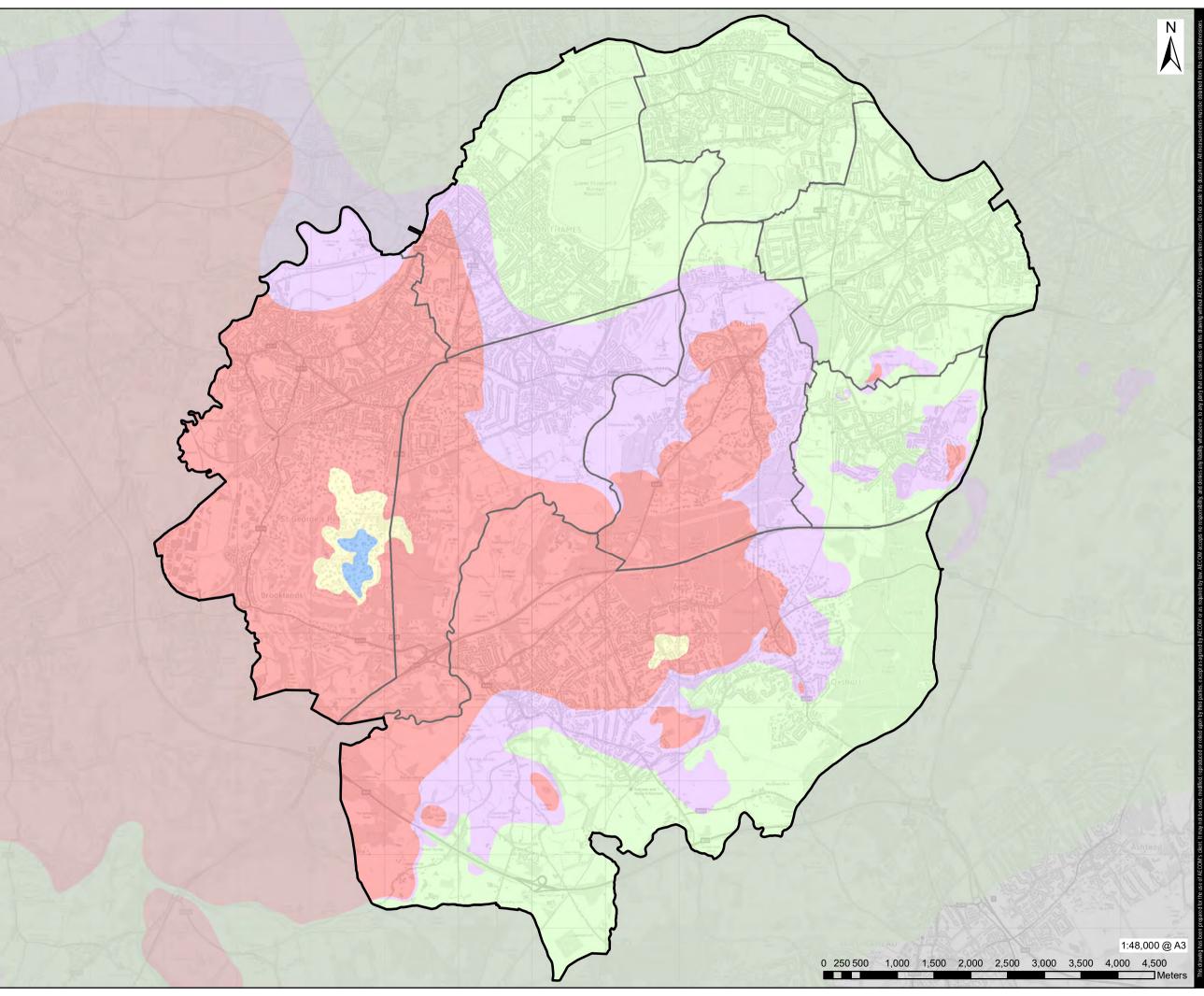
# Level 1 SFRA - Appendix A



Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment CLIENT

Elmbridge Borough Council

## CONSULTANT

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### LEGEND

Elmbridge Borough Council Boundary

Settlement Areas

# **Bedrock Geology**

Bagshot Formation Camberley Sand Formation

Claygate Member

London Clay Formation

Windlesham Formation

- 1: Bedrock geology is the term used for the main mass of rocks forming the earth and is present everywhere, whether exposed at the surface or concealed beneath superficial deposits or water.
- 2: This map shows the BGS Bedrock Geology data.
- 3: Further information on Bedrock Geology can be found within the SFRA Report.

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## ISSUE PURPOSE

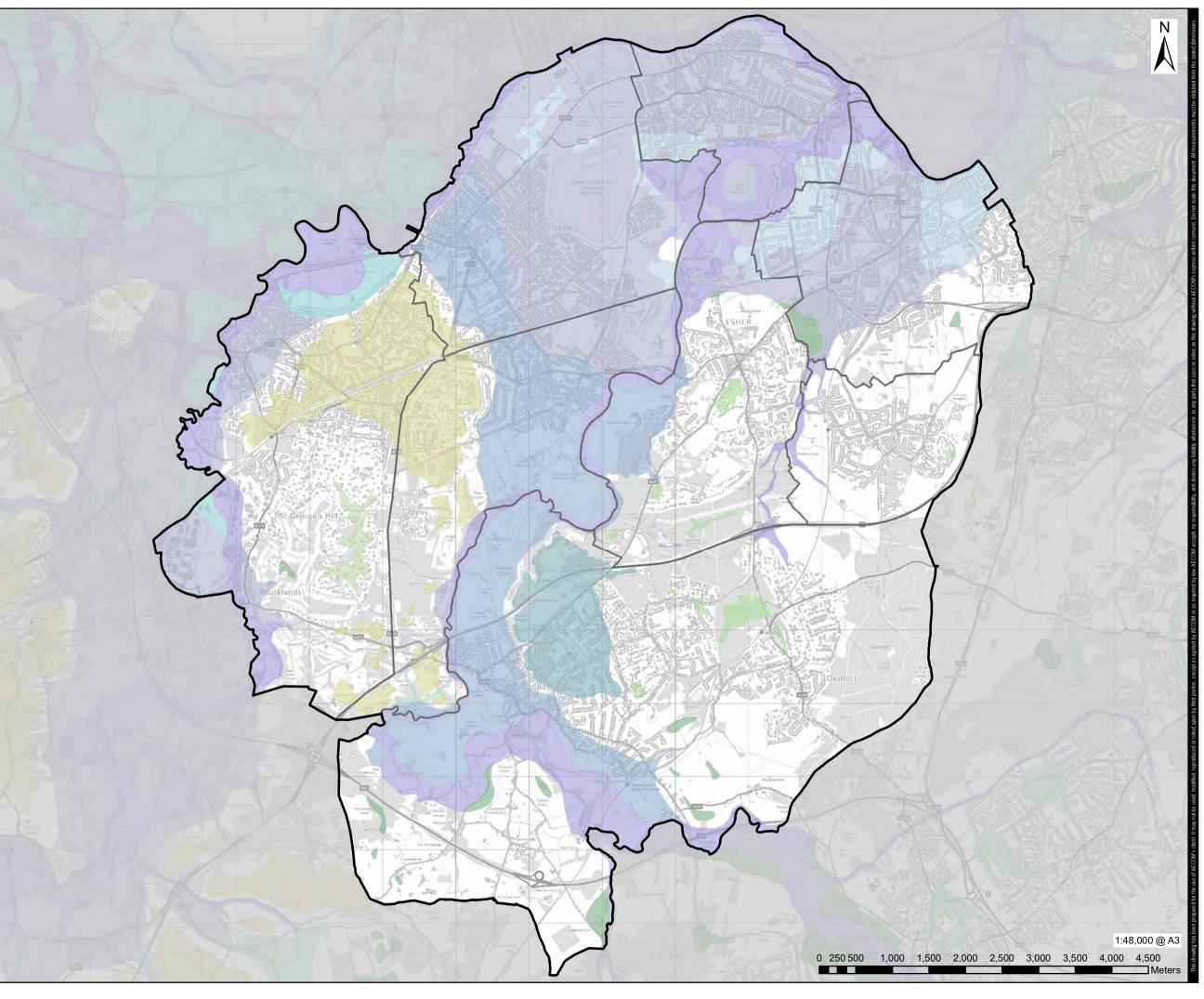
SFRA

PROJECT NUMBER

60565750

FIGURE TITLE

Bedrock Geology



Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment CLIENT

Elmbridge Borough Council

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LEGEND

Elmbridge Borough Council Boundary

Settlement Areas

# **Superficial Deposits**

Alluvium

Black Park Gravel Member

Boyn Hill Gravel Member

Kempton Park Gravel Formation

Langley Silt Member

Lynch Hill Gravel Member

River Terrace Deposits (Undifferentiated)

Sand and Gravel

Shepperton Gravel Member

Taplow Gravel Member

- 1: Superficial deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.
- 2: This map shows the BGS Superficial Deposits Geology data.
  3: Further information on Superficial Deposits
- can be found within the SFRA Report.

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ISSUE PURPOSE

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FIGURE TITLE

Superficial Deposits

Level 1 Strategic Flood Risk

Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment

Elmbridge Borough Council

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Elmbridge Borough Council Boundary

Settlement Areas

EA Main River

Open Ordinary Watercourses

— Culverted Ordinary Watercourse

Surrey County Council Highways Ditch

Surface Water Bodies

Flood Storage Areas

Reduction In Risk of Flooding from Rivers and Sea due to Defences

Flood Zone 3b

Flood Zone 3a

Flood Zone 2

1: This map shows the predicted likelihood of fluvial flooding based on the Environment Agency's Flood Map for Planning (Rivers and the Sea) and catchment modelling studies, which may be subject to revision in the future. The Flood Map for Planning is provided on the Environment Agency website (https://flood-mapfor-planning.service.gov.uk/).

2: The probability of fluvial flooding is divided into

the following four categories: Flood Zone 1, Flood Zone 2, Flood Zone 3a and Flood Zone 3b. Refer to the SFRA Report for further detail of the Flood Zones and how modelling studies have been used to define the extents of Flood Zone

3: There are no EA Flood Storage Areas located within the Elmbridge Borough Boundary.
4: This map is intended to provide a strategic overview of fluvial flood risk and should not be used to assess the flood risk for individual

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### **ISSUE PURPOSE**

## PROJECT NUMBER

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#### FIGURE TITLE

Flood Zones and Reduction in Risk of Flooding from Rivers and Sea due to Defences

Elmbridge Borough Council Level 1 Strategic Flood Risk

Elmbridge Borough Council



- Elmbridge Borough Council
- Open Ordinary Watercourses
- Surrey County Council Highways

- 1: This map shows the predicted likelihood of fluvial flooding based on the Environment Agency's Flood Map for Planning (Rivers and the Sea) and catchment modelling studies, which may be subject to revision in the future. The Flood Map for Planning is provided on the Environment Agency website (https://flood-map-for-planning.service.gov.uk/).
  2: The probability of fluvial flooding is divided into the following four categories: Flood Zone 1, Flood Zone 2, Flood Zone 3a and Flood Zone 3b. Refer to the
- 3: There are no EA Flood Storage Areas located within the Elmbridge Borough Boundary.

  4: This map is intended to provide a strategic overview of fluvial flood risk and should not be used
- to assess the flood risk for individual properties.

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Flooding from Rivers and Sea due to Defences - Walton On Thames

Drawn: LL

# **AECOM**

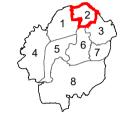
Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment

Elmbridge Borough Council

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#### SETTLEMENT AREAS



#### **LEGEND**

Elmbridge Borough Council

Settlement

- EA Main River

- Open Ordinary Watercourses

- Culverted Ordinary

- Surrey County Council Highways

Surface Water Bodies

Flood Storage

Reduction In Risk of Flooding from 

#### Flood Zones

Flood Zone 3b Flood Zone 3a

Flood Zone 2

### NOTES

1: This map shows the predicted likelihood of fluvial flooding based on the Environment Agency's Flood Map for Planning (Rivers and the Sea) and catchment modelling studies, which may be subject to revision in the future. The Flood Map for Planning is provided on the Environment Agency website (https://flood-map-for-planning.service.gov.uk/).
2: The probability of fluvial flooding is divided into the following four categories: Flood Zone 1, Flood Zone 2, Flood Zone 3a and Flood Zone 3b. Refer to the SFRA Report for further detail of the Flood Zones

and how modelling studies have been used to define the extents of Flood Zone 3b. the extents of Flood Zone 3b.
3: There are no EA Flood Storage Areas located within the Elmbridge Borough Boundary.
4: This map is intended to provide a strategic overview of fluvial flood risk and should not be used

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## ISSUE PURPOSE

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### FIGURE TITLE

Flood Zones and Reduction in Risk of Flooding from Rivers and Sea due to Defences - East and West Molesey

Elmbridge Borough Council Level 1 Strategic Flood Risk

Elmbridge Borough Council

Midpoint, Alencon Link, Basingstoke, Hampshire



Elmbridge Borough Council

Open Ordinary Watercourses

Surrey County Council Highways

1: This map shows the predicted likelihood of fluvial flooding based on the Environment Agency's Flood Map for Planning (Rivers and the Sea) and catchment modelling studies, which may be subject to revision in the future. The Flood Map for Planning is provided on the Environment Agency website (https://flood-map-for-planning.service.gov.uk/).
2: The probability of fluvial flooding is divided into the

SFRA Report for further detail of the Flood Zones and how modelling studies have been used to define the extents of Flood Zone 3b.

3: There are no EA Flood Storage Areas located within the Elmbridge Borough Boundary.
4: This map is intended to provide a strategic overview of fluvial flood risk and should not be used to assess the flood risk for individual properties.

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Flooding from Rivers and Sea due to Defences - Thames Ditton, Long Ditton, Hinchley Wood and Weston Green

Elmbridge Borough Council Level 1 Strategic Flood Risk



1: This map shows the predicted likelihood of fluvial flooding based on the Environment Agency's Flood Map for Planning (Rivers and the Sea) and catchment modelling studies, which may be subject to revision in the future. The Flood Map for Planning is provided on the Environment Agency website (https://flood-map-for-planning.service.gov.uk/).
2: The probability of fluvial flooding is divided into the

SFRA Report for further detail of the Flood Zones and how modelling studies have been used to define the extents of Flood Zone 3b.

to assess the flood risk for individual properties.

Flooding from Rivers and Sea due to



Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment

Elmbridge Borough Council

Midpoint, Alencon Link, Basingstoke, Hampshire

Elmbridge Borough Council Boundary

Settlement Areas

EA Main River

Open Ordinary Watercourses

Culverted Ordinary Watercourse

Surrey County Council Highways Ditch

Surface Water Bodies

Lower Thames - Thames Dominated 2023

1% AEP

1% AEP +10% CC

1% AEP +20% CC

1% AEP +25% CC

1% AEP +35% CC

1% AEP +81% CC

1: This map shows the predicted likelihood of fluvial flooding during a 1% annual exceedence probability (AEP) event including climate change allowances and 0.1% AEP for the Lower Thames
- Thames Dominated Model. Refer to the SFRA Report for further detail of the modelling studies used to define the extents.

2: This map is intended to provide a strategic overview of fluvial flood risk and should not be used to assess the flood risk for individual

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### ISSUE PURPOSE

PROJECT NUMBER

#### FIGURE TITLE

Maximum Flood Extents - Lower Thames: Thames Dominated (1% AEP + Climate Change and 0.1%

Elmbridge Borough Council Level 1 Strategic Flood Risk

Elmbridge Borough Council Boundary

Open Ordinary Watercourses

Culverted Ordinary Watercourse

Surrey County Council Highways Ditch

1: This map shows the predicted likelihood of fluvial flooding during a 1% annual exceedence probability (AEP) event including climate change allowances and a 0.1% AEP for the Lower Thames - Tributary Dominated Model. Refer to the SFRA Report for further detail of the

overview of fluvial flood risk and should not be used to assess the flood risk for individual

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Thames: Tributary Dominated (1% AEP + Climate Change and 0.1%

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Elmbridge Borough Council

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# LEGEND

Elmbridge Borough Council Boundary

Settlement Areas

EA Main River

Open Ordinary Watercourses

- Culverted Ordinary Watercourse

Surrey County Council Highways Ditch

Surface Water Bodies

Surrey CC Wetspots

Risk of Flooding from Surface Water

High Medium

Low

- 1: Surface water flooding occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. This type of flooding can be difficult to predict as it is hard to forecast exactly where or how much rain
- 2: This map shows the predicted likelihood of surface water flooding based on the Environment Agency's Risk of Flooding from Surface Water (ROFSW) data, which may be subject to further analysis in the future. Further information is provided on the Environment Agency website (https://www.gov.uk/check-long-term-flood-risk).
- 3: Surface water risk is divided into four categories: High Flooding greater than 3.33% Annual Exceedence Probability (AEP), Medium Flooding between 3.33% and 1% AEP, Low -Flooding between 1% and 0.1% AEP and Very Low - Less than 0.1% AEP. Land outside the mapped extents are at very low risk.
- 4: The potential impact of surface water flooding can vary according to the depth of the water and its velocity (speed and direction its flowing in).
- 5: This map is intended to provide a strategic overview of fluvial flood risk and should not be used to assess the flood risk for individual

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FIGURE TITLE

Risk of Flooding from Surface Water

Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment CLIENT

Elmbridge Borough Council

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**LEGEND** 

Elmbridge Borough Council Boundary

Settlement Areas

### Susceptibility to Groundwater Flooding

Limited potential for groundwater flooding to occur

Potential for groundwater flooding of property situated below ground level

Potential for groundwater flooding to

occur at surface

## NOTES

- 1: The BGS Susceptibility to Groundwater Flooding dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the surface.
- 2: The dataset is based on geological and hydrogeological information and is mapped to a 1:50,000 scale.
- 3: The geological interpretation should only be used as a guide to the geology at a local level, not as a site specific geological plan based on detailed site investigations.

  4: Refer to the SFRA Report for further
- information on groundwater flooding.
- 6: This map is intended to provide a strategic overview of susceptibility to groundwater flooding and should not be used to assess flood risk for individual properties.

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## ISSUE PURPOSE

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## PROJECT NUMBER

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### FIGURE TITLE

Susceptibility to Groundwater Flooding

Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment

Elmbridge Borough Council

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#### LEGEND

Elmbridge Borough Council Boundary Settlement Areas

## **Number of TW Sewer Records**

by Postcode

Unknown

22

48

67

# NOTES

1: Thames Water has supplied records of sewer flooding for the Borough based on historic flooding. This data has been displayed using the 3 or 4 digit postcode boundaries in the Borough. 2: This map is intended to provide a strategic overview of sewer flooding and should not be used to assess the flood risk for individual properties.

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### ISSUE PURPOSE

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### FIGURE TITLE

Sewer Flood Records by Postcode

Elmbridge Borough Council Level 1 Strategic Flood Risk

Elmbridge Borough Council Boundary

Surrey County Council Highways Ditch

When river levels are normal

# When there is also flooding from rivers

- 1: This map shows the predicted maximum flood extents in the event that a reservoir was o fail and release the water held on both a "drv dav" when local rivers are at normal levels and a "wet day" when local rivers have already overflowed their banks.
- however it is unlikely that any actual flood would be this large. This data gives no indication of the probability of reservoir flooding.
- 3: Flood extents for smaller reservoirs or reservoirs commissioned after October 2016 are
- 4: This map is intended to provide a strategic overview of reservoir flood risk and should not be used to assess the flood risk for individual

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Maximum Extent of Flooding from

Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment

Elmbridge Borough Council

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Elmbridge Borough Council Boundary

Settlement Areas

— EA Main River

Open Ordinary Watercourses

—— Culverted Ordinary Watercourse

Surrey County Council Highways

Surface Water Bodies

## **Working with Natural Processes**

Floodplain Reconnection Potential

Floodplain Woodland Planting

Riparian Woodland Planting

Wider Catchment Woodland

# **Runoff Attenuation Features**

3.3% AEP

1% AEP

Woodland Constraints

- 1: Working With Natural Processes (WWNP) is a dataset created by the Environment Agency that identifies potential locations for WWNP. Further information on each dataset mapped can be found at https://environment.data.gov.uk/
  2: This map is intended to provide a strategic overview of areas with the potential of
- WWNP in Elmbridge.

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## ISSUE PURPOSE

# PROJECT NUMBER

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### FIGURE TITLE

Working With Natural Processes

Level 1 Strategic Flood Risk

Drawn: LL

Elmbridge Borough Council Level 1 Strategic Flood Risk



- Elmbridge Borough Council Boundary

  - Culverted Ordinary Watercourse
  - Surrey County Council Highways Ditch

- - Riparian Woodland Planting Potential
- Wider Catchment Woodland Potential

1: Working With Natural Processes (WWNP) is a dataset created by the Environment Agency that identifies potential locations for WWNP. Further information on each dataset https://environment.data.gov.uk/
2: This map is intended to provide a strategic overview of areas with the potential of

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Working With Natural Processes - East

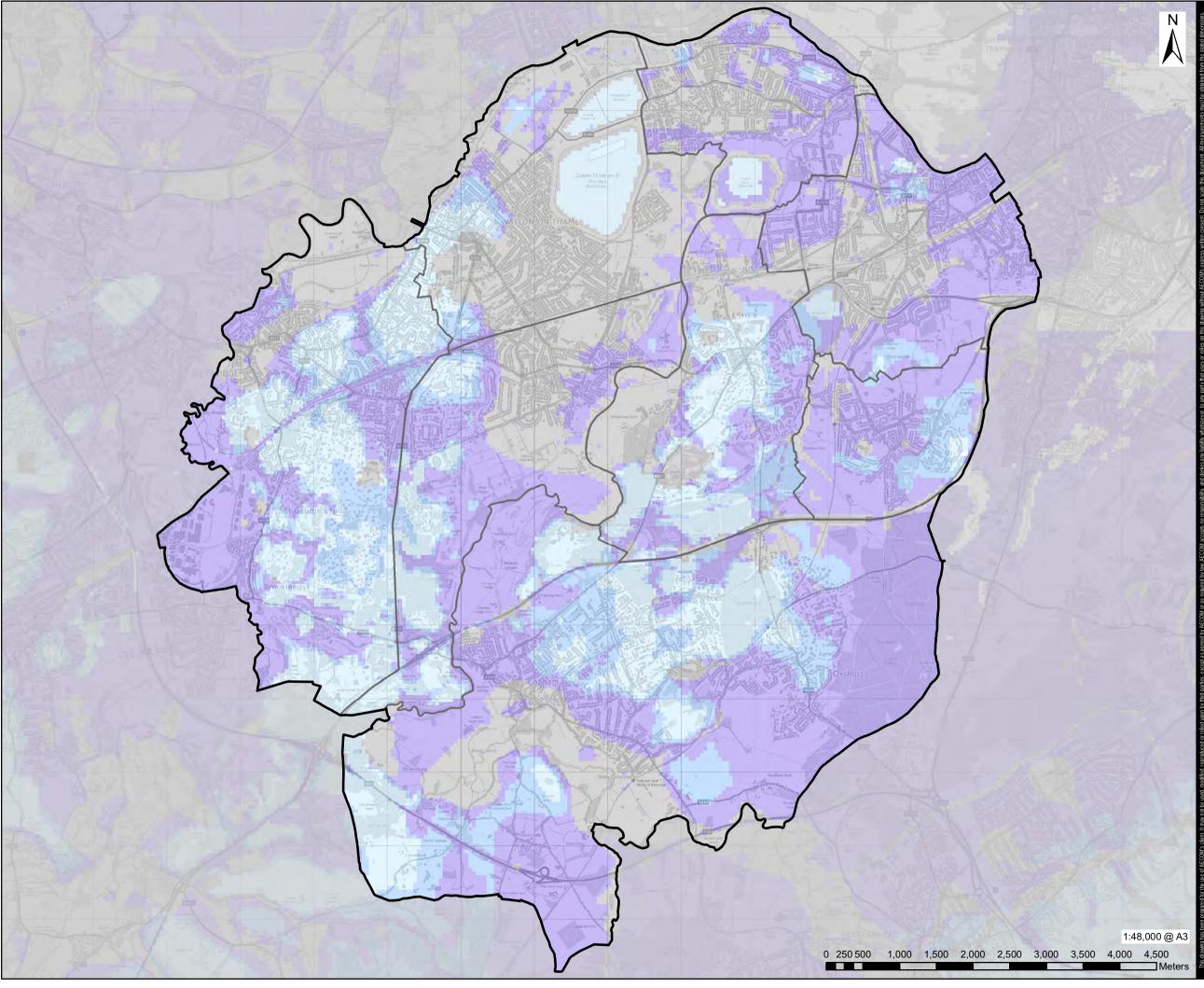
Level 1 Strategic Flood Risk

Agency that identifies potential locations for WWNP. Further information on each dataset

Thames Ditton, Long Ditton, Hinchley

Level 1 Strategic Flood Risk

Cobham, Oxshott, Stoke D'Abernon



Elmbridge Borough Council Level 1 Strategic Flood Risk Assessment CLIENT

Elmbridge Borough Council

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## **LEGEND**

Elmbridge Borough Council Boundary

Settlement Areas

### **BGS Infiltration SuDS**

Highly compatible for infiltration

Probably compatible for infiltration

SuDS

Opportunities for bespoke infiltration SuDS

Very significant constraints are

#### NOTES

- 1: The BGS Infiltration SuDS Detailed dataset identifies the compatability potential for SuDS
- based on geology across the borough.
  2: The dataset is based on geological and hydrogeological information and is mapped to a 1:50.000 scale.
- 3: The geological interpretation should only be used as a guide to the geology at a local level, not as a site specific geological plan based on detailed site investigations.
- 4: Descriptions of each of the categories are as follows:
- Highly compatible for infiltration SuDS: The subsurface is likely to be suitable for freedraining infiltration SuDS.
- Probably compatible for infiltration SuDS: The subsurface is probably suitable for infiltration although the design may be influenced by the ground conditions.
- Opportunities for bespoke infiltration SuDS: The subsurface is potentially suitable for infiltration SuDS although the design will be influenced by the ground conditions.
- Very significant constraints are indicated: There is a very significant potential for one or more geohazards associated with infiltration.
  4: Refer to the SFRA Report for further
- information on groundwater flooding.
- 6: This map is intended to provide a strategic overview of susceptibility to groundwater flooding and should not be used to assess flood risk for individual properties.

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## ISSUE PURPOSE

SFRA

PROJECT NUMBER

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FIGURE TITLE

**BGS Infiltration SuDS**