



Leigh Flood Storage Area Expansion Scheme

Planning, Design and Access Statement

August 2020

We are the Environment Agency. We protect and improve the environment and make it a better place for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

Published by:

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Quality Assurance

Project name	Leigh FSA Expansion Scheme
Project 1B1S reference	
Date	26 th August 2020
Version number	01
Author	Della Adams

Approvals

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Summary

The Leigh Flood Storage Area (FSA) situated approximately 3km west of Tonbridge in Kent was constructed in 1982 and currently reduces flood risk from the River Medway to properties in Tonbridge. Factors such as climate change are expected to increase the risk of flooding in coming years which can have devastating effects on homes and businesses.

The FSA covers 278 hectares of land. The FSA extends between Leigh at the downstream end and Penshurst towards the upstream end of the FSA. The main impoundment structure is formed of a 1.3-kilometre-long, up to 5m high earth embankment across the Medway valley. The FSA works by storing the peak of a flood event upstream and then releasing it in a controlled manner once the peak has passed.

The Environment Agency has been working to develop a Scheme that would increase the storage capacity of the FSA. Currently, the Normal Maximum Operating Water Level (NMOWL) in the FSA is 28.05m Above Ordnance Datum (mAOD), as measured at the control structure. It is proposed to increase the NMOWL in the FSA to 28.6m AOD.

Storing water to the new level will require 16.4 hectares of additional land. It will provide 7.3million m³ of storage - a capacity increase of 24%. The Scheme will reduce flood risk to over 1,400 homes and 100 businesses in Tonbridge and Hildenborough.

The works to increase the storage capacity are relatively minor and involve improvements to existing assets (including flood embankments). These works include raising the Cattle Arch and Pumping Station embankments near Leigh, upstream of the Control Structure. These works will ensure that there is no increased risk of flooding in the village of Leigh.

At Southern Water's Pumping Station site, a combination of raised existing earth embankment, new low-level concrete wall, road raising, and a new length of earth embankment is proposed.

The 1.3km long Main Embankment is already high enough to accommodate the proposed increase in water level and allow more water to be held within the storage area. However, erosion protection is proposed on the crest, downstream slope, and toe of the Main Embankment. These works are a legal requirement ('Measures in the Interests of Safety' or 'MIOS') to ensure that the Main Embankment is protected from erosion in case of an overtopping exceedance event.

The MIOS erosion protection materials will be covered with topsoil and then seeded so that the grassed appearance of the Main Embankment will be the same as the existing. Upgrading and maintenance works are planned to the Control Structure so that the higher water levels can be accommodated. This will include works to the gates, replacement kiosks and other mechanical/electrical elements.

Works are planned to the Pumping Station Embankment that is east of Ensfield Road. The proposed works include the creation of an area of hard standing for mobile pumps. The mobile pumps will only need to be operated during an extreme flood event when water needs to be pumped from the fluvial system to the north of the FSA embankment, into the FSA itself.

Habitat creation and enhancement proposals also form part of the proposals and will replace any habitat damaged or lost during construction.

Overall, the Scheme is made up of relatively minor works however they are spread across a large area and therefore fall under the jurisdiction of three local planning authorities (LPA's). These are Tonbridge and Malling Borough Council, Sevenoaks District Council and Tunbridge Wells Borough Council.

As part Scheme a range of environmental surveys have been undertaken to assess and mitigate the impacts of the proposals on environmental factors such as flood risk, WFD, ecology, trees, heritage, and landscape. Mitigation measures have been developed by the Scheme ecologists to minimise disturbance on protected species and habitats.

The Scheme will not have any long-term impact on local landscape character due to the limited scale and nature of the works. Proposed planting and habitat enhancements will help to mitigate the visual impact of the proposals after construction.

The Scheme will reduce the risk of flooding to hundreds of properties downstream in Tonbridge and Hildenborough. The proposals are in accordance with National and Local Planning Policies. The benefits of the Scheme outweigh any minor, temporary environmental or visual impacts resulting from the construction work. These will be managed through an Environmental Action Plan (EAP) that will include controls on issues such as working methods and hours. The EAP will also include details regarding the delivery of mitigation measures required.

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Contents

Summary iv

1	Introduction	7
2	Location Overview	9
2.1	Leigh FSA	9
2.2	The Problem	10
2.3	The River Medway (Flood Relief) Act 1976	11
3	The Proposed Development	12
3.1	Location, Description, Design and Access	12
3.1.1	Leigh Embankment	12
3.1.2	Leigh FSA Control Structure	14
3.1.3	Cattle Arch Embankment	14
3.1.4	Southern Water Pumping Station and Environment Agency Archimedes Screw	15
3.1.5	Leigh Embankment Pumping Station Platform	16
3.2	Enhancements	18
4	Planning History – Screening and Scoping	19
4.1	Permitted Development	19
5	Project Development	20
6	Consultation	21
6.1	Key Stakeholders	21
6.2	Public Consultation	22
7	Planning Policy	24
7.1	National Planning Policy	24
7.2	Planning Practice Guidance	25
7.3	Local Planning Policy	25
8	Planning Considerations	32
8.1	Planning Policy Review and Material Considerations	32
8.1.1	The Principle of the Development	32
8.1.2	Flood Risk Assessment	33
8.1.3	Water Framework Directive (WFD)	34
8.1.4	Biodiversity, Flora and Fauna	34
8.1.5	Heritage and Archaeology	36
8.1.6	Landscape and Visual Impact	37
8.1.7	Arboriculture	37
8.1.8	Traffic	38
8.1.9	Noise	38
8.1.10	Operational Noise	38
8.1.11	Construction Noise	39
8.1.12	Environmental Action Plan (EAP) Construction Environmental Management Plan (CEMP)	39
9	Conclusion	41

1 Introduction

The River Medway is a 70-mile-long river, 13 miles (21 km) in Sussex, the remainder in Kent. The river rises in the High Weald, Sussex and flows through Tonbridge, Maidstone and the Medway conurbation in Kent, to the Thames Estuary near Sheerness. It has a catchment area of 930 square miles (2,409 km²).

A flood storage area (FSA), known as the Leigh FSA is located within the Medway catchment near Tonbridge. The FSA was constructed by Southern Water Authority (SWA) in the early 1980s under the River Medway (Flood Relief) Act 1976 (the 1976 Act) and is operated by the Environment Agency.

In response to flood events, and to mitigate the effects of climate change from future flooding events, a Scheme has been developed by the Environment Agency to increase the capacity of Leigh FSA, reducing flood risk to over 1,400 homes and 100 businesses in Tonbridge and Hildenborough.

In addition to increasing the capacity of Leigh FSA, other works are required to manage the effects of increasing the flood storage and the risk of flooding from the River Medway. The proposed works collectively are referred to as the Leigh Flood Storage Area (FSA) Expansion Scheme.

The proposals are spread across the jurisdiction of three Planning Authorities, Tonbridge and Malling Borough Council (TMBC), Sevenoaks District Council and Tunbridge Wells District Council (shown on Figure 1, and drawing ref: ENVIMSE100377-JBA-LZ-00-DR-PL-1010-A5-C01-CountyDistrictPlan). A planning application for the proposals will be submitted to all three planning authorities, however Sevenoaks District Council will be the lead authority for the Scheme.

This Planning and Design Access Statement forms part of the planning application submission for full planning permission. It provides details of the proposal in relation to the site, setting, design and access arrangements. It assesses the proposals against relevant planning policy framework and other material considerations. Details of consultation and a summary of the discussions held with relevant stakeholders is included.

An Environmental Impact Assessment (EIA) in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 is required and the accompanying Environmental Statement forms part of the planning application submission.

The planning application should be read in conjunction with the documents and drawings submitted as a part of the planning application, a full list is set out on the covering letter.

2 Location Overview

The Leigh FSA is located to the south of Leigh and about 3km west of Tonbridge, in Kent. The FSA includes the Leigh Embankment and Leigh Control Structure. The FSA is on the River Medway, partly within Haysden Country Park. The Redhill to Tonbridge railway line runs in an east to west direction, through the FSA and the A21 passes over the River Medway and the Leigh Embankment. A site location plan and scheme overview can be found at drawing ref: ENVIMSE100377-JBA-LZ-00-DR-PL-1002-A5-C01-SchemeOverviewPlan.

There is one statutory designated site within 150m of the site boundary, the High Weald Area of Outstanding Natural Beauty (AONB), located approximately 10m west of the scheme boundary. There are three non-statutory designated sites within the scheme boundary, these include two Local Wildlife Sites (LWS) of County value and a third, Haysden Country Park, is designated as a Local Nature Reserve and in part a Site of Nature Conservation Interest (SNCI).

There is both formal and permissive public access throughout the Leigh area, with public rights of way crossing the Leigh FSA (following the course of the River Medway) and over the Leigh embankment. There is also informal public access for recreational use along the Leigh embankment associated with Haysden Country Park, sailing and angling on Haysden Water, and angling on the River Medway.

2.1 Leigh FSA

The existing Leigh FSA is located approximately 3km west of the town of Tonbridge in Kent (National Grid Reference: TQ 56250 45731). It provides flood attenuation on the River Medway by utilising a 1.3km long, up to 5m high and up to 30m wide earthfill embankment (the Leigh embankment), combined with a flow control structure across the River Medway.

The Leigh Control Structure (Figure 2, below) is constructed from reinforced concrete, comprising three radial gates that move to control water storage at the FSA, and flow downstream in the River Medway.



Figure 2 – The Leigh control structure and embankment at Leigh FSA in operation.

The NMOWL of Leigh FSA is 28.05m Above Ordnance Datum (mAOD), which provides a total storage volume of up to 5.58 million cubic metres (Mm³). At its maximum capacity, the area flooded by the Leigh FSA is approximately 278ha of land upstream of the Leigh embankment.

The Leigh FSA reduces flood risk to Tonbridge during large flood events, by retaining water upstream of Tonbridge and allowing it to be released downstream in a controlled manner, reducing the risk of flooding to the surrounding areas. The Environment Agency are responsible for the operation of the FSA. River levels, weather forecasts and soil moisture are monitored to determine when flows need to be controlled.

2.2 The Problem

Over the centuries, many towns and villages have been developed in the floodplain of the River Medway, therefore flooding is a key risk. Historic records show that major floods occurred in the 1920's, 1947, 1960, 1963, 1968, 1974, 1979, 2000/01, and 2013/14. Several villages and towns including the urban areas of Tonbridge and Hildenborough have suffered from this flooding.

These floods have had a significant impact, causing damage to property, disruption to business, upheaval to people's lives and the continued uncertainty from the threat of another flood. The town of Tonbridge is particularly impacted by flooding due to the density of residential households within the flood plain. The village of Leigh is approximately 4km upstream of Tonbridge on the River Medway.

The FSA was built 1982 in response to the 1968 flood (Figure 3, below) to reduce the risk of flooding to 1,200 homes and businesses in Hildenborough and Tonbridge.

With climate change, more flood events like those experienced during the winter of 2013 are expected, which resulted in 965 households being flooded across the Medway. The Environment Agency is working with Kent County Council and TMBC to expand the capacity of the existing Leigh FSA so that the structure will be able to hold more flood water, manage flood events and reduce flood risk to more homes and business downstream.



Figure 3 – Tonbridge High Street after the 1968 Flood.

2.3 The River Medway (Flood Relief) Act 1976

The operation of the existing FSA is governed by an Act of Parliament – the River Medway (Flood Relief) Act 1976 (MFRA). A document within the MFRA, known as the Scheme, sets out a maximum water level during operation of 28.05m Above Ordnance Datum (AOD). This means that the Environment Agency cannot store water any higher than this level. In order to expand the FSA and store water to a higher level, the Environment Agency must formally consult on a new scheme which will then require approval from the Floods Minister

The consultation process to amend the Scheme within the MFRA will only consider the maximum stored water level and is completely separate from the planning application consultation, which will run separately with Sevenoaks District Council leading.

The planning application is separate from the MFRA and covers permission for the works needed to allow water to be stored at 28.6m AOD.

3 The Proposed Development

The Leigh FSA is currently capable of storing water to a maximum level of 28.05m AOD as measured at the control structure. It is proposed to increase the storage capacity of the FSA by raising the NMOWL to 28.6m AOD. Raising the NMOWL will increase the footprint of the FSA by 16.4 hectares. However, the overall storage capacity will be increased to 7.3million m3. This represents a capacity increase of 24% when compared to the existing situation. Increasing the storage capacity of the FSA will reduce flood risk to over 1,400 homes and 100 businesses in Tonbridge and Hildenborough.

The works to increase Leigh FSA's storage capacity will be achieved by undertaking relatively minor work within the boundary of the Leigh FSA to mitigate resultant flood risk to adjacent properties and infrastructure. The works to implement Leigh FSA Expansion Scheme will be phased and are proposed to start in 2021 and be completed by 2023.

In addition to this project, flood defence work is also required at Hildenborough. However, these works will be covered in a separate planning application later this year.

The location and description of each element of the work is set out below:

Scheme overview drawings can be found at drawings ref:

- ENVIMSE100377-JBA-LZ-00-DR-PL-1000 - Red Line Boundary Plan
- ENVIMSE100377-JBA-LZ-00-DR-PL-1002 - Scheme Overview Plan
- ENVIMSE100377-JBA-LZ-00-DR-PL-1010 - County District Plan

3.1 Location, Description, Design and Access

3.1.1 Leigh Embankment

Location and description

The Leigh Embankment extends 1.3km in a north to south direction. The northern end of the embankment lies circa. 100m south of the Tonbridge Environment Agency offices. It crosses the River Medway and Leigh Control Structure, passing under the A21 Tonbridge Bypass, running adjacent to Haysden Water, and terminating at Lower Haysden Lane.

The Leigh Embankment does not need to be raised; it is already high enough to accommodate the raising of the NMOWL from 28.05m AOD to 28.6m AOD. However, a safety inspection by a Reservoir Panel Engineer and further studies concluded that the existing downstream face of the Leigh embankment has insufficient erosion protection, and some reinforcement is required.

The recommended reinforcement or alterations are required to improve the safety of the Leigh Embankment and are a legal requirement under the Reservoirs Act (Measures in the Interests of Safety or "MIOS").

Design

The work involves reinforcing the crest and downstream face of the Leigh embankment to ensure that the embankment surface can withstand the velocity of the volume of water that is to pass over it during an overtopping exceedance event. This will involve the installation of different types of erosion protection material depending on the velocities of overflowing water that are predicted at different points.

From the northern extent of the embankment, south to the A21 (approximately 500m length of the embankment) an open stone asphalt material is proposed. This will cover the whole of the downstream embankment face and will extend up to 6m from the toe of the downstream slope of the existing embankment. The erosion protection material will be covered with a layer of topsoil. Grass will grow over the erosion protection. When the grass is fully established, the embankment will look like the existing embankment.

From the A21 to the southern extent of the Leigh embankment (approximately 800m length of the embankment) water velocities are likely to be lower and a less durable material is required. Here a plastic-mesh reinforcing fabric such as 'Enkamat' or similar will be used to strengthen the downstream face. Such fabrics are designed to be filled with soil and to have vegetation established over the top. The reinforcing fabric will again extend up to 6m beyond the toe of the downstream slope of the embankment.

A bridleway crosses the embankment from the corner of Lower Haysden Lane which will be resurfaced with asphalt to ensure there is no weakness in the erosion protection.

Access

Construction access to the northern end of the Leigh Embankment and Control Structure (ME01 and ME02) and main construction compound for the MIOS work, will be from the Environment Agency's Tonbridge office. The existing access track south of Powder Mill culvert will require temporary up-grading as a haul road to undertake the work.

The main construction compound covers an area circa. 0.3ha. The construction plant and lay down area will utilise existing hardstanding from the original embankment works, however some vegetation clearance and topsoil stripping will be required, along with additional stoning-up using type 1 or similar material in areas. The site office and welfare cabins will be sited at the main compound for the duration of the work. The office and main welfare set up will comprise of stacked units to reduce the footprint and maximize space available.

The compound for the works at the southern end of the Leigh embankment (ME03 and ME04) will utilise an existing overflow car park at Haysden Park. This compound covers an area approximately 0.5ha and provides the location for the office and welfare set up with a secondary area to the north for plant/equipment and lay down area. It will be accessed from the highway via the existing Sailing Club access off Lower Haysden Lane.

The materials (principally the Open Stone Asphalt (OSA) and geofabric mesh reinforcement) required for the MIOS work, will be delivered to the main site compound via Powder Mill Lane (for the northern works section – ME01 and ME02), or via Lower Haysden Lane for the works to the southern extent of the Leigh embankment (ME03 and ME04). Materials for sections of the embankment to the south of the railway line (ME03 and ME04) would either be delivered to the compound and then transported as required to the embankment or be delivered direct to the embankment via the access track to the east of the A21.

Details of the MIOS work are shown on drawings ref:

- ENVIMSE100377-JBA-00-ME00-DR-PL-1000 - Site_Location_Plan
- ENVIMSE100377-JBA-00-ME00-DR-PL-1303 - Construction Details Sheet 4
- ENVIMSE100377-JBA-00-ME01-DR-PL-1100 - Main_Embankment_01_Block_Plan
- ENVIMSE100377-JBA-00-ME02-DR-PL-1100 - Main_Embankment_02_Block_Plan
- ENVIMSE100377-JBA-00-ME03-DR-PL-1100 - Main_Embankment_03_Block_Plan
- ENVIMSE100377-JBA-00-ME00-DR-PL-1303 - Construction Details Sheet 4
- ENVIMSE100377-JBA-00-ME04-DR-PL-1100 - Main_Embankment_04_Block_Plan_Sheet_1_of_2
- ENVIMSE100377-JBA-00-ME04-DR-PL-1101 - Main_Embankment_04_Block_Plan_Sheet_2_of_2

- ENVIMSE100377-JBA-00-ME04-DR-PL-1220 - A12 Interface Proposed Erosion Protection
- ENVIMSE100377-JBA-00-ME04-DR-PL-1225 - Bridleway Block Plan
- ENVIMSE100377-JBA-00-ME04-DR-PL-1200 - Resurfacing Construction Details

3.1.2 Leigh FSA Control Structure

Location & Description

The Leigh Control Structure straddles the River Medway, located at grid reference TQ 56383 46119. The reinforced concrete structure has radial gates: the two outer gates are 6m wide and the central gate is 9.1m wide.

Design

Modification and refurbishment work including mechanical and electrical improvements of the Leigh Control Structure are required to accommodate proposed increase of NMOWL of 28.6m AOD. These include:

- Wire rope winch gate lifting system including all drive components
- Increase of the height of the gates to 28.6m AOD (when closed) and required strengthening.
- Repairs to the three sluice gates steelwork.
- Replacement of the existing bearings on all three gates.
- Protective paint system for the existing gates and new items.
- Replacement cathodic protection anodes.
- Replacement of the leaking control kiosks.
- Electrical/Control equipment updated to latest Environment Agency standards.
- Additional upstream level sensing equipment.
- Replacement of the cable duct covers along the access bridge.

Details of the works at the Leigh Control Structure are shown on drawings ref:

- ENVIMSE100377-JBA-00-ME01-DR-PL-1100-A5-C01-BlockPlan
- ENVIMSE100377-JBA-00-ME02-DR-PL-1100-A5-C01-BlockPlan

In addition, it is proposed to install an Eel pass at the Control Structure. This is proposed as a pumped 'up and over' eel pass, located immediately to the south of the Control Structure. Details of the proposed eel pass are shown on drawings ref:

- ENVIMSE100377-JBA-00-ME02-DR-PL-1100-A5-C01-BlockPlan
- JBAU-2019s0897-00-00-DR-Z-0001-A3-C01-EEL_PASS_GA
- JBAU-2019s0897-00-00-DR-Z-0002-A3-C01-EEL_PASS_SECTIONS

Access

Access as per the MIOS work.

3.1.3 Cattle Arch Embankment

Location and Description

The Cattle Arch Embankment is located circa. 95m east of Southern Water Pumping Station site, off Enfield Road, Leigh. It protrudes out from the railway embankment in a semi-circular shape and forms part of the retaining embankments that impound Leigh FSA. Its main

purpose is to prevent water stored in the FSA from flowing through an underpass in the railway embankment and impacting properties on the north side. This allows the track under the railway embankment to rise gradually and pass over the Cattle Arch Embankment and back down into the FSA on the other side.

Design

Raising the NMOWL to 28.6m AOD will require the Cattle Arch embankment to be raised. This work will avoid the risk of the embankment being overtopped by wind-driven waves when the Leigh FSA is fully impounded at the new NMOWL.

The Cattle Arch embankment will therefore be raised up to 29.52m AOD with earth fill and seeded to match the existing aesthetics. A small 300mm high vertical wall will be installed on the front shoulder of the embankment as a wave return wall, the top of which will be at 29.52m AOD so it does not sit proud of the grassed crest. The wall will be incorporated into the southern edge of the grassed crest. The new wall will utilise precast concrete sections, constructed off-site in controlled factory conditions and fitted into place using a small mobile crane, minimising on-site construction work, time and noise.

An up/down ramp enables an existing public footpath to extend over the embankment at this location. To eliminate the need to have a flood gate, it is proposed to extend the ramp footprint and raise its top level. The reconfigured ramp will extend over the newly raised embankment crest.

Access

Access to the site will be via the existing access off Ensfield Road and will lead to temporary access within the site, to the compound and associated accesses to undertake the Cattle Arch and Pumping Station Embankment works. The compound will cover an area of 0.5ha and will provide welfare facilities, plant and material storage.

Details of the works at the Cattle Arch are shown on the following drawings:

- ENVIMSE100377-JBA-00-ZZ-DR-PL-1000 - Pumping Station & Cattle Arch Embankment Site Location Plan
- ENVIMSE100377-JBA-00-ZZ-DR-PL-1020 - Pumping Station & Cattle Arch Embankment Working Areas, Site Compound & Access Routes
- ENVIMSE100377-JBA-00-CA00-DR-PL-1100 - Block Plan
- ENVIMSE100377-JBA-00-CA00-DR-PL-1200 - Tie in Sections
- ENVIMSE100377-JBA-00-CA00-DR-PL-1204 - Construction Details
- ENVIMSE100377-JBA-00-CA00-DR-PL-1240 - Crest Raising Cross Sections
- ENVIMSE100377-JBA-00-CA00-DR-PL-1241 - Track Cross Sections

3.1.4 Southern Water Pumping Station and Environment Agency Archimedes Screw

Location & Description

Southern Water's pumping station and the Environment Agency's Archimedes Screw site are both located off Ensfield Road, Leigh. The purpose of the Archimedes screw pump is to allow over pumping of water from a low-lying area draining from the north of the railway line, should the area ever become fully impounded.

Design

The Southern Water pumping station will be affected by the increase in impounded water levels in the FSA. To mitigate the increased risk of flooding from the increased NMOWL a new raised defence will be constructed along the crest of the existing earth embankment located to the south of the two pumping stations.

The raised defence will extend towards Ensfield Road and adjacent to the southern edge of the existing concrete access road that leads to the pumping stations. Before it reaches Ensfield Road, the defence line will turn south west across the small channel to tie into high ground at the edge of the agricultural field in the form of an embankment. This embankment will have the same wave return wall as the Cattle Arch Embankment. The proposed works in this area comprise a combination of raised existing earth embankment, new low-level concrete wall, road raising, and a new length of earth embankment.

Access

Access will be from the existing access off Ensfield Road, as set out above for the Cattle Arch Embankment.

Details of the works at Southern Water Pumping Station are shown on drawings ref:

- ENVIMSE100377-JBA-00-ZZ-DR-PL-1000 – Pumping Station and Cattle Arch Site Location Plan
- ENVIMSE100377-JBA-00-ZZ-DR-PL-1020 – Working Areas, Site Compounds and Access Routes
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1100 – Block Plan Sheet 1
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1101 – Block Plan Sheet 2
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1102 – Block Plan Sheet 3
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1103 – Block Plan Sheet 4
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1105 – Embankment at Network Rail Tie-In Block Plan
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1200-A5-C01-WorksLongitudinal Section
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1200 to 1211 – Cross Section Sheets 1 to 11
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1301 – Construction Details Sheet

3.1.5 Leigh Embankment Pumping Station Platform

Location and Description

The proposed Embankment and Pumping Station Platform will be sited south of the access road within Southern Waters Pumping Station site, (within Haysden Country Park), west of Ensfield Road.

The area immediately west of Ensfield Road drains to a small watercourse running broadly west to east. To ensure that water does not become impounded (and present a risk of flooding) when the FSA is operating, a new pumping platform is required. The new facility will enable temporary pumps to be installed in the event of an extreme flood event, so that water can be pumped from this small catchment area and into the FSA.

Design

The flood embankment will be constructed across the drainage ditch, in an east to west direction. A culvert will be constructed within the drain, through the embankment.

A small hardstanding area with a stoned hardcore finish is proposed as the pumping platform. This area will be used as a set-down area for water pumps and associated fuel tank. The pumps will only be operated during an extreme flood event when the FSA is impounding and water is required to be pumped from the fluvial system to the north of the FSA embankment, into the FSA. The set-down area will measure approximately 10m x 15m and it will be located adjacent to the watercourse. The overall area of the proposed hardstanding will be approximately 300m². The hardstanding will also serve as a vehicle turning area, that will be used by the Environment Agency during flood events, when delivering and operating the pumps, fuel tank and associated materials and equipment.

At the pumping station platform, a new concrete headwall will also be required to support the outlet pipe.

A flap valve across the watercourse will also be required to prevent impounded water from the FSA flowing back along the watercourse.

A penstock across the watercourse will also be required to prevent impounded water from the FSA flowing back up the watercourse.

New mesh walkways and hand railing will be installed around the new structures, the new electricity supply cable will be run from an existing nearby substation, and the mechanical elements (pumps, screens, penstock mechanism) will be installed.

Access

Access to the site will be off Ensfield Road (the same access as the Cattle Arch Embankment).

A new 9m access track, with a hardstanding area, to allow for inspection and maintenance visits is proposed from the existing internal access within Southern Water Pumping Station site.

Details of the works at the forming the Leigh Embankment and pumping station platform can be found at:

- ENVIMSE100377-JBA-00-ZZ-DR-PL-1000 – Pumping Station and Cattle Arch Site Location Plan
- ENVIMSE100377-JBA-00-ZZ-DR-PL-1020 – Working Areas, Site Compounds and Access Routes
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1100 – Block Plan Sheet 1
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1101 – Block Plan Sheet 2
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1102 – Block Plan Sheet 3
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1103 – Block Plan Sheet 4
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1104 – Culvert Through Embankment Extension Block Plan
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1105 – Embankment at network Rail Tie-In Block Plan
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1200-A5-C01-WorksLongitudinal Section
- ENVIMSE100377-JBA-DE-PF00-DR-PL-1201 to 1211 – Cross Section Sheets 1 to 11

- ENVIMSE100377-JBA-DE-PF00-DR-PL-1301 to 1302 – Construction Details Sheet 1 & 2

3.2 Enhancements

The Environment Agency always seeks to maximise the delivery of multiple benefits into its projects to enhance biodiversity, heritage, landscape, and the human environment wherever it is feasible to do so. The Leigh FSA Expansion Scheme will replace any habitat damaged or lost through construction and will also meet the forthcoming Environment Bill requirement for at least 10% biodiversity net gain (BNG) to help improve the biodiversity value of the area. The mitigation and biodiversity net gain proposals have been considered across Areas 1-8, identified on the Plan drawing ref ENVIMSE100377-JBA-LZ-00-DR-PL-1002-A5-C01-SchemeOverviewPlan.

The enhancements range from replanting and woodland management, to the creation of scrapes to improve wetland habitat and stream restoration.

Full details of identification / site selection for habitat creation / enhancements are set out within Chapter 3.2.3 of the Environmental Statement

At this stage, the Environment Agency are committed to undertaking enhancement works in Areas 2, 3, 5, 7 and 8. This amounts to over 10% BNG. However, should the opportunities arise, and funding be able to undertake additional enhancement works at the other areas, this will be considered.

4 Planning History – Screening and Scoping

The Town and Country Planning Environmental Impact Assessment (EIA) Regulations govern the requirement for the scope and process of an EIA. A revision to the EU directive on EIA came into force in May 2014 after being adopted by the European Parliament. The purpose of the 2017 EIA Regulations has been to transpose the 2014 amended EIA Directive into UK Law. The 2017 EIA Regulations set out more stringent procedural requirements to be taken by the relevant planning authority when considering whether planning permission or subsequent consent should be granted for EIA development.

A request for Screening and Scoping Opinions, under Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, was originally submitted to TMBC in August 2018. TMBC confirmed that due to the size, nature, and location of the Scheme, the proposed development falls within Schedule, 10(h) of the Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2017, and exceeds the site area indicative criteria and threshold set out in the National Planning Guidance. The environmental impacts of the scheme as a whole and viewed cumulatively are significant and therefore EIA is required.

As a result of significant changes to the Scheme, including the removal of the railway embankment works a meeting was then held on 7th November 2019 with Emma Keefe, Development Manager, TMBC, Tim Carter, Technical Director and Della Adams, Principal Environmental Consultant, both of JBA Consulting and Andy Dellar, Project Manager, Environment Agency. Emma confirmed during the meeting that the revised Leigh FSA Expansion Scheme would still constitute EIA development and an EIA would be required as part of the planning application.

A revised Scoping Opinion was submitted to TMBC on 24th December 2019, a Scoping Response was received on 28th February 2020, agreeing to the topics that should be included within the Environmental Statement submitted as part of the planning application.

4.1 Permitted Development

It should be noted that individually, some works to existing flood defence embankments, on Environment Agency 'operational land' (land which is used for the purpose of carrying out their undertaking, as defined in the Town and Country Planning Act 1990), would constitute permitted development in accordance with The Town and Country Planning (General Permitted Development) (England) Order 2015. However, the Scheme as a whole is included within the EIA and planning application.

5 Project Development

Proposals for the Leigh FSA Expansion Scheme have been developed over several years through a long-term flood risk management process.

The preferred option to increase the capacity of the Leigh FSA is one of the recommended options in the approved Middle Medway Strategy 2005 (approved in Oct 2005). The Middle Medway Strategy was reviewed in 2010 and increasing the capacity of the Leigh FSA was again recommended as a shortlisted option. The 2010 structured review considered construction of local walls in Hildenborough. The review concluded that they were not necessary if the Leigh FSA capacity was increased. However, the revised Medway flood model and the 2013 flood event has shown that a smaller embankment (as detailed in this OBC) works in conjunction with the increased capacity of the Leigh FSA.

In addition to the studies above, detailed investigations have been undertaken, including hydrologic modelling, assessment of engineering requirements, environmental constraints and opportunities into how much additional flood storage can be accommodated by the Leigh FSA by increasing the NMOWL, without compromising the safety of both the existing FSA infrastructure (the Leigh Embankment and Leigh control structure) and the integrity of the adjacent railway embankment.

Full details relating to the documents set out above, variations and development of the options for the Scheme that led to the preferred option is set out at section 2.3 of the supporting Environmental Statement.

The Preferred Option (Summary)

Following the option appraisal process, set out within the ES and further design development, the list of work elements proposed for the Scheme (to reduce the current level of flood risk by increasing the NMOWL of the Leigh FSA to 28.6m AOD) comprises the following:

- Works to improve the safety of the Leigh Embankment under the Reservoirs Act (Measures in the Interests of Safety or “MIOS”).
- New concrete wave wall and raised access track on the Cattle Arch embankment and to south of the Southern Water and Archimedes Screw pumping stations;
- New pumping station embankment near Paul’s Farm, including area of hard standing; and
- Associated mitigation and enhancement works (including habitat creation, management, and enhancement).

The original option screened by TMBC in August 2018 involved more extensive works compared to the current proposals, including works to the Network Rail Embankment at Leigh. However, after slope seepage analysis in this area, it was concluded that work would not be required to accommodate the increase in storage level. Network Rail engineers were consulted before and after this analysis, specified the works needed and have accepted the assessment. As previously mentioned, works at Hildenborough and Hawden Oast and Granary were part of the December 2019 Scoping Assessment, these are now removed from this Scheme. Planning permission for these works will be sought later this year.

6 Consultation

6.1 Key Stakeholders

Consultation with key stakeholders has taken place throughout the development of the Scheme and as part of the EIA and planning application preparation.

Internal consultation with Environment Agency technical specialists has included:

- Fisheries, Biodiversity and Geomorphology specialists to advise on key ecological issues (constraints and opportunities);
- Landscape
- Archaeology and Heritage
- Planning

Meetings took place with Tonbridge and Malling Borough Council, Tunbridge Wells Borough Council and Sevenoaks District Council in March 2018 to discuss the original Scheme. A draft Preliminary Environmental Impact Report (PEIR) was prepared and reviewed by the Environment Agency's internal technical specialist (a summary of the responses can be found at Chapter 5.2 of the Environmental Statement).

The PIER was updated, and a copy sent to TMBC as part of a formal EIA Screening and Scoping Request, regarding the need for EIA and the issues that would need to be considered in an Environmental Statement. A formal response was received in October 2018 with representations made from statutory consultees.

Due to changes in the scheme, JBA Consulting (Della Adams, Principal Environmental Consultant and Tim Carter, Technical Director) and the Environment Agency Project Manager (Andy Dellar) met with Emma Keefe, Head of Planning at TMBC to discuss the revised scope. During the meeting it was agreed that an EIA would be required, and a revised Scoping request was submitted to TMBC on 24th December 2019. As part of the Scoping Opinion, responses were received from:

- Natural England;
- Historic England;
- Southern Water;
- Kent County Council (Flood Risk);
- Environment Agency (Planning);
- Tunbridge Wells District Council (Planning)
- Seven Oaks District Council (Planning)

Overall, no objections were raised to the proposed development. TMBC agreed with the topics to be scoped in, or excluded from, the EIA. Comments relating to flood risk, fisheries, biodiversity and geomorphology were provided by the Environment Agency. Advice relating to the EIA scope was provided by Natural England.

The full details of the Scoping responses are set out at Chapter 5.0, Table 5.1 of the accompanying Environmental Statement.

The responses received as part of both Opinions have been addressed during the design and development of the Scheme. Further consultation with both statutory and non-statutory stakeholders to develop the Scheme, inform decisions and agree mitigation measures include:

- Tonbridge and Malling Borough Council – Wardens of Haysden Country Park;
- Tonbridge and District Angling and Fish Preservation Society;
- Environmental Health Officers – in relation to noise assessments;
- Historic England (in relation to works originally proposed at Penshurst Place, no longer included in the planning application);
- Local Authority Conservation Officers (in relation to listed buildings and the Registered Park and Garden at Penshurst); and
- Kent County Council Historic Environment Team (in relation to archaeology).
- Kent Wildlife Trust

The progress and development of the Scheme has been discussed with Sean Mitchell at Sevenoaks District Council and Emma Keefe at TMBC. Pre-application discussions have also taken place with Sevenoaks District Council and Tunbridge Wells Borough Council.

6.2 Public Consultation

During the development of the project three public drop-in sessions were held in November 2018 to update and inform residents about the progress of the Scheme, the proposed designs and forthcoming actions. The dates and locations of these events were:

- Monday 19 November 2018 (12.30pm to 7.45pm) – Hildenborough Village Hall;
- Friday 23 November 2018 (11am to 8pm) – Tonbridge Castle; and
- Saturday 24 November 2018 (10am to 2pm) – Tonbridge Castle.

Information about the purpose and the progress of the Scheme was presented on display boards at the events and Environment Agency staff from the project team were also in attendance to speak to attendees and answer questions about the Scheme. The local Member of Parliament for Tonbridge and Malling and two Council Leaders from Tonbridge and Malling Borough Council also attended the event at Tonbridge Castle on Friday 23 November.

A total of 178 people visited the drop-in sessions: 82 at Hildenborough and 96 at the Tonbridge events. In general, feedback on the Scheme was very positive, with several people speaking very positively about the Leigh FSA and how it reduces their risk. Some concerns were raised by residents of Hildenborough that the new Hildenborough flood defence would increase risk to those downstream, but these queries / concerns have been addressed directly by the Environment Agency in individual responses to the consultees. There were also several queries about surface water flooding and drainage clearance which the Environment Agency has shared with TMBC and Kent County Council Highways.

A newsletter providing an update including the removal of the Network Rail Embankment and Hildenborough from the Scheme was prepared by the Environmental Agency in July 2020. The newsletter was distributed to stakeholders and interested parties including

the MP, Parish Councils, members of the Medway Flood Partnership and Environment Agency colleagues for sharing through their networks. A copy of the newsletter is submitted as part of the Planning Application (ref: LEHES newsletter July 2020).

7 Planning Policy

7.1 National Planning Policy

The National Planning Policy Framework (NPPF) was published by the Department for Communities and Local Government (DCLG) in 2012. The Framework was updated on 19th February 2019 and sets out the government's planning policies for sustainable development in England, based on economic, social and environmental objectives:

a) economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

b) a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

c) an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Chapter 3 of the NPPF, relates to 'Plan-Making'. It states that the planning system should be plan-led, succinct and up-to-date plans should provide a positive vision for the future of each area. Paragraph 20, of chapter 3 relates to Strategic Policies set out an overall strategy for the pattern, scale and quality of development, including the provision for infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat);

Chapter 11, 'Making effective use of land' states that planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. It recognises undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production.

Section 12 outlines the importance of well-designed buildings and promotes development sympathetic to local character and history, including the surrounding built environment and landscape setting.

Chapter 14 relates specifically to 'Meeting the challenge of climate change, flooding and coastal change' and requires the planning system to shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience. It requires plans to apply a sequential, risk-based approach to the location of development, considering the current and future impacts of climate change. Opportunities provided by new development to reduce the causes and impacts of flooding should be utilised to minimise residual risk.

– to avoid, where possible, flood risk to people and property.

Section 15 relates to 'Conserving and enhancing the natural habitat' and sets out ways that planning policies and decisions should protect and enhance the natural and local environment. These include:

- protecting and enhancing valued landscapes,
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services;
- minimising impacts on and providing net gains for biodiversity.

Paragraph 174 identifies ways that plans should protect and enhance biodiversity a geodiversity. This includes promoting the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Chapter 16 outlines policies for the protection and enhancement of the historic environment in plan-making and decision taking. Decisions affecting heritage assets should be undertaken based on an understanding of the significance of any heritage asset affected by development, based on a proportionate evidence base. Where sites include archaeological potential field evaluation may also be required (para 189).

7.2 Planning Practice Guidance

The National Planning Practice Guidance (NPPG) was launched in March 2014, updated in February 2018. PPG's guidance covers many aspects of planning, including planning and flood risk (PPG Flood Risk and Coastal Change).

PPG Flood Risk and Coastal Change refers to paragraph 156 of the NPPF and states that local planning authorities should take advice from the Environment Agency and other relevant flood risk management bodies such as lead local flood authorities and internal drainage boards. In addition, 'local planning authorities should work with lead local flood authorities to secure Local Plan policies compatible with the local flood risk management strategy'.

7.3 Local Planning Policy

As the proposed development is spread across the jurisdiction of three planning authorities including Tonbridge and Malling District Council, Sevenoaks District Council and Tunbridge Wells Council, local planning policy for each authority has been considered:

Tonbridge and Malling Borough Council

The works within Tonbridge and Malling Borough Council boundary include:

- Northern end of the Leigh Embankment

A new Local Plan has been consulted upon and is now at the examination stage. As this has not yet been adopted, the Council's Development Plan and adopted local plans will be referred to in this section. The Development Plan includes several documents, with relevant policies described within the:

- Core Strategy adopted on 25th Sept 2007 (CP Policies)

Managing Development and the Environment DPD adopted on 20th April 2010 (Policies CC, NE, SQ, DC and OS)

CP1: Sustainable Development states that all proposals for new development must result in a high-quality sustainable environment. The need development will be balanced against the need to protect and enhance the natural and built environment. The Borough

Council will seek to minimise water and energy consumption having regard to the need for 10% of energy requirements to be generated on-site from alternative energy sources and the potential for recycling water.

CP6: Separate Identity of Settlements states that:

- Development will not be proposed in the LDF or otherwise permitted within the countryside or on the edge of a settlement where it might unduly erode the separate identity of settlements or harm the setting or character of a settlement when viewed from the countryside or from adjoining settlements.
- Any development that is considered acceptable in terms of this policy should maintain or enhance the setting and identity of the settlement, and in the countryside, be consistent with Policy CP14.

CP7: Areas of Outstanding Natural Beauty will not permit development that would be detrimental to the natural beauty and quiet enjoyment of the AONB unless the major development is in the national interest and where no alternative sites are available or the need cannot be met in any other way, or any other development that is essential to meet local social or economic needs.

CP10: Flood Prevention states that within the floodplain development should first seek to make use of areas at no or low risk to flooding before areas at higher risk, where this is possible and compatible with other policies aimed at achieving a sustainable pattern of development. Development which is acceptable or otherwise exceptionally justified within areas at risk of flooding must:

- Be subject to a flood risk assessment
- Include an appropriately safe means of escape above flood levels anticipated during the lifetime of the development
- Be designed and controlled to mitigate the effects of flooding on the site and the potential impact of the development on flooding elsewhere in the floodplain

CP11: Urban Areas seeks to concentrate development within the confines of the urban areas of Tonbridge, including Hilden Park, and other urban areas. Development adjoining these urban areas will only be permitted where there is an identified need and there are no suitable sites within the urban areas. Priority will be afforded to the use of previously developed land.

CP14: Development in the Countryside will restrict development in the countryside to development for which a rural location is essential.

CP24: Achieving a High-Quality Environment requires:

All development to be well designed and of a high quality in terms of detailing and use of appropriate materials, and must through its scale, density, layout, siting, character and appearance be designed to respect the site and its surroundings.

CP25: Mitigation of Development Impacts requires any material harm to a natural or historic resource, which is exceptionally justified, to have appropriate mitigation measures. Upon implementation of the mitigation, residual adverse impacts will require compensatory measures.

CC2: Mitigation – Waste Minimisation will not permit development unless they are designed and constructed to minimise waste production and associated impacts through the re-use of construction and demolition materials. For redevelopment proposals, the ICE Demolition Protocol must be followed. Site Waste Management Plans, when required, must include procedures for minimising waste produced on site as well as sorting, re-using and recycling waste that is produced. Adequate space for storage of

recyclable and non-recyclable waste must be incorporated into proposals for development.

CC3: Adaptation – Sustainable Drainage will not permit development if it has an unacceptable effect on the water environment.

NE1: Local Sites of Wildlife, Geological and Geomorphological Interest will not permit development that adversely affects either directly, indirectly or cumulatively a Local Wildlife Site (LWS) or Local Nature Reserve (LNR) unless it can be demonstrated that the benefits of the development override the need to safeguard the site's nature conservation value and that adverse impacts can be adequately compensated.

NE2: Habitat Networks seeks to protect, conserve and enhance the biodiversity of the Borough and in particular priority habitats, species and features. The restoration and creation of new habitats will be pursued where these promote permeability and contribute to the UK and Kent Biodiversity Action Plan targets having regard to the areas of biodiversity opportunity identified on the Green Infrastructure Network Diagram.

NE3: Impact of Development on Biodiversity seeks to ensure overall enhancement, by only permitting development that would adversely affect biodiversity or the value of wildlife habitats if appropriate mitigation and/or compensation measures are provided. Provision for habitat retention and protection of wildlife links must be made. Opportunities to maximise the creation of new corridors and improve permeability and ecological conservation value.

NE4: Trees, hedgerows and woodland seeks to maintain and enhance the extent of tree cover and the hedgerow network. Development that would result in the net loss or deterioration of woodland is dependent on the following being met:

- development cannot reasonably be located on an alternative sites;
- the need for development clearly outweighs any harm which may be caused to the ecological, archaeological and landscape value of the woodland; and
- harm can be reduced to acceptable limits through the implementation of positive environmental mitigation measures within the site or by replacement planting elsewhere or enhanced management.

SQ1: Landscape and Townscape Protection and Enhancement will require proposals for development to reflect the local distinctiveness, condition and sensitivity to change of the local character areas.

SQ2: Landscape and Townscape Protection and Enhancement requires the retention and protection of buildings included within the Local List of Buildings of Architectural or Historical Interest.

SQ3: Historic Parks and Gardens will not permit development that would harm the overall character, integrity or setting of the Historic Parks and Gardens or which might prejudice their future restoration.

SQ6: Noise will require noise-sensitive development to demonstrate noise levels are appropriate for the proposed use.

DC6: Rural Lanes requires development proposals which are in the vicinity of, or are served by, rural lanes, to, where appropriate, enhance the value of the lane in terms of its landscape, amenity, biodiversity, historic or archaeological importance,

OS1: Protection of Open Spaces will not permit development which would result in the loss of, or reduce the recreational, nature conservation, biodiversity, carbon sink, landscape, amenity and/or historic value of, existing open spaces unless a replacement site is provided which is equivalent or better in terms of quantity, quality and accessibility.

These values will be enhanced primarily through developer contributions secured from developments in lieu of onsite open space provision.

Tonbridge and Malling Supplementary Planning Documents

TMBC, working alongside the Environment Agency commissioned Mott MacDonald to produce a Strategic Flood Risk Assessment (SFRA) in 2006 and updated in 2011 as a background document to the Local Development Framework. Its purpose is to

- inform the preparation of TMBC's Local Development Documents (LDDs), having regard to catchment-wide flooding issues which affect its area;
- provide a detailed and robust assessment of the extent and nature of the risk of flooding in the specific areas of the floodplain where new development or redevelopment is likely to be proposed in the next plan period (to 2021);
- provide evidence for the updating of the Emergency Plan;
- ensure the T&MBC meets its obligations under PPG25 (Development and Flood Risk).

Sevenoaks District Council

Works within Sevenoaks District Council boundary include:

- Middle section of the Leigh Embankment
- Leigh Control Structure
- Cattle Arch Embankment
- Southern Water Pumping Station
- Leigh Embankment Pumping Platform

The Local Plan for the Sevenoaks District is undergoing examination, therefore those policies described below form part of the currently adopted plans.

The Core Strategy is the key document in the Local Plan for the Sevenoaks District, which was adopted by Full Council on 22nd February 2011. The policies that are relevant to the proposed development are set out below:

LO 1: Distribution of Development states that development outside the confines of existing settlements, will only take place where it is compatible with policies for protecting the Green Belt and the High Weald and Kent Downs Areas of Outstanding Natural Beauty, where relevant.

LO 8: The Countryside and the Rural Economy seeks to maintain the extent of the Green Belt. It also aims to conserve the countryside and protect and enhance the distinctive features of the landscape and its biodiversity, including the High Weald Area of Outstanding Natural Beauty (AONB). Development that supports the maintenance of the rural economy will be supported in conjunction to these aims.

SP 1: Design of New Development and Conservation states that all new development should be designed to a high quality and should respond to the distinctive local character of the area in which it is situated. The resulting environments should be safe, inclusive and attractive, incorporating sustainable development principles, and maintain and enhance biodiversity and the District's heritage assets and their settings.

SP 2: Sustainable Development seeks to contribute to reducing the causes and effects of climate change by promoting best practice in sustainable design and construction. New developments must also consider the need to improve air quality.

SP 11: Biodiversity states that the biodiversity of the District will be conserved, and opportunities sought for enhancement to ensure no net loss of biodiversity. Sites designated for biodiversity value will be protected and managed, primarily to promote biodiversity but also to provide appropriate levels of public access. Opportunities to enhance biodiversity will be sought through creation, protection, enhancement, extension and management of sites and through the maintenance and enhancement of a green infrastructure network.

The Allocations and Development Management Plan also forms part of the Local Plan for the Sevenoaks District. This was adopted by the Council on 17th February 2015. The Development in the Green Belt Supplementary Planning Document (SPD) has been adopted to accompany the Allocations and Development Management Plan on the 5th February 2015.

SC 1: Presumption in Favour of Sustainable Development states the Council will favour sustainable development contained in the National Planning Policy Framework. Where appropriate the proposals should have regard to:

- the compatibility and suitability of the proposal to its location;
- the impact of the proposal on the surrounding environment, landscape, habitats and biodiversity, including the Green Belt and Area of Outstanding Natural Beauty;
- the contribution to creating balanced communities;
- the conservation and enhancement of the District's cultural heritage;
- the contribution to and impact on the District's economy; and
- the impact on existing infrastructure and contribution to new supporting infrastructure.

EN 1: Design Principles seeks to permit high quality design proposals which meet the set criteria. The form of the proposed development would respond to the scale, height, materials and site coverage of the area. Efficient land use should be considered and where appropriate, proposal should include details and strategies for effective management and maintenance of the sites.

EN 2: Amenity Protection seeks to permit proposals that will not result in excessive noise, vibration, odour, air pollution, activity or vehicle movements, overlooking or visual intrusion. The built form should not result in an unacceptable loss of privacy or light enjoyed by the occupiers of nearby properties.

EN 4: Heritage Assets states that proposals that affect a Heritage Asset, or its setting, will be permitted where the development conserves or enhances the character, appearance and setting of the asset. Applications will be assessed with reference to the following:

- the historic and/or architectural significance of the asset;
- the prominence of its location and setting; and
- the historic and/or architectural significance of any elements to be lost or replaced.

Where the application is located within, or would affect, an area or suspected area of archaeological importance an archaeological assessment must be provided. Preference will be given to preservation in situ unless it can be shown that recording of remains, assessment, analysis report and deposition of archive is more appropriate.

EN 5: Landscape states that the High Weal AONB and its setting will be given the highest status of protection in relation to landscape and scenic beauty. Proposals within the AONB will be permitted where the form, scale, materials and design would conserve and enhance the character of the landscape and have regard to the relevant Management Plan and associated guidance. Proposals will be permitted where they would conserve the character of the landscape, including areas of tranquillity and where feasible help secure enhancement in accordance with landscape actions in accordance with the Sevenoaks Countryside Assessment SPD.

EN 7: Noise Pollution states that proposals which meet the following criteria will be permitted:

- development would not have an unacceptable impact when considered against the indoor and outdoor acoustic environment including existing and future occupiers of the development and the amenities of existing and future occupants of nearby properties;
- development would not result in unacceptable noise levels from existing noise sources that cannot be adequately mitigated.

T 1: Mitigating Travel Impact states that new development will be required to mitigate any adverse travel impacts on congestion and safety, environmental impact, such as noise and tranquillity, pollution and impact on amenity and health.

Sevenoaks District Council's Supplementary Planning Documents (SPD's)

Sevenoaks District Council's Supplementary Planning Documents (SPD's) relevant to the proposals include:

- Green Belt SPS
- Countryside Character Assessment SPS (adopted October 2011)

Tunbridge Wells Borough Council

The works part of LEHES within Tunbridge Wells Borough Council boundary include:

- Southern end of the Leigh Embankment

The Council are currently developing a new Local Plan; therefore, relevant policies within the Local Plan which was adopted in March 2006 will be referred to below.

MGB1: Metropolitan Green Belt seeks to preserve the openness of the Metropolitan Green Belt and no development which could conflict with the purposes of including land within it will be permitted.

EN1: Development Control Criteria states that development will be required to satisfy all the following criteria. Relevant to the proposals:

- The nature and intensity of the proposed use would be compatible with neighbouring uses and would not cause significant harm to the amenities or character of the area in terms of noise, vibration, smell, safety or health impacts, or excessive traffic generation;
- There would be no significant adverse effect on any features of nature conservation importance which could not be prevented by conditions or agreements.

- The design, layout and landscaping of all development should take account of the security of people and property and incorporate measures to reduce or eliminate crime; and

EN10: Archaeological Sites will determine proposals for development affecting sites of archaeological interest having regard to the desirability of preserving archaeological remains and the setting of visible remains according to criteria.

EN11: Historic Parks and Gardens states that proposals which would be likely to affect a historic park or garden will only be permitted where no significant harm would be caused to its character, amenities or setting.

EN13: Tree and Woodland Protection will not permit development if it would damage or destroy one or more trees protected by a Tree Preservation Order, or identified as Ancient Woodland, or in a Conservation Area, unless the removal of one or more trees would be in the interests of good arboricultural practice or the desirability of the proposed development outweighs the amenity value of the protected tree.

EN15: Statutory Local Nature Reserves and other non-statutory Nature Conservation Sites seeks to protect the nature conservation of a statutory Local Nature Reserve or non-statutory nature conservation site.

EN16: Protection of groundwater and other watercourses will only permit development if all of the following criteria are satisfied. This includes:

- No adverse impact on the water quality within, or water supply to, lakes, ponds, wetlands and other watercourses;

EN18: Flood Risk states that within those developed areas identified by the Environment Agency as being at high risk from flooding, built development will only be permitted if:

- Practicable and effective flood protection and mitigation measures would be proposed and maintained for the lifetime of the development; and
- Practicable and effective and effective measures would be included as part of the development proposals to prevent the increased risk of flooding elsewhere.

Within functional floodplains identified by the Environment Agency as being at high risk from flooding, built development will not be permitted except essential transport and utilities infrastructure that must be sited there.

EN25: Development control criteria for all development proposals affecting the rural landscape seeks to ensure proposals will have a minimal impact on the landscape character of the locality and landscape setting of settlements, and not result in unsympathetic change to the character of a rural lane.

Tunbridge Wells Borough Council SPD

- SPD's prepared by Tunbridge Wells Borough Council relevant to the Scheme include:
 - Landscape Character Assessment SPD
 - Landscape and Nature Conservation

8 Planning Considerations

8.1 Planning Policy Review and Material Considerations

8.1.1 The Principle of the Development

The Leigh FSA was constructed in 1982, in response to the 1968 flooding that resulted in catastrophic damage to homes and businesses.

Climate change will increase the risk of flooding in coming years. The Leigh FSA Expansion Scheme has been developed by the Environment Agency to increase the level of protection to over 1,400 homes and 100 businesses in Tonbridge and Hildenborough.

Improving flood protection to homes, businesses and communities and mitigating and adapting to climate change will support the development of a strong, responsive, and competitive economy. The Scheme will help to provide a safe environment where people want to live and work. It will also help to protect and enhance the surrounding natural, built, and historic environment and support the rural economy. The principle of the development meets the economic, social, and environmental objectives of the NPPF.

The Scheme has been developed to meet the 'challenge of climate change, flooding and coastal change' set out at Chapter 14 of the NPPF, policy CP10 of TMBC Core Strategy, EN18 of Tunbridge Wells Local Plan, policies LO8 and SP2 of Sevenoaks District Council's Core Strategy.

The Scheme involves increasing the capacity of stored water by increasing the impounding level from 28.05m AOD to 28.6m AOD. Storing to this level will cover 16.4 hectares of extra footprint but will provide 7.3million m³ of storage – a capacity increase of 24%.

The Scheme is predominately within the open countryside and involves improvements to existing assets, for example resurfacing or increasing existing flood embankments, construction of small embankments and flood walls, electrical and mechanical improvements to the Leigh control structure. The only 'new asset' is a flood embankment and pumping platform on land south of Southern Water's Pumping Station site. These works are small-scale and are close to the boundary of Southern Water Pumping Station, an existing operational site.

The proposals are an effective use of land and mostly involve works to the existing flood defences. Overall, the proposals meet location, distribution of development, sustainable development and development in the countryside policies, LO1, LO8, SP2, SC1 of Sevenoaks District Councils Core Strategy (and SPD's), policies CP1, CP6, CP7, CP14, CC1 of TMBC's Core Strategy and Development Plan documents (and SPD's); and policies MGB1, EN1 of Tunbridge Wells Local Plan (and SPD's).

The proposals have been developed over several years by innovative, multi-disciplinary teams to achieve functionality flood protection and high-quality design.

The Scheme will not have any permanent or significant impact on amenity and the environment (covered in more detail in the following section). The proposals meet the objectives set out in Chapter 12 of the NPPF, policies SP1, EN1, EN2 of Sevenoaks Core Strategy, CP24 of TMBC Core Strategy, EN1 and Tunbridge Wells Local Plan.

A range of specialist environmental surveys and reports have been undertaken during the development of the Scheme to assess and mitigate impacts on environmental factors. These planning material considerations include:

- Flood Risk
- Water Quality
- Biodiversity, Flora and Fauna
- Arboriculture
- Heritage and Archaeology,
- Landscape.
- Traffic
- Noise

The full details of each of the above are covered in Chapters 6, 7, 8 and 10 of the Environmental Statement, however a summary of assessments and how the proposals accord with relevant planning policies is set out below:

8.1.2 Flood Risk Assessment

A Flood Risk Assessment (FRA) has been undertaken and supports Chapter 6.0 of the ES. A copy of the FRA is submitted as part of the planning application. The FRA assesses the likely significant effects of the Leigh FSA Expansion Scheme on the water environment, specifically with regards to flood risk and the Water Framework Directive. The FRA concluded that by increasing the volume of stored water the Scheme can accommodate events with increased severity but maintain the capacity to control the magnitude of the outflows (so reducing flood risk downstream).

In the event that the FSA reaches its capacity and the maximum operating water level is reached, the operating procedure would remain unchanged. the gates would be operated to keep the stored water at a safe level.

At the FSA embankment, the increase in flood depths would be expected to increase by no more than +0.55m, reflecting the change in the maximum operating water level from 28.05m AOD. However, with increasing distance upstream from the FSA embankment, the increase in flood depths will reduce and become negligible.

With increasing distance upstream, the difference in flood depths is reduced. ~~reduced.~~

As part of the proposed development, the area of land north of Cattle Arch embankment, the Southern Water Pumping Station and Archimedes Screw and embankment pumping station platform are removed from the predicted flood extent due to specific mitigation measures implemented as part of the Scheme at these locations.

Some receptors potentially affected by the proposed increase in water levels stored within the FSA include the following:

- *Railway line to the east of Leigh Station:* (Although peak flood levels at the maximum operating level of 28.6m AOD would not exceed the level of the railway)
- *Tonbridge Sailing club:* An increased depth of flooding up to 0.5m is predicted, but the existing structure is set well above this proposed maximum storage level, so additional impacts are not anticipated.
- *Ensfield Road:* An increased depth of flooding of up to 0.5m is predicted.

It should be noted that each of the receptors identified already lie in the footprint of the FSA at maximum storage level when a flood is passing through the River Medway.

The Scheme will cause a minor increase in flood levels upstream of the Control Structure for some receptors such as Ensfield Road. However, the Scheme will decrease flood risk for hundreds of properties downstream in Tonbridge and Hildenborough (over 1,400 homes and 100 businesses, plus critical infrastructure). Overall, the Scheme will deliver a very large beneficial impact in relation to flood risk over the long-term.

Increasing the capacity of the FSA, potentially increases the consequence of breach failure should it occur at the time of maximum permitted impoundment (greater flow rates could be expected due to the larger volume and greater depth of water). However, as the proposals include works to enhance the safety of the embankment during such conditions (the MIOS works), the likelihood of breach occurrence would not be expected to increase. In addition, should the integrity of the embankment be compromised during a flood event, it is considered that there would be opportunity to control water levels in the FSA, by operating the control gates, to reduce the likelihood and consequence of breach failure.

The FRA has been undertaken in accordance with policy CP10 of TMBC's Core Strategy, and the proposals are "Practicable and effective flood protection and mitigation measures, that would prevent the increased risk of flooding elsewhere", in accordance with Tunbridge Wells Borough Council's Local Plan.

8.1.3 Water Framework Directive (WFD)

JBA Consulting have prepared a WFD Assessment to assess the potential for the proposed Scheme to directly or indirectly cause deterioration in the WFD status of any water body; and assess the potential impacts on water body improvement measures and the ability to meet WFD objectives, as well as to suggest mitigation measures where necessary, including suggestions for betterment.

The WFD concluded that the Scheme is WFD compliant and is not expected to impact either the Mid Medway from Eden Confluence to Yalding surface water body, or the Kent Weald Western – Medway groundwater body at the water body scale. The proposals should not cause deterioration or have an adverse impact on water quality as specified within policy EN16 of Tunbridge Wells Local Plan.

Some minor / localised impacts are anticipated to occur during construction, but these are not expected to be permanent. As mitigation, the Scheme allows the opportunity to deliver a range of enhancement measures that are identified within the Thames RBMP and as catchment partnership local measures. These include a range of river restoration and habitat creation projects that satisfy Chapter 174 of the NPPF and policies NE2 and NE3 of the TMBC Core Strategy.

8.1.4 Biodiversity, Flora and Fauna

Ecological Surveys have been undertaken throughout the development of the Scheme. This includes survey work undertaken for the proposed development by Atkins in 2018 and 2019, with the addition of updated surveys completed by JBA Consulting in 2019 and 2020, submitted as part of the application. These include:

- Phase 1 Habitat Survey Maps and Target Notes

- Aquatic Invertebrate Survey Report
- Protected Species Survey Report
- Badger Survey Report
- Vegetation Survey Report
- Great Crested Newt Survey, and
- Dormouse Survey Report

Chapter 7.0 of the ES considers the findings of the above surveys and reports and the potential effects of the proposed development on biodiversity, flora, and fauna, during the construction and operational phases of the proposed Scheme.

The works are outside of the Area of Outstanding Natural Beauty (AONB) however some construction works are within the Local Wildlife Site's LWS's. The works within the LWS's have been minimised where possible. Where work in these areas is unavoidable, opportunities have been sought for enhancements to ensure no net loss of biodiversity. Compensation and habitat enhancement areas are part of the Scheme to mitigate the impact of tree, scrub, grassland, and vegetation loss, in accordance with NE1 of TMBC Core Strategy and SP11 of Sevenoaks District Councils Core Strategy.

A Badger sett is present at the Leigh Embankment (ME04). Excavations at the badger sett will be undertaken by hand to minimise disturbance. Plant operators will be briefed as to the presence of Badger in this location and all plant will be restricted to low speeds. Construction work will take place during normal working hours. Large areas of habitat will be left undisturbed in proximity to the sett.

An artificial Bat Cave is present at the Leigh Embankment (ME04, the same location as the badger sett). Scrub needs to be removed to install erosion protection. A geotextile membrane will be laid within the proximity of the Bat Cave. Further surveys are planned in the summer and autumn of 2020 to support a European Protected Species Mitigation Licence for the works, although there will be no direct impact on the Bat Cave. It is hoped that Scheme will improve humidity levels within the Bat Cave. This will be monitored using temperature/humidity data loggers before, during and after the works. All vegetation clearance and construction work around the entrance to the bat roost will be supervised by a licenced Bat Ecologist under the conditions of the Natural England licence.

For commuting and foraging Bats, habitat loss will be mitigated by habitat reinstatement and enhancement work. Construction work will generally be restricted to daytime (light) hours. Light may be needed within compound areas. If this is necessary, this will be designed to minimise light spill and disturbance to neighbouring habitat.

Great Crested Newt (GCN) eDNA Surveys have been undertaken on various ponds within 500m of the Scheme and confirmed newts were present in Pond 5 in 2018. Vegetation clearance is required 80m south of Pond 5 (near the Pumping Station and Cattle Arch Embankment). This will be undertaken under the conditions of a GCN low impact licence. Vegetation removal will be timed to avoid the overwintering/terrestrial phase of the life cycle and will be subject to hand-searches in advance of vegetation clearance. Any newts found will be relocated away from the working area as agreed in the Low Impact Licence Site Registration Form.

An ecology desk-based study returned six records of Hazel Dormouse within 100m of the Scheme, the nearest was 250m north-east from the boundary at Leigh. Nest tube surveys in 2019 confirmed Hazel Dormice present within woodland/scrub habitat to the north of the railway embankment within Enhancement Area 2. Suitable on-site habitat for Dormice includes woodland and scrub to the north and south of the railway. The

habitats within the Scheme boundary (including where Dormice were recorded) are well connected to the surrounding area and are likely to provide an important connectivity function to the dispersal of the species within the local area.

A European Protected Species Mitigation (EPSM) licence will be obtained from Natural England to undertake the proposed work and prior to any site clearance works commencing, to ensure that the scheme is compliant with the legislation. Mitigation and compensation biodiversity enhancements will off-set any adverse impacts on local dormouse populations.

The impact from loss of habitat to Invertebrates (terrestrial), Reptiles, Hedgehog, Brown Hare, and Common Toad will be mitigated by appropriating timing of the works outside of hibernation periods (where applicable) and by compensatory habitat and enhancement proposals in accordance with Chapter 174 of the NPPF and policies NE2 and NE3 of TMBC Core Strategy.

The impact on fish and aquatic Invertebrates, will be mitigated by minimising in-channel work and complying with best practice, pollution and control measures set out within the Environmental Action Plan (EAP) for the scheme. The Eel pass proposed on the control structure will improve passage for Eel.

Vegetation clearance will be undertaken outside the nesting bird season (generally to August / September to avoid impacting on birds).

8.1.5 Heritage and Archaeology

A Heritage and Archaeology assessment has been undertaken of the Scheme. Full details of the assessment are set out at Chapter 8 of the Environmental Statement. As part of the assessment, historic environment baseline during both the construction and operational phases are considered. The effects on potential buried and surface archaeological remains, changes to the setting of historic buildings (designated and non-designated) and changes to historic landscape character have also been considered. Predicted impacts along with mitigation proposals to minimise such impacts are included.

The assessment concluded that most of the Scheme involves work / improvements to existing flood assets. The previous construction activities associated with the construction of the existing assets are expected to have already removed any near surface archaeological remains. Significant archaeological remains, if present, are likely to be buried at depth within alluvium and therefore beyond the impact of these works. Therefore, there would be no impact on archaeological remains because of the Scheme.

The ground works associated with Leigh Embankment Pumping Station Platform will be in areas of potentially undisturbed ground. The extent of any excavation and ground works in this area will be limited to topsoil stripping. The potential to identify previously unrecorded archaeological remains at these shallow depths is very low. If archaeological remains were encountered, they would most likely be of low value. The proposals therefore meet the objectives of policy EN10 of TMBC Core Strategy and Chapter 16 of the NPPF.

Leigh Embankment is a considerable distance from Haysden Conservation Area and listed buildings within it, therefore there will be no permanent impact on these or other nearby assets because of the Scheme.

Works at the Cattle Arch Embankment and pumping platform are screened from nearby listed buildings at Pauls Farm by dense, mature vegetation. The Scheme area makes no contribution to the setting and significance of the buildings. However, the construction

works will result in a temporary, slight adverse significance of effect on the setting of Paul's Farmhouse (NHLE1258824), barn (NHLE1244218), granary (MKE31385) and farmstead as a whole (MKE80840). Any temporary impacts will be mitigated by reinstatement works and proposed planting on completion of the Scheme.

The proposals will therefore not have any permanent or significant impact on heritage assets, or their setting and the proposals comply with policy SQ1, SQ3 of TMBC's Core Strategy. The Scheme will help to protect and conserve heritage assets from flooding, set out with Policy EN4 of Sevenoaks Core Strategy.

8.1.6 Landscape and Visual Impact

A Landscape and Visual Impact Assessment (LVIA) has been prepared and can be found at Chapter 10 of the Environmental Statement. The LVIA assessed the effects of the proposal on both landscape character and visual amenity.

The LVIA notes that works on the Main Embankment are short-term and temporary and involve no change in embankment height. The works within the Pumping Station / Cattle Arch area are minor and involve the construction of a new, low flood embankment as well as a nominal change in height of the existing embankment.

There will be no long-term effects on landscape character at either a national, regional or local level due to the scale and nature of the Scheme and the re-establishment of vegetation removed to allow construction.

The visual effects will be short-term and limited to the period of construction until grass cover is re-established. No long-term impacts are predicted on residential receptors because of the Scheme.

Where tree and vegetation clearance works are proposed, re-planting will be carried out with additional planting undertaken in the defined mitigation and enhancement areas. This will include creation of Wood Pasture parkland landscape within Area 3, reinforcing the sense of place and distinctive landscape character seen locally.

Given the scale and temporary nature of the work, and proposed planting and enhancements, the proposals will not have any lasting impact upon local landscape or views including into or from the nearby AONB. The proposals are therefore in accordance with policies LO8, SP1, EN2, EN5, of Sevenoaks District Council's Core Strategy and policies SQ1 of TMBC Core Strategy.

8.1.7 Arboriculture

A survey of the trees within the vicinity of the Leigh FSA Expansion Scheme was undertaken by Atkins in 2019. In 2020, JBA Consulting carried out an additional Tree Survey of the trees not originally included in Atkins survey.

An Arboricultural Impact Assessment (AIA) was then prepared by JBA Consulting on 27th May 2020, a copy is submitted as part of the application. The AIA identified trees that would need to be removed as part of the Scheme, areas where works encroached marginally into trees root protection areas, along with mitigation to minimise impact. A full copy of the AIA is submitted as part of the application.

The arboriculturist and design team have worked closely to minimise tree removals / impact on trees where possible. The proposals seek to maintain and enhance the extent of tree cover and the hedgerow network where possible, in accordance with policy NE4

of TMBC's Core Strategy. However, some tree removal will be required to accommodate the Scheme. A total of 7 trees, and 17 tree Groups / sections of tree groups will need to be removed. The trees / tree groups are mostly 'Blue' (B) and 'Grey' (C) category trees, one 'Green' A category also needs to be removed (in accordance with BS5837: 2012, set out in Appendix B of the AIA).

Trees to be removed are not protected by a Tree Preservation Order and are not within a Conservation Area in accordance with policy EN13 of TMBC's Core Strategy. Replacement tree planting and enhancement management proposals will help to mitigate the impacts of the tree removals, also set out in policy NE4.

8.1.8 Traffic

Scheme construction is due to commence in Spring 2021, with the main construction activities planned during the summer period of the year (April until October). The works will be undertaken simultaneously at different locations to reduce the overall construction programme.

Wherever possible, works will be completed within a single year of construction (i.e. one summer season, extending until October). This is anticipated to be achievable in 2021 for smaller scale works such as the works at the Cattle Arch and the Pumping Station Embankment and have less impact if constructed during the winter months. The MIOS works are larger in scale and will be carried out over 3 consecutive summer periods 2021 to 2020.

Full details of the Scheme with an indicative programme, anticipated traffic numbers, routes, and movements, are set out at Chapter 3 of the Environmental Statement. Traffic Management controls such as staggered delivery timings, signage, traffic lights and specific route plans for deliveries, large and abnormal loads will be employed to minimise disruption to residents, schools, and businesses, in accordance with traffic policy T1 of Sevenoaks Core Strategy.

An increase levels traffic levels will be temporary during the construction works. There will be no increase in operational traffic as a result of the Scheme. The proposals are therefore in accordance with policy EN1 of Tunbridge Wells Borough Council's Local Plan.

8.1.9 Noise

8.1.10 Operational Noise

Noise was scoped out, during the Scoping phase of the EIA. There will be no increase in operational noise levels because of the Scheme, however consideration has been given to temporary noise during construction. The significance and effects are set out at Table 8.5 of the ES.

8.1.11 Construction Noise

The Scheme is located within a predominately rural area, residents at Lower Haysden and on Ensfield Road may experience increased noise levels during construction from temporary noise-generating activities on site which include:

- Site clearance and earth moving activities, using excavators;
- Traffic movements bringing / taking materials to and from site;
- Construction of hardstanding areas;
- Installation works using a mobile crane.

Construction activities will be confined to the site development area. Where possible a 'build off site' approach has been adopted to minimise the level of onsite construction. This approach will keep to a minimum the impact of temporary construction noise impacts.

Most of the construction noise impacts will be negated by good practice, including The Best Practicable Means, as described in Section 79(9) of the Environmental Protection Act 1990 and BS 5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites 2009 which will typically include the following:

- Control of noise at source by suitable selection of plant, use of enclosures
- Careful siting/orientation of plant away from receptors.
- Aim for one-way systems to minimise reversing (and therefore the sounding of audible reversing alarms) at all times;
- Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities; and
- Control of working hours. The proposed working hours are:
 - 08.00am to 6.00pm Monday to Friday, with an hour either side allowing for start-up and shut-down of the site;
 - 8am to 1pm on Saturdays, with no working on Sundays or Bank Holidays
- There will be an ongoing programme of consultation with the local community to keep them informed of the development and provide opportunities for feedback on construction activities.

Overall the development will not result in any unacceptable noise levels from existing sources, set out at policy EN7 of Sevenoaks District Councils Core Strategy

8.1.12 Environmental Action Plan (EAP) Construction Environmental Management Plan (CEMP)

In accordance with Planning Advice Note 8, an Environmental Action Plan (EAP) and CEMP will be in place ahead of the works starting on site. The outline EAP forms part of the planning application and will be maintained as a live document that is updated prior to and during construction works.

The CEMP will be prepared by the Contractor and will consider environmental protection within the context of compliance with local legislation and minimisation of the impacts on humans and the environment. The CEMP will:

- Provide effective, site-specific procedures and mitigation measures to monitor and control environmental impacts throughout the construction phase of the project.
- Ensure that construction activities so far as is practical do not adversely impact amenity, traffic, or the environment in the surrounding area.

The CEMP will ensure, impacts on congestion safety and the environment, such as noise, dust and tranquillity, pollution, amenity and health are minimised in accordance with Sevenoaks District Councils Core Strategy policy T1

9 Conclusion

Towns and villages have been built on the floodplain of the River Medway. Tonbridge has been at risk of flooding since the 1600's with major flooding occurring frequently and having a catastrophic impact on homes, businesses and the environment. The existing FSA at Leigh was constructed in 1982, in response to the devastating flood of 1968.

As a result of factors such as climate change, the risk of flooding is expected to increase in the future. Leigh FSA Expansion Scheme has been developed by the Environment Agency to increase the storage capacity of the FSA to 7.3million m³ of storage – a capacity increase of 24%.

The storage capacity of the FSA will be increased by raising its Normal Maximum Operating Water Level (NMOWL) from 28.05m AOD to 28.6m AOD. Storing to this level will cover an additional 16.4 hectares of land but will reduce flood risk to over 1,400 homes and 100 businesses downstream in Tonbridge and Hildenborough.

The Scheme in the main involves improvements to existing assets, for example resurfacing or increasing existing flood embankments, construction of small embankments and flood walls, electrical and mechanical improvements to the Leigh Control Structure. The only 'new asset' is a flood embankment and pumping platform on land to the south of Southern Water's Pumping Station site.

Overall, the proposals are relatively minor works and they are spread across a large area. The works are within the open countryside and therefore a suite of environmental surveys have been undertaken to assess and mitigate the impacts of the Scheme on environmental factors such as flood risk, WFD, ecology, trees, heritage, and landscape. Mitigation measures have been developed by the Scheme ecologists to minimise disturbance on protected species and habitats.

Some trees and vegetation clearance work are required to facilitate the Scheme, however where possible this has been minimised. Proposed planting and habitat enhancement work in line with BNG targets form part of the proposals and will help to mitigate the impact of tree loss. The Scheme will not have any permanent or significant impact on landscape character or heritage assets.

Overall, the Scheme will reduce the risk of flooding to hundreds of properties. The flood risk benefits of the Scheme outweigh any minor, temporary environmental impacts resulting from the construction work. These impacts will be managed and mitigated through the use of an Environmental Action Plan (EAP) to control working methods and deliver planting and habitat improvements.

Glossary

Area of Outstanding Natural Beauty (AONB)	Areas formally designated under the National Parks and Access to the Countryside Act (1949) to protect parts of the countryside of high scenic quality that cannot be selected for National Park status as they do not have opportunities for outdoor recreation. The Countryside Agency is the government agency responsible for designating AONBs and advising the government.
Baseline studies/survey	Collection of information about the environment which is likely to be affected by the project
Conservation Area	An area designated under the Town and Country Planning Act, 1990 to protect its architectural or historic character.
Environmental Action Plan (EAP)	A standalone report or section within another environmental impact assessment document which ensures that constraints, objectives and targets set in the main Environmental Report/Statement are actually carried out on the ground. Actions are separated into those to be carried out before, during and after construction.
Environmental Impact Assessment (EIA)	“EIA is an assessment process applied to both new development proposals and changes or extensions to existing developments that are likely to have significant effects on the environment. The EIA process ensures that potential effects on the environment are considered, including natural resources such as water, air and soil; conservation of species and habitats; and community issues such as visual effects and impacts on the population. EIA provides a mechanism by which the interaction of environmental effects resulting from development can be predicted, allowing them to be avoided or reduced through the development of mitigation measures. As such, it is a critical part of the decision-making process.” www.iema.net/eiareport
Environmental Report (ER)	(1) The document produced for projects that do not require statutory environmental impact assessment, but where environmental impact has been carried out. This includes projects that require planning permission from the local authority but the effects of the proposal will not be significant. An ER usually follows the same template as an Environmental Statement, but is less detailed. (2) The document produced to describe the strategic environmental assessment process carried out for strategies. This report can be standalone or contained as an appendix to a strategy.
Environmental Statement (ES)	The document produced to describe the environmental impact assessment process where statutory environmental impact assessment is required.
Flood alleviation scheme (FAS)	Scheme designed to reduce the risk of flooding in a given area
Flood defence	A structure (or system of structures) that reduce flooding from rivers or the sea
Flood risk management strategy (FRMS)	A long term (50 years or more) plan for coastal or river management to reduce the risk of flooding and carry out. They are more detailed than CFMPs.
Local Nature Reserve (LNR)	Nature reserves designated under the National Parks and Countryside Act (1949) for locally important wildlife or geological

	features. They are controlled by local authorities in liaison with English Nature.
Main river	A watercourse designated by DEFRA. The Environment Agency has permissive powers to carry out flood defence works, maintenance and operational activities on main rivers. Responsibility for maintenance rests on the riparian owner.
Mitigation measures	Actions that are taken to minimise, prevent or compensate for adverse effects of the development.
Natural England	Natural England is an Executive Non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs. Their purpose is to protect and improve England's natural environment and encourage people to enjoy and get involved in their surroundings. Their aim is to create a better natural environment that covers all of our urban, country and coastal landscapes, along with all of the animals, plants and other organisms that live with us.
Scoping	The process of deciding the scope or level of detail of an EIA/ SEA. During this stage the key environmental issues (likely significant effects) of a project/strategy are identified so that the rest of the process can focus on these issues. Issues may result from the proposal itself or from sensitivities of the site.
Screening	(1) For environmental impact assessment, the process of deciding which developments require an environmental impact assessment to be carried out and whether this will be statutory. (2) For strategic environmental assessment, the decision on which plans, strategies or programmes require strategic environmental assessment to be carried out and whether this will be statutory.
Screening opinion	Statutory opinion from the competent authority as to whether a proposed project requires statutory environmental impact assessment according to the Environmental Impact Assessment Regulations.
Sustainable development	A concept defined by the Brundtland Report (1987) as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs"
Water Framework Directive (WFD)	EC Directive (2000/60/EC) on integrated river basin management. The WFD sets out environmental objectives for water status based on ecological and chemical parameters, common monitoring and assessment strategies, arrangements for river basin administration and planning and a programme of measures in order to meet the objectives.

ACRONYMS AND ABBREVIATIONS

AEP – Annual Exceedance Probability
AOD – Above Ordinary Datum (Newlyn)
BNG – Biodiversity Net Gain
CFMP – Catchment Flood Management Plan
EIA – Environmental Impact Assessment
FAS – Flood Alleviation Scheme
FRA – Flood Risk Assessment
FSA – Flood Storage Area
LEHES – Leigh Expansion and Hildenborough Embankment Scheme
MIOS – Measures in the Interests of Safety
NMOWL – Normal Maximum Operating Water Level
NPPF – National Planning Policy Framework
OSA – Open Stone Asphalt
PEIR – Preliminary Environmental Information Report
SDC – Sevenoaks District Council
TMBC – Tonbridge and Malling Borough Council
TWBC – Tonbridge Wells Borough Council

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