CC018

Chelmsford City Council Level 2 Strategic Flood Risk Assessment: Addendum

Final Report

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Contract

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This report describes work commissioned by Chelmsford Council by an instruction dated 14th August 2025. The Client's representative for the contract was Asa Pamphilon of Chelmsford City Council. Ed Mumford, Helen Beresford, and Jordane Bates of JBA Consulting carried out this work.

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Abbreviations

AEP	Annual Exceedance Probability
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
NaFRA2	National Flood Risk Assessment 2
NCERM	National Coastal Erosion Risk Map
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SW	Surface Water

1 Introduction

1.1 Context

JBA Consulting was commissioned to produce Level 1 and 2 Strategic Flood Risk Assessments (SFRAs) for Chelmsford City Council to support their new Local Plan. This work was prepared between September 2022 and March 2024.

Since the production of the SFRA, the Environment Agency has published the outputs of their National Flood Risk Assessment 2 (NaFRA2) and National Coastal Erosion Risk Map (NCERM), updating the national flood mapping for England. Major outputs were published in January 2025 (surface water mapping) and March 2025 (Flood Map for Planning),with additional datasets (including surface water depth, velocity, and hazard) published in August 2025. Chelmsford City Council have also brought forward several new sites for consideration and amended the boundaries of other sites previously considered.

This Addendum provides an overview of the new NaFRA2 mapping currently available, a summary of the risk shown at the sites assessed within the Level 2 SFRA with the new NaFRA2 mapping, and recommendations for developers.

1.2 NaFRA2

The Environment Agency updated their Risk of Flooding from Surface Water (RoFSW) dataset (gov.uk) on 28th January 2025. This included extents and depths (based on probability bands), with velocity and hazard published on 17th September 2025.

The Environment Agency updated the Flood Map for Planning (FMfP) (gov.uk) on 27th August 2025. The FMfP now shows updated extents for Flood Zone 2 (0.1% Annual Exceedance Probability (AEP)) and Flood Zone 3 (1% AEP) which incorporate new national modelling as well as local models where appropriate. In addition to the Flood Zones, the following information is now also provided in the FMfP:

- Rivers and sea with defences
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for present day and climate change (using the Central allowance for the 2080s epoch) taking account the presence of flood defences (extents only).
- Rivers and sea without defences
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for present day and climate change (using the Central allowance for the 2080s epoch) which ignores the presence and condition of flood defences (extents only).
- Surface water
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for the present day only

1.3 Recommendations for developers

It is recommended that developers use the Level 2 SFRA and this accompanying Addendum as a starting point to assess the flood risk to their sites. Developers should also identify the requirements for site-specific Flood Risk Assessments (FRAs) and further work that might be required. This FRA guidance (gov.uk) was updated on 27th August 2025 by the Environment Agency. The Environment Agency's online datasets should be referred to for the latest available flood risk data.

It should be noted that the Environment Agency intend to publish further NaFRA2 datasets over the course of the next 12-18 months. This data is expected to include fluvial depth information, as well as climate change outputs suitable for planning for surface water. Developers should consult with the Environment Agency as early as possible to understand the requirements for their site-specific FRA and additional assessments they may need to undertake in the interim before publication of the full data.

2 Overview of implications of NaFRA2 on the Level 2 SFRA

2.1 Fluvial risk

The Level 2 SFRA identified 12 sites screened for allocation that are shown to be at fluvial flood risk based on the previous Environment Agency FMfP:

- CW1a
- CW1d
- CW1c/CW1e
- SGS1d
- GS1g
- SGS1w
- CW1f
- GS1z
- SGS16a
- SGS16b
- GS1v
- SGS1u

It should be noted that several sites are also at risk of fluvial flooding from smaller 'ordinary' watercourses, not previously shown in the FMfP. The flood risk at these sites was assessed using the surface water mapping, which often provides a good representation of the risk from smaller watercourses for the purposes of strategic assessment.

The Environment Agency published the updated FMfP on the 25 March 2025. A screening exercise was undertaken to assess how the percentage of each site at fluvial flood risk changed between the previous FMfP dataset and the new NaFRA2 FMfP.

Table 2-1 shows the percentage changes of each site within Flood Zone 3 and Flood Zone 2 compared to the previous FMfP and the NaFRA2 FMfP update, with a brief comment on the change in fluvial risk to the site. Sites not included in the table were outside Flood Zones previously and remain outside Flood Zones in the new NaFRA2 FMfP. Percentages quoted for flood Zone 2 include the percentage of the site in Flood Zone 3.

Currently, the Level 1 and 2 SFRA state that where there is no modelled climate change extent available for the 0.1% Annual Exceedance Probability (AEP) event, which was the case in 2024, the Environment Agency's Flood Map for Planning (FMfP) Flood Zone 2 can be used to represent this as a proxy in the absence of modelled information. The current day Flood Zone 2 is not a suitable surrogate for representing the future Flood Zone 2/0.1% AEP climate change extent in detailed site-specific Flood Risk Assessments.

In the absence of any more recent detailed modelling, any future flood risk studies and FRAs should use the new NaFRA2 0.1% AEP plus climate change data as a surrogate for

assessing the future (climate change) extent of Flood Zone 2, rather than using current day Flood Zone 2.

Table 2-1: Comparison of the extent of the site at fluvial risk, between the previous FMfP and the new NaFRA2 FMfP.

Site reference	% of site in previous FMfP Flood Zone 3	% of site in NaFRA2 FMfP Flood Zone 3	% of site in previous FMfP Flood Zone 2	% of site in NaFRA2 FMfP Flood Zone 2	Comment on change in risk from previous FMfP to updated NaFRA2 FMfP
CW1a	94	95	100	100	Slight increase in Flood Zone 3 (1%). Flooded areas essentially identical.
CW1d	98	99	100	100	Slight increase in Flood Zone 3 (1%). Flooded areas essentially identical.
CW1c	57	59	81	82	Slight increase in Flood Zone 2 and Flood Zone 3 (1%). Flooded areas essentially identical.
CW1e	20	34	83	87	Significant increase in Flood Zone 3, small increase in Flood Zone 2. Flooded areas essentially identical.
SGS1d	59	58	73	71	Slight decrease in Flood Zone 2 and Flood Zone 3 (1-2%). Flooded areas essentially identical.
GS1g	99	100	100	100	Slight increase in Flood Zone 3 (1%). Flooded areas essentially identical.
SGS1w	87	90	100	100	Small increase in Flood Zone 3 (3%). Flooded areas essentially identical.
CW1f	0	0	8	18	Increase in Flood Zone 2 (10%). Boundary adjacent to Springfield Road is now shown to be at risk, where previously was shown not to flood.
GS1z	43	42	83	83	Slight decrease in Flood Zone 3 (1%), no change to Flood Zone 2. Flooded

Site reference	% of site in previous FMfP Flood Zone 3	% of site in NaFRA2 FMfP Flood Zone 3	% of site in previous FMfP Flood Zone 2	% of site in NaFRA2 FMfP Flood Zone 2	Comment on change in risk from previous FMfP to updated NaFRA2 FMfP
					areas essentially identical.
SGS16a	7	8	9	9	Slight increase in Flood Zone 2 and 3 extents. Flooded areas essentially identical.
SGS16b	14	14	17	18	Slight increase in Flood Zone 2, no change to Flood Zone 3. Flooded areas essentially identical.
GS1v	<1	<1	<1	<1	No change to Flood Zones 2 and 3, with extents under 1%. Flooded areas essentially identical.
SGS1u	25	35	56	73	Significant increase in Flood Zone 2 and 3 extents. Most of the northern part of the site that was not at risk is now within Flood Zones 2/3.

2.2 Surface water risk

The Environment Agency's RoFSW mapping was updated in January 2025 with the publication of NaFRA2. Surface water flood risk is subdivided into the following four categories:

- **High:** An area has a chance of flooding greater than 3.3% AEP (1 in 30) each year.
- **Medium:** An area has a chance of flooding between 1% AEP (1 in 100) and 3.3% AEP (1 in 30) each year.
- **Low:** An area has a chance of flooding between 0.1% AEP (1 in 1,000) and 1% AEP (1 in 100) each year.
- **Very Low:** An area has a chance of flooding of less than 0.1% AEP (1 in 1,000) each year.

There are a number of key differences noted with the Environment Agency's updated NaFRA2 RoFSW mapping compared with the previous RoFSW mapping:

- Velocity, depth, and hazard information is now displayed in bands showing the probability of a given depth velocity or hazard being exceeded, rather than based on discrete events as in the previous surface water dataset.
- Within the NaFRA2 RoFSW mapping, any areas of surface water risk with a depth of less than 75mm have been removed. In the previous mapping, areas of surface water risk with a hazard of less than 0.575 were removed (which is a factor of both depth and velocity).
- In areas where the new NaFRA2 RoFSW mapping overlaps the Risk of Flooding from Rivers and Sea (areas shown to be at fluvial risk) the flood risk extents have been removed from the RoFSW mapping, i.e. it no longer shows flow paths along any watercourses represented within the fluvial mapping.

Within the Environment Agency's RoFSW, a climate change dataset was also published with the 'Central' allowance for the 2050s epoch applied to the 3.3%, 1%, and 0.1% AEP events. However, as set out in the Environment Agency's climate change guidance (gov.uk), this allowance is only deemed suitable for development with a lifetime up to 2060. This is below the 100-year minimum lifetime for residential set out in Planning Practice Guidance. Further assessment of the potential impacts of climate change on surface water will need to be considered at the site-specific FRA stage. It should be noted that if the surface water risk to a site has changed considerably, the surface water climate change extents provided as part of the Chelmsford City Council Level 2 SFRA may no longer provide a suitable indication of the surface water risk with climate change. Therefore, the developer may need to undertake further surface water modelling as part of a site-specific FRA.

Due to the large number of sites screened, and almost all sites having some degree of surface water risk, only those sites taken forward for allocation have been included in this summary. Table 2-2 provides the extent of each site taken forwards for allocation at risk

from the 3.3%, 1%, and 0.1% AEP surface water events using both the previous RoFSW mapping and the new NaFRA2 mapping, with a brief comment on the change in risk shown with the NaFRA2 mapping. This should be used as a starting point to determine areas where the Level 2 SFRA information is likely to be outdated based on the mapping updates. Future assessments should use the updated surface water mapping as a starting point, because the NaFRA2 mapping supersedes the previous surface water mapping.

Table 2-2: Comparison of the extent of the site at surface water risk, between the previous RoFSW mapping and the new NaFRA2 SW mapping.

Site reference for proposed allocations in the Draft Local Plan (Regulation 19)	% of site in previous RoFSW 3.3% AEP (High)	% of site in NaFRA2 RoFSW 3.3% AEP (High)	% of site in previous RoFSW 1% AEP (Medium)	% of site in NaFRA2 RoFSW 1% AEP (Medium)	% of site in previous RoFSW 0.1% AEP (Low)	% of site in NaFRA2 RoFSW 0.1% AEP (Low)	Comment on change in risk from previous RoFSW to updated NaFRA2 RoFSW
CW1a	<1	3	3	7	55	20	Slight increase in the 3.3% and 1% AEP events, significant decrease in the 0.1% AEP event. Most of site no longer at risk in 0.1% AEP event.
CW1d	5	8	13	12	82	31	Slight increase in the 3.3% AEP event, slight decrease in the 1% AEP event, significant decrease in the 0.1% AEP event. Most of the north-western part of the site is no longer at risk.
CW1e (CW1c)	2	2	8	2	29	11	No change in the 3.3% AEP events, decrease in the 1% and a significant decrease in the 0.1% AEP event. Parts of the site affected are broadly similar.

Site reference for proposed allocations in the Draft Local Plan (Regulation 19)	% of site in previous RoFSW 3.3% AEP (High)	% of site in NaFRA2 RoFSW 3.3% AEP (High)	% of site in previous RoFSW 1% AEP (Medium)	% of site in NaFRA2 RoFSW 1% AEP (Medium)	% of site in previous RoFSW 0.1% AEP (Low)	% of site in NaFRA2 RoFSW 0.1% AEP (Low)	Comment on change in risk from previous RoFSW to updated NaFRA2 RoFSW
CW1c (CW1e)	9	7	18	15	45	33	Slight increase in the 3.3% AEP event, slight decrease in the 1% AEP event, and significant decrease in the 0.1% AEP event. Parts of the site affected are broadly similar.
GS1n	0	<1	5	6	29	11	Slight increase in the 3.3% AEP and 1% AEP events, significant decrease in the 0.1% AEP event. Flooding is no longer widespread across the site and limited to two small areas of ponding.
SGS1d	23	9	42	21	59	36	Significant decreases in all AEP events. Flooding is less widespread, but areas affected are broadly similar.
GS1g	18	23	53	28	100	34	Some increase in the 3.3% AEP event, significant decreases in the 1% and 0.1% AEP events. Flooding is now limited to the southwest of the site.

Site reference for proposed allocations in the Draft Local Plan (Regulation 19)	% of site in previous RoFSW 3.3% AEP (High)	% of site in NaFRA2 RoFSW 3.3% AEP (High)	% of site in previous RoFSW 1% AEP (Medium)	% of site in NaFRA2 RoFSW 1% AEP (Medium)	% of site in previous RoFSW 0.1% AEP (Low)	% of site in NaFRA2 RoFSW 0.1% AEP (Low)	Comment on change in risk from previous RoFSW to updated NaFRA2 RoFSW
SGS1w	0	4	0	11	20.6	29	Some increase in all AEP events. Significant new area of flooding south of Springfield Road in the 0.1% AEP event.
CW1f	0	<1	<1	<1	12	2	Minimal changes in the 3.3% and 1% AEP events, significant decrease in the 0.1% AEP event. The site is essentially no longer at risk.
SGS1y	31	46	43	61	76	85	Significant increases in all AEP events. Almost the entire site is now at risk.
GS1z	<1	2	3	5	39	14	Slight increases in the 3.3% and 1% AEP events, significant decrease in the 0.1% AEP event.
GS12	13	30	25	38	59	61	Significant increases in the 3.3% and 1% AEP events, slight increase in the 0.1% AEP event.
SGS16a	1	1	3	2	9.4	8	Slight decrease in surface water flood extents in all

Site reference for proposed allocations in the Draft Local Plan (Regulation 19)	% of site in previous RoFSW 3.3% AEP (High)	% of site in NaFRA2 RoFSW 3.3% AEP (High)	% of site in previous RoFSW 1% AEP (Medium)	% of site in NaFRA2 RoFSW 1% AEP (Medium)	% of site in previous RoFSW 0.1% AEP (Low)	% of site in NaFRA2 RoFSW 0.1% AEP (Low)	Comment on change in risk from previous RoFSW to updated NaFRA2 RoFSW
							events. Areas at risk remain essentially the same.
SGS16b	5	1	13	1	19	4	Slight decrease in the 3.3% AEP event, significant decrease in the 1% and 0.1% AEP events. Area to the east is no longer at risk form surface water flooding, though this is likely due to fluvial influence from Sandon Brook being removed from the surface water map, rather than a true reduction in risk.
SGS1v	1	4	14	12	64	50	Slight increase in the 3.3% AEP event, slight decrease int eh 1%AEP event, and significant decrease in the 1% AEP event.
GS17a	4	1.2	10	2.1	68	57	Slight decrease in surface water flood extents in all events. Areas at risk remain broadly the same.
SGS1u	<1	1	3	5	9	6	Slight decreases in all AEP events, likely due to the

Site reference for proposed allocations in the Draft Local Plan (Regulation 19)	% of site in previous RoFSW 3.3% AEP (High)	% of site in NaFRA2 RoFSW 3.3% AEP (High)	% of site in previous RoFSW 1% AEP (Medium)	% of site in NaFRA2 RoFSW 1% AEP (Medium)	% of site in previous RoFSW 0.1% AEP (Low)	% of site in NaFRA2 RoFSW 0.1% AEP (Low)	Comment on change in risk from previous RoFSW to updated NaFRA2 RoFSW
							influence of the River Chelmer being removed from the surface water flood map.

3 Implications for the Level 2 SFRA

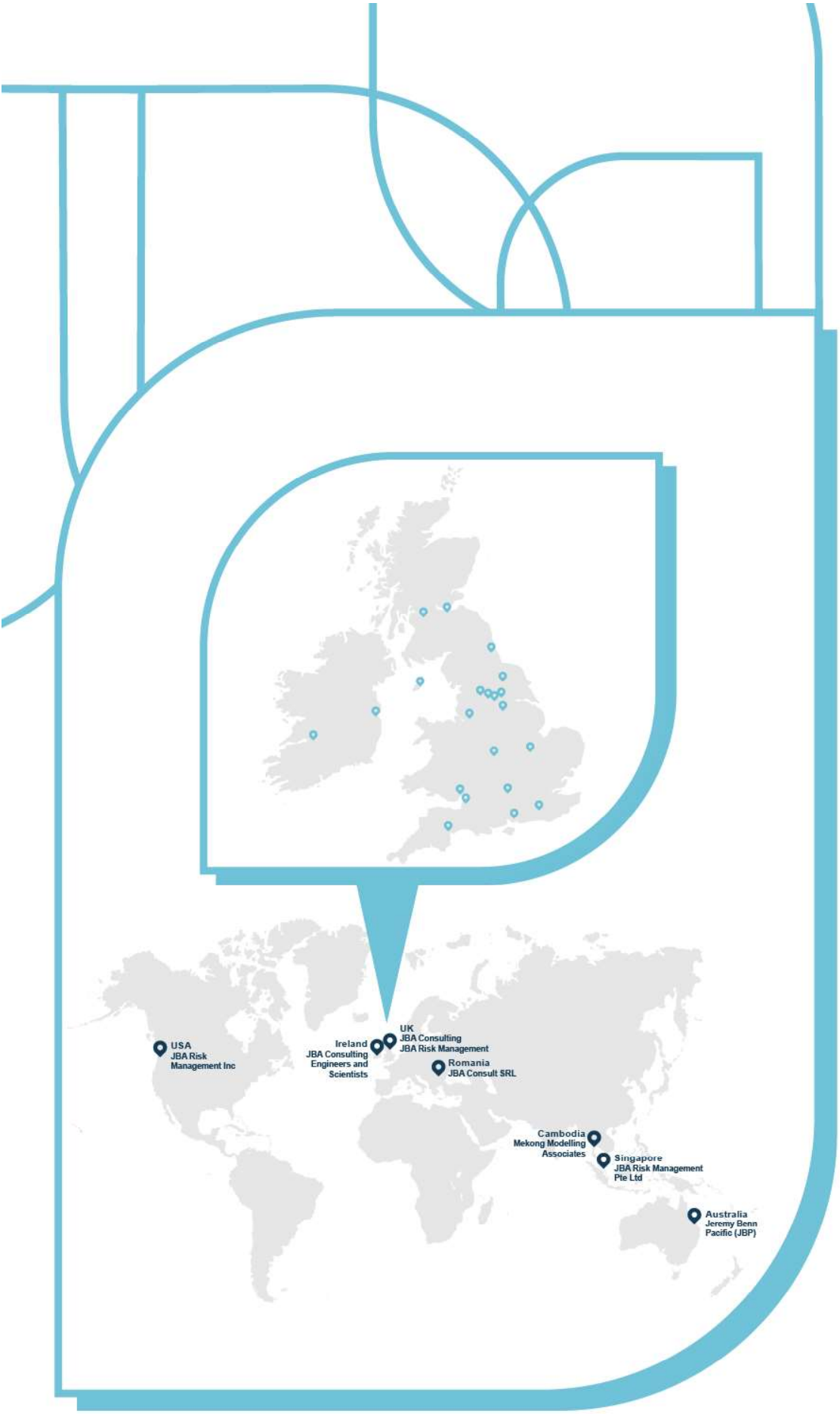
Following the review of the new NaFRA2 Flood Zones and RoFSW data, for the vast majority of sites, there are no significant changes to the picture of risk and therefore the recommendations made in most of the Level 2 SFRA Site Tables remain appropriate.

Where the changes to picture of risk were minimal, the evidence in the Level 2 SFRA has not been updated, and the site tables/mapping still refer to the previous data, however site-specific FRAs will need to consider the latest datasets.

As part of the new screening, new site tables were undertaken for the following sites:

- SGS1dd (formerly SGS1x)- significant increase in surface water flood extents, and change in site boundaries
- SGS9b- new site with surface water flood risk
- SGS1r- previously assessed site with significant surface water issues in the new NaFRA2 model
- SGS7b- previously assessed site with increased surface water risk in the new NaFRA2 model.
- SGS11c- new site with significant surface water flood risk
- SGS17d- new site with significant surface water flood risk
- SGS18a- new large site with surface water flood risk and unmodelled watercourses
- SGS20- new site with surface water flow path through the site

Each new/updated site table has an accompanying GEOPDF map displaying the latest NaFRA2 datasets. Flood risk datasets are updated regularly and developers should contact the Environment Agency to ensure that they are considering the latest available data in their own assessments.



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