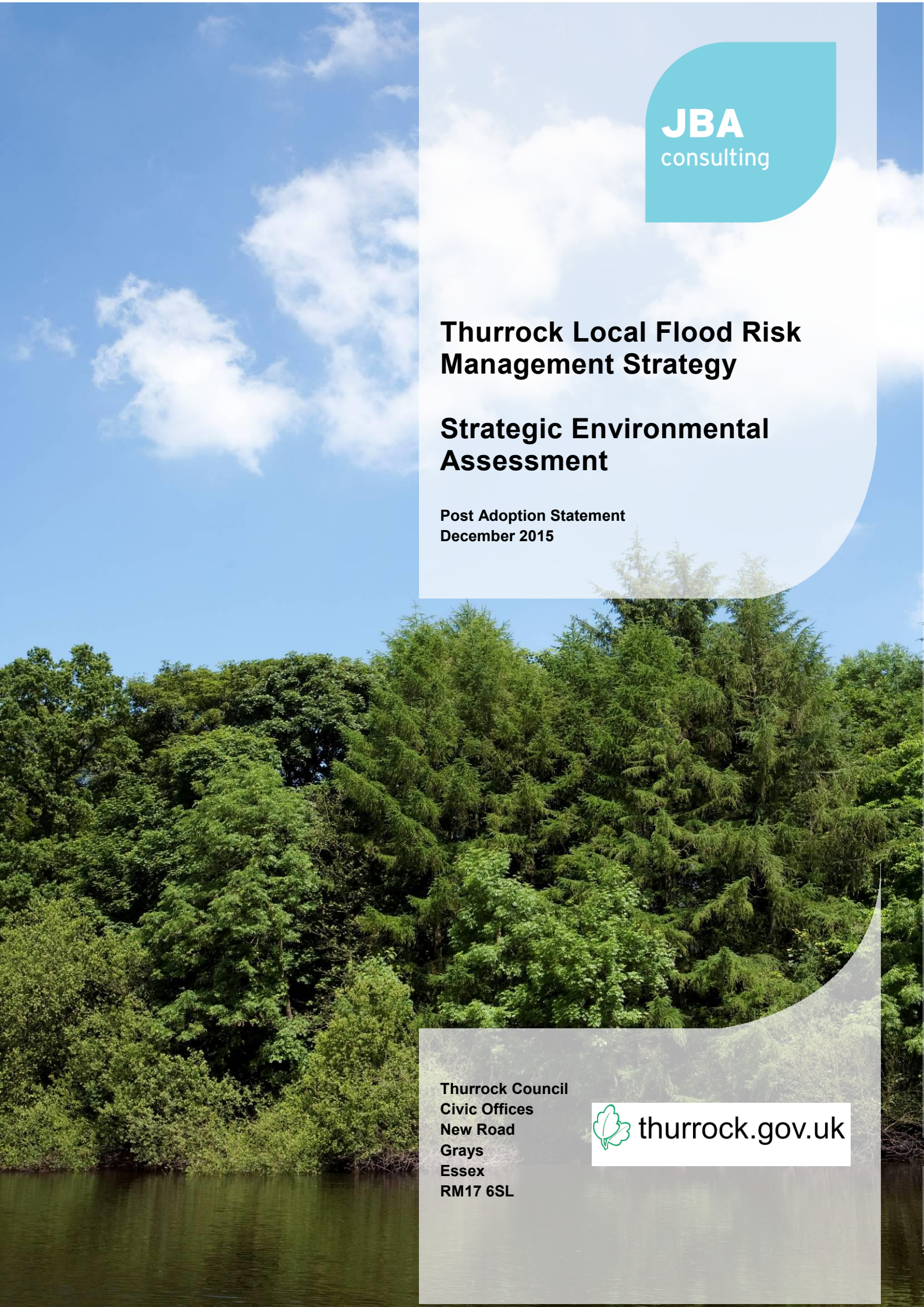

Thurrock Local Flood Risk Management Strategy

Strategic Environmental Assessment

Post Adoption Statement
December 2015

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Contract

This report describes work commissioned by Thurrock Council. Rachel Drabble and David Revill of JBA Consulting carried out this work.

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Purpose

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Abbreviations

FRM ..... Flood Risk Management

FWMA ..... Flood and Water Management Act

HRA ..... Habitats Regulations Assessment

LFRMS ..... Local Flood Risk Management Strategy

LLFA ..... Lead Local Flood Authority

RMA ..... Risk Management Authority

SEA ..... Strategic Environmental Assessment

SuDS ..... Sustainable Drainage Systems

WFD ..... Water Framework Directive

1 Introduction

1.1 Thurrock Local Flood Risk Management Strategy

The Flood and Water Management Act (FWMA) was passed in April 2010. It aims to improve both flood risk management and the way we manage our water resources. The FWMA creates clearer roles and responsibilities and instils a more risk-based approach to flood risk management. This includes a new lead role for the Council as a Lead Local Flood Authority (LLFA) in managing and leading on local flood risk management from surface water, groundwater and ordinary watercourses.

Under the requirements of the FWMA, the Council must develop, maintain, apply and monitor a Local Flood Risk Management Strategy (LFRMS) for local flood risk management in its area. The LFRMS provides a delivery vehicle for improved flood risk management and supports the development of partnership funding and a strategic investment programme.

The LFRMS will set out:

- The roles and responsibilities for each Risk Management Authority (RMA) and their flood risk management functions; and
- Opportunities, objectives and measures for flood risk reduction of existing communities, including ways to minimise the risk from future growth.

Development of the LFRMS provides considerable opportunities to improve and integrate land use planning and flood risk management. It is an important tool to protect vulnerable communities and deliver sustainable regeneration and growth.

1.2 Strategic Environmental Assessment process

Strategic Environmental Assessment (SEA) is a statutory assessment process required under the *Environmental Assessment of Plans and Programmes Regulations 2004* (the 'SEA Regulations'). These regulations transpose into UK law the requirements of the European Directive 2001/42/EC *on the assessment of the effects of certain plans and programmes on the environment* (the 'SEA Directive')[1]. The SEA Directive requires formal assessment of plans and programmes which are likely to have significant effects (either positive or negative) on the environment. It applies to all plans and programmes which are *'subject to preparation and/or adoption by an authority at national, regional or local level'* or are *'required by legislative, regulatory or administrative provisions'* (ODPM, 2004).

Local Government Association (LGA) guidance (LGA, 2011) on the production of the LFRMS identifies the likely requirement for an SEA, stating that *'the Local [Flood Risk Management] FRM Strategy is likely to require statutory SEA, but this requirement is something the [Lead Local Flood Authority] LLFA must consider'*. A SEA screening process was therefore undertaken and the Council has confirmed the requirement for its LFRMS to undergo SEA.

SEA involves the systematic identification and evaluation of the potential environmental impacts of the LFRMS. This information is then used to aid the selection of a preferred option(s) for the strategy, which are those that best meet its economic, environmental and social objectives, and legal requirements.

The full range of environmental receptors have been considered through the SEA. This meets the requirements of the SEA Directive, which requires that an assessment identifies the potentially significant environmental impacts on 'biodiversity, population, human health, fauna, flora, soil, water, air, climatic, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors'[1].

The ODPM guidance sets out a five stage process (A to E) to be followed (see Table 1-1). The Report addresses stage D of the SEA process wherein the Environmental Report and LFRMS are consulted on.

[1] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment

Table 1-1: Stages in the SEA process

SEA Stage	Purpose
Stage A:	Setting the context and objectives, establishing the baseline and deciding on the scope
Stage B:	Developing and refining alternatives and assessing effects
Stage C:	Preparing the Environmental Report
Stage D:	Consulting on the draft plan or programme and the Environmental Report
Stage E:	Monitoring the significant effects of implementing the plan or programme on the environment.

1.3 Purpose of the SEA statement

Article 9 of the SEA Directive requires that when a plan or programme is adopted, the consultation bodies, the public and any other Member States consulted on the Environmental Report are informed and the following specific information is made available:

- The plan as adopted;
- A statement summarising:
    i. How environmental considerations have been integrated into the draft LFRMS (Section 2);
    ii. How the Environmental Report has been taken into account (Section 3);
    iii. How opinions expressed in response to the consultation on the Environmental Report have been taken into account (Section 4);
    iv. The reasons for choosing the LFRMS, as adopted, in the light of the other reasonable alternatives dealt with (Section 5); and
    v. The measures that are to be taken to monitor the significant environmental effects of the implementation of the LFRMS (Section 6).

The purpose of this Post-adoption Statement is to provide the specific information outlined under each of the points listed (i) to (v) above and which is present in the following sections of this statement.

2 How environmental considerations have been integrated into the LFRMS

The SEA was undertaken to assist the preparation of the LFRMS to identify and appraise potential significant environmental effects and put forward recommendations to mitigate these effects and improve the LFRMS. The aim was to ensure that the LFRMS promotes positive environmental outcomes and that any significant negative effects are effectively mitigated or avoided when the LFRMS is implemented through new flood risk management activities within Thurrock.

SEA objectives were developed for the Thurrock LFRMS to assist in the identification of significant environmental effects. The objectives and actions contained within the draft LFRMS were then assessed to determine whether they contribute to or conflict with achievement of the SEA objectives. The outputs of this process were documented in a draft SEA Environmental Report, which was sent to the three statutory consultation bodies (Natural England, Environment Agency and Historic England) together with the draft LFRMS in order to gain their views. Following this consultation, a number of LFRMS objectives and actions were amended. Further environmental assessment was then undertaken to assess the environmental effects associated with these changes. The outcomes of this work were described in the final SEA Environmental Report.

Table 2-1 summarises the recommendations made by the SEA and shows how the recommendations have been responded to in the LFRMS.

Table 2-1: How the environmental report has been taken into account in the LFRMS

SEA recommendation	Final decision
LFRMS to be strengthened by considering the SEA objectives as a whole to ensure delivery of a sustainable approach.	The LFRMS has been updated to take account of the SEA objectives to ensure that LFRMS actions will be delivered in a sustainable way.
LFRMS objectives should be integrated so that delivery of individual actions do not conflict with achievement of the wider strategy objectives.	LFRMS actions will be undertaken with consideration of the wider Strategy objectives.
Proposals should be assessed to determine their potential environmental effects (positive and negative) in advance of implementation and appropriate mitigation measures are built into their delivery as required.	As actions identified in the strategy are investigated in more detail, further environmental assessment will be undertaken during the feasibility stages to identify what appropriate mitigation measures may be required for their delivery.
LFRMS should seek to maximise the potential environmental benefits associated with delivery of the objectives and actions.	LFRMS has been updated to include more explicit reference to WFD and the environment and how the Strategy will seek to maximise environmental benefits during deliver of the objectives and actions.

The Conservation of Habitats and Species Regulations (2010) ('Habitats Regulations'), impose a requirement to undertake a Habitats Regulations Assessment (HRA) for spatial plans to determine whether the effects of those plans would be likely to have a significant adverse impact on the conservation objectives of a European protected site. A HRA screening assessment was therefore undertaken to inform the development of the LFRMS. The screening assessment found that the LFRMS is not likely to have a significant adverse effect on a European site. Consultation with Natural England was undertaken, which confirmed the outcomes of the screening assessment.

3 How the Environmental Report has been taken into account

The Environmental Report and LFRMS were developed in parallel so that the SEA process could inform the development of the final LFRMS. Table 3-1 shows the SEA process and how it informed the development of the final LFRMS.

Table 3-1: Stages in preparing the SEA and LFRMS

SEA Stage	LFRMS stage
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	Consultation on LFRMS objectives and actions with key stakeholders.
Stage B: Developing and refining alternatives and assessing effects	Developing LFRMS objectives and actions.
Stage C: Preparing the Environmental Report	Preparing the draft LFRMS.
Stage D: Consulting on the draft plan or programme and the Environmental Report	Review and update of the Environmental Report and LFRMS, following consultation.
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment.	To be undertaken as the LFRMS objectives and actions are implemented.

In order to comply with the SEA Directive, the SEA has taken account of:

- The likely significance and timeframe of any impacts.
- Cumulative effects.
- Mitigation measures required to overcome and minimise adverse impacts.

The final LFRMS was produced in November 2015. No actions were amended and therefore the Environmental Report was not required to be updated.

4 How consultation on the Environmental Report has been taken into account

The consultation on the draft Environmental Report lasted for a period of six weeks, beginning on the 3 August 2015. Responses were received from the Environment Agency, Natural England and Historic England. Additionally, Natural England provided comments on the HRA screening assessment. The responses were mainly supportive of the approach to the SEA and included a variety of comments ranging from specific queries and details to general comments, mainly in relation to biodiversity and flooding. Appendix A shows how the consultation responses have been taken into account in the final plan.

No further comments were received during the preparation of the final Environmental Report.

Due to the relatively local scale and nature of the LFRMS, no trans-boundary consultations were undertaken or comments received under regulation 14 of the SEA Regulations.

5 Reasons for choosing the plan as adopted

The draft Environmental Report, published for consultation in August 2015 included three alternative management approaches for the LFRMS. These were:

1. **Do nothing**: where no action is taken and existing assets and ordinary watercourses are abandoned.
2. **Maintain current flood risk management regime**: where existing assets and watercourses are maintained as present in line with current levels of flood risk. Existing infrastructure is not improved over time and the effects of climate change are not taken into account; and
3. **Manage and reduce local flood risk**: take action to reduce the social, economic and environmental impact due to flooding.

Each of these alternatives were assessed against the SEA objectives to determine which would be the most appropriate approach to minimising adverse environmental effects and promoting positive effects. The SEA identified that implementation of the LFRMS (Option 3) is the best approach to manage flood risk in Thurrock in a balanced and sustainable manner.

6 Measures to be taken to monitor significant environmental effects of the implementation of the LFRMS

The SEA did not identify any significant negative effects. Conversely, a number of the LFRMS objectives and actions have the potential for both direct and indirect positive environmental effects. These effects will be monitored with the implementation of the LFRMS, following the approach identified in the Environmental Report and summarised in Table 6-1 below. Implementation of the LFRMS is guided primarily through a set of actions. The LFRMS aims to annually monitor the progress of the actions and how the objectives are being met.

Table 6-1: SEA monitoring framework

LFRMS objective / action	SEA objective(s)	Potential significant effects	Monitoring indicator	Possible monitoring and/or delivery partners
Objective 1 *Reduce the likelihood and consequence of flooding, particularly from surface water, groundwater and ordinary watercourses.*	9, 11 and 12	Introducing Flood Risk Management (FRM) measures with the objectives of reducing flood risk, therefore reducing harm to people, economy and society assists with the achievement of all these SEA objectives.	Number of residential properties at risk of flooding. Number of key services (e.g. hospitals, health centres, residential/care homes, schools etc.) at risk from flooding. Length of road and rail infrastructure at risk from flooding. Number of key infrastructure assets at risk from flooding. Area of habitat created as a result of implementation of the LFRMS (e.g. flood storage areas creating wetland habitat). Number of barriers to fish migration removed.	Thurrock Council Anglian Water Environment Agency Highways Agency
Objective 3 *Reduce the vulnerability of Thurrock, its residents and visitors to the detrimental effects of flooding.*	9, 11 and 12	Introducing FRM measures with the objectives of reducing flood risk, therefore reducing harm to people, economy and society assists with the achievement of all these SEA objectives.	Number of residential properties at risk of flooding. Number of key services (e.g. hospitals, health centres, residential/care homes, schools etc.) at risk from flooding. Length of road and rail infrastructure at risk from flooding. Number of key infrastructure assets at risk from flooding. Area of habitat created as a result of implementation of the LFRMS (e.g. flood storage areas creating wetland habitat). Number of barriers to fish migration removed.	Thurrock Council Anglian Water Environment Agency Highways Agency
Objective 7 *Improve natural habitat and the social environment through flood management schemes which provide multiple benefits.*	2, 3, 4, 5, 6, 9, 11 and 12	Improving FRM systems with the objectives of improving the environment as well as reducing harm to people, economy, environment and society assists with the achievement of all the SEA objectives.	Area of designated sites adversely affected by flooding. Monitoring of reported status of designated nature conservation sites. Percentage of land designated as nature conservation sites as a result of LFRMS measures. Area of habitat created as a result of implementation of the LFRMS (e.g. flood storage areas creating wetland habitat). Number of barriers to fish migration removed.	Thurrock Council Anglian Water Environment Agency Highways Agency

LFRMS objective / action	SEA objective(s)	Potential significant effects	Monitoring indicator	Possible monitoring and/or delivery partners
			Water quality and morphology of the borough's watercourses. Number of pollution incidents. Number of SuDS schemes installed as part of the LFRMS. Number and volume of Environment Agency licensed abstractions. Numbers of sites with high pollution potential (e.g. landfill sites, waste water treatment works) at risk from flooding. Achievement of Water Framework Directive (WFD) objectives. Percentage of water bodies achieving 'Good' ecological status/potential. No deterioration in WFD status. Number of residential properties at risk of flooding. Number of key services (e.g. hospitals, health centres, residential/care homes, schools etc.) at risk from flooding. Length of road and rail infrastructure at risk from flooding. Number of key infrastructure assets at risk from flooding.	
Action 11 **Runoff rates and volumes** for new small and large scale major developments (i.e. >10 dwellings, >1,000m2 built area) to be controlled. *For all new developments:* *The peak runoff rate for the 1 in 1 year and 1 in 200 year runoff must not exceed the peak greenfield runoff rate for the same event.* *The runoff volume for the development site in the 1 in 200 year, 6 hour rainfall event must not exceed the runoff volume for the same event.*	10	Increase of Sustainable Drainage Systems (SuDS) schemes within the Borough through introducing ways to manage runoff.	Number of SuDS schemes installed as part of the LFRMS.	Thurrock Council Anglian Water Environment Agency
Action 12 **Runoff from development on previously developed sites** for small and large scale major developments (i.e. >10 dwellings, >1,000m2 built area) to be restricted to greenfield levels. *For previously developed sites the peak runoff rate (1 in 1 and 1 in 100 year) and volumes (1 in 100 year, 6 hour rainfall event) must not exceed the equivalent greenfield rates.*	10	Increase of SuDS schemes within the Borough through introducing ways to manage runoff	Number of SuDS schemes installed as part of the LFRMS.	Thurrock Council Anglian Water Environment Agency
Action 13 **Green roofs/areas.** *Investigate opportunities to introduce green roofs/areas as and when sites become available for development.*	10	Increase of SuDS schemes within the Borough through introducing ways to manage runoff	Number of SuDS schemes installed as part of the LFRMS.	Thurrock Council Anglian Water Environment Agency
Action 15 **Drainage improvements**: planning	10	Increase of SuDS schemes within the	Number of SuDS schemes installed as part of the	Thurrock Council

LFRMS objective / action	SEA objective(s)	Potential significant effects	Monitoring indicator	Possible monitoring and/or delivery partners
policy. *Use planning policy and advice regarding paving of driveways, using residential soakaways, water butts etc. Develop policy to resist the paving over of driveways.*		Borough through introducing ways to manage runoff	LFRMS.	Anglian Water Environment Agency
Action 16 **Drainage improvements**: preferential flow paths. *Identify programme of potential preferential flow path works e.g. contoured grass verges.*	10	Increase of SuDS schemes within the Borough through introducing ways to manage runoff	Number of SuDS schemes installed as part of the LFRMS.	Thurrock Council Anglian Water Environment Agency
Action 32 **Preferential flow paths**: Hathaway Road. *Investigate the use of swales/French drains to attenuate and infiltrate runoff along Hathaway Road and reduce volumes of water ponding behind the rail embankment.*	10	Increase of SuDS schemes within the Borough through introducing ways to manage runoff	Number of SuDS schemes installed as part of the LFRMS.	Thurrock Council Anglian Water Environment Agency

A Appendix A – Consultation Responses

Consultee	Comment received	Response / Action
Environment Agency (7 September 2015)	Page 6. It mentions a section 2.6.7 which has been inserted that should contain further detail on installation of structures and WFD. This new section is absent from the SEA on pages 28-29.	Page 6 has been amended to read section 2.6.6, which addresses the scoping consultation comment.
	Page 25. White-clawed crayfish are mentioned as present in the Borough. To our knowledge there are no white-clawed crayfish populations in Thurrock or most of the rest of Essex, see http://www.essexrivershub.org.uk/index.php/recent-news/492-last-known-population-of-white-clawed-crayfish-in-essex-could-be-in-trouble Therefore there is no need to mention them further in the document, unless ark sites are to be created for them in the Borough.	The reference to White-clawed crayfish has been retained as it is included in Essex Biodiversity Project's Species Action Plan. A sentence has been included on page 25: *White-clawed Crayfish however are not present in within the Borough, and the last known river-based population in Essex is at risk.* Reference to White-clawed Crayfish has been removed from page 25.
Natural England (7 September 2015)	Overall, we note that the Actions listed in the LFRMS are generally investigative or communicative in their nature, and as such (and at this stage) do not comprise many activities on the ground which could lead to environmental impacts (whether positive or negative). This is told out by the largely neutral appraisal of LFRMS objectives, especially with respect to SEA Objectives linked to the natural environment / biodiversity.	No action required.
	The Environmental Report makes reference to some projects requiring works on the ground to alleviate flooding hot spots, and we considered that these are sufficiently localised and distant from designated sites of nature conservation interest to not present significant impacts. The Report carries the intention to defer much of the assessment of environmental impacts of its projects to later stages of assessment, and so the Council needs to ensure that these are carried out, and appropriately audited, to ensure its aims and objectives are fully realised and reported.	No action required.
	We are satisfied with the objectives and indicators proposed, and have no specific comments to make.	No action required.
	Habitats Regulations Assessment We have reviewed the HRA integrated within the Environmental Report. The scope of the HRA is precautionary (15km from the authority boundary) and therefore encompasses (and rules out) impacts to European sites some distance from the source of impact. We consider that the "hazards and effects" are appropriately considered. It is not always clear what the implications of some LFRMS Actions are for European sites without further interrogation of the LFRMS itself (outside the scope of this consultation), however we are generally satisfied with the consideration of impacts to European sites, and overall agree with the conclusion reached, that the LFRMS is not likely to have a significant effect to European sites (and in particular the Thames Estuary and Marshes Special	No action required.

Consultee	Comment received	Response / Action
	Protection Area and Ramsar site).	
Historic England (1 September 2015)	We welcome the clarification and amendments to the baseline information specifically: • Inclusion at 2.8 relating to unrecorded archaeology, including buried archaeology, waterlogged archaeological and palaeo-environmental remains. • The use of Figure 2.9 which highlights designated heritage assets and their locations in Thurrock. • Consideration of Heritage at Risk at Section 2.8 on page 31.	No action required.
	It is recommended that the consideration of non-designated heritage assets is made clear in this section. The Historic Environment of Thurrock is more than just the sum of its designated heritage assets; non-designated assets make up an important and valued part of this and it is important that they are acknowledged as their protection is required by the NPPF. Therefore non-designated heritage assets should be acknowledged and their consideration reflected clearly within the baseline of the SEA.	A paragraph on page 32 has been included: *There are many heritage assets within Thurrock, including designated and non-designated heritage assets. Non-designated heritage assets' protection is a requirement of the NPPF, therefore should be considered during implementation of the LFRMS actions.*
	SEA Framework Our concerns however remain with regard to the non-inclusion of the recommended sub-objectives. Sub-objectives are considered important to achieve consistency and clarity and to ensure that all key heritage issues are appropriately considered and potential effects appropriately assessed.	Sub-objectives have not been included as this is a high level strategic assessment of environmental effects from FRM measures.
	It should be noted that we have not had the opportunity to look into impacts on the Historic Environment of individual Flood Risk Management methods and proposals, as outlined within the Thurrock LFRMS itself. Historic England there reserves the right to comment on or formally object to individual proposals as they arise.	No action required.
	Please note that any reference to 'English Heritage' within the document should be changed to 'Historic England'.	English Heritage has been amended to Historic England.

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