

**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overtopping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

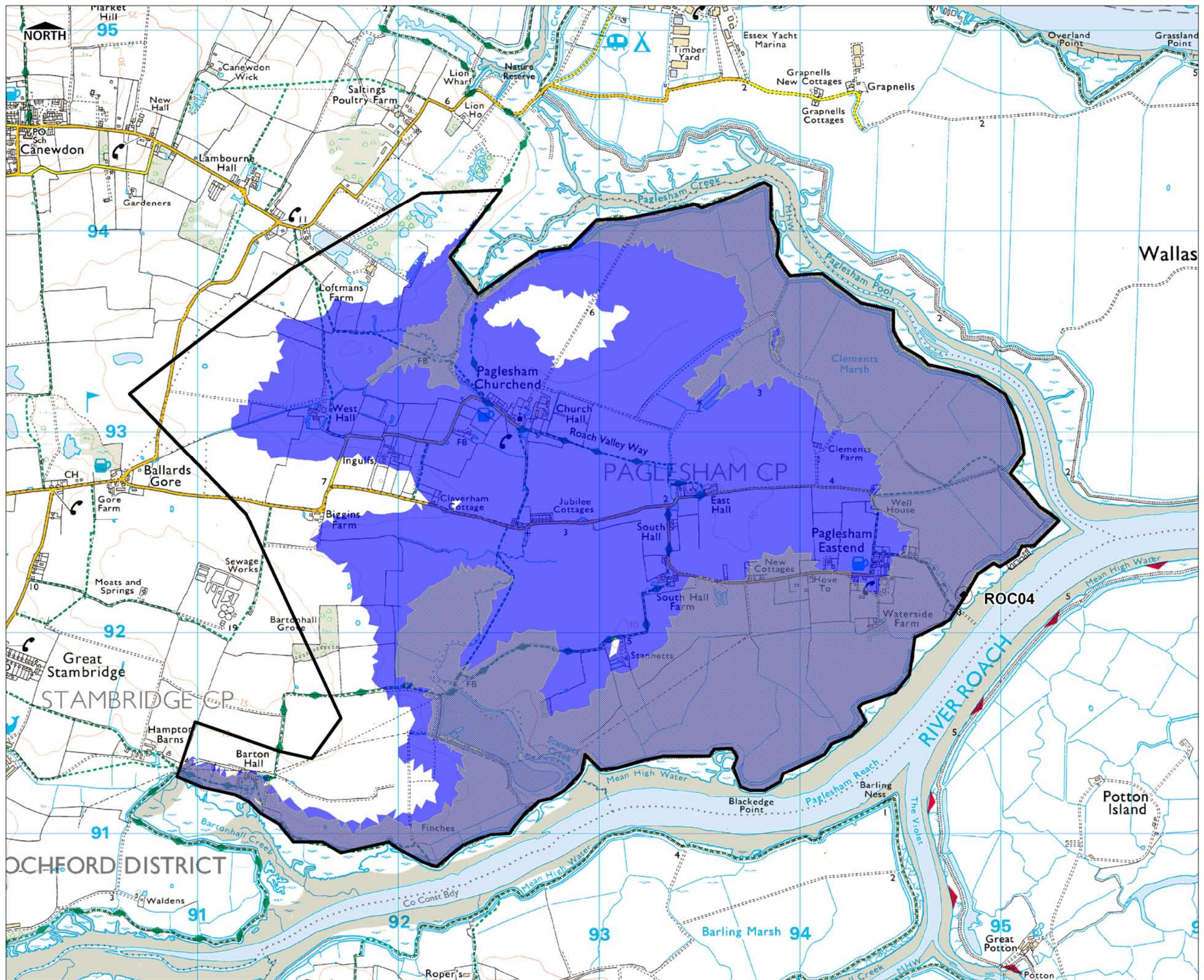
**TIME TO INUNDATION**  
0200YR + CC (2110)  
BREACH ROC03



Scott Wilson  
6-8 Greencoat Place  
London, SW1P 1PL  
Tel: (020) 7798 5000



DRAWING NUMBER  
**FIGURE D-10**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

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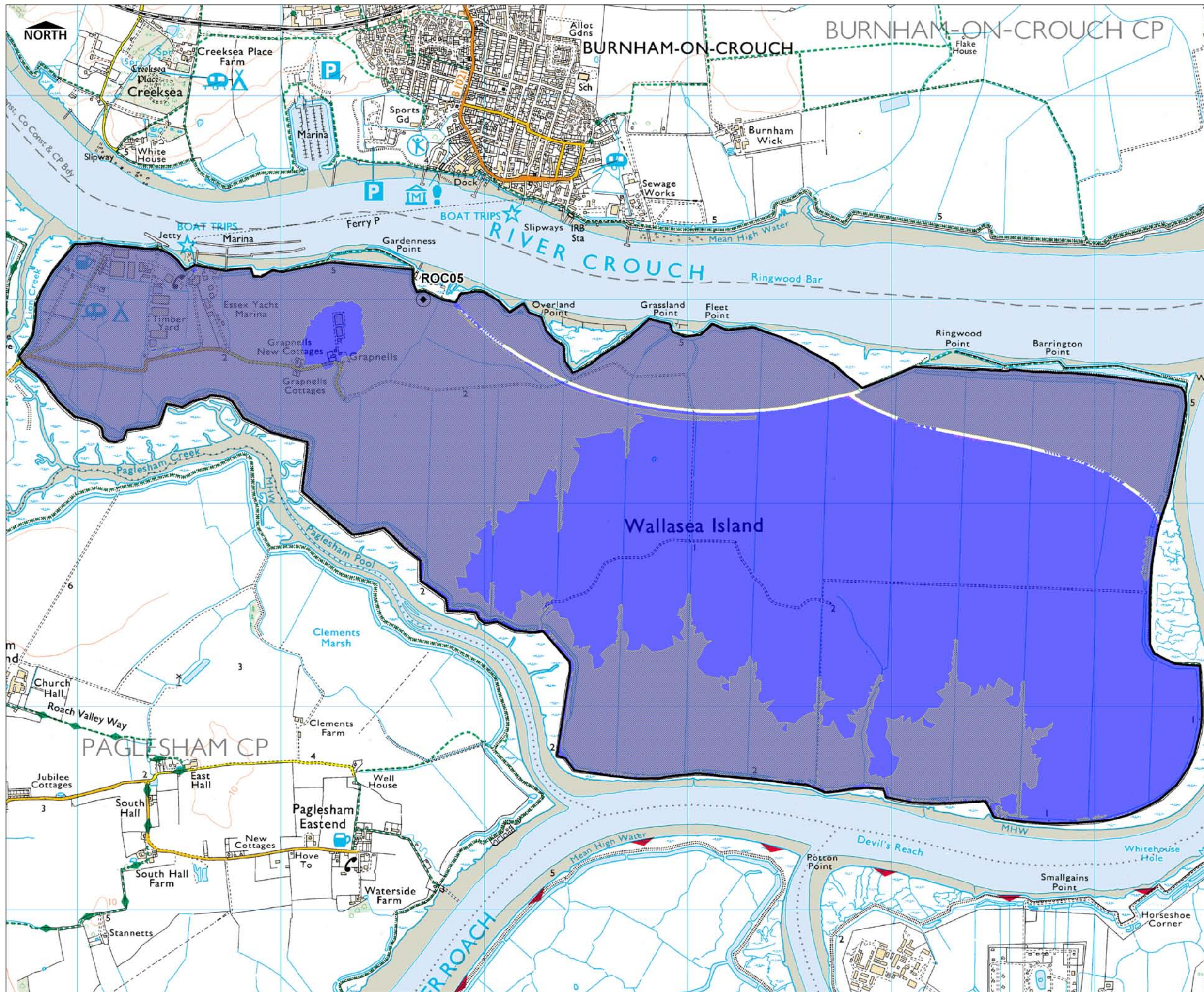
**THAMES GATEWAY SOUTH ESSEX  
STRATEGIC FLOOD RISK ASSESSMENT**

**TIME TO INUNDATION  
0200YR + CC (2110)  
BREACH ROC04**



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DRAWING NUMBER  
**FIGURE D-11**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

**TECHNICAL NOTE**

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

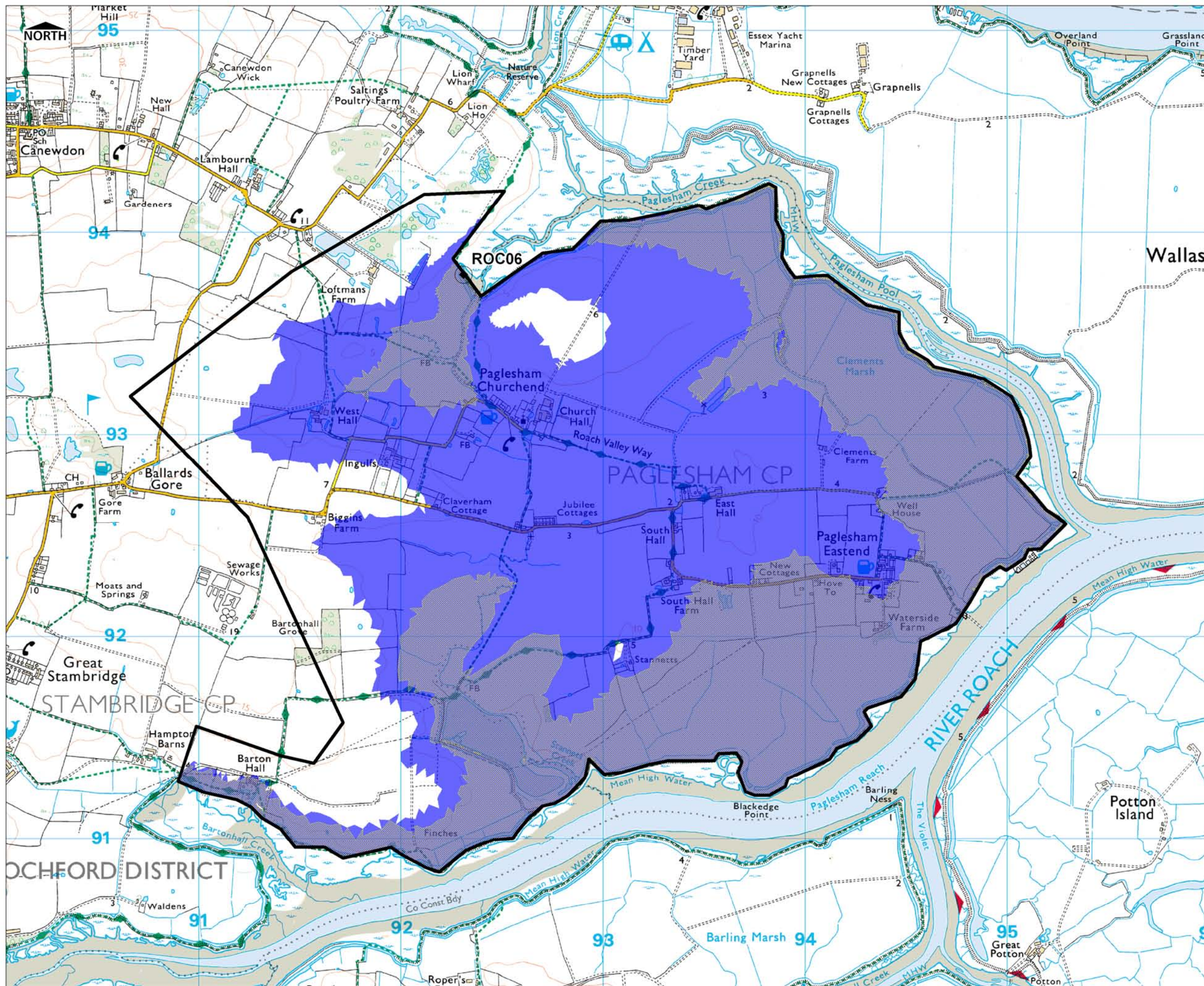
**TIME TO INUNDATION**  
0200YR + CC (2110)  
BREACH ROC05

Basildon Council    castlepoint    Rochford District Council

Scott Wilson  
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Tel: (020) 7798 5000

**DRAWING NUMBER**  
**FIGURE D-12**

REV 02



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

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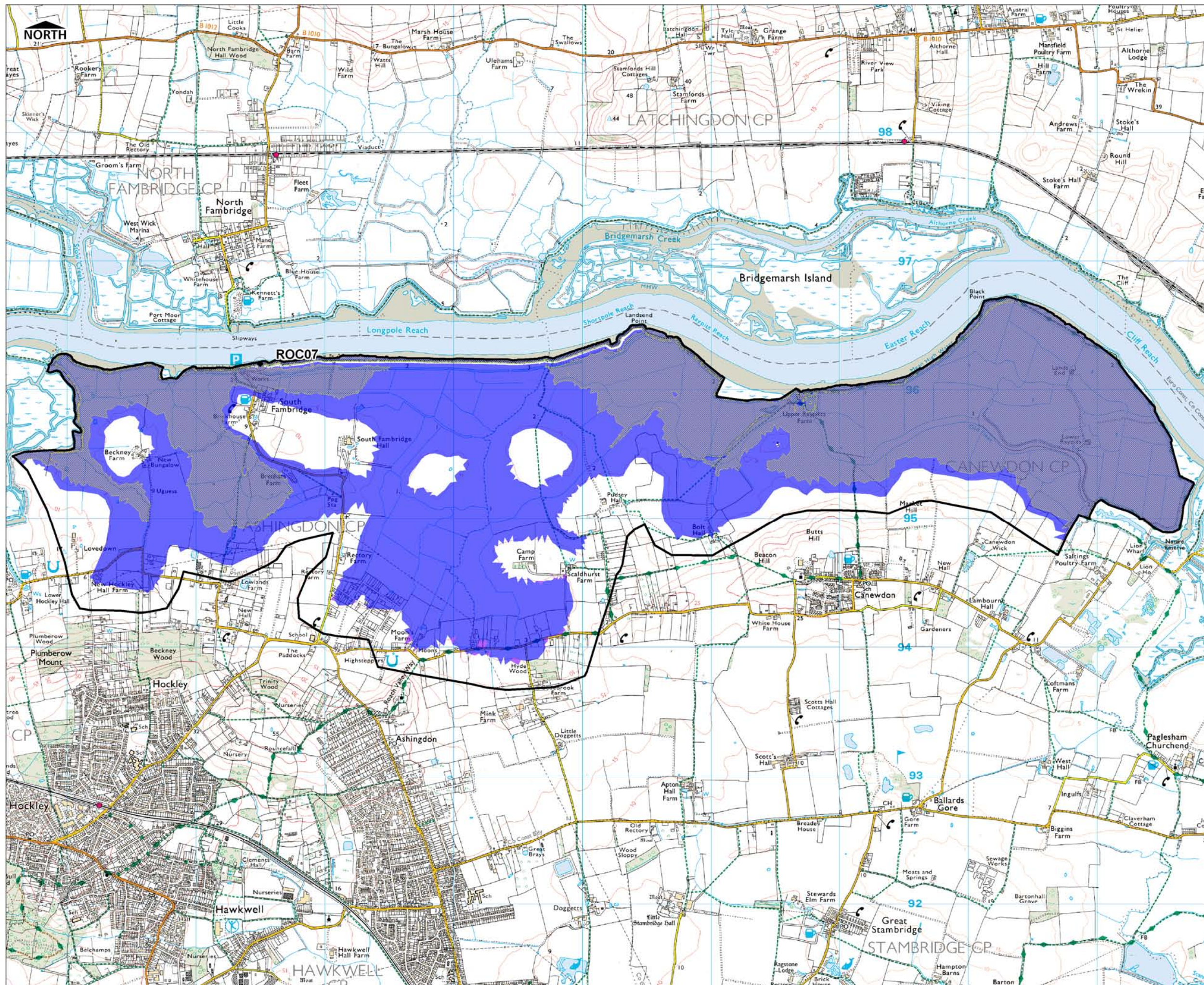
**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

**TIME TO INUNDATION  
0200YR + CC (2110)  
BREACH ROC06**



Scott Wilson  
6-8 Greencoat Place  
London, SW1P 1PL  
Tel: (020) 7798 5000

DRAWING NUMBER  
**FIGURE D-13**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

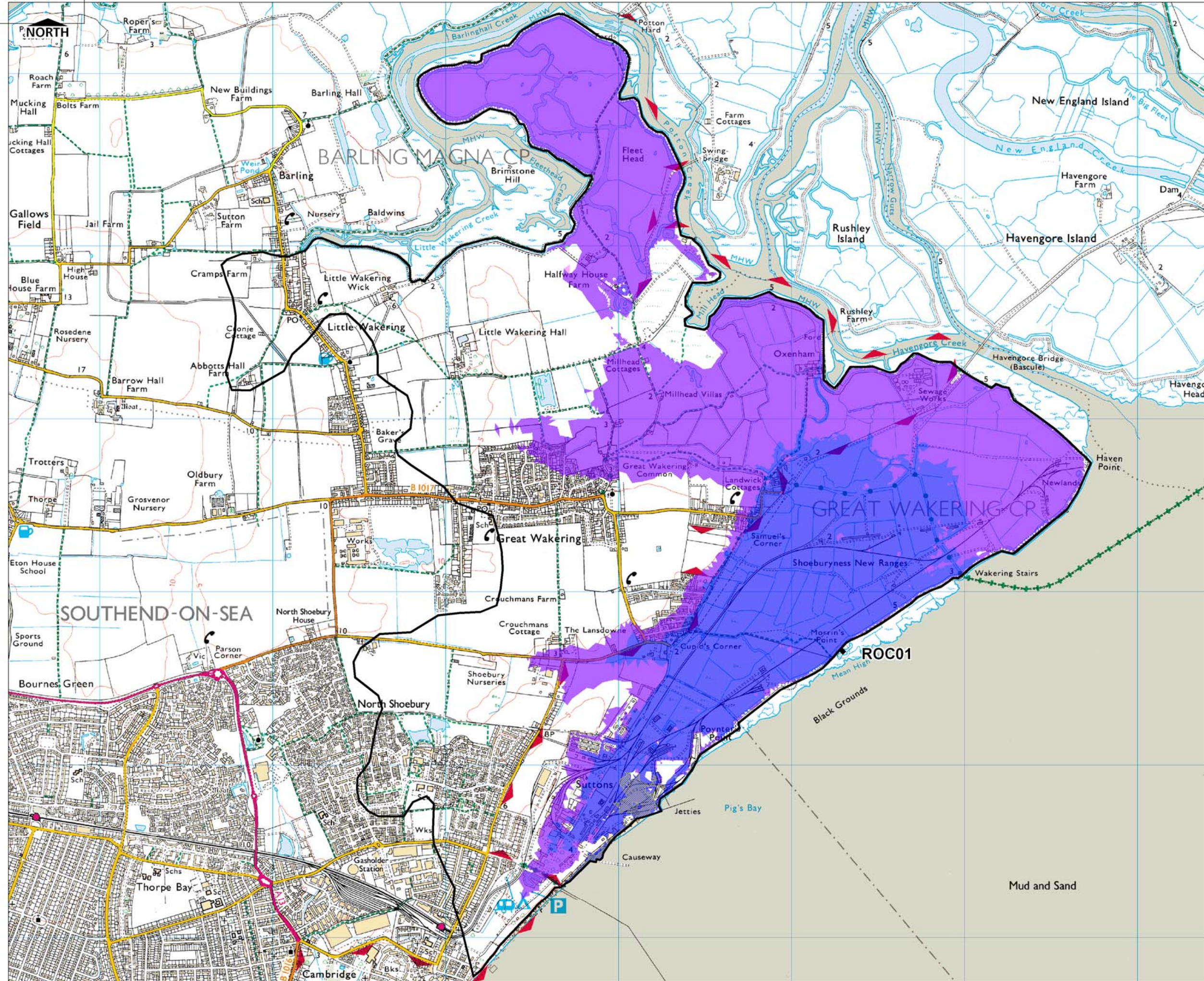
**TIME TO INUNDATION**  
**0200YR + CC (2110)**  
**BREACH ROC07**

Basildon Council    castlepoint    Rochford District Council

Scott Wilson  
 6-8 Greencoat Place  
 London, SW1P 1PL  
 Tel: (020) 7798 5000

DRAWING NUMBER  
**FIGURE D-14**

No Window



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

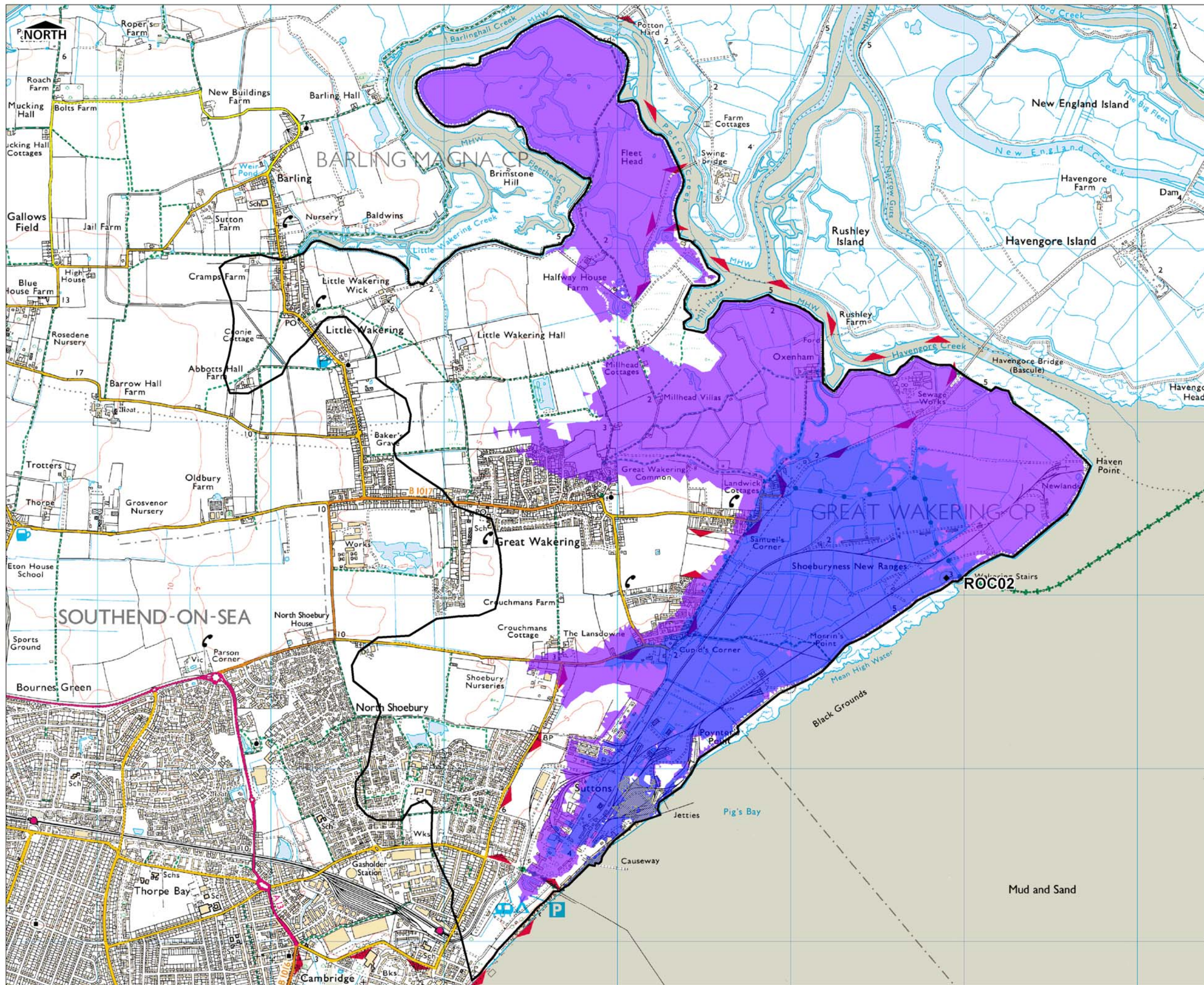
**TIME TO INUNDATION 1000YR (2010) BREACH ROC01**



Scott Wilson  
6-8 Greencoat Place  
London, SW1P 1PL  
Tel: (020) 7798 5000



DRAWING NUMBER  
**FIGURE D-15**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

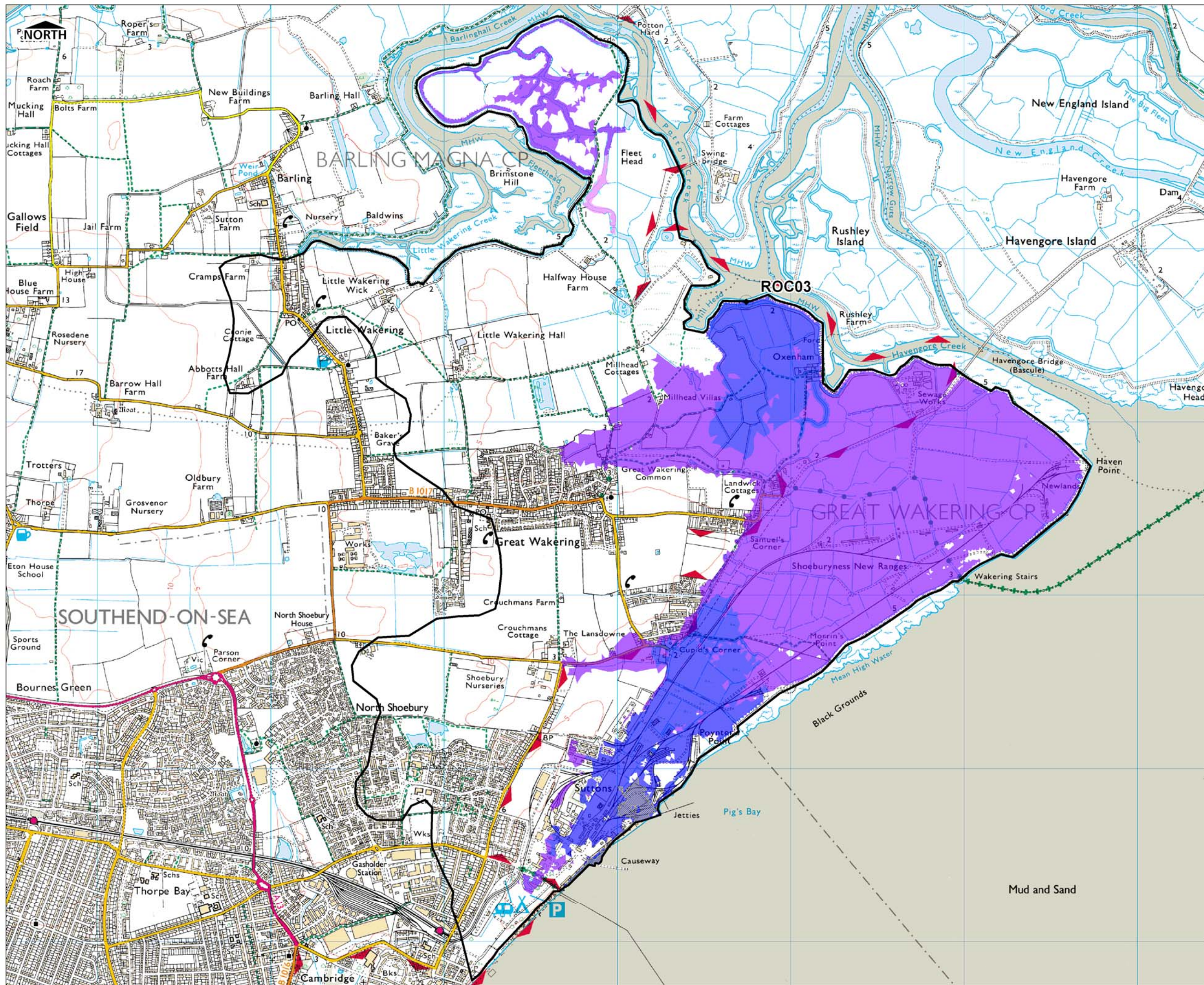
**TIME TO INUNDATION  
1000YR (2010)  
BREACH ROC02**



Scott Wilson  
6-8 Greencoat Place  
London, SW1P 1PL  
Tel: (020) 7798 5000



DRAWING NUMBER  
**FIGURE D-16**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

**TIME TO INUNDATION 1000YR (2010) BREACH ROC03**



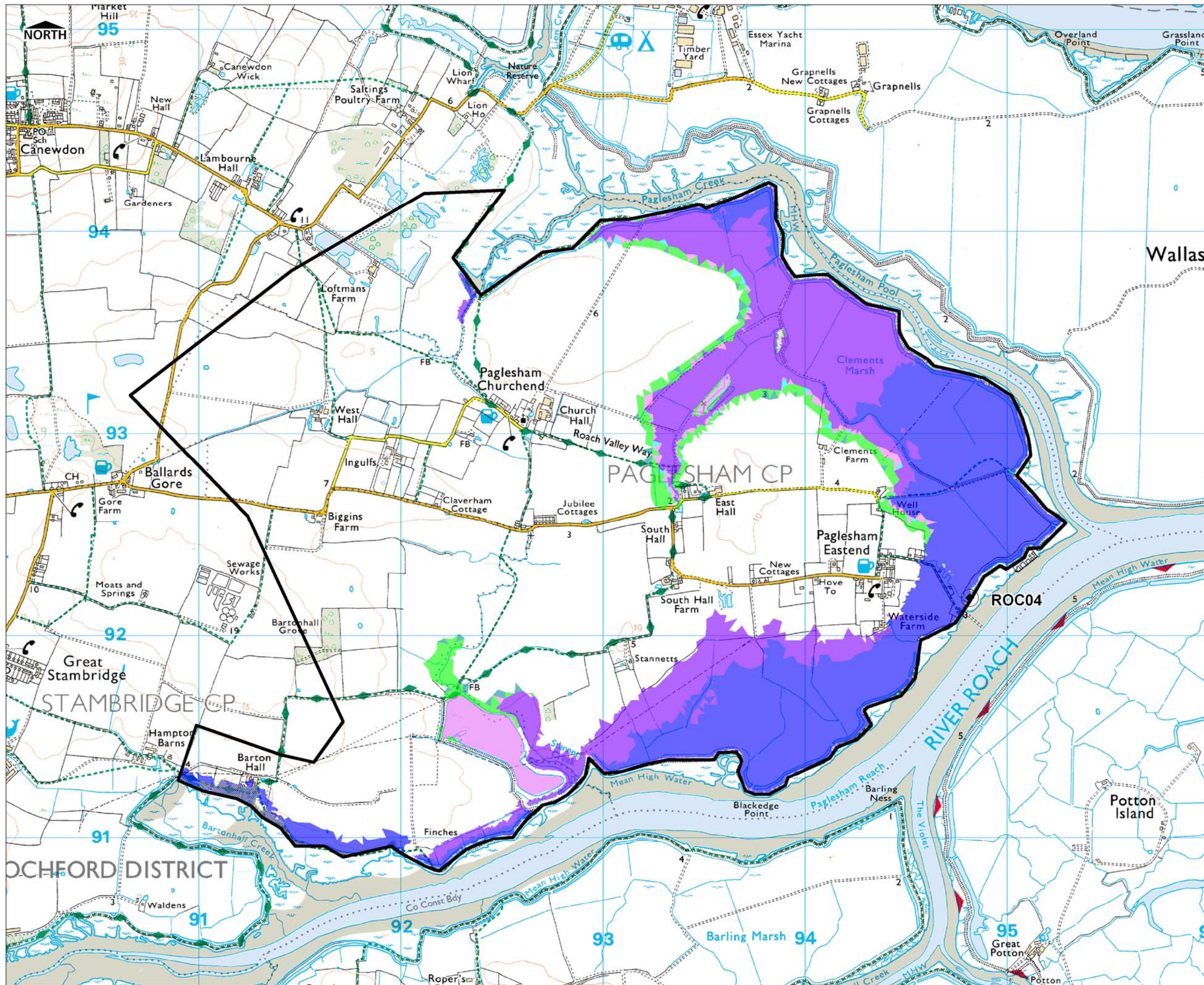
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6-8 Greencoat Place  
London, SW1P 1PL  
Tel: (020) 7798 5000



DRAWING NUMBER

**FIGURE D-17**





**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overtopping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

In order to map Time to Inundation, time 0 (zero) is designated as the time when tidal water enters the breach. The <1 hour band encompasses all areas that are inundated within the first hour of water passing through the breach and into the flood cell. Subsequent bands have been produced to show inundated cells for each 4 hour interval up to 20 hours. Areas that experience flooding as a result of overtopping of the defences prior to the breach event, are shown as hatched areas.

Time to inundation maps represent the onset of flooding from 1 specified breach. The rate will vary spatially if the breach locations are in different local areas. Changes in inundation extent or rate of onset of flooding are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

**USER NOTE**

This plan has been produced in accordance with Planning Policy Statement 25 - Development and Flood Risk. Because the information is indicative rather than specific, local planning authorities will nevertheless need to consult the Environment Agency on individual applications.

**FLOODABLE AREAS NOT SHOWN**

Land adjacent to watercourses not included within this study. Areas susceptible to drainage system inadequacies or localised ponding. Areas flooded due to debris blockage unless shown for specific structures. Areas flooded from breaches not included in this study.

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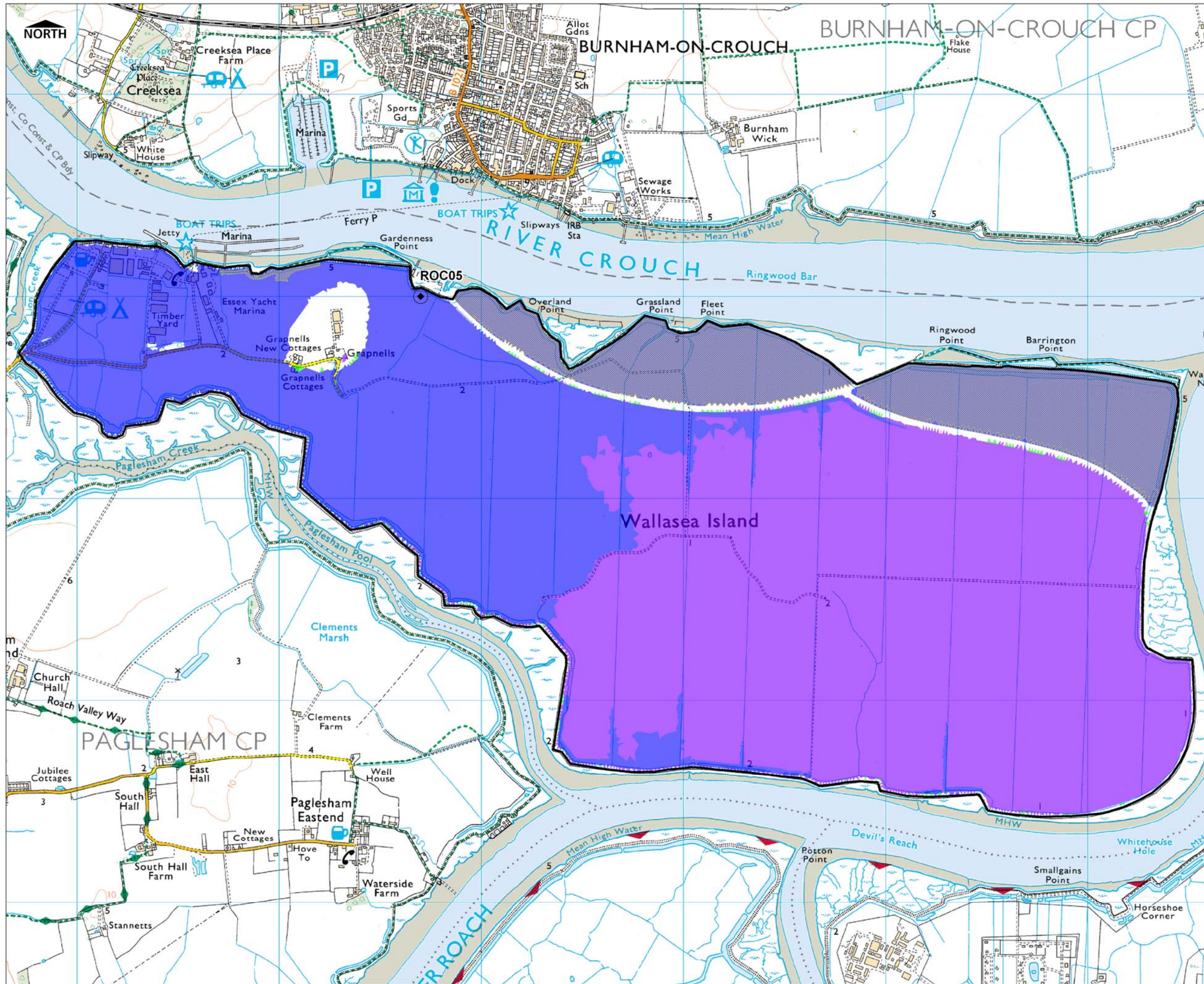
**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

**TIME TO INUNDATION 1000YR (2010) BREACH ROC04**



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DRAWING NUMBER **FIGURE D-18**



**KEY**

- Flood Cell
- ◆ Breach Location

**Time To Inundation [Hours]**

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 - 20 Hours

Inundation from overtopping prior to breach

**TECHNICAL NOTE**

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**THAMES GATEWAY SOUTH ESSEX STRATEGIC FLOOD RISK ASSESSMENT**

**TIME TO INUNDATION 1000YR (2010) BREACH ROC05**



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DRAWING NUMBER **FIGURE D-19**