SOHAM AND BARWAY NEIGHBOURHOOD PLAN

Topic Paper – Flooding

Final Version 2.0

March 2024

Introduction

The report forms part of the evidence base for Policy SBNP 21 - Flood Risk of the Soham and Barway Neighbourhood Development Plan, and is to be read in conjunction with that Policy. This policy is complements East Cambridgeshire Local Plan Policy ENV 8, and elevates the relevant recommendations in the adopted Cambridgeshire Flood and Water Supplementary Planning Document to planning policy..

Flood Risk

Soham's Watery History

Originally the fens that surround Soham were watery marshes, known as fens. They were wild, dangerous places filled with tall reeds and flat wetlands. There were also areas, or islands, of high land in the fens, such as the Isle of Ely, which was built on an island of solid ground surrounded by fen.

Up until the 11th century Soham lay at the end a tongue of land pointing northwards towards the fens, with the only way northward across them to Ely was by boat or, in winter, by sledging over the ice. In about 1110, a monk of Ely priory constructed a causeway on bundles of reeds connecting Soham, through Stuntney, to Ely.

Draining The Fens

Around 400 years ago, life changed dramatically when King Charles I commissioned a Dutch engineer, Cornelius Vermuyden, to drain the fens and turn the wetlands into farmland. The process of draining the fens was very difficult because, when the land was drained of water, the peat soil found in the fens shrank. Once the land in the fields was lower than the surrounding river, earth banks alongside the rivers and ditches had to be constructed to protect the productive farmland. Flooding became common as water overflowed the new earth banks.

The whole vast area of the central and lower fens became a mass of small, intersecting cuts and drains fed by windpumps. The water they removed was directed into central drains, then raised, yet again by windpump, into either man-made arterial waterways or the natural rivers. From these, it was presumed, or hoped, it would flow to the sea. Occasionally, especially in winter and the seasons of strong high tides, and exceptional weather events, the system has been overwhelmed and flooding was widespread. e.g.1947.

Keeping the fens drained has gone on for hundreds of years, and it is still an ongoing process today.

The landscape is managed with drainage channels and pumps, which keep the water under control so that the rich peat soil can be used to grow a wide range of crops.

Eventually windpumps gave way to steam, then diesel and electric pumps. A central co-ordination of drainage was established. Yet the Fens themselves, still one of the most productive farming areas in the country, are kept dry today by the same methods established in the 18th century: pumps, cuts, drains, sluices and rivers. Certain areas are designated as washlands where the overflow from rivers can be stored until it can be pumped away safely.

The shrinkage of the peat goes on. The surface of the land is steadily falling further and further below sea-level in many areas. Should the drainage system ever fail, or should global warming raise sea levels faster than the system can cope with, this huge area of eastern England could become a vastly extended version of The Wash. Ely and Soham will stand on islands and Cambridge will be noted for its beach huts!

Examples of what the land surrounding Soham might look like if the pumping system for the Fens failed.

Soham Waterways

Soham Lode runs for about 7 miles (11 km) from the river Great Ouse about 1 mile below its junction with the River Cam. Its origin is less well known than the other lodes, but it probably dates from the 1790s, when it was built to reduce flooding in the Soham and Fordham area, by carrying water from the River Snail, which formerly flowed into the River Lark, to join the Great Ouse instead. Soham is about halfway along it and was once close to a large inland lake called Soham Mere, which was drained in the late 18th century.
(*source: Soham Heritage and Tourism - https://sohamhtg.co.uk/fen-lodes/*)

Prior to the alteration of the Soham Lode in 1979, as part of the A142 by-pass works completed in 1980/81, records show us that the disused lode, ill-cleaned especially on its upper course sometimes caused flooding near the village.
(*source: British History Online: Soham - https://www.british-history.ac.uk/vch/cambs/vol10/pp489-499*)

Soham Mere is spoken of as late as 1794 as the largest lake in England, next in order of size being Ramsay and Whittlesey Meres.

Source: Joan Blaeu's 1667 Atlas Maior showing Soham Mere

But by 1813 the lake was no more:- the mere had been drained. An agricultural study describes the area, “On the east of the town, a black sandy moor, lying upon a gravel; the remainder a deep, rich black mould, lying upon a blue clay or gault or clunch. Pasture extensive of first quality; a large tract also of second quality. The Mere, formerly a lake, now drained and cultivated - and the soil a mixture of vegetable matter and brown clay, contains about fourteen hundred acres.”.

Current Flooding Guidance

The ECDC Local Plan 2015 section 6.9.1 states, "*Flood risk is an important issue for the district, particularly given the topography of the area and the context of climate change with related sea-level rises and increased incidents of heavy rainfall*".

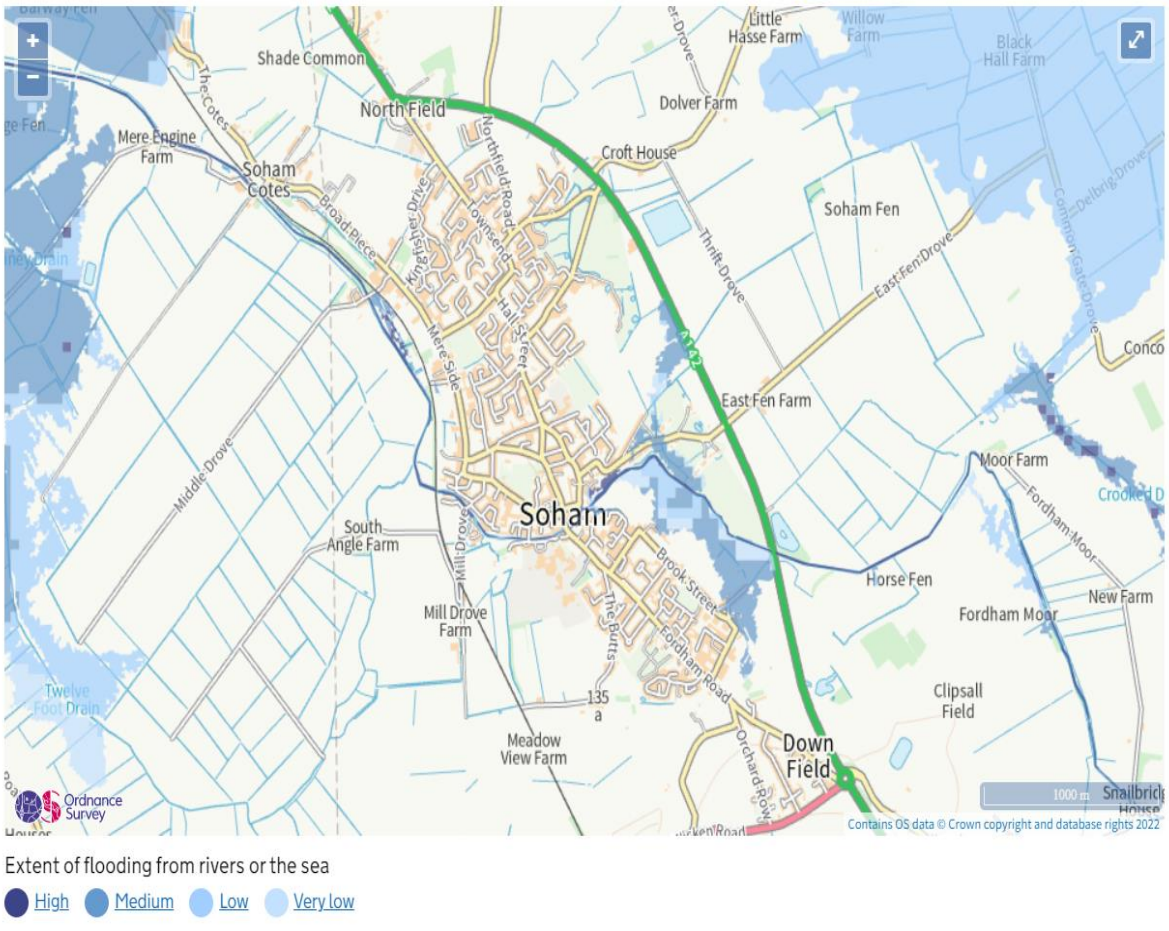
For further guidance in this area developers are reminded to read and comply with East Cambridgeshire District Council's:

- Strategic Flood Risk Assessment (November 2011)
- Water Cycle Study (November 2017), and
- The Cambridgeshire Flood and Water Supplementary Planning Document (July 2016)

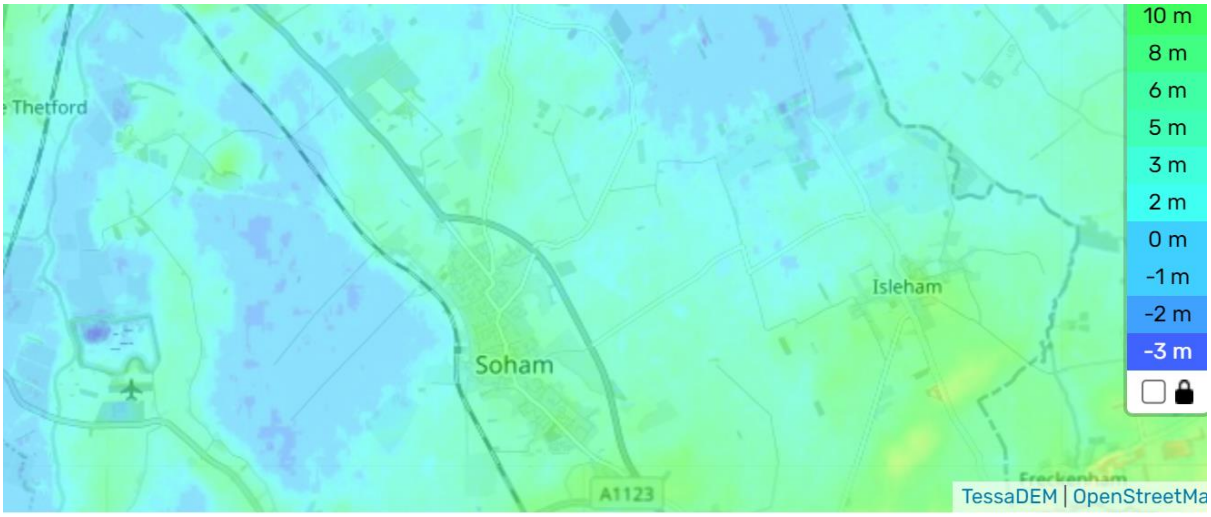
Soham's Flood Risk Areas

The Environment Agency's flood map indicates that most of the built–up area of the town is situated within Flood Zone 1 (Low risk) with the exception of an area to the west of the A142.

Flood Zones 2 (Medium risk) are predominantly located to the south and east of the town, below Paddock Street and between Brook Street and the A142 as this is dissected by the Soham Lode. This area could benefit from installation of flood defences to protect properties from fluvial flooding.



Map showing height of land above sea level



Surface Water Flood Risk

A recent case of local flooding was in June 2016 when heavy rainfall caused surface flooding in Regal Lane (south of Brook Street), Soham. This photograph was taken by PCSOs Austin and Hawkins at the scene of a road closure. Further surface water flooding has been reported in 2020 at Broad Piece.

Further surface water flooding has been reported in 2020 at Broad Piece, to the north west of the town.

A useful source of surface water flood risk information for Soham can be found of the Gov.UK website here:

https://check-long-term-flood-risk.service.gov.uk/map?easting=559359&northing=273130&map=SurfaceWater

For each location in Soham the extent of flood mitigation needed, and the depth and velocity of flood levels can be examined using the above link.

Sustainable Drainage Systems

Sustainable drainage systems (SuDS) are designed to manage stormwater locally (as close its source as possible), to mimic natural drainage and encourage its infiltration, attenuation and passive treatment.

Local conditions in and around Soham which means that, as a result of a combination of soil makeup (peat and clay) and shrinking caused by the wetting and drying of clay soil due to

moisture content changes, is particularly vulnerable to any ineffective SuDS design or flaws. Good practice expected from developers on new estates therefore will be to use ‘soft engineered' surface features rather than underground storage so that it will not create an increased risk of flooding from surface water to the development site and the surrounding areas. It is doubly important that Suds systems work effectively because not only do they protect land and property from flooding and inundation but also from the pollution which is inherent from surface water run-off. e.g. fertiliser, fuel, other chemicals, insecticides etc)

In addition to surface water, the sewage system in the area is under considerable pressure. With the addition of all the proposed houses in Soham, there is also a lot of houses being built in Fordham. At present all of Fordham’s sewage comes to Soham to be processed at the water treatment works on Mereside. Anglian Water who are responsible for the management of sewage and drinking water in the area are aware of the problems and are ‘addressing them’ albeit in the long term. We are aware that as far as drinking water is concerned Anglian Water are planning two new reservoirs which they hope will come on line later in this decade.

Other Data, Design Guidance and Codes of Practice

The following other sources provide useful information on the level of surface water risk, national regulations and practical guidance on the design and implementation of sustainable drainage:

- Code of practice for surface water management for development sites BS 8585:2013
- The Updated Flood Map for Surface Water & Long term flood risk information
- Building Research Establishment, Soakaway Design – Digest 365 (BRE DG 365 (2016))
- The Building Regulations 2010 Drainage and Waste Disposal Approved Document H, HM Government, 2015 edition
- Non-Statutory Technical Standards for Sustainable Drainage Systems, Practice Guidance, LASOO, Sewers for Adoption 8th Edition, WRc plc, 2018
- SuDS Manual, C753, CIRIA, 2015
- Guidance on the Construction of SuDS, C768, CIRIA, 2017
- Water. People. Places: a guide for master planning sustainable drainage into developments, South East 7/AECOM, 2013

Green Energy

Soham has already embraced the production of green energy in that there is already a solar farm of around 72 Ha. A further 56 Ha is now under construction adjacent to the first. Although these two solar parks are wholly within the parish of Soham, the residents of the parish, while losing productive agricultural land and having to put up with these ugly developments close to the town, will have no local benefit from them as all the electricity is being fed directly into the National Grid.

Local residents are keen to support the production of green energy, but do not want to lose any further agricultural land to solar farms. Instead they would like to encourage the use of roofs on domestic and commercial buildings to be fitted with solar panels either as new builds or retrofitting.

Solar development near Angle Common

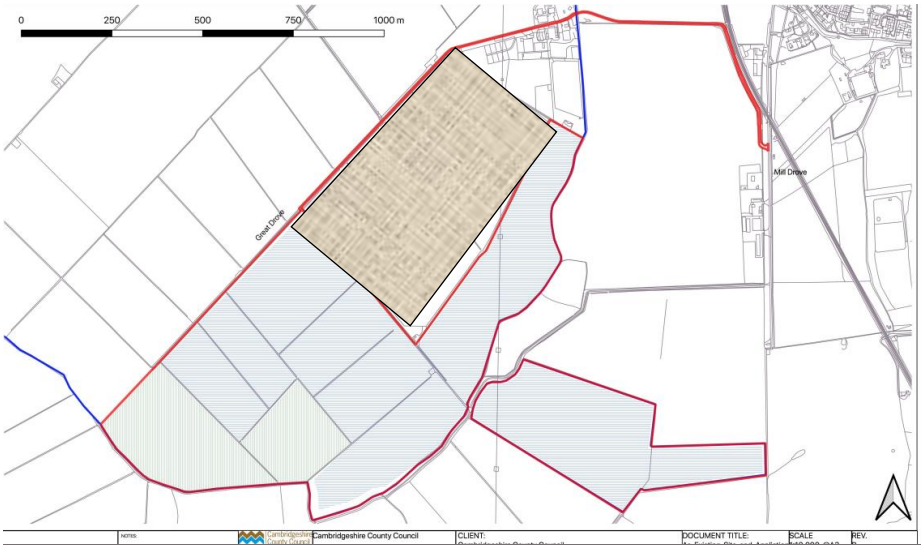


Diagram showing solar farm already in operation and in blue the area under construction.

Other green energy

There is no appetite locally for wind turbines within the town but the location of wind turbines may be favourably considered in certain in agricultural settings.

Neighbourhood Plan fully supports any new developments which may include ground heat or air heat pumps in the construction of new properties.

Light Pollution

It has recently been recognised internationally that light pollution (particularly the blue LED lights) cause not only a problem with the ability to see our night skies but also to wildlife. It has recently been demonstrated that light pollution effects the behaviour of both predators and prey and also disrupts the flight path of many migrating birds and insects. It is therefore important that, although lighting is an important part of any new development (for safety reasons), any lighting installed in a new development should be certain to keep light pollution as low as possible.