



# ENVIRONMENT

A STATES OF GUERNSEY GOVERNMENT DEPARTMENT

**This Pack constitutes an Appendix to the Environment  
Department's States Report titled:**

## **COASTAL DEFENCE FLOOD STUDIES**

**included in Billet D'État XV, July 2013**

### **Contents**

<b>FRA1</b>	<b>St Sampson's Harbour Area</b>
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<b>FRA3</b>	<b>Cobo and Saline Bay</b>
<b>FRA4</b>	<b>Baie de Port Grat and Pequeries Area</b>
<b>FRA5</b>	<b>Bordeaux Harbour Area</b>
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**Guernsey Coastal Units - Map**

# St Sampson Flood Risk Area Analysis (FRA1)

Table 1: Volume of overtopping modelled in different return periods\*









Return period (yrs.)	1	10	50	100	250
Volume (m <sup>3</sup> )	0	114	15,000	41,000	104,000
Peak Flow (m <sup>3</sup> /s)	0	0.17	9.98	17.03	26.55
Duration (hrs)	0	0.3	0.75	1.7	2.2

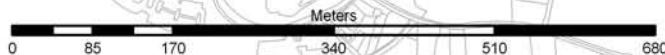
\*For example, at back harbour wall, DU2.

Ref: Haskoning wave modelling studies (2007 - 12).

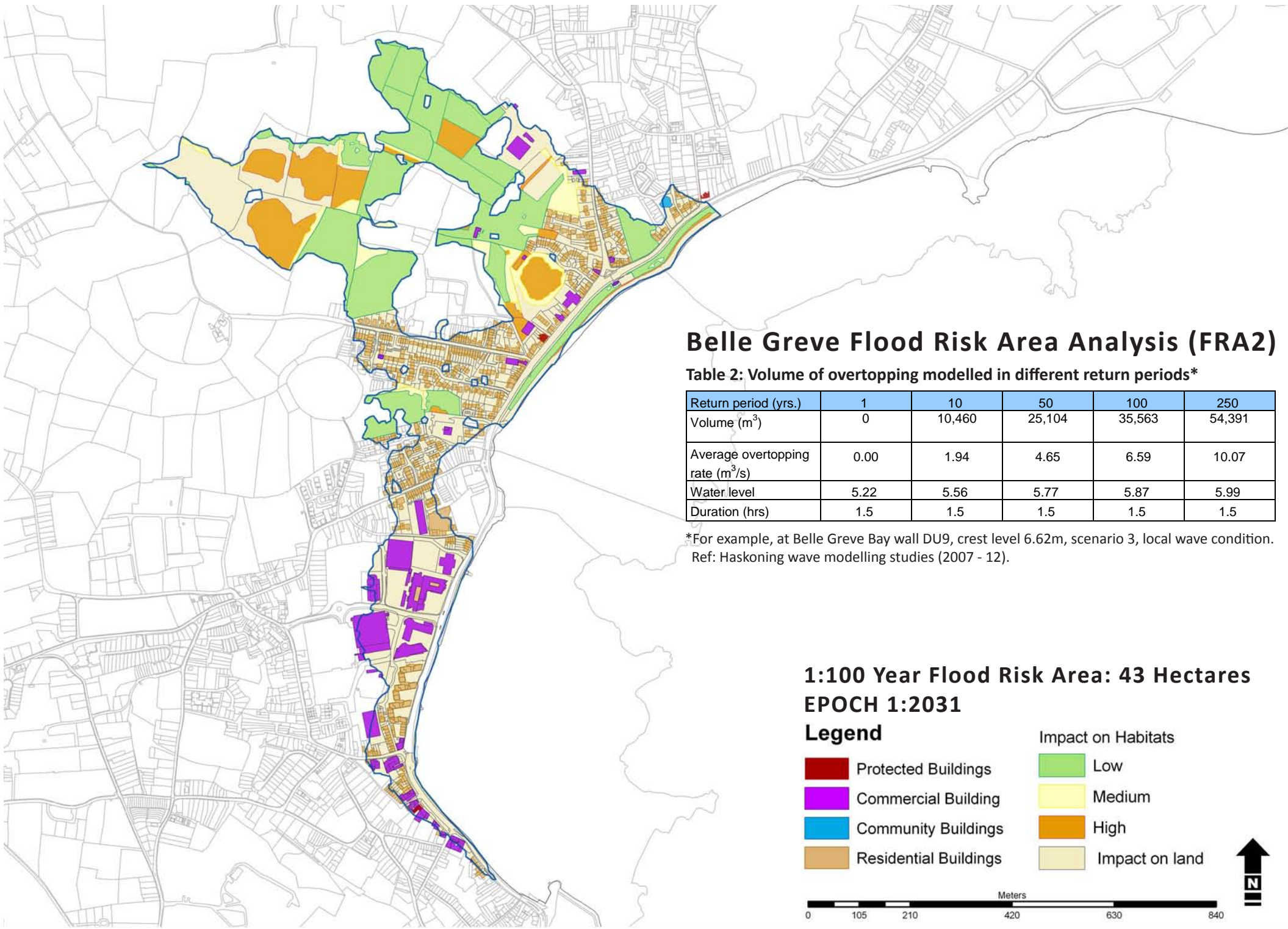
**1:100 Year Flood Risk Area: 36 Hectares**  
**EPOCH 1:2031**

## Legend

	Protected Buildings		Low
	Commercial Building		Medium
	Community Buildings		High
	Residential Buildings		Impact on land







# Belle Greve Flood Risk Area Analysis (FRA2)

Table 2: Volume of overtopping modelled in different return periods\*

Return period (yrs.)	1	10	50	100	250
Volume (m <sup>3</sup> )	0	10,460	25,104	35,563	54,391
Average overtopping rate (m <sup>3</sup> /s)	0.00	1.94	4.65	6.59	10.07
Water level	5.22	5.56	5.77	5.87	5.99
Duration (hrs)	1.5	1.5	1.5	1.5	1.5

\*For example, at Belle Greve Bay wall DU9, crest level 6.62m, scenario 3, local wave condition.  
Ref: Haskoning wave modelling studies (2007 - 12).

1:100 Year Flood Risk Area: 43 Hectares  
EPOCH 1:2031

## Legend

- Protected Buildings

Commercial Building

Community Buildings

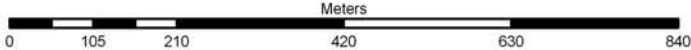
Residential Buildings
- Impact on Habitats

Low

Medium

High

Impact on land

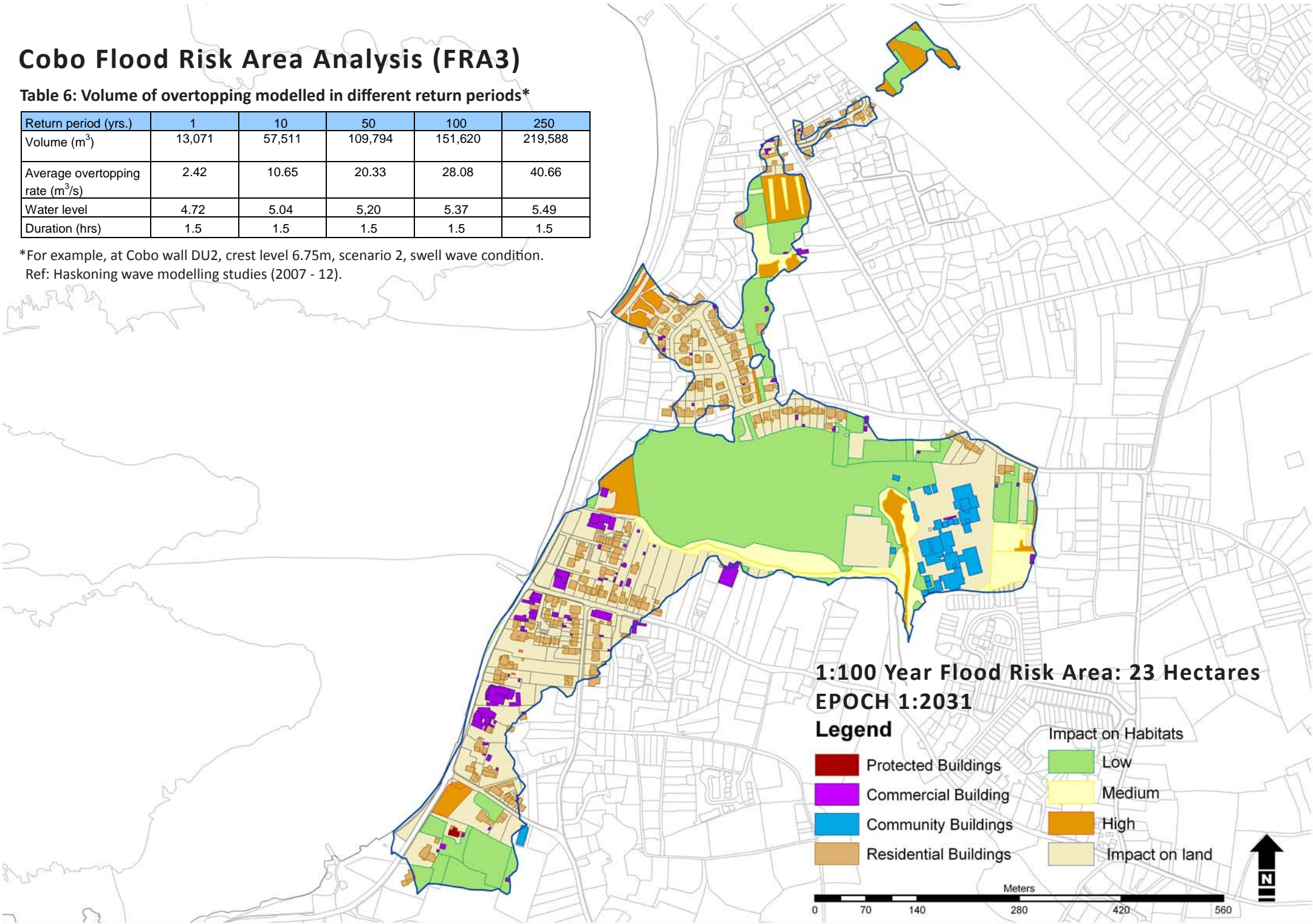


# Cobo Flood Risk Area Analysis (FRA3)

Table 6: Volume of overtopping modelled in different return periods\*

Return period (yrs.)	1	10	50	100	250
Volume (m³)	13,071	57,511	109,794	151,620	219,588
Average overtopping rate (m³/s)	2.42	10.65	20.33	28.08	40.66
Water level	4.72	5.04	5.20	5.37	5.49
Duration (hrs)	1.5	1.5	1.5	1.5	1.5

\*For example, at Cobo wall DU2, crest level 6.75m, scenario 2, swell wave condition.  
Ref: Haskoning wave modelling studies (2007 - 12).



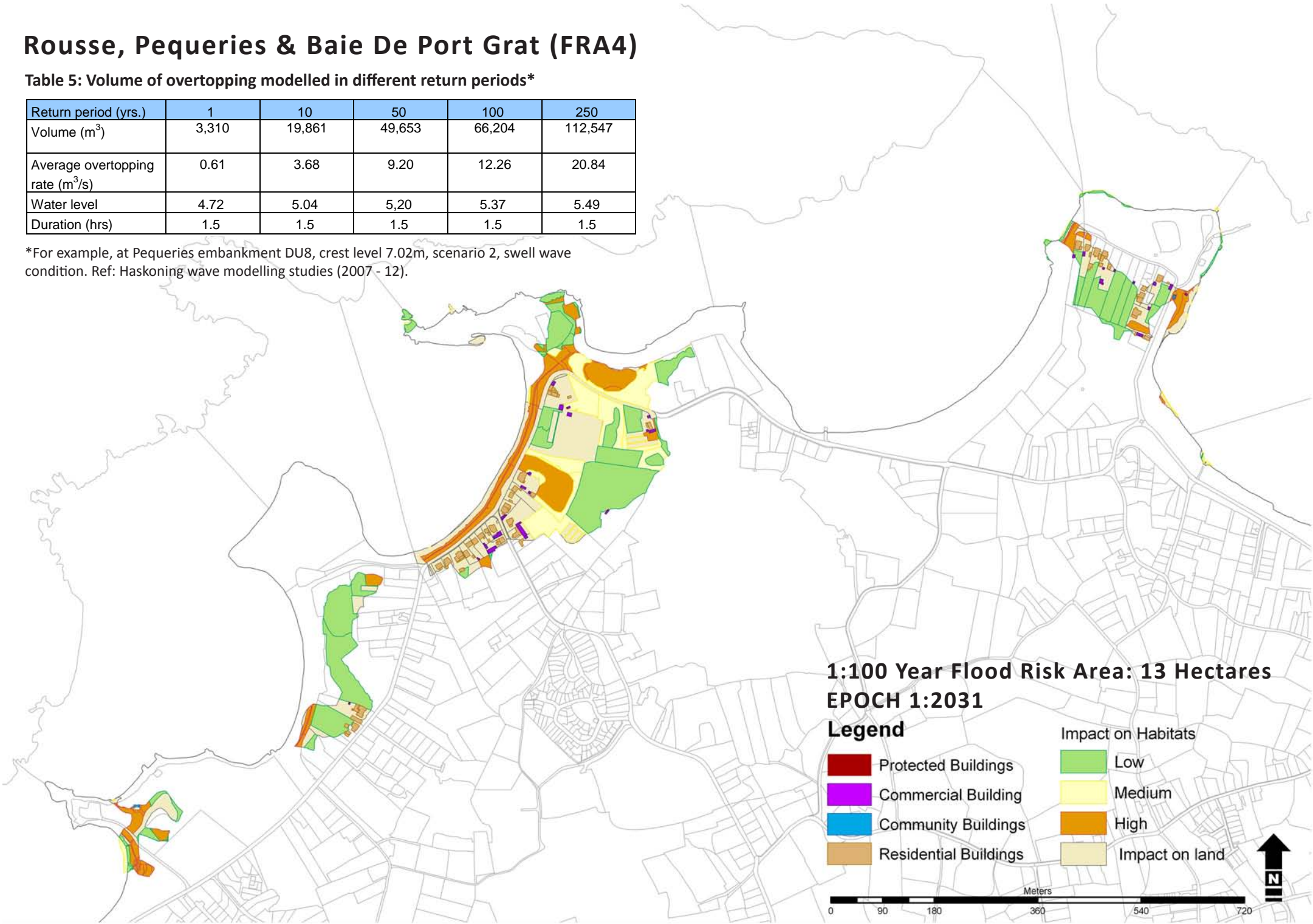


# Rousse, Pequeries & Baie De Port Grat (FRA4)

Table 5: Volume of overtopping modelled in different return periods\*

Return period (yrs.)	1	10	50	100	250
Volume (m³)	3,310	19,861	49,653	66,204	112,547
Average overtopping rate (m³/s)	0.61	3.68	9.20	12.26	20.84
Water level	4.72	5.04	5.20	5.37	5.49
Duration (hrs)	1.5	1.5	1.5	1.5	1.5

\*For example, at Pequeries embankment DU8, crest level 7.02m, scenario 2, swell wave condition. Ref: Haskoning wave modelling studies (2007 - 12).

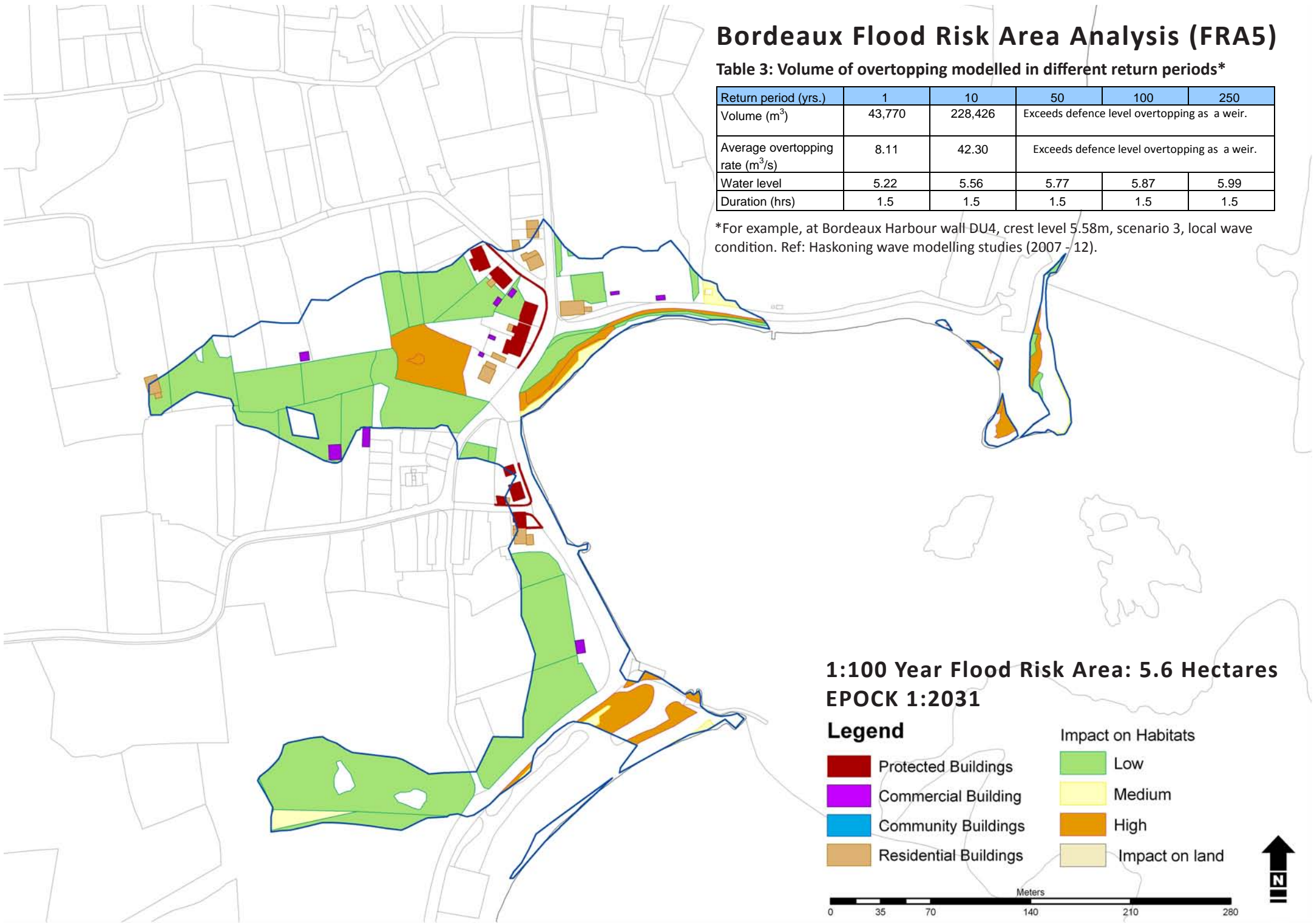


# Bordeaux Flood Risk Area Analysis (FRA5)

Table 3: Volume of overtopping modelled in different return periods\*

Return period (yrs.)	1	10	50	100	250
Volume (m³)	43,770	228,426	Exceeds defence level overtopping as a weir.		
Average overtopping rate (m³/s)	8.11	42.30	Exceeds defence level overtopping as a weir.		
Water level	5.22	5.56	5.77	5.87	5.99
Duration (hrs)	1.5	1.5	1.5	1.5	1.5

\*For example, at Bordeaux Harbour wall DU4, crest level 5.58m, scenario 3, local wave condition. Ref: Haskoning wave modelling studies (2007 - 12).





# Rocquaine & L'Eree Flood Risk Area Analysis (FRA6)

Table 4: Volume of overtopping modelled in different return periods\*

Return period (yrs.)	1	10	50	100	250
Volume (m <sup>3</sup> )	558	3,909	7,817	8,934	11,726
Average overtopping rate (m <sup>3</sup> /s)	0.10	0.72	1.45	1.65	2.17
Water level	5.0	5.32	5.54	5.65	5.77
Duration (hrs)	1.5	1.5	1.5	1.5	1.5

\*For example, at Rocquaine Bay wall DU4, crest level 8.57m, scenario 2, swell wave condition.  
Ref: Haskoning wave modelling studies (2007 - 12).

1:100 Year Flood Risk Area: 15 Hectares  
EPOCH 1:2031

Legend

- Protected Buildings

Commercial Building

Community Buildings

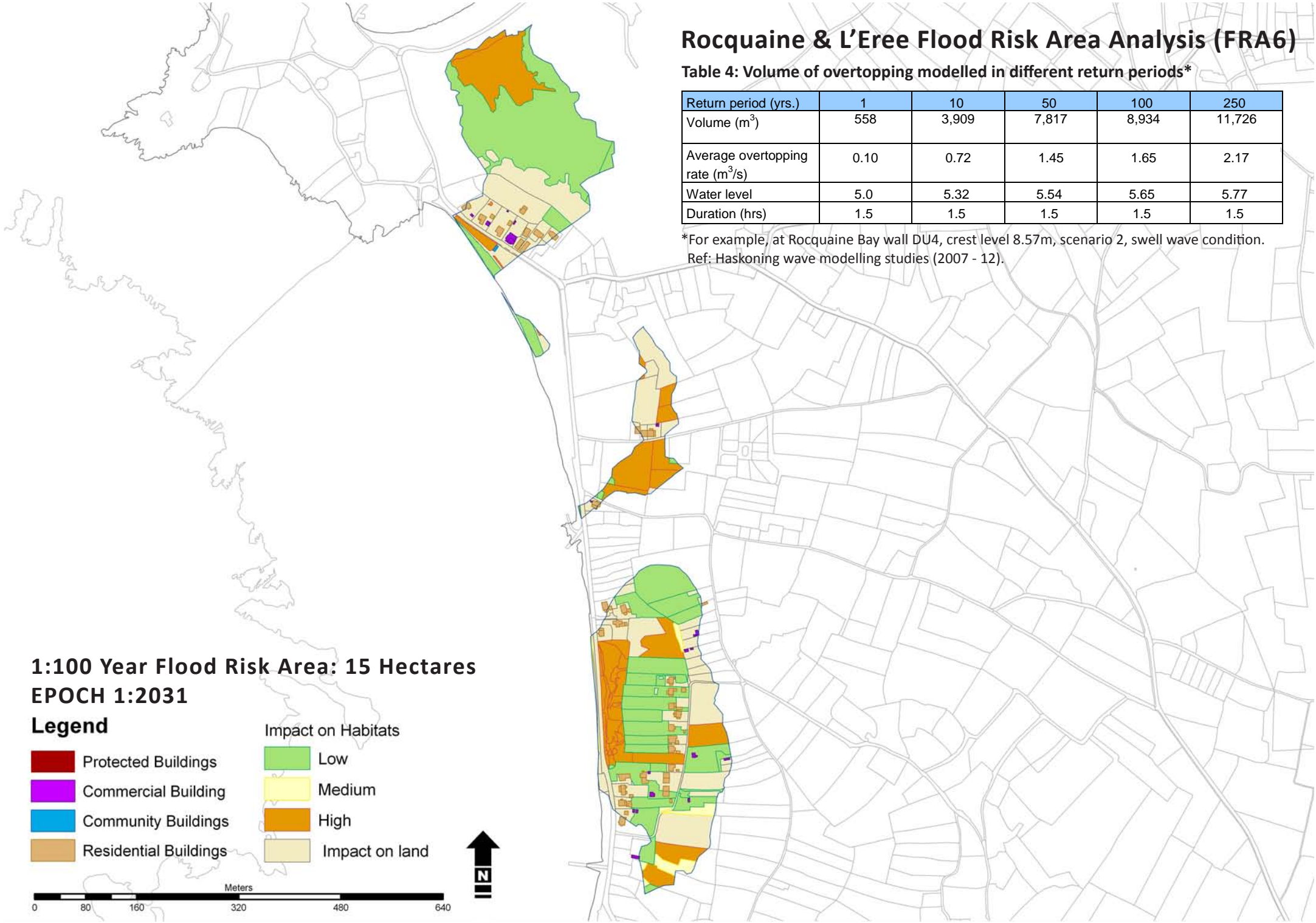
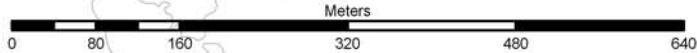
Residential Buildings
- Impact on Habitats

Low

Medium

High









Impact on land

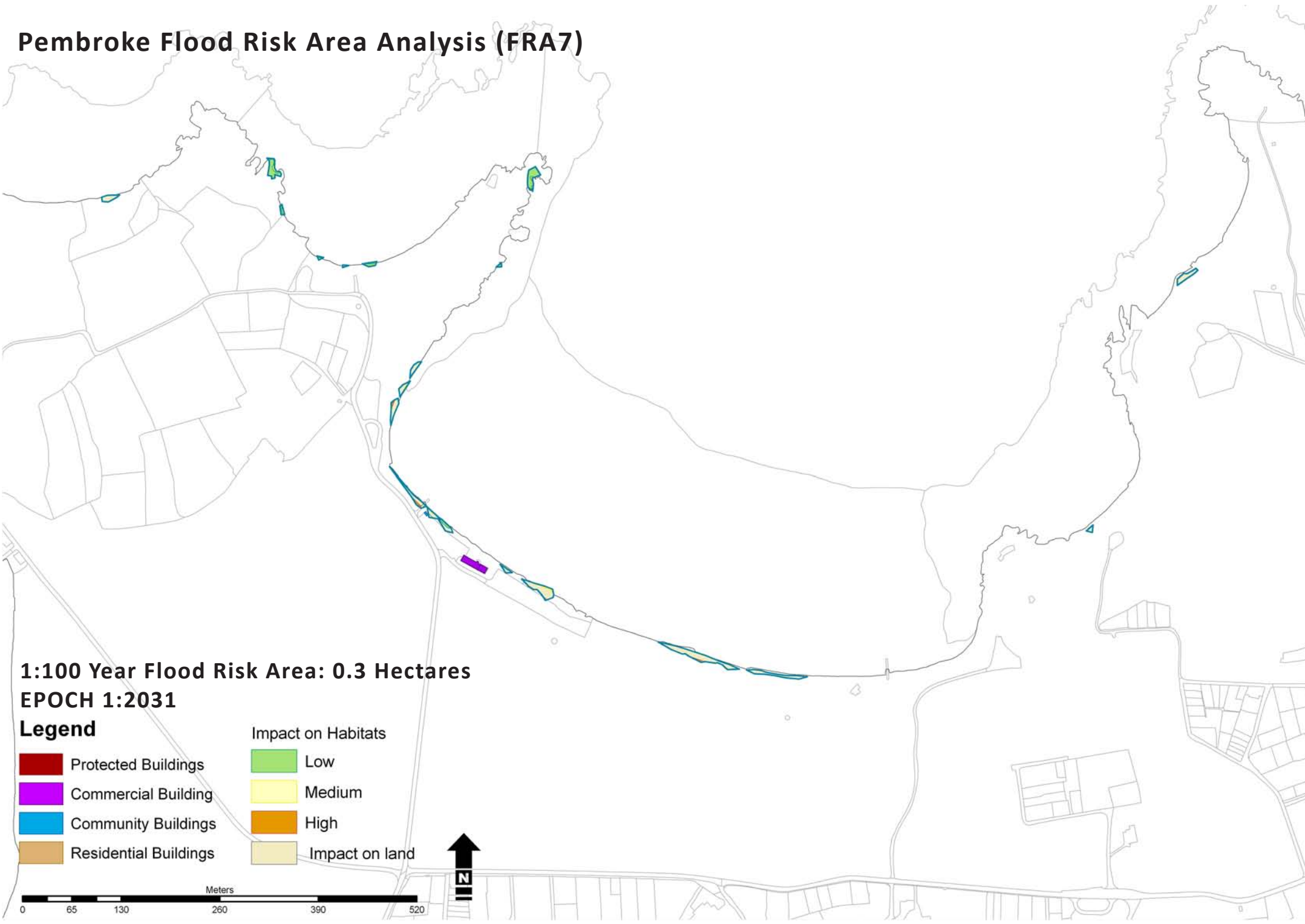
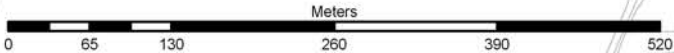


# Pembroke Flood Risk Area Analysis (FRA7)

1:100 Year Flood Risk Area: 0.3 Hectares  
EPOCH 1:2031

## Legend

- |  |  |
|--|--|
|  Protected Buildings   |  Low            |
|  Commercial Building   |  Medium         |
|  Community Buildings   |  High           |
|  Residential Buildings |  Impact on land |





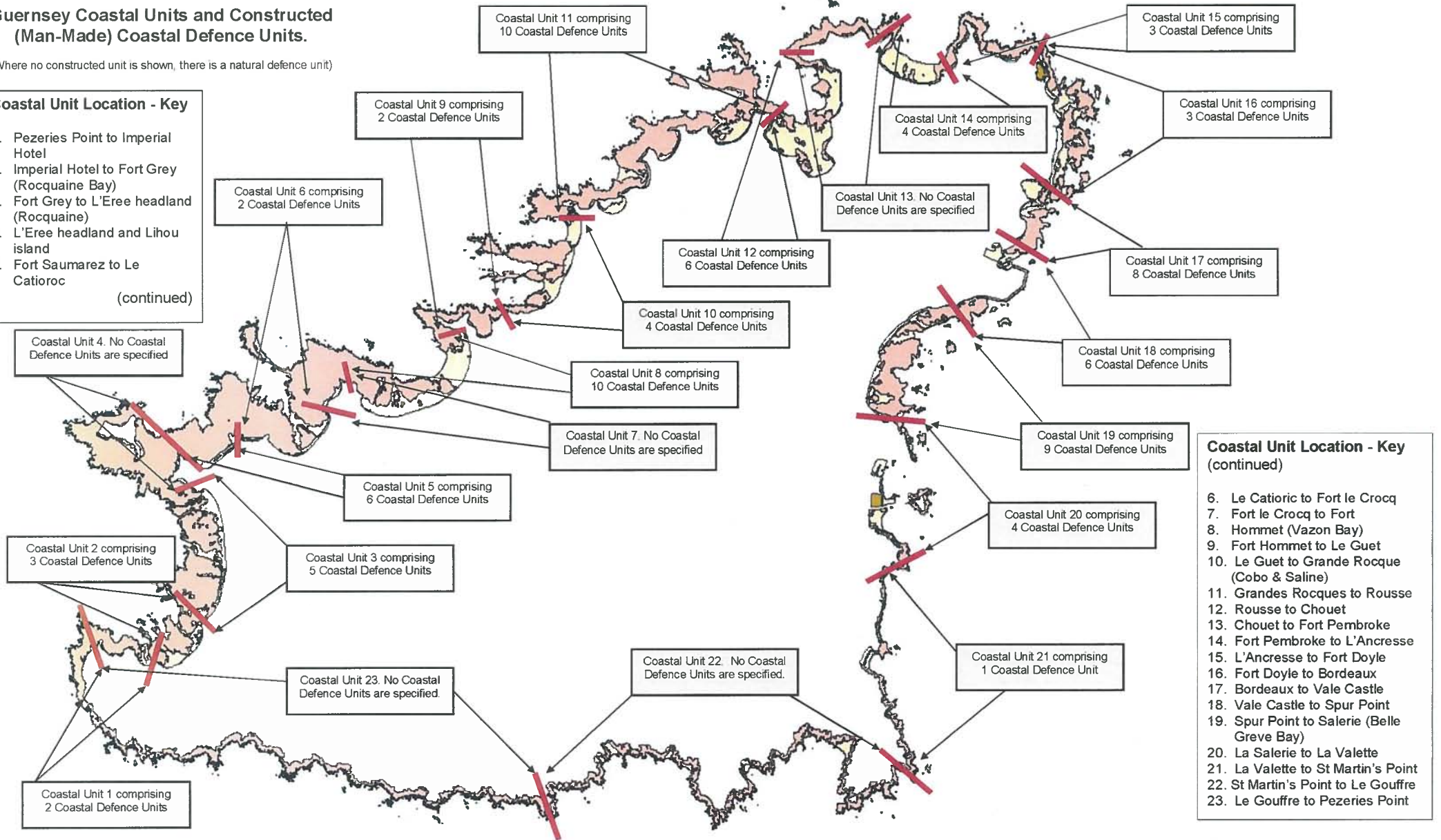
## Guernsey Coastal Units and Constructed (Man-Made) Coastal Defence Units.

(Where no constructed unit is shown, there is a natural defence unit)

### Coastal Unit Location - Key

1. Pezeries Point to Imperial Hotel
2. Imperial Hotel to Fort Grey (Rocquaine Bay)
3. Fort Grey to L'Eree headland (Rocquaine)
4. L'Eree headland and Lihou island
5. Fort Saumarez to Le Catiaroc

(continued)



### Coastal Unit Location - Key (continued)

6. Le Catiaroc to Fort le Crocq
7. Fort le Crocq to Fort
8. Hommet (Vazon Bay)
9. Fort Hommet to Le Guet
10. Le Guet to Grande Rocque (Cobo & Saline)
11. Grandes Rocques to Rousse
12. Rousse to Chouet
13. Chouet to Fort Pembroke
14. Fort Pembroke to L'Ancrese
15. L'Ancrese to Fort Doyle
16. Fort Doyle to Bordeaux
17. Bordeaux to Vale Castle
18. Vale Castle to Spur Point
19. Spur Point to Salerie (Belle Greve Bay)
20. La Salerie to La Valette
21. La Valette to St Martin's Point
22. St Martin's Point to Le Gouffre
23. Le Gouffre to Pezeries Point