Stream.					
Caurage of			-	of site at risk (RoFSW)			
Sources of flood risk		30-ye	ar	100-year	1,000-year		
	Surface Water	Description of surface water flow paths: Significant ponding may occur in the north-east corner of the site in a 1 in year event, and along the course of Burstow stream.					
	Groundwater	groundwater em	Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence)				
		Negligible risk of groundwater flooding.					
	Reservoir	The site is not at i					



Site code	NWH2
Site name	Land at Bonehurst Road, Horley

Flood risk management infrastructure		Defence Type	Standard of Protect	ion Co	ondition	
	Defences	The site benefits from protection from the Upper Mole Flood Alleviation Scheme.				
	Residual risk	Culvert / structure blockage? Upstream of the site Burstow Stream passe under the A23 with a potential to caus flooding to the east – which may overtop th road and flood the northern part of the site a indicted in the climate change and RoFSV maps		to cause overtop the the site as		
		Impounded water body failure?	The site is not at ris		tion in the	
		Defence breach /	Bread	h Zone		
		overtopping?	The site is not at defences.	The site is not at risk from breach of defences.		
Flood warning Emergency		The site lies within the "Burstow Stream at East and North Horley" flood warning area and "Ilfield Brook, Upper River Mole, Gatwick Stream, Burstow Stream and Salfords Stream" flood alert area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
planning	Access and egress	Access to the site could be from the A23 to the east (Bonehurst Road) and the west from Avondale Close. Both of these roads are likely to suffer from ponding during a 1 in 100-year event. The A23 next to the site recorded on the Surrey Wetspots database, and has recorded incidents of property flooding from surface water.			suffer from ded on the	
Climate Change	Climate change	River Basin District	Central	Higher Central	Upper End	
	'2080s'	Thames	25%	35%	70%	
	Implications for the site	Climate change under a +70% scenario is likely to increase the extent of the 1 in 100 year event over the nothern part of the site, with extensive flooding across the A23.				



Site code	NWH2
Site name	Land at Bonehurst Road, Horley

		·	
	Bedrock Geology	Wealdon Group Mudstone, Siltstone and Sandstone.	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	The site is covered by loamy soils with naturally high groundwater that are naturally wet.	
		The naturally wet soils and high groundwater table suggest that infiltration systems may not be appropriate. SuDS should be designed to accommodate existing areas of fluvial and surface water flood risk. Drainage features at the south and southeast of the site should be designed to be resilient to fluvial flooding.	
Requirement for drainage control and impact mitigation	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace. Further information on SuDS is available in the CIRIA SuDS Manual (2015)	
		and on the Surrey County Council website.	
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk betterment Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream.		
	Sequential Test an	d Exception Test requirements	
Recommend- ations for Local Plan policy	Exception Test be a within Flood Zone If More V If Highly change. If Essen Development will no Highly V FZ3b. More Vu		
	At the pla sources of Consultation an early stage Detailed m	nning application stage, a site-specific flood risk assessment (considering all flooding) and surface water drainage strategy will be required. on with the Local Authority and the Environment Agency should be undertaken at	

Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling



Site code	NWH2
Site name	Land at Bonehurst Road, Horley

information for the site at the time of the flood risk assessment. They will advise as to whether existing detailed models need to be updated.

- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.
- The Environment Agency would expect to see no encroachment for development within flood zone 3 inclusive of climate change to ensure an adequate buffer is maintained. Any development proposed here should look to incorporate additional enhancement along the river corridor that can potentially increase both flood risk management and environmental benefits.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Existing surface water flow paths should be retained and incorporated within the site design.
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site Category	Town Centre Development sites
Site code	REI1
Site name	Library & Pool House, Bancroft Road, Reigate

Sources of flood risk Surface Water Proportion of site at risk (RoFSW) 30-year 100-year 1,000-year 3% 7% 26%	Site details						
Current land use			525520 150144				
Proposed site use Town Centre Development Site		Area	0.22Ha				
Flood risk vulnerability An ordinary watercourse flows under the site in a culvert from the north, and two other water courses join this on the southern edge of the site from the east and south. These then exit from the south-west corner of the site through a culvert. Flood history Flooding was recorded 100 m to the west of the site in 1947 and 1968. Internal property flooding from surface water was recorded in Roebuck Close to the East. Proportion of site at risk in Flood Zones FZ3b FZ3a FZ2 FZ1 14% 14% 35% 65% Available modelled data: The site is not covered by any detailed modelled flood extents. Flood Characteristics: Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of the site. Sources of flood risk Surface Water Description of surface water flow paths: Surface water flow paths are present along the roads around the site in a 1 in 100-year event. Some ponding may occur at the southern edge of the site in a 1 in 30-year event.		Current land use	Brownfield				
Proportion of site at risk in Flood Zones		-	Town Centre Deve	Town Centre Development Site			
two other water courses join this on the southern edge of the site from the east and south. These then exit from the south-west corner of the site through a culvert. Flood history			More vulnerable				
Flood history Proportion of site at risk in Flood Zones			two other water co	urses join this	on the southern edge of the	e site from the east	
Fluvial Flu		Flood history	property flooding f				
Fluvial Flood characteristics: Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the site. Flood Zone 3 extends over the southern boundary of the site at the confluence of the site. Flood Zone 2 is also present at the north part of the site in a 100-year over the southern boundary of the site at the confluence of the site of the site. Flood Zone 2 is also present at the north part of the site in a 100-year over the southern boundary of the site at the confluence of the site of the site in a 1 in 100-year over the southern boundary of the site at the confluence of the site of the site in a 1 in 100-year over the southern boundary of the site at the confluence of the site				Proportion of	site at risk in Flood Zone	s	
Sources of flood risk Surface Water Surface water flow paths:			FZ3b	FZ3a	FZ2	FZ1	
Fluvial The site is not covered by any detailed modelled flood extents. Flood characteristics: Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of the site. Proportion of site at risk (RoFSW) 30-year 100-year 1,000-year 3% 7% 26% Description of surface water flow paths: Surface Water flow paths are present along the roads around the site in a 1 in 100-year event. Some ponding may occur at the southern edge of the site in a 1 in 30-year event. Areas Susceptible to Groundwater Flooding Map class (risk of			14%	14%	35%	65%	
Surface Water Surface Water 30-year 100-year 1,000-year 3% 7% 26%		Fluviai	Flood characteristics: Flood Zone 3 extends over the southern boundary of the site at the confluence of the ordinary watercourses. Flood Zone 2 is also present at the north part of				
Surface Water Description of surface water flow paths: Surface water flow paths are present along the roads around the site in a 1 in 100-year event. Some ponding may occur at the southern edge of the site in a 1 in 30-year event. Areas Susceptible to Groundwater Flooding Map class (risk of							
Surface Water Description of surface water flow paths: Surface water flow paths are present along the roads around the site in a 1 in 100-year event. Some ponding may occur at the southern edge of the site in a 1 in 30-year event. Areas Susceptible to Groundwater Flooding Map class (risk of	Sources of		uno one.	Proportion	of site at risk (RoFSW)		
Surface water flow paths are present along the roads around the site in a 1 in 100-year event. Some ponding may occur at the southern edge of the site in a 1 in 30-year event. Areas Susceptible to Groundwater Flooding Map class (risk of						1,000-year	
			30-yea		100-year	-	
Groundwater emergence)		Surface Water	30-yea 3% Description of su Surface water flow 100-year event. Se	urface water fl v paths are proome ponding r	100-year 7% ow paths: esent along the roads aroun	26% and the site in a 1 in	
The site is at risk of groundwater flooding with water levels at or very near the surface.			30-yea 3% Description of su Surface water flov 100-year event. S 1 in 30-year event Areas Susceptibl groundwater eme	urface water fl v paths are pre ome ponding r e to Groundwergence)	100-year 7% ow paths: esent along the roads around any occur at the southern experience of the southe	26% nd the site in a 1 in edge of the site in a	
Reservoir The site is not at risk of reservoir flooding.		Surface Water Groundwater	30-yea 3% Description of su Surface water flov 100-year event. S 1 in 30-year event Areas Susceptibl groundwater eme The site is at risk	urface water fl v paths are pre ome ponding r e to Groundwergence)	100-year 7% ow paths: esent along the roads around any occur at the southern experience of the southe	26% nd the site in a 1 in edge of the site in a	
Canal The site is not located within 100m of a canal.		Groundwater	30-yea 3% Description of su Surface water flov 100-year event. S 1 in 30-year event The site is at risk surface.	orface water flow paths are proposed for the control of groundwater flow of groundwater flow flow flow flow flow flow flow flow	100-year 7% ow paths: esent along the roads around any occur at the southern of the southern	26% nd the site in a 1 in edge of the site in a	



Site Category	Town Centre Development sites
Site code	REI1
Site name	Library & Pool House, Bancroft Road, Reigate

Defences		Defence Type Standard of Protection Condition				
Flood risk	201011000	The site does not receive protection from flood defences.				
		Culvert / structure blockage?				
management infrastructure	Residual risk	Impounded water body failure?	The site is not at risk of inundation in the event of reservoir failure.			
		Defence breach /	Breach	Zone		
		overtopping?	The site is not at ri defences.	sk from	breach of	
Emergency planning	Flood warning	The site lies within the "River Mole and its tributaries from Kinnersley Manor to South Hersham" Flood Alert area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
	Access and egress	Access to the site is from Bancroft Road to the north. This road is likey to see surface water ponding during a 1 in 100-year event.				
Climate change allowances for		River Basin District		Higher Central	Upper End	
Climate Change	'2080s'	Thames	25%	35%	70%	
	Implications for the site	Climate change is unlikely to significantly change the Flood Zone classification, with flows in the vacinity of the site limited by the culverted watercourses around the site. Flood risk is likely to most significantly affected by potential blockage of the culverts.				



Site Category	Town Centre Development sites	
Site code	REI1	
Site name	Library & Pool House, Bancroft Road, Reigate	

	Bedrock Geology	Lower Greensand Group – Sandstone and Mudstone		
	Superficial Geology	No superficial deposits are known to exist at this site.		
	Soils	Freely draining slightly acid loamy soils.		
Requirement for drainage control and impact mitigation		The freely draining soils and local geology make infiltration SuDS a possibility, however the source protection zone needs to be considered in any scheme. Opportunities to deculvert the watercourse and incorporate into a SuDS scheme should be investigated.		
	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site lies within SPZ3 (Total Catchment)		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.		
	Opportunities for flood risk betterment	The culvert exiting the site should be investigated as well as opportunities using source control SuDS to manage runoff rates and volumes.		
	Sequential Test and Exception Test requirements			
	The Sequential Tes is passed should th	t must be passed (see Section 4 of main report). Only once the Sequential Test e Exception Test be applied. It is expected that all built development will be d within Flood Zone 1, but the Exception Test would be required:		
	 If More Vulnerable and Essential Infrastructure is located in FZ3a. 			
	 If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 			
	If Essential Infrastructure is located in Flood Zone 3b			
Pacammand	Development will not be permitted in the following scenarios:			
Recommend- ations for	 Highly V FZ3b. 	Vulnerable development within FZ3a or Flood Zone 3a plus climate change and		
Local Plan policy	 More Vulnerable and Less Vulnerable development within FZ3b. 			
	Recommendations guidance for devel	for requirements of site-specific Flood Risk Assessment, including opers		
	Flood risk ass			
	At the planning application stage, a site-specific flood risk assessment (considering all			
		flooding) and surface water drainage strategy will be required. on with the Local Authority and the Environment Agency should be undertaken at		

- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Groundwater flood risk in the northeast of the site should be investigated.



Site Category	Town Centre Development sites	
Site code	REI1	
Site name	Library & Pool House, Bancroft Road, Reigate	

- Detailed modelling will be required to confirm Flood Zone and climate change extents. The
 Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling
 information for the site at the time of the flood risk assessment. They will advise as to
 whether existing detailed models need to be updated.
- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.
- The EA have advised that any development proposed here should look to incorporate additional enhancement along the river corridor that can potentially increase both flood risk management and environmental benefits.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	RTC6
Site name	Gloucester Road Car Park, Redhill

Site details	OS Grid					
Site details	reference	527888 150962				
	Area	0.76Ha				
	Current land use	Brownfield				
	Proposed site use	Town Centre Dev	Town Centre Development Site			
	Flood risk vulnerability	More vulnerable	More vulnerable			
	Existing watercourses	No water courses present or within 500m				
	Flood history			site. London Road to the ea e water and is on the Surrey		
			Proportion of	site at risk in Flood Zones	<u> </u>	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	0%	100%	
	Fluvial	Available modell	ed data:			
		Not covered by any modelled extent.				
		Flood characteristics:				
		Site is completely within Flood Zone 1. Proportion of site at risk (RoFSW)				
		9%	ar	100-year 16%	1,000-year 79%	
Sources of flood risk	Surface Water	Description of surface water flow paths: Significant ponding may be present on the east side of the site in the 1 in 30-year event. More widespread surface water may be present in a 1 in 1000-year event covering the majority of the site. Surface water flooding is shown to impact all the major access routes to and from the site.				
	Groundwater	groundwater em	ergence)	vater Flooding Map class (
	Groundwater	groundwater em High risk of grour	ergence) ndwater floodin pate the impact	vater Flooding Map class (g – groundwater levels at o t of surface water flooding a	r near the surface.	
	Groundwater Reservoir	groundwater em High risk of groun This may exacert to limited infiltration	ergence) ndwater floodin pate the impact on capacity.	g – groundwater levels at o	r near the surface.	



Site code	RTC6
Site name	Gloucester Road Car Park, Redhill

	Defences	Defence Type	Standard of Protection	n Co	ndition
	201011000	The site does not receive protection from flood defences.			
Flood risk	Culvert / structure There are no structures on the site (identifi at this stage) with the potential to block.		•		
management infrastructure	Residual risk	Impounded water body failure?	The site is within the maximum extent of reservoir flooding.		extent of
		Defence breach /	Breach	Zone	
		overtopping?	The site is not at r defences.	sk from	breach of
	Flood warning	The site is not covered by a Flood Alert or Warning area.			
Emergency planning	Access and egress	Access to the site is from a minor road off Gloucester Road to the south of the site. Both this and Gloucester Road has significant surface water ponding in a 1 in 30-year event.			
	Climate change	River Basin District	Central	Higher Central	Upper End
Climate	'2080s'	Thames	25%	35%	70%
Change Implications for the site		Climate change is unlikely to sig	nificantly change the Floo	d Zone cla	ssification.



Site code	RTC6
Site name	Gloucester Road Car Park, Redhill

	Bedrock Geology	Lower Greensand Group – Sandstone and Mudstone	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Freely draining slightly acid loamy soils	
		The freely draining nature of the site provides opportunites for infiltration SuDS schemes. However consideration should be paid to the potential risk of high groundwater levels when designing the drainage systems.	
Requirement for drainage control and impact	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.	
mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.	
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk betterment	The widespread nature of modelled surface water on the site in combination with the freely draining nature of the site suggest there is a significant opportunity for management of surface water to reduce surface water flow paths leaving the site.	
	Sequential Test and Exception Test requirements		
	The site is within Flood Zone 1 but at risk from surface water flooding, which should be taken account when carrying out the Sequential Test and Exception test if required.		
	Recommendations for requirements of site-specific Flood Risk Assessment, incluguidance for developers Flood risk assessment: • At the planning application stage, a site-specific flood risk assessment (considering sources of flooding) and surface water drainage strategy will be required. • Consultation with the Local Authority and the Environment Agency should be undertaken an early stage		
Recommend-			
ations for	 Impacts of the development on flood risk to the wider catchment should assessed. Guidance for site design and making development safe: Development must seek opportunities to reduce overall level of flood risk at the site. The surface water drainage strategy should ensure that the development does not increase. 		
Local Plan policy			
policy			
	flood risk e	The state of the s	
		s and egress should be demonstrated in the 1 in 100 plus climate change event.	
	 All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc. 		
		esigns should 'design for exceedance' and accommodate existing surface water, with development located outside of existing flood risk areas.	



Site code	RTC5
Site name	Former Longmead Centre

		1				
Site details	OS Grid reference	527718 150488				
	Area	0.2Ha				
	Current land use	Brownfield				
	Proposed site use	Town Centre Deve	Town Centre Development Site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses	Redhill Brook lies 200m to the east of the site running north to south.			o south.	
	Flood history	No fluvial flooding is recorded on the site. Some surface causing internal property damage has been recorded in 50m of the south west edge of the site.				
			Proportion of	site at risk in Flood Zones	5	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	0%	100%	
	Fluvial	Available modelled data: Not covered by any modelled extent. Flood characteristics: Site is completely within Flood Zone 1.				
		Proportion of site at risk (RoFSW)				
		30-yea		100-year	1,000-year	
Sources of		30%		55%	89%	
flood risk	Surface Water	The site lies on a the site, adjacent be present on the widespread surfacthe majority of the	rface water flow paths: significant flow path from west to east in the northern half of to the existing building on the site. Significant ponding may e east side of the site in the 1 in 30-year event. More e water may be present in a 1 in 1000-year event covering site. ding is shown to impact all the major access routes to and			
	Groundwater	Areas Susceptible to Groundwater Flooding Map class (risk groundwater emergence)			risk of	
	Olouliu Watel	The site is in an area at risk of groundwater flooding where groundwater levels are at or close to the surface.				
	Reservoir	The site is outside	the maximum	extent of flooding from rese	rvoirs.	
	Canal	The site is not located within 100m of a canal.				



Site code	RTC5
Site name	Former Longmead Centre

Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	on Co	ondition
		The site does not receive protection from flood defences.			
	Residual risk	Culvert / structure blockage?	There are no structures identified at this stage with the potential to block.		
		Impounded water body failure?	The site is outside the maximum extent of flooding from reservoirs.		
		overtopping?	Breach Zone		
			The site is not at risk from breach of defences.		
Emergency planning	Flood warning	The site lies within the "Redhill" Brook Flood Alert area and the "Redhill Brook at Redhill" Flood Warning area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.			
	Access and egress	Access is from Holland Close to the south via Fairfax or Baxter Avenue. Both of these roads are likely to experience surface water flooding in a 1 in 30-year event and therefore would restrict access to the site.			
Climate Change	Climate change allowances for '2080s'	River Basin District	Central	Higher Central	Upper End
		Thames	25%	35%	70%
	Implications for the site	Climate change is unlikely to significantly change the Flood Zone classification.			



Site code	RTC5
Site name	Former Longmead Centre

	Bedrock Geology	Lower Greensand Group – Sandstone and mudstone	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Freely draining slightly acid loamy soils cover the site.	
Requirement for drainage control and impact mitigation		The freely draining nature of the soils, and local geology may allow the impementation of an infiltration SuDS scheme. However the groundwater levels may restrict this.	
	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.	
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.	
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream.	
	Sequential Test an	d Exception Test requirements	
	The Sequential Test must be passed (see Section 4 of main report). Only once the Sequential Test is passed should the Exception Test be applied. It is expected that all built development will sequentially located within Flood Zone 1, but the Exception Test would be required:		

sequentially located within Flood Zone 1, but the Exception Test would be required:

- If More Vulnerable and Essential Infrastructure is located in FZ3a.
- If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate
- If Essential Infrastructure is located in Flood Zone 3b

Development will not be permitted in the following scenarios:

Recommendations for **Local Plan** policy

- Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and
- More Vulnerable and Less Vulnerable development within FZ3b.

Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers

Flood risk assessment:

- At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding, particularly surface water risk) and surface water drainage strategy will be required.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Groundwater flood risk in the northeast of the site should be investigated.
- Detailed modelling will be required to confirm Flood Zone and climate change extents. The



Site code	RTC5
Site name	Former Longmead Centre

Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling information for the site at the time of the flood risk assessment. They will advise as to whether existing detailed models need to be updated.

- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.
- The EA have advised that they would expect to see no encroachment for development within flood zone 3 inclusive of climate change to ensure an adequate buffer is maintained.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event and considering surface water risk.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	RTC4
Site name	Colebrook, Noke Drive, Redhill

Site details	OS Grid reference	528314 150664			
	Area	1.40Ha			
	Current land use	Brownfield			
	Proposed site use	Town Centre Development Site More vulnerable			
	Flood risk vulnerability				
	Existing watercourses	Redhill Brook enters a culvert immediately south of the site and is joined by two culverted ordinary watercourses. One of these passes under the site (north to south).			
	Flood history	No fluvial flooding is recorded or been recorded in Noke Drive on			
		Proportion o	f site at risk in Flood Zones		
		FZ3b FZ3a	FZ2	FZ1	
		0% 34%	62%	38%	
	Fluvial	Available modelled data:			
		The site is covered by the (Environment Agency 2014). Flood characteristics: The south-eastern half of the s with Redhill Brook.			
		Proportion of site at risk (RoFSW)			
		30-year	100-year	1,000-year	
Sources of flood risk		1%	2%	31%	
HOOU HSK	Surface Water	Description of surface water (low nother		
		Description of surface water f Some surface water ponding m 30-year event, and more widely closely linked to flooding from th	ay occur in the centre of the r in a 1 in 1000-year event.	This is likely to be	
		Some surface water ponding m 30-year event, and more widely closely linked to flooding from the Areas Susceptible to Grounds groundwater emergence)	ay occur in the centre of the r in a 1 in 1000-year event. The watercourse in this location water Flooding Map class (r	This is likely to be n.	
	Groundwater	Some surface water ponding m 30-year event, and more widely closely linked to flooding from the Areas Susceptible to Grounds	ay occur in the centre of the r in a 1 in 1000-year event. The watercourse in this location water Flooding Map class (r in egligible risk from groundware from	This is likely to be n. isk of vater, however the	
	Groundwater Reservoir	Some surface water ponding m 30-year event, and more widely closely linked to flooding from the Areas Susceptible to Grounds groundwater emergence) Most of the site is in an area of northern part of the site has an	ay occur in the centre of the r in a 1 in 1000-year event. The watercourse in this location water Flooding Map class (r in egligible risk from groundwater lev	This is likely to be n. isk of vater, however the els are at or close	



Site code	RTC4
Site name	Colebrook, Noke Drive, Redhill

	Defences	Defence Type	Standard of Protection	on Co	ondition
	Deletioes	The site does not receive protection from flood defences.			
Flood risk	Culvert / structure Blockage? Redhill Brook enters a culvert 130 m to to east. This presents a risk from blocking.				
management infrastructure		Impounded water body failure?	The site is within the flooding from reservoirs		extent of
		Defence breach /	Breach	Zone	
		overtopping?	The site is not at defences.	risk from	breach of
	Flood warning	The site lies within the "Redhill" Brook Flood Alert area and the "Redhill Brook at Redhill" Flood Warning area. Environment Agency flood warnings are now issued to individuals via the Flood			
Emergency		Information Service.			
planning	Access and egress	Access is from Noke Drive to the Anne's Drive has some minor subut would provide a suitable acceptade deadend to the east, may experi year fluvial event and therefore was acceptable.	urface water flooding in a cess and egress route. I rience more widespread	1 in 1000- Noke Drive, flooding in	year event, , which is a a 1 in 100-
	Climate change allowances for	River Basin District	Central	Higher Central	Upper End
Climate	'2080s'	Thames	25%	35%	70%
Change	Implications for the site	The changes to flows within the climate change are predicted to year event in the south of the sit	lead to an increase the e		



Site code	RTC4
Site name	Colebrook, Noke Drive, Redhill

Site name	Colebrook, Noke Drive, Rednill	
	Bedrock Geology	Lower Greensand Group – Sandstone and mudstone
	Superficial Geology	No superficial deposits are known to exist on the site.
	Soils	Freely draining slightly acid loamy soils cover the site.
		The freely draining nature of the soils, and local geology may allow the impementation of an infiltration SuDS scheme. However the groundwater levels in the northern part of the site may restrict this.
Requirement for drainage control and	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.
impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of flood peaks downstream.
	Sequential Test and Exception Test requirements	
	The Sequential Test must be passed (see Section 4 of main report). Only once the Sequential is passed should the Exception Test be applied. It is expected that all built development w sequentially located within Flood Zone 1, but the Exception Test would be required:	
		/ulnerable and Essential Infrastructure is located in FZ3a.
	 If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 	

- If Essential Infrastructure is located in Flood Zone 3b

Development will not be permitted in the following scenarios:

Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and Recommend-

- More Vulnerable and Less Vulnerable development within FZ3b.

Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers

Flood risk assessment:

- At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required.
- Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage
- Groundwater flood risk in the northeast of the site should be investigated.
- Detailed modelling will be required to confirm Flood Zone and climate change extents. The Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling

ations for **Local Plan** policy



Site code	RTC4
Site name	Colebrook, Noke Drive, Redhill

information for the site at the time of the flood risk assessment. They will advise as to whether existing detailed models need to be updated.

- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.
- The EA have advised that they would expect to see no encroachment for development within flood zone 3 inclusive of climate change to ensure an adequate buffer is maintained.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site Category	Urban Development sites	
Site code	RED4	
Site name	Church of the Epiphany, Mansfield Drive, Merstham	

Site details	OS Grid reference	529775 153082				
	Area	0.33Ha	0.33Ha			
	Current land use	Brownfield				
	Proposed site use	Urban Developme	Urban Development Site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses	None present on the site. A culverted drain classified as an ordinary watercourse is present 200 north east of the site.			ordinary	
	Flood history	No recorded flood	history.			
			Proportion of	site at risk in Flood Zon	es	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	0%	100%	
		Not covered by an	v modelled ev	tants		
		Not covered by an Flood characteris	stics:			
		Flood characteri	stics: ny Flood Zones			
Sources of		Flood characteri	stics: ny Flood Zones Proportion	s.	1,000-year	
Sources of flood risk		Flood characteri	stics: ny Flood Zones Proportion	s. n of site at risk (RoFSW)	1,000-year 55%	
	Surface Water	Not covered by an 30-yea 4% Description of su A surface water fl This is likely to be the Huddleston Co	Proportion Propor	n of site at risk (RoFSW) 100-year 25%	55% n east to south west. conding occurring on the site, and around	
	Surface Water Groundwater	Plood characteric Not covered by ar 30-year 4% Description of sure A surface water flat This is likely to be the Huddleston Country the existing building Areas Susceptib groundwater emissions.	Proportion ar urface water flow path exists expresent in a rescent and Mang (although the leto Groundwergence)	ow paths: across the site from north 1 in 30-year event, with pansfield Drive each side of is is likely to change post of vater Flooding Map class	55% n east to south west. conding occurring on the site, and around development).	
		Plood characteric Not covered by an 30-year 4% Description of sure A surface water flow the Huddleston Country the existing building Areas Susceptibgroundwater emergement of the properties of the properties of the existing building areas Susceptibgroundwater emergement of the properties of the existing building areas Susceptibgroundwater emergement of the properties of	Proportion Propor	ow paths: across the site from north 1 in 30-year event, with pansfield Drive each side of is is likely to change post of vater Flooding Map class	55% n east to south west. conding occurring on the site, and around development).	
		Plood characteric Not covered by ar 30-year 4% Description of sure A surface water flat This is likely to be the Huddleston Country the existing building Areas Susceptib groundwater emissions.	Proportion Propor	ow paths: across the site from north 1 in 30-year event, with pansfield Drive each side of is is likely to change post of vater Flooding Map class	55% n east to south west. conding occurring on the site, and around development).	



Site Category	Urban Development sites	
Site code	RED4	
Site name	Church of the Epiphany, Mansfield Drive, Merstham	

	Defences	Defence Type	Standard of Protection	Condition
		The site does not receive protection from flood defences.		
Flood risk		Culvert / structure blockage?	There are no structures on the site (identified at this stage) with the potential to block.	
management infrastructure	management infrastructure Residual risk	Impounded water body failure?	The site is not at risk event of reservoir failure	
		Defence breach /	Breach 2	Zone
		overtopping?	The site is not at ri defences.	sk from breach of
	Flood warning	The site is not covered by any fl	ood warning or alert areas	•
Emergency planning	Access and egress	Access to the site is from Mansfield Road to the south. Surface water flooding is likely to occur on this road in a 1 in 30-year event immediately adjacent to the site.		•
	Climate change	River Basin District		Higher Upper Central End
Climate	'2080s'	Thames	25%	35% 70%
Change	Implications for the site	Climate change is unlikely to sig	nificantly change the Floor	I Zone classification.



Site Category	Urban Development sites	
Site code	RED4	
Site name	Church of the Epiphany, Mansfield Drive, Merstham	

	Bedrock Geology	Gault Formations and Upper Greensand Formation (Undifferentiated) – Mudstone, sandstone and limestone.		
Requirement for drainage control and impact mitigation	Superficial Geology	No superficial deposits are known to exist on the site.		
	Soils	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.		
		The low permeability of this site suggests that infiltration systems may not be appropriate. The slope of the site may allow opportunities for SuDS which drain by gravity.		
	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	No source protection zones exist close to the site.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.		
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction in surface water flooding south of the site.		
	Sequential Test and Exception Test requirements			
	The site is within Flood Zone 1 but at risk from surface water flooding, which should be taken into account when carrying out the Sequential Test and Exception test if required.			
	Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers			
Recommend- ations for Local Plan policy	sources of Consultation an early state Impacts of Guidance for s Development	nning application stage, a site-specific flood risk assessment (considering all flooding) and surface water drainage strategy will be required. On with the Local Authority and the Environment Agency should be undertaken at age the development on flood risk to the wider catchment should be assessed. Site design and making development safe: ent must seek opportunities to reduce overall level of flood risk at the site. e water drainage strategy should ensure that the development does not increase		
	Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.			

- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice



Site Category Urban Development sites	
Site code	RED4
Site name	Church of the Epiphany, Mansfield Drive, Merstham

(CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.
 Drainage designs should 'design for exceedance' and accommodate existing surface water flow routes, with development located outside of existing flood risk areas.



Site code	RED5
Site name	Merstham Library, Weldon Way, Merstham

Site details	OS Grid reference	529463 152752				
	Area	0.26Ha				
	Current land use	Brownfield				
	Proposed site use					
	Flood risk vulnerability					
	Existing watercourses	along the western	No watercourses exist on the site. A tributary of the Redhill Brook is located along the western side of the Merstham Recreation Ground approximately 150 m south of the site.			
	Flood history	Flooding from Red and 1968.	hill Brook occu	urred 30-40m to the east of	the site in 1947	
			Proportion of	site at risk in Flood Zone	s	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	24%	36%	64%	
	Fluvial	Covered by the Redhill Brook and Salfords Stream model (Environment Agency, 2014). Flood characteristics: The south west side of the site lies within Flood Zone 3.				
		Proportion of site at risk (RoFSW)				
Sources of		30-yea	ır	100-year	1,000-year	
flood risk	Surface Water	Description of surface water flow paths: No modelled surface water flood risk exists on the site. However, sign surface water flooding may occur along Weldon Way, which provides accurate site from the east in a 1 in 100-year event. A Surface Water flow path is also present to the west of the site, what associated with the Fluvial Flood Zones in this area.				
	Groundwater	Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence) Negligible risk of groundwater flooding.			risk of	
	Reservoir	Site is not at risk of				
	Canal	The site is not located within 100m of a canal.				



Site code	RED5
Site name	Merstham Library, Weldon Way, Merstham

Flood risk	Defences	Defence Type	Standard of Protection	on Co	ondition	
	20.0000	The site does not receive protection from flood defences.				
	Residual risk	Culvert / structure blockage?	There are no structures on the site (identified at this stage) with the potential to block.			
management infrastructure		Impounded water body failure?	The site is not at risk of inundation in the event of reservoir failure.		ition in the	
		Defence breach /	Breach	n Zone		
		overtopping?	The site is not at defences.	risk from	breach of	
	Flood warning	Site is covered by the Redhill Brook Flood Alert area.				
Emergency planning	Access and egress	Access to the site is from Weldon Way to the west. This may experience limited surface water flooding in a 1 in 100-year event, but no flood incidents have been reported. Further from the site surface water flow paths from the north and north east may impead access to the site along Bletchingley Road, which is main route in and out of the area.			north east	
	Climate change allowances for	River Basin District	Central	Higher Central	Upper End	
Climate Change	'2080s'	Thames	25%	35%	70%	
	Implications for the site	Climate change is unlikely to significantly change the Flood Zone classification at the site due to the confined nature of the Flood Zone at this location.				



Site code	RED5
Site name	Merstham Library, Weldon Way, Merstham

	Bedrock Geology	Gault Formation and Upper Greensand Formation (Undifferentiated) – Mudstone, Sandstone and Limestone			
	Superficial Geology	No superficial deposits are known to exist on the site.			
	Soils	Freely draining slightly acid loamy soils that are freely draining.			
		The freely drainging soils and underlying geology provide the option of an infiltration SuDS scheme.			
Requirement for drainage control and impact mitigation	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.			
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.			
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.			
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.			
	Opportunities for flood risk betterment	Opportunities for using source control SuDS to manage runoff rates and volumes, contributing to the reduction of surface water flow paths leaving the site.			
	Sequential Test and Exception Test requirements				
Recommend-	The Sequential Test must be passed (see Section 4 of main report). Only once the Sequential Test is passed should the Exception Test be applied. It is expected that all built development will be sequentially located within Flood Zone 1, but the Exception Test would be required: • If More Vulnerable and Essential Infrastructure is located in FZ3a. • If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. • If Essential Infrastructure is located in Flood Zone 3b Development will not be permitted in the following scenarios: • Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and FZ3b.				
ations for	More Vulnerable and Less Vulnerable development within FZ3b.				
Local Plan policy	Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers				
. ,	Flood risk assessment:				
	At the planning application stage, a site-specific flood risk assessment (considering all				
	sources of flooding) and surface water drainage strategy will be required. • Consultation with the Local Authority and the Environment Agency should be undertaken at				
	an early stage				
	Detailed m Environme	 Detailed modelling will be required to confirm Flood Zone and climate change extents. The Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling 			
	information for the site at the time of the flood risk assessment. They will advise as to				

whether existing detailed models need to be updated.



Site code	RED5
Site name	Merstham Library, Weldon Way, Merstham

 Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	RED8
Site name	Land at Reading Arch Road/Brighton Road, Redhill

Site details	OS Grid reference	527965 150240				
	Area					
	Proposed site use	Urban Developm	Urban Development Site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses	Redhill Brook flov	vs north to sout	h across the site within a cu	ulvert.	
	Flood history			sources are recorded on the site (19)		
			Proportion of	site at risk in Flood Zone	es .	
		FZ3b	FZ3a	FZ2	FZ1	
		21%	53%	69%	31%	
	Fluvial	Covered by the Redhill and Salford Stream model (Environment Agency, 2014). Flood characteristics: More than 50% of the site lies within Flood Zone 3 from Redhill Brook.				
		Proportion of site at risk (RoFSW)				
Sources of		30-ye	ar	100-year	1,000-year	
flood risk		11%	,)	19%	41%	
	Surface Water	Description of surface water flow paths: A surface water flow path may be present in the northern half of following the existing road / carpark. This may change post development there is potential for significant flows / ponding in a 1 in 30-year event.				
	Groundwater	Areas Susceptible to Groundwater Flooding Map class (risk o groundwater emergence)			•	
	Olouliu Water	The site is in an area of significant risk of groundwater flooding (groundwater at or just below the surface).				
	Reservoir	The site is within	the maximum e	extent of flooding from reser	rvoir failure.	
	Canal	The site is not located within 100m of a canal.				



Site code	RED8
Site name	Land at Reading Arch Road/Brighton Road, Redhill

	Defences	Defence Type	Standard of Protection	n Co	ndition
	Deletions	The site does not receive protection from flood defences.			
Flood risk		Culvert / structure blockage? There are no structures on the site (idential at this stage) with the potential to block.			
management infrastructure	Residual risk	Impounded water body failure?	The site is within the flooding from reservoir		extent of
		Defence breach /	Breach	Zone	
		overtopping?	The site is not at defences.	isk from	breach of
Flood warning Emergency planning	Flood warning	The site is covered by the Redhill Brook Flood Alert area and the "Redhill Brook at Redhill" Flood Warning area. Environment Agency flood warnings are now issued to individuals via the Flood			
		Information Service.	rigs are now issued to line	iividaais vi	a tile i 100a
pianning	Access and egress	Access to the site is from Brig surface water flooding in a 1 in 30-year event south of the site.			
	Climate change	River Basin District	Central	Higher Central	Upper End
Climate	'2080s'	Thames	25%	35%	70%
Change	Implications for the site	Climate change under a +70% s in 100 year event to greater than			nt of the 1



Site code	RED8
Site name	Land at Reading Arch Road/Brighton Road, Redhill

	Bedrock Geology	Lower Greensand Group – Sandstone and Mudstone.	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Freely draining slightly acid loamy soils.	
		The freely draining nature of the site suggests that an infiltration SuDS scheme could be appropriate. However consideration should be paid to the potential risk of high groundwater levels when designing the drainage systems	
Requirement for drainage	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.	
control and impact		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.	
mitigation	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk	The condition and capacity of the culvert crossing the site should be investigated to determine if culvert enlargement is required or whether an opportunity exists for daylighting.	
	betterment	Opportunity to implement an exemplar SuDS design following CIRIA and SCC guidance on runoff rates and volumes, contributing to the reduction of flood peaks downstream.	
	Sequential Test and Exception Test requirements		
	The Sequential Test must be passed (see Section 4 of main report). Only once the Sequential is passed should the Exception Test be applied. It is expected that all built development will sequentially located within Flood Zone 1, but the Exception Test would be required:		
	 If More Vulnerable and Essential Infrastructure is located in FZ3a. If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 		
Recommend-	If Essential Infrastructure is located in Flood Zone 3b Productive the following recognition.		
ations for	Development will not be permitted in the following scenarios: • Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and		
Local Plan policy	FZ3b.		
	More Vulnerable and Less Vulnerable development within FZ3b.		
	Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers		
	Flood risk ass	•	
	 At the pla 	nning application stage, a site-specific flood risk assessment (considering all	
	sources of flooding) and surface water drainage strategy will be required.		
	Consultation an early sta	on with the Local Authority and the Environment Agency should be undertaken at age.	



Site code	RED8
Site name	Land at Reading Arch Road/Brighton Road, Redhill

- Detailed modelling will be required to confirm Flood Zone and climate change extents. The
 Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling
 information for the site at the time of the flood risk assessment. They will advise as to
 whether existing detailed models need to be updated.
- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	RED2
Site name	Bellway House, Station Road, Merstham

Site details	OS Grid reference	529107 153453				
	Area	0.2Ha				
	Current land use	Brownfield	Brownfield			
	Proposed site use	Urban Development Site				
	Flood risk vulnerability	More vulnerable				
	Existing watercourses	No watercourses exist on the site. A culverted ordinary watercourse is present 200m south east of the site.			ercourse is present	
	Flood history			nts on the site. Flooding oc e of the railway line).	curred in 1968	
			Proportion of	site at risk in Flood Zone	s	
		FZ3b	FZ3a	FZ2	FZ1	
	Fluvial	0%	0%	0%	100%	
		Flood characteristics: The site is completely within Flood Zone 1.				
		Proportion of site at risk (RoFSW)				
		30-yea	nr	100-year	1,000-year	
Sources of flood risk		0%		0%	0.6%	
	Confere Meter	Description of surface water flow paths: The north-eastern part of the site has a very small area at risk of ponding ir in 1000-year event resulting from flows off the M25, which is located to north of the site				
	Surface Water	The north-eastern in 1000-year ever	part of the site	has a very small area at ri		
	Groundwater	The north-eastern in 1000-year ever north of the site Areas Susceptibl groundwater emergence.	part of the site nt resulting fro le to Groundwergence)	has a very small area at ri m flows off the M25, which ater Flooding Map class	ch is located to the	
		The north-eastern in 1000-year ever north of the site Areas Susceptible	part of the site nt resulting fro le to Groundwergence)	has a very small area at ri m flows off the M25, which ater Flooding Map class	ch is located to the	
		The north-eastern in 1000-year ever north of the site Areas Susceptibl groundwater emergence.	part of the site nt resulting fro e to Groundwergence) roundwater flo	has a very small area at rim flows off the M25, which the M25 which the	ch is located to the	



Site code	RED2
Site name	Bellway House, Station Road, Merstham

	Defences	Defence Type	Standard of Protection	on Co	ndition
	Deletioes	The site does not receive protection from flood defences.			
Flood risk	Flood risk	Culvert / structure blockage? There are no structures on the site (identified at this stage) with the potential to block.			•
management infrastructure	Residual risk	Impounded water body failure?	The site is not at risk event of reservoir failur		tion in the
		Defence breach /	Breach	n Zone	
		overtopping?	The site is not at defences.	risk from	breach of
Emergency	Flood warning	The site is within the Redhill Brook Flood Alert area. Environment Agency flood warnings are now issued to individuals via the Flood Information Service.			
planning	Access and egress	Access to the site is from Station Road North to the south. There is minimal risk of surface water flooding on this road and it lies outside of the area at risk of fluvial flooding.			
Climate change	River Basin District	Central	Higher Central	Upper End	
Climate	'2080s'	Thames	25%	35%	70%
Change	Implications for the site	Climate change is unlikely to sig of this site.	nificantly change the Flo	od Zone cla	ssification



Site code	RED2
Site name	Bellway House, Station Road, Merstham

	Bedrock Geology	Gault Formation and Upper Greensand Formation (undifferentiated) – Mudstone, Sandstone and Limestone	
	Superficial Geology	No superficial deposits are known to exist on the site.	
	Soils	Slightly acid loamy and clayey soils with impeded drainage	
Requirement for drainage control and impact	SuDS	The nature of the soils on this site may limit the use of Infiltration SuDS.	
mitigation	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.	
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.	
	Opportunities for flood risk betterment	No significant opportunities for flood risk betterment are present at this site.	
	Sequential Test an	d Exception Test requirements	
	The site is within Flood Zone 1 but at some risk from surface water flooding, which should be to into account when carrying out the Sequential Test and Exception test if required.		
	Recommendations for requirements of site-specific Flood Risk Assessment, include guidance for developers		
Recommend- ations for Local Plan policy	Flood risk assessment: • At the planning application stage, a site-specific flood risk assessment (considering sources of flooding) and surface water drainage strategy will be required.		



Site code	RED1
Site name	Quarryside Business Park, Thornton Side, Redhill

Site details	OS Grid reference	528959 152056				
	Area	1.2Ha				
	Current land use	Brownfield				
	Proposed site use	Urban Developme	Urban Development Site			
	Flood risk vulnerability	More vulnerable				
	Existing watercourses	south-west corner	of the site into	g the western site boundary an ordinary watercourse the ontinues south where it even	at flows towards	
	Flood history	No recorded flood	l history.			
			Proportion of	site at risk in Flood Zones	s	
		FZ3b	FZ3a	FZ2	FZ1	
		0% Available modell	0%	0%	100%	
	Fluvial	No modelled exte	nts cover this s	eito		
		modelled immedia	stics: ly within Flocately to the wes	od Zone 1, however, sign st of the site on the opposite		
Sources of		Site is complete	stics: ly within Floc ately to the wes stern boundary	od Zone 1, however, sign st of the site on the opposite		
Sources of flood risk		Site is complete modelled immedia	stics: ly within Flocately to the western boundary Proportion	nd Zone 1, however, sign st of the site on the opposite of the site		
		Site is complete modelled immedia that forms the wes	stics: ly within Flocately to the western boundary Proportion	od Zone 1, however, sign st of the site on the opposite of the site n of site at risk (RoFSW)	side of the railway	
	Surface Water	Site is complete modelled immedia that forms the west statement of the second	stics: ly within Flocately to the western boundary Proportion ar urface water flower the runs across the ponding may	od Zone 1, however, signst of the site on the opposite of the site n of site at risk (RoFSW) 100-year 14% ow paths: path associated with flows the northern part of the site occur along the western signs.	1,000-year 20% s under the railway e during a 1 in 30-	
		Site is complete modelled immedia that forms the west safe and from the norty year event. Some west corner during	stics: ly within Flocately to the western boundary Proportion ar urface water flow the runs across to ponding may g a 1 in 100-ye le to Groundw	od Zone 1, however, signst of the site on the opposite of the site n of site at risk (RoFSW) 100-year 14% ow paths: path associated with flows the northern part of the site occur along the western signs.	1,000-year 20% s under the railway e during a 1 in 30-side and the south	
	Surface Water Groundwater	Site is complete modelled immedia that forms the west a significant surfa and from the norty year event. Some west corner during Areas Susceptib groundwater emitted immediately and susceptible groundwater emitted immediately and susce	stics: ly within Flocately to the western boundary Proportion ar urface water flowth runs across e ponding may g a 1 in 100-ye le to Groundwergence) n an area at ris	od Zone 1, however, signst of the site on the opposite of the site n of site at risk (RoFSW) 100-year 14% ow paths: path associated with flows the northern part of the site occur along the western sar event.	1,000-year 20% s under the railway e during a 1 in 30-side and the south	
		Site is complete modelled immedia that forms the west 8% Description of standard from the norty year event. Some west corner during Areas Susceptib groundwater em. The site lies within below the surface	stics: ly within Flocately to the western boundary Proportion ar urface water flowth runs acrosse ponding may g a 1 in 100-ye le to Groundwergence) n an area at ris	od Zone 1, however, signst of the site on the opposite of the site n of site at risk (RoFSW) 100-year 14% ow paths: path associated with flows the northern part of the site occur along the western sar event.	1,000-year 20% s under the railway e during a 1 in 30-side and the south	



Site code	RED1
Site name	Quarryside Business Park, Thornton Side, Redhill

	Defences	Defence Type	Standard	of Protecti	on Co	ondition
Flood risk management infrastructure	20.0000	The site does not receive protection from flood defences.				
	Residual risk	Culvert / structure blockage?	It is understood that a culverted watercourse runs along the western boundary of the situadjacent to the railway line. The culver begins to the west of the railway and flooding as a result of a blockage of the culvert is not expected to directly impact the site			of the site The culvert and flooding alvert is not
		Impounded water body failure?	The site is reservoir flo		e maximum	extent of
		Defence breach /		Breac	h Zone	
		overtopping?	The site defences.	The site is not at risk from breach of defences.		
	Flood warning	The site is not covered by a Flood alert or Flood Warning area.				
Emergency planning	Access and egress	Access is via a Thorntonside which may experience some minor ponding fror surface water near the site entrance in a 1 in 100-year event. Access it possible to the east but this road experiences significant ponding in a 1 in 30 year event.			Access is	
	Climate change	River Basin District		Central	Higher Central	Upper End
Climate	'2080s'	Thames		25%	35%	70%
Change	Implications for the site	Climate change is unlikely to sig of this site.	nificantly cha	ange the Flo	ood Zone cla	assification



Site code	RED1
Site name	Quarryside Business Park, Thornton Side, Redhill

		1		
	Bedrock Geology	Lower Greensand Group – Sandstone and Mudstone		
	Superficial Geology	No superficial deposits are known to exist on the site.		
	Soils	Freely draining slightly acid loamy soils.		
		The freely draining soils and sandstone geology provide opportunities for an infiltration SuDS scheme. However the existing historic landfill site may limit this.		
Requirement for drainage control and	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.		
	Historic Landfill Site	The eastern part of the site lies within a site designated by the EA as a historical landfill site. (Holmethorpe Trading Estate – Last input 1989).		
	Opportunities for flood risk betterment	Opportunities to de-culvert the watercourse on the west of the site with possibilities to incorporate into a SuDS scheme.		
	Sequential Test an	d Exception Test requirements		
	The site is within Flood Zone 1 but at risk from surface water flooding, which should be taken into account when carrying out the Sequential Test and Exception test if required.			
	Recommendations guidance for devel	for requirements of site-specific Flood Risk Assessment, including opers		
Recommend- ations for Local Plan policy	 Flood risk assessment: At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage Impacts of the development on flood risk to the wider catchment should assessed. 			
	Guidance for site design and making development safe:			
	Development must seek opportunities to reduce overall level of flood risk at the site.			
	flood risk e			
	 All develop 	is and egress should be demonstrated in the 1 in 100 plus climate change event. In the should adopt source control SuDS techniques to reduce the risk of the post-development runoff. SuDS design should follow current best practice.		



Site code	RED1
Site name	Quarryside Business Park, Thornton Side, Redhill

(CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple
benefits including water quality, biodiversity, amenity, green infrastructure etc.
Drainage designs should 'design for exceedance' and accommodate existing surface water
flow routes, with development located outside of existing flood risk areas.



Site code	RED9
Site name	East Surrey Hospital

Site details	OS Grid reference	528405 148250			
	Area	15.5Ha			
	Current land use	Brownfield			
	Proposed site use	Hospital			
	Flood risk vulnerability	More vulnerable			
	Existing watercourses	An un-named ordinary watercoof the site and is culverted in part south-eastern boundary and e	laces, and Earlswood Brook fl	ows along the	
	Flood history	No recorded flood history.			
		Proportion	of site at risk in Flood Zones	3	
		FZ3b FZ3a	FZ2	FZ1	
		0.1% 0.1%	0.1%	99.9%	
		Available modelled data:		1	
	Fluvial	Flood characteristics: Flood Zone 3 of Earlswood However this is not expected in the control of	Brook is located at the south		
Sources of		Proport	on of site at risk (RoFSW)		
flood risk		30-year	100-year	1,000-year	
		9%	15%	36%	
		Description of surface water Significant flow paths and por			
	Surface Water	boundaries of the site in the 1 a 1 in 1000-year event. A set southern edge of the site and to the railway line to the west. The surface water flow paths upper reaches of the Earlswood	in 30-year event, with more extend surface water flow path is significant ponding is predicted if the site, which may impact at follow the ordinary waterco	extensive ponding in a present along the d to occur adjacent access to the site.	
	Surface Water	boundaries of the site in the 1 a 1 in 1000-year event. A set southern edge of the site and to the railway line to the west. The surface water flow paths upper reaches of the Earlswood Areas Susceptible to Groun	in 30-year event, with more ex- cond surface water flow path is significant ponding is predicted of the site, which may impact a significant form for the site, which may impact a significant for the site of the	tensive ponding in spresent along the docur adjacent access to the site. urse that form the ast of the site.	
	Surface Water Groundwater	boundaries of the site in the 1 a 1 in 1000-year event. A set southern edge of the site and to the railway line to the west. The surface water flow paths upper reaches of the Earlswood Areas Susceptible to Ground groundwater emergence)	in 30-year event, with more expond surface water flow path is significant ponding is predicted of the site, which may impact as follow the ordinary watercoad Brook and originate to the extwater Flooding Map class (tensive ponding in spresent along the docur adjacent access to the site. urse that form the ast of the site.	
	Groundwater	boundaries of the site in the 1 a 1 in 1000-year event. A set southern edge of the site and to the railway line to the west of the surface water flow paths upper reaches of the Earlswood Areas Susceptible to Groun groundwater emergence) Negligible risk of groundwater	in 30-year event, with more expond surface water flow path is significant ponding is predicted of the site, which may impact as follow the ordinary watercoad Brook and originate to the extwater Flooding Map class (flooding.	Attensive ponding in a present along the did to occur adjacent access to the site. Aurse that form the ast of the site. Arisk of	
		boundaries of the site in the 1 a 1 in 1000-year event. A set southern edge of the site and to the railway line to the west. The surface water flow paths upper reaches of the Earlswood Areas Susceptible to Ground groundwater emergence)	in 30-year event, with more expond surface water flow path is significant ponding is predicted of the site, which may impact as follow the ordinary watercoad Brook and originate to the extwater Flooding Map class (flooding.	Attensive ponding in a present along the did to occur adjacent access to the site. Aurse that form the ast of the site. Arisk of	



Site code	RED9
Site name	East Surrey Hospital

	Defences	Defence Type	Standard of Protection	on Co	ondition
Flood risk management infrastructure	Deletioes	The site does not receive protection from flood defences.			
	Residual risk	Culvert / structure blockage?	The culvert along the northern edge and to the south west present a risk of blockage. Blockage of culverts under the railway line to the west of the site may result in significant ponding around the site, which may impact access.		
		Impounded water body failure?	The site does not lie w reservoir flooding.	The site does not lie within an area at risk of reservoir flooding.	
		overtopping?	Breach	Zone	
			The site is not at defences.	site is not at risk from breach of nces.	
	Flood warning	The lies within the "River Mole and its tributaries from Kinnersley Manor to South Hersham" Flood Warning Area.			
Emergency planning Access and egress Safe access is possible from Canada limited from Three Arch Road to the north due to surface water flooding in also within within Flood Zone 3b at the		o the South and Royal E ing in a 1 in 30-year ever	arlswood F nt. Three Ai	Road to the	
Climate	Climate change	River Basin District	Central	Higher Central	Upper End
	'2080s'	Thames	25%	35%	70%
Change	Implications for the site	Climate change may increase th of the site.	e extent of Flood Zones	into the sou	ithern part



Site code	RED9
Site name	East Surrey Hospital

	Bedrock Geology	Wealden Group – Mudstone, Siltstone and Sandstone.		
	Superficial Geology	No superficial deposits are known to exist on the site.		
	Soils	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils with impeded drainage.		
		The impeded drainage may resrict the implementation of an infiltration SuDS scheme.		
Requirement for drainage control and	SuDS	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
impact mitigation		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site is not located within a Groundwater Source Protection Zone.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as an historic landfill site.		
	Opportunities for flood risk betterment	Opportunities to de-culvert the watercourse to the south west to reduce risk of blockage. De-culverting the watercourse to the north could provide an opportunity to incorporate into a SuDS scheme.		
	Sequential Test an	d Exception Test requirements		
	is passed should the sequentially locate • If More \	t must be passed (see Section 4 of main report). Only once the Sequential Test e Exception Test be applied. It is expected that all built development will be ed within Flood Zone 1, but the Exception Test would be required: //ulnerable and Essential Infrastructure is located in FZ3a. Vulnerable development is located in FZ2 or Flood Zone 3a plus climate		
		tial Infrastructure is located in Flood Zone 3b		
Recommend- ations for	<u> </u>	of the permitted in the following scenarios: Yulnerable development within FZ3a or Flood Zone 3a plus climate change and		
Local Plan policy	More Vulnerable and Less Vulnerable development within FZ3b.			
policy	Recommendations guidance for devel	for requirements of site-specific Flood Risk Assessment, including opers		
	Flood risk assessment:			
	 At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required. 			
	 Consultation with the Local Authority and the Environment Agency should be undertaken at 			
	an early sta Groundwat	age ter flood risk in the northeast of the site should be investigated.		
		odelling will be required to confirm Flood Zone and climate change extents. The		
	Environment Agency and LLFA should be consulted to obtain the latest hydraulic mod			



Site code	RED9
Site name	East Surrey Hospital

information for the site at the time of the flood risk assessment. They will advise as to whether existing detailed models need to be updated.

• Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site Category	Traveller Sites
Site code	Old Rectory 1
Site name	The Old Rectory

Site details	OS Grid reference	527926, 159550				
	Area	0.24 Ha				
	Current land use	Brownfield				
	Proposed site use	Traveller site				
	NPPF Flood risk vulnerability	Highly Vulnerable	Highly Vulnerable			
	Existing watercourses	No watercourses	exist within or clo	ose to the site boundary		
	Flood history	The EA Historic F on the site.	Flood Map does n	ot show any recorded ir	ncidents of flooding	
			Proportion of s	ite at risk in Flood Zor	nes	
		FZ3b	FZ3a	FZ2	FZ1	
	Fluvial	0%	0%	0%	100%	
		Flood characteristics: The site is contained completely within Flood zone Proportion of site at risk (RoFSW)				
		30-ye	·	100-year	1,000-year	
		0%		0%	23%	
Sources of flood risk	Surface Water	Description of surface water flow paths: Linear surface water flow paths run north to south across the site during to in 1,000-year (0.1%) event, however this may alter with the prop development.				
		Areas Susceptible to Groundwater Flooding Map class (risk of groundwater emergence)				
	Groundwater		the south-east co	s most of the site are typically greater than 5m below east corner of the site, groundwater levels may be by the surface.		
		The site is not at risk of flooding from reservoir failure.				
	Reservoir	The site is not at	risk of flooding fro	om reservoir failure.		
	Reservoir Canal	The site is not at The site is not loc				



Site Category	Traveller Sites
Site code	Old Rectory 1
Site name	The Old Rectory

	Defences	Defence Type	Standard of Protection	Co	ondition
	20.0000	The site does not receive protection from flood defences.			
Flood risk		Culvert / structure blockage?			,
management infrastructure	Residual risk	Impounded water body failure?	The site is not at ris reservoir failure.	k of floo	oding from
		Defence breach /	Breach 2	Zone	
		overtopping?	The site is not at ri defences.	sk from	breach of
		The site lies outside of any Floor	d Warning or Flood Alert a	reas.	
Emergency	Flood warning	Environment Agency flood warnings are now issued to individuals via the Flood Information Service.			
planning	Access and egress	Access and egress to this site may be achieved via the B278 which runs past the site to the east. Some surface water flooding may be present on the B278 north and south of the site, although the immediate vicinity of the site entrance it unlikely to experience flooding.			
	Climate change allowances for '2080s'	River Basin District		Higher Central	Upper End
Climate		Thames	25%	35%	70%
Change Implications for the site		Climate change is unlikely to sig of this site.	nificantly change the Floor	Zone cla	assification



Site Category	Traveller Sites
Site code	Old Rectory 1
Site name	The Old Rectory

Bedrock Geology	White chalk subgroup.			
Superficial Geology	Deposits of clay with flints cover the whole of the site.			
Soils	The site has shallow lime-rich soils over chalk or limestone that are freely draining.			
	SuDS should be designed around existing surface water flow paths and areas of ponding.			
Sups	The freely draining nature of the soils present on the site offer opportunites for infiltration SuDS, however the site's location within a groundwater source protection zone needs to be considered during the design process.			
Subs	Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.			
	Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.			
Groundwater Source Protection Zone	The site lies within Zone 1 (Inner Zone).			
Historic Landfill Site	No part of the site is designated by the Environment Agency as historic landfill site.			
Opportunities for flood risk betterment	Opportunity to implement exemplar SuDS design following CIRIA and SCC guidance on runoff rates and volumes, contributing to the reduction of flood peaks downstream.			
Seguential Test an	d Exception Test requirements			
The site is within FI	ood Zone 1 but at risk from surface water flooding, which should be taken into ing out the Sequential Test and Exception test if required			
Recommendations guidance for devel	for requirements of site-specific Flood Risk Assessment, including opers			
 Flood risk assessment: At the planning application stage, a site-specific flood risk assessment (considering all sources of flooding) and surface water drainage strategy will be required. Consultation with the Local Authority and the Environment Agency should be undertaken at an early stage Detailed modelling is not expected to be required as the site is a significant distance from Flood Zone 2 and climate change is unlikely to increase the risk to the site. The Environment Agency and LLFA should be consulted to confirm any requirements for the site at the time of the flood risk assessment. They will advise as to whether existing detailed models need to be updated. 				
	Geology Superficial Geology Soils Soils Groundwater Source Protection Zone Historic Landfill Site Opportunities for flood risk betterment Sequential Test an The site is within Fl account when carry Recommendations guidance for devel Flood risk ass At the plan sources of Consultation an early stan Flood Zon Environme site at the			



Site Category	Traveller Sites
Site code	Old Rectory 1
Site name	The Old Rectory

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	Trentham
Site name	Trentham and Treetops

Site details	OS Grid reference	530813 142501				
	Area	0.36 Ha				
	Current land use	Brownfield	Brownfield			
	Proposed site use	Traveller site	Traveller site			
	NPPF Flood risk vulnerability	Highly Vulnerable				
	Existing watercourses	No watercourses exist within the site boundary. An ordinary water course (drain) lies 200m to the south of the site.			water course	
	Flood history		The EA Historic Flood Map shows that flooding has occurred across the site in 1968 and 1974. Internal property flooding has also been recorded along Peeks Brook Lane.			
			Proportion of	site at risk in Flood Zone	es	
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	89.6%	10.4%	
	Fluvial			site lies within the area covernment Agency 2011).	ered by the Burstow	
	Fluvial	Stream Modelling	study (Environ	ment Agency 2011). lies largely within Flood Zo	·	
	Fluvial	Stream Modelling Flood characteris	study (Environ stics: The site Proportion	ment Agency 2011). lies largely within Flood Zo of site at risk (RoFSW)	ne 2.	
Sources of flood risk	Fluvial	Stream Modelling	study (Environ stics: The site Proportion ar	ment Agency 2011). lies largely within Flood Zo	·	
	Fluvial Surface Water	Stream Modelling Flood characteris 30-yea 1.6% Description of su A small percentag 1 in 30-year even	study (Environ stics: The site Proportion ar Inface water flue of the site mut, however signs k Lane close	ment Agency 2011). lies largely within Flood Zo of site at risk (RoFSW) 100-year 2.7% ow paths: ay experience flooding from phificant ponding of surface to the likely entrance to the surface to the likely entrance to the surface to the likely entrance to the likely ent	1,000-year 6.3% m surface water in a e water is modelled	
		Flood characteris 30-yea 1.6% Description of su A small percentag 1 in 30-year even along Peeks Brod impact access and Areas Susceptibl groundwater eme	Proportion In the site water flue of the site mut, however sign bk Lane close diegress from the to Groundwergence)	lies largely within Flood Zo of site at risk (RoFSW) 100-year 2.7% ow paths: ay experience flooding from phificant ponding of surface to the likely entrance to the site.	1,000-year 6.3% m surface water in a e water is modelled the site. This may	
	Surface Water	Stream Modelling Flood characteris 30-yea 1.6% Description of su A small percentag 1 in 30-year even along Peeks Brod impact access and	Proportion In the site water flue of the site mut, however sign bk Lane close diegress from the to Groundwergence)	lies largely within Flood Zo of site at risk (RoFSW) 100-year 2.7% ow paths: ay experience flooding from phificant ponding of surface to the likely entrance to the site.	1,000-year 6.3% m surface water in a e water is modelled the site. This may	
	Surface Water	Stream Modelling Flood characteris 30-yea 1.6% Description of su A small percentag 1 in 30-year even along Peeks Brod impact access and Areas Susceptibl groundwater eme Negligible risk of f	Proportion Inface water flue of the site math, however signs by Lane close diegress from the to Groundwergence)	lies largely within Flood Zo of site at risk (RoFSW) 100-year 2.7% ow paths: ay experience flooding from phificant ponding of surface to the likely entrance to the site.	1,000-year 6.3% m surface water in a e water is modelled the site. This may	



Site code	Trentham
Site name	Trentham and Treetops

	Defences	Defence Type	Standard	of Protect	ion Co	ondition
	20.0000	The site does not receive protection from flood defences.				
Flood risk		Culvert / structure blockage?	There are no structures on the site (identified at this stage) with the potential to block.			
management infrastructure	Residual risk	Impounded water body failure? The site is not at risk of floor reservoir failure.				oding from
		Defence breach / overtopping?		Breac	h Zone	
			The site is not at risk from breach of defences.			
Flood warning		The site lies in the Burstow Stream at east and North Horley Flood Warning Area and the Ilfield Brook, Upper River Mole, Gatwick Stream, Burstow Stream and Salfords Stream Flood Alert Area.				
Emergency planning		Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
	Access and egress	Access and egress to this site may be achieved via Peeks Brook Lane to the west of the site. This minor road has recorded incidents of property flooding along it and may experience significant ponding of surface water close to the site.				
	Climate change	River Basin District		Central	Higher Central	Upper End
Climate	'2080s'	Thames		25%	35%	70%
Change	Implications for the site	Climate change modelling indicates and increase in the flood extent from the Burstow Stream to the north and south of the site, however, it is unlikely to significantly change the Flood Zone classification of this site.				



Site code	Trentham
Site name	Trentham and Treetops

	Bedrock Geology	Mudstone, Siltstone and Sandstone.		
	Superficial Geology	River terrace deposits (undifferentiated) exist across the site.		
	Soils	The site has slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.		
		SuDS should be designed around existing surface water flow paths and areas of ponding. Due to the existing flood risk to properties surrounding the site, surface water discharge should be restricted to greenfield runoff rates as a minimum.		
Requirement for drainage	SuDS	The poor draining nature of the soils present on the site offer limited opportunites for infiltration SuDS.		
control and impact mitigation		Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.		
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.		
	Groundwater Source Protection Zone	The site does not lie within a source protection zone.		
	Historic Landfill Site	No part of the site is designated by the Environment Agency as historic landfill site; however a historic land fill site is present 200m north of the site.		
	Opportunities for flood risk betterment	Opportunity to implement exemplar SuDS design following CIRIA and SCC guidance on runoff rates and volumes, contributing to the reduction of flood peaks downstream.		
	Sequential Test and Exception Test requirements			
	The Sequential Tes is passed should the	t must be passed (see Section 4 of main report). Only once the Sequential Test le Exception Test be applied. It is recommended that all built development y located within Flood Zone 1, but the Exception Test would be required:		
	If More Vulnerable and Essential Infrastructure is located in FZ3a.			
	 If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 			
	~	tial Infrastructure is located in Flood Zone 3b		
Recommend-	Development will not be permitted in the following scenarios:			
ations for Local Plan	 Highly V FZ3b. 	/ulnerable development within FZ3a or Flood Zone 3a plus climate change and		
policy	 More Vulnerable and Less Vulnerable development within FZ3b. 			
	Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers			
	Flood risk ass	-		
	At the planning application stage, a site-specific flood risk assessment (considering all			
	sources of flooding) and surface water drainage strategy will be required.			
	Consultation an early sta	on with the Local Authority and the Environment Agency should be undertaken at		



Site code	Trentham
Site name	Trentham and Treetops

- Detailed modelling may be required to confirm Flood Zone and climate change extents. The
 Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling
 information for the site at the time of the flood risk assessment. They will advise as to
 whether existing detailed models need to be updated.
- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1 where possible.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.



Site code	Woodlea Stables
Site name	Woodlea Stables Peek Brook Lane

Site details	OS Grid reference	530691 142469			
	Area	0.31 Ha			
	Current land use	Brownfield			
	Proposed site use	Traveller site			
	NPPF Flood risk vulnerability	Highly Vulnerable			
	Existing watercourses	No watercourses exist within the site boundary. An ordinary water course (drain) lies 150m to the south of the site.			water course
	Flood history	The EA Historic Flood Map shows that flooding has occurred on the eastern section of the site in 1968 and 1974. Internal property flooding has also been recorded along Peeks Brook Lane.			
			site at risk in Flood Zone	1	
		FZ3b 0%	FZ3a	FZ2 25.3	FZ1 74.7%
	Fluvial	Available modelled data: The site lies within the area covered by the Burstow Stream Modelling study (Environment Agency 2011). Flood characteristics: The site lies partially within Flood Zone 2.			
			• .	,	Zone 2.
			stics: The site	,	one 2.
Sources of			tics: The site	lies partially within Flood Z	Zone 2. 1,000-year
Sources of flood risk		Flood characteris	tics: The site	lies partially within Flood Z	
	Surface Water	30-yea 0% Description of su Although a negligil from surface water water may occur a site in a 1 in 30-ye the site in a 1 in 10	Proportion r rface water flucture in a 1 in 10 along Peeks Ear event. Ther 00-year event,	lies partially within Flood 2 of site at risk (RoFSW) 100-year 0% ow paths: e of the site is predicted to 1000-year event, significant 3 rook Lane close to the life is also ponding present	1,000-year 0.1% experience flooding ponding of surface kely entrance to the immediately north of
	Surface Water Groundwater	30-yea 0% Description of su Although a negligil from surface water water may occur a site in a 1 in 30-ye the site in a 1 in 10 Areas Susceptibl groundwater emer	Proportion r rface water flucture in a 1 in 10 along Peeks Ear event. Therefore in a 1 in 10 along peeks Ear event in a 1 in 10 along peeks Ear event. Therefore in a 1 in 10 along peeks Ear event in a 1 in 10 along peeks Ear	lies partially within Flood 2 of site at risk (RoFSW) 100-year 0% ow paths: e of the site is predicted to 1000-year event, significant Brook Lane close to the life is also ponding present	1,000-year 0.1% experience flooding ponding of surface kely entrance to the immediately north of
	Groundwater	Jack Susceptible groundwater emed Negligible risk of fi	Proportion r rface water flucture in a 1 in 10 along Peeks Ear event. There is a revent, where to Groundwargence) ooding from grounding fr	lies partially within Flood 2 of site at risk (RoFSW) 100-year 0% ow paths: e of the site is predicted to 100-year event, significant Brook Lane close to the life is also ponding present rater Flooding Map class roundwater.	1,000-year 0.1% experience flooding ponding of surface kely entrance to the immediately north of
		Jack Susceptible groundwater emed Negligible risk of fi	Proportion r rface water flucture in a 1 in 10 along Peeks Ear event. There is a revent, where to Groundwergence) ooding from growsk of flooding in the state of the state	lies partially within Flood 2 of site at risk (RoFSW) 100-year 0% ow paths: e of the site is predicted to 1000-year event, significant Brook Lane close to the life is also ponding present rater Flooding Map class roundwater. from reservoir failure.	1,000-year 0.1% experience flooding ponding of surface kely entrance to the immediately north of



Site code	Woodlea Stables
Site name	Woodlea Stables Peek Brook Lane

	Defences	Defence Type	Standard	d of Protect	ion Co	ondition
	201011000	The site does not receive protection from flood defences.				
Flood risk management infrastructure	Residual risk	Culvert / structure blockage?	There are no structures on the site (identified at this stage) with the potential to block.			
		Impounded water body failure?		The site is not at risk of flooding from reservoir failure.		
		Defence breach /			h Zone	
		overtopping?	The site defences.		risk from	breach of
	Flood warning	The site lies in the Burstow Stream at east and North Horley Flood Warning Area and the Ilfield Brook, Upper River Mole, Gatwick Stream, Burstow Stream and Salfords Stream Flood Alert Area.				
Emergency planning		Environment Agency flood warnings are now issued to individuals via the Flood Information Service.				
	Access and egress	Access and egress to this site may be achieved via Peeks Brook Lane to the east of the site. This minor road has recorded incidents of property flooding along it and may experience significant ponding of surface water close to the site.				
	Climate change allowances for	River Basin District		Central	Higher Central	Upper End
Climate	'2080s'	Thames 25% 35% 70%			70%	
Change Implications for the site		Climate change modelling indicates and increase in the flood extent from the Burstow Stream to the north and south of the site, however, it is unlikely to significantly change the Flood Zone classification of this site.				



Site code	Woodlea Stables
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	Bedrock Geology	Mudstone, Siltstone and Sandstone.			
	Superficial Geology	River terrace deposits (undifferentiated) exist across the site.			
	Soils	The site has slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.			
		SuDS should be designed around existing surface water flow paths and areas of ponding. Due to the existing flood risk to properties surrounding the site, surface water discharge should be restricted to greenfield runoff rates as a minimum.			
Requirement for drainage	SuDS	The poor draining nature of the soils present on the site offer limited opportunites for infiltration SuDS.			
control and impact mitigation		Opportunities should be taken to deliver SuDS with multiple benefits, such as biodiversity, recreation and water resource education, through integration with areas of greenspace.			
		Further information on SuDS is available in the CIRIA SuDS Manual (2015) and on the Surrey County Council website.			
	Groundwater Source Protection Zone	The site does not lie within a source protection zone.			
	Historic Landfill Site	No part of the site is designated by the Environment Agency as historic landfill site, however a historic land fill site is present 200m north of the site.			
	Opportunities for flood risk betterment	Opportunity to implement exemplar SuDS design following CIRIA and SCC guidance on runoff rates and volumes, contributing to the reduction of flood peaks downstream.			
	Sequential Test and Exception Test requirements				
	The Sequential Test must be passed (see Section 4 of main report). Only once the Seque is passed should the Exception Test be applied. It is expected that all built developmer sequentially located within Flood Zone 1, but the Exception Test would be required: • If More Vulnerable and Essential Infrastructure is located in FZ3a.				
	 If Highly Vulnerable development is located in FZ2 or Flood Zone 3a plus climate change. 				
	If Essential Infrastructure is located in Flood Zone 3b				
Recommend-	Development will not be permitted in the following scenarios:				
ations for	Highly Vulnerable development within FZ3a or Flood Zone 3a plus climate change and FZ01.				
Local Plan policy	 FZ3b. More Vulnerable and Less Vulnerable development within FZ3b. 				
	Recommendations for requirements of site-specific Flood Risk Assessment, including guidance for developers				
	Flood risk ass	essment:			
	sources of Consultation	nning application stage, a site-specific flood risk assessment (considering all flooding) and surface water drainage strategy will be required. on with the Local Authority and the Environment Agency should be undertaken at			
	an early stage				



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- Detailed modelling may be required to confirm Flood Zone and climate change extents. The
 Environment Agency and LLFA should be consulted to obtain the latest hydraulic modelling
 information for the site at the time of the flood risk assessment. They will advise as to
 whether existing detailed models need to be updated.
- Climate change modelling should be undertaken using the relevant allowances (February 2016) for the type of development and level of risk.

Guidance for site design and making development safe:

- Development must seek opportunities to reduce overall level of flood risk at the site.
- The development should be designed using a sequential approach. Flood Zones 2 and 3, and 3a + upper end climate change (subject to a detailed flood risk assessment) should be preserved as public green space, with built development restricted to Flood Zone 1.
- Safe access and egress should be demonstrated in the 1 in 100 plus climate change event.
- Compensation storage would need to be provided for any land-raising within the 1 in 100 plus appropriate climate change flood extent
- Onsite attenuation options would need to be tested to ensure that altering the timing of peak flows leaving the site does not exacerbate flooding downstream.
- All development should adopt source control SuDS techniques to reduce the risk of flooding due to post-development runoff. SuDS design should follow current best practice (CIRIA Manual, 2015) and SCC guidance on runoff rates and volumes, to deliver multiple benefits including water quality, biodiversity, amenity, green infrastructure etc.