

FLOOD RISK ASSESSMENT



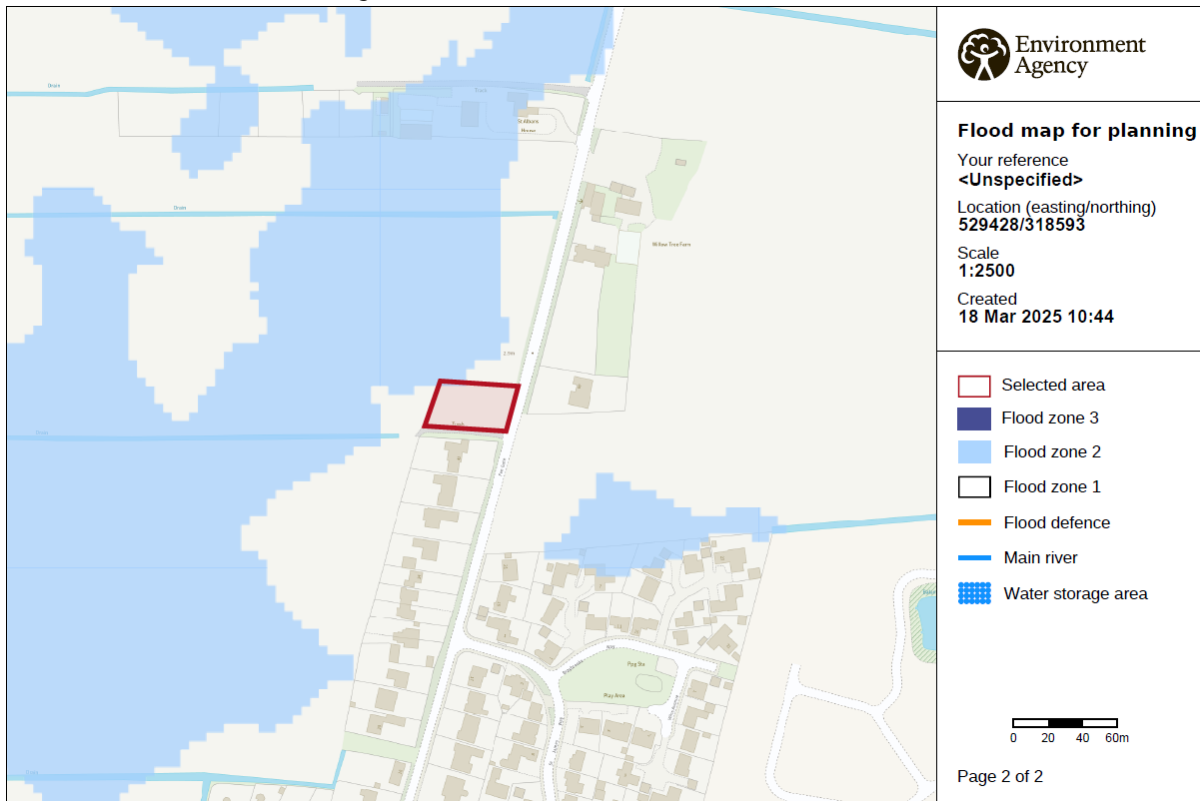
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Job No. 106
Client: Mr & Mrs Smith
Date: March 2025
Location: Land off Fen Gate, Moulton Chapel PE12 0QA
Reference/Description: Erection of a detached two storey dwelling

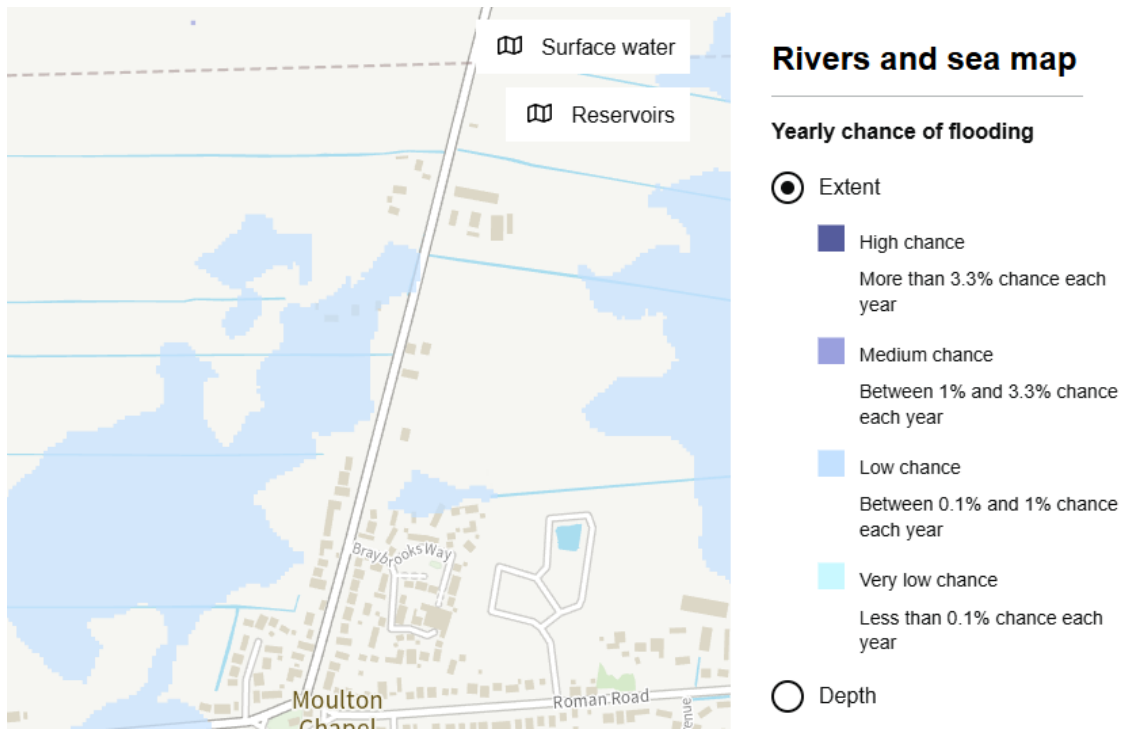
The Environment Agency mapping indicates the site is predominantly within Flood Zone 1 with a very small area in Flood Zone 2. The following extracts are from gov.uk flood maps for planning.

Flood Zone 2 - Risk of flooding from rivers and the sea

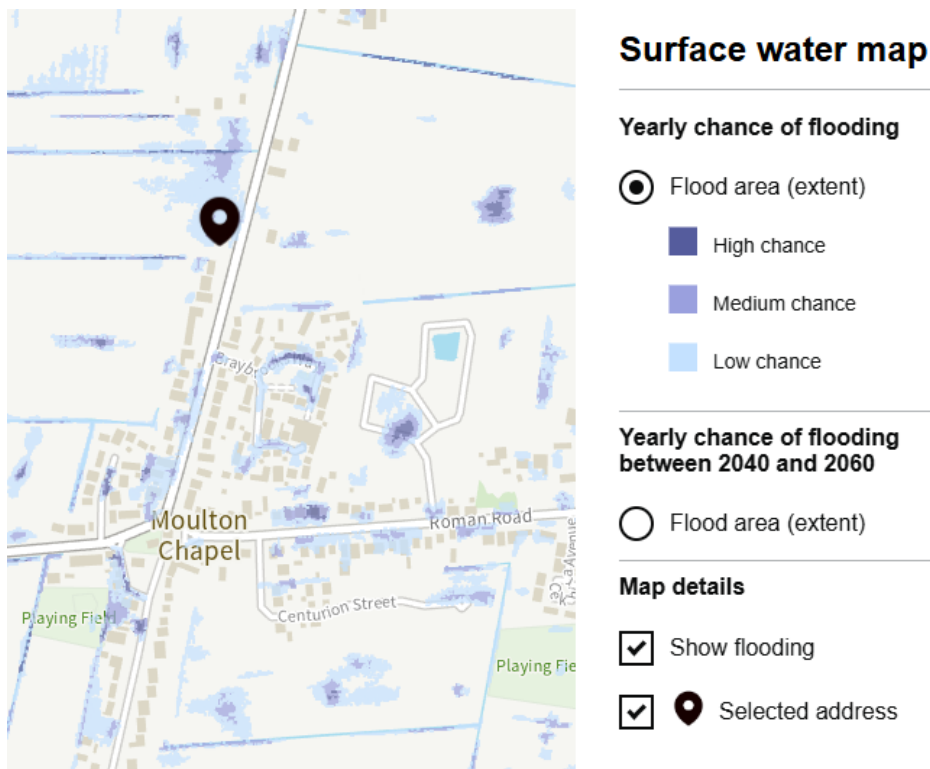


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Risk of flooding from rivers and sea is considered Low, with a 0.1% - 1% chance.



The surface water flood risk is low.



The flood risk context

The site is located 4 km east of the River Welland, with Cowbit Wash serving as the river's floodplain. The land to the east is safeguarded from the River Welland by Cowbit Wash Barrier Bank. The site is also situated 4.75 km southeast of the Coronation Channel, a bypass channel of the River Welland built in the 1950s, designed to redirect river flows around Spalding. Together with the Crowland and Cowbit Washes, the channel helps reduce flooding in Spalding and the surrounding areas. Both the Cowbit Wash Barrier Bank and the Coronation Channel fall under the management of the Environment Agency.

The Environment Agency has a long-term maintenance strategy for its defences, which is periodically reviewed and updated. The area is supported by a comprehensive local drainage system, managed by the South Holland Internal Drainage Board (IDB). The local drainage network is extensive, the IDB aims to maintain a general standard of flood protection for its district through the upkeep of pumping stations, associated structures, and channel systems, supported by a routine maintenance program. The current maintenance standards of both the South Holland IDB and the Environment Agency are commendably high.

The likelihood of flooding from localised drainage systems for this development is low. However, the risk at the site could increase if a tidal sluice fails. The probability of flooding from any Environment Agency system remains below 0.5% annually due to the robust existing flood defences. While climate change may gradually elevate the risk over time, the overall flood risk during the development's design life remains low.

The drainage system managed by South Holland IDB meets a standard assessed at a 2% annual probability (equivalent to a 1 in 50 chance per year), aligning with the Department for the Environment, Food and Rural Affairs (DEFRA) target level of service for rural drainage and flood defence works. Flooding risk from events exceeding the 2% annual probability threshold is mitigated by the incorporation of freeboard in the IDB's high-priority watercourses, providing additional storage capacity for such occurrences.

The Coronation Channel embankment has a minimum crest level of +6.0m OD. Over the next 100 years, the projected peak flood level with a 1% annual probability (or 1 in 100 chance per year), taking climate change into account, is +5.45m OD. This embankment ensures protection against a 1% annual probability flood event, with an additional 0.55m freeboard.

The Cowbit Wash Barrier Bank is set at a level of +5.90m OD, offering a 0.45m freeboard above the flood level during a 1% annual probability event, even when factoring in climate change. Falling under the Reservoirs Act 1975, the Cowbit Wash Barrier Bank is subject to regular inspections by a Supervising Engineer, who evaluates its structural integrity to safeguard people and property.

Mitigation of flooding and conclusions

The proposed dwelling and garaging are situated in flood zone 1, away from risk of flooding. Only a small part at the edge of the garden area overlaps with the edge of flood zone 2.

The proposed dwelling is within an established residential area. The siting and nature of the proposal would not increase the potential for surface water to drain onto the highway nor give rise to detrimental surface water flooding onto neighbouring properties. Sustainable measures to attenuate the flow and drainage of surface water will be incorporated into the proposal.

The dwelling will be constructed using traditional masonry methods with low permeability materials used for its structure. All sleeping accommodation is proposed at first floor level. The use of non-return valves in new foul sewers will be recommended to the applicant.

The site lies within an Internal Drainage Board (IDB) catchment, which provides a drainage standard of a 2% annual probability (equivalent to a 1 in 50 chance each year). This meets DEFRA guidelines for rural drainage and flood defence works. Additionally, the risk of flooding is further reduced due to the significant freeboard incorporated into the South Holland IDB's high-priority watercourses, offering storage during events exceeding a 2% annual probability.

The site benefits from flood defences that protect against a 1% annual probability (1 in 100 chance each year) fluvial flood and a 0.5% annual probability (1 in 200 chance each year) tidal flood, including allowances for climate change. The site remains safe even in the event of a breach in tidal defences.

For safety's sake, it is recommended that the finished floor levels of the dwelling be 0.3m above the adjacent existing site levels, with an additional 0.3m of flood-resilient construction above the finished floor level.