

King's Lynn and West Norfolk Borough Strategic Flood Risk Assessment Level 2 Community Level Guidance Tables

Completed by	JBA consulting
Date	March 2019
Author	Freyja Scarborough
Reviewer / Sign-off	Hannah Coogan
Version Number	Version 3.0

Community details	Community	Brancaster Staithe and Burnham Deepdale			
	Flood Risk Summary	Highest risk flooding mechanism	Tidal / Coastal		
		Most likely source of flooding	Surface Water		
Sources of flood risk	Existing drainage features	<ul style="list-style-type: none"> No fluvial drainage features. Tidal system and the North Sea lie to the north of the community 			
	Fluvial	No			
	Tidal	Small impact from Flood Zone 3b.			
	Surface Water	Small impact from 3.3% AEP event and above.			
	Residual Risk	Additional impact from tidal breach to the north of the community, most impact in Burnham Deepdale.			
	IDB watercourse present?	Small area in Norfolk Rivers Internal Drainage Board (IDB). No IDB watercourses within the community.			
	Flood history	<ul style="list-style-type: none"> The Environment Agency's recorded flood outline dataset shows tidal flooding in Burnham Deepdale in 1953 resulting from overtopping of defences and to the north of the community in 2013, again from defence overtopping. The provided Section 19 data indicates no records of flooding. Visual evidence of flooding in August 2012 in Burnham Deepdale has been found from an internet search. Visual evidence online of flooding of Brancaster Staithe Quay and Sailing Club House in December 2013. Spencer et al., (2015) reports 6 breaches of flood defence walls in 2013 from tidal surging at Burnham Deepdale with an area of 217ha in Deepdale Marsh behind defences being flooded. There are records of Sewer flooding in Burnham Deepdale in 2013 and Brancaster Staithe in 1990. 			
Flood risk management infrastructure	Defences	Defence Type	Flooding Type	Standard of Protection	Condition
		Embankment	Coastal	10	4 (Poor)
		Wall (x2)	Coastal	0	5 (Very Poor)
		Embankment (x2)	Coastal	10	3 (Fair)
		Embankment	Coastal	10	5 (Very Poor)
		Wall	Tidal	10	4 (Poor)
The area benefiting from defences information extends into the north of Burnham Deepdale. Principally the defence is the coastal embankment from The Drove, eastwards towards Burnham Norton. The Environment Agency carried out repairs on this defence infrastructure in 2015 following breaches in the 2013/14 storms and emergency repairs at the time.					
Opportunities for sustainable development	Asset management	No EA pipeline schemes at or near this community.			
	Capital investment policy and regeneration	No current schemes identified for this community.			

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	Higher level policy	<ul style="list-style-type: none"> This area is covered by the North Norfolk Shoreline Management Plan (SMP), super frontage 2. The policy that covers this area looks at the possibility of gradually increasing the natural processes while still maintaining a flood defence. SMP policies set the high level and strategic direction for flood risk and coastal change management. There is no guarantee that funding will be available from national, regional or local sources to implement the policy. More detailed strategy and scheme work considers funding needs and availability at a community level. 	
Emergency planning	Flood warning	<p>The community is partially covered by Environment Agency Flood Warning Areas:</p> <ul style="list-style-type: none"> North Norfolk Coast at Brancaster The North Norfolk Coast at Brancaster Staithe North Norfolk Coast at Burnham <p>The north of the community is covered by the 'North Norfolk coast from Old Hunstanton to and including Cley Flood Alert Area.</p>	
	Access and egress	<ul style="list-style-type: none"> Possible during all tidal events. During all surface water flood events, access and egress via Dalegate Lane will be limited, but other routes would be accessible. Limited access and egress may be more limited in the 0.1% AEP surface water event. 	
Climate Change	Implications for the community	<ul style="list-style-type: none"> Additional encroachment in the north of the community and into Burnham Deepdale in tidal climate change scenarios. There is a small increase in the impact of surface water when taking into account the future effects of climate change. 	
Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	Bedrock Geology	Chalk
		Superficial Geology	Clay, silt, sand and gravel Diamicton
		Soil Type	Freely draining
		Groundwater Source Protection Zone	No
		Historic Landfill Site	No
		<ul style="list-style-type: none"> Source control techniques are likely to be suitable for this site. Mapping suggests groundwater flooding is unlikely to be an issue in this community, as such infiltration techniques will probably be suitable. Detention features may be feasible providing site slopes are <5% at the location of the detention feature. Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, then a liner will be required. All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. 	

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NPPF and planning implications	Existing Local Considerations	<ul style="list-style-type: none"> • Burnham Deepdale is identified from the Environment Agency dataset as being in an area benefiting from defences. Developers should liaise with the Environment Agency and consider whether a financial contribution towards the long-term maintenance and/ or upgrade of the defences would be appropriate to help safeguard against increasing flood risk over the lifetime of the development. • This is especially relevant as the defences protecting this community are identified as having low performing condition scores ranging from score definitions of: 'defects that could reduce the performance of assets' to 'severe defects resulting in complete performance failure'. • Brancaster Staithe and Burnham Deepdale are identified as a joint key rural service centre with coastal settlement Brancaster in King's Lynn and West Norfolk Borough Council's Local Plan. • Brancaster Parish Neighbourhood Plan aims to provide guidelines, developed and accepted by local villagers, which will inform future development of Brancaster Staithe and Burnham Deepdale. • The Hunstanton to Kelling Shoreline Management Plan identifies that parts of Brancaster Staithe and Burnham Deepdale are within policy area: 'Super-frontage 2'. The plan provides continued flood defence for all settlements. As understanding of future developments increases, shoreline management will have to work with land use planning to determine the right approach. The overall plan for this frontage is to investigate the possibility of gradually increasing natural processes while continuing to provide flood defence where this is technically possible and economically viable. Where there is no active management now, the plan is to allow natural processes to continue. 	

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	Requirements and guidance for site - specific Flood Risk Assessment	<ul style="list-style-type: none"> • New development must seek opportunities to reduce overall level of surface water flood risk at the community. • Safe access and egress will need to be demonstrated taking into account the impacts of surface water flooding and the additional impact of climate change. A Flood Risk Assessment (FRA) should also suggest appropriate mitigation (flood resilience measures). • Consider the impact of a tidal breach by sequentially placing the highest vulnerability part of the development in the areas of lowest flood risk, applying the Council's Flood Risk Design Guidance and creating a site-specific emergency plan for flood events. • Flood history of tidal breach and evidence of protection from defences with some defences in poor condition. Consider a contribution to defences, especially those protecting Burnham Deepdale. • Climate change causes additional impact to the community by tidal flooding on the north-eastern boundary and additional impacts from surface water flooding, this impact should be considered. 		
Conclusions and recommendations		Tidal and Coastal	Fluvial	Surface Water
		5% AEP	No risk	3.3% AEP
		<ul style="list-style-type: none"> • Flood history of tidal breach and evidence of protection from defences with some defences in poor condition. Consider a contribution to defences. • The overall SMP plan for this frontage is to investigate the possibility of gradually increasing natural processes while continuing to provide flood defence where this is technically possible and economically viable. • Large areas of the community are within Flood Zone 1. • This area is suitable for SuDS. • Consider additional impacts of climate change and of breach on tidal flooding. • Consideration of safe access and egress. 		
		Mapping Information		
Flood Zones		Comprised of tidal Wells next the Sea, 2017 supplied model outlines.		