Survey Unit	**4cSU09 – Sandgate**
SMP Policy	Hold the Line

Author: AGB. Approved: CF.

Sandgate consists of a sand and gravel beach with a sandy foreshore. A rock groyne at Battery point marks the boundary between the Folkestone and Sandgate survey units. There are two rock groynes at the western end of this frontage approximately 650m apart. The eastern half of this management unit has no controlling structures. With the completion of the two major coast protection schemes in 1996 and 2004, the frontage is now entirely dependent on the successful implementation of beach management through a sediment recycling programme.

1. Introduction

Date of survey	16/01/2020
Reason for survey	As requested by Folkestone and Hythe District Council following Storm Brendan which caused strong winds and storm waves between 13/01/2020 and 15/01/2020, causing depleted beach levels.
Area surveyed	Intermittent profiles between 4c00265 and 4c00341.
Flood warnings	Flood Alert in force: Coast from Sandgate to Dungeness.
Summary of beach operations	N/A
Areas flooded	None

2. General Observations – Survey Results

General observations	
Shingle on promenade	There is a small build-up of shingle on parts of the promenade.
Structure condition	An old concrete groyne that was previously buried has been exposed to the surface near to Profile 4c00330 (Figure 5). The nearby wooden ramp has been undermined, due to a reduction of the crest height, and boarding has been displaced onto the promenade (Figure 6).
Beach condition	The western profiles have typically lost material, whereas central and eastern profiles have gained material. Profiles 4c00330 and 4c00341 demonstrate a reduction in the crest height.

2.1 Post Storm Profiles

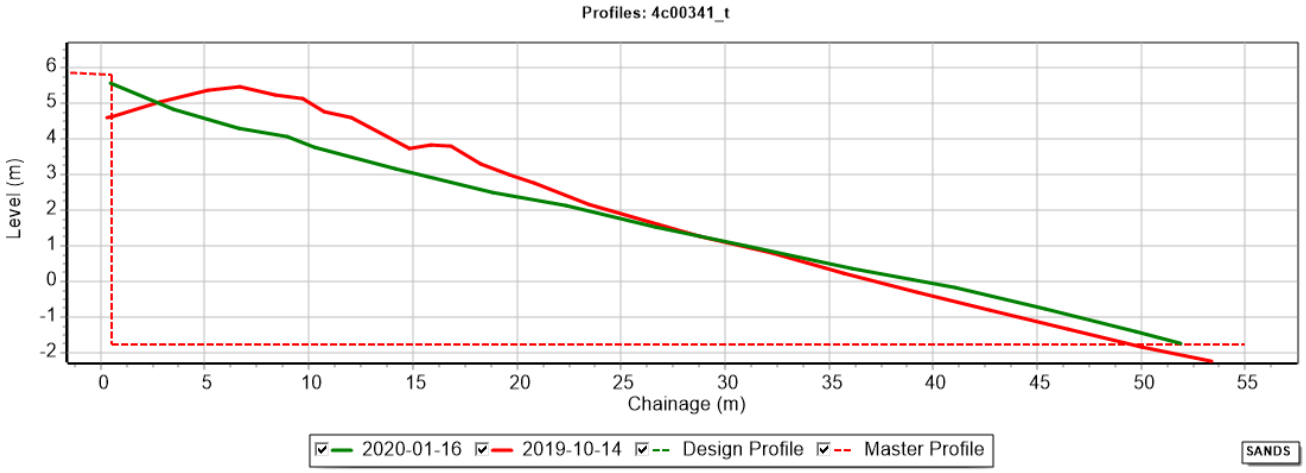


Figure 1 – Profile 4c00341 near the western end of the survey unit, showing a reduction in the crest height.

Figure 2 – Profile 4c00341 near the western end of the survey unit.

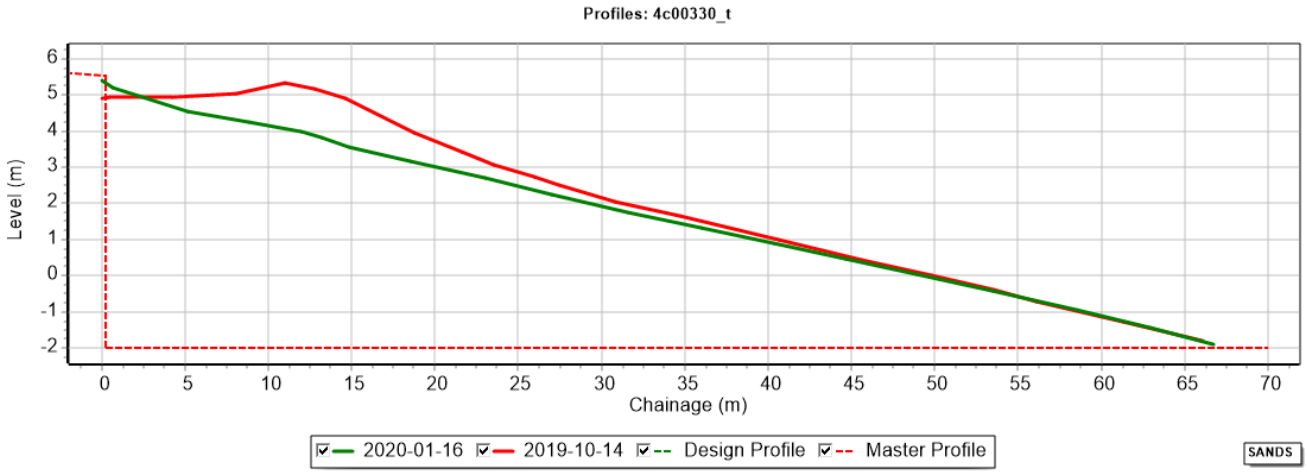


Figure 3 – Profile 4c00330 demonstrating a reduction in the crest height.

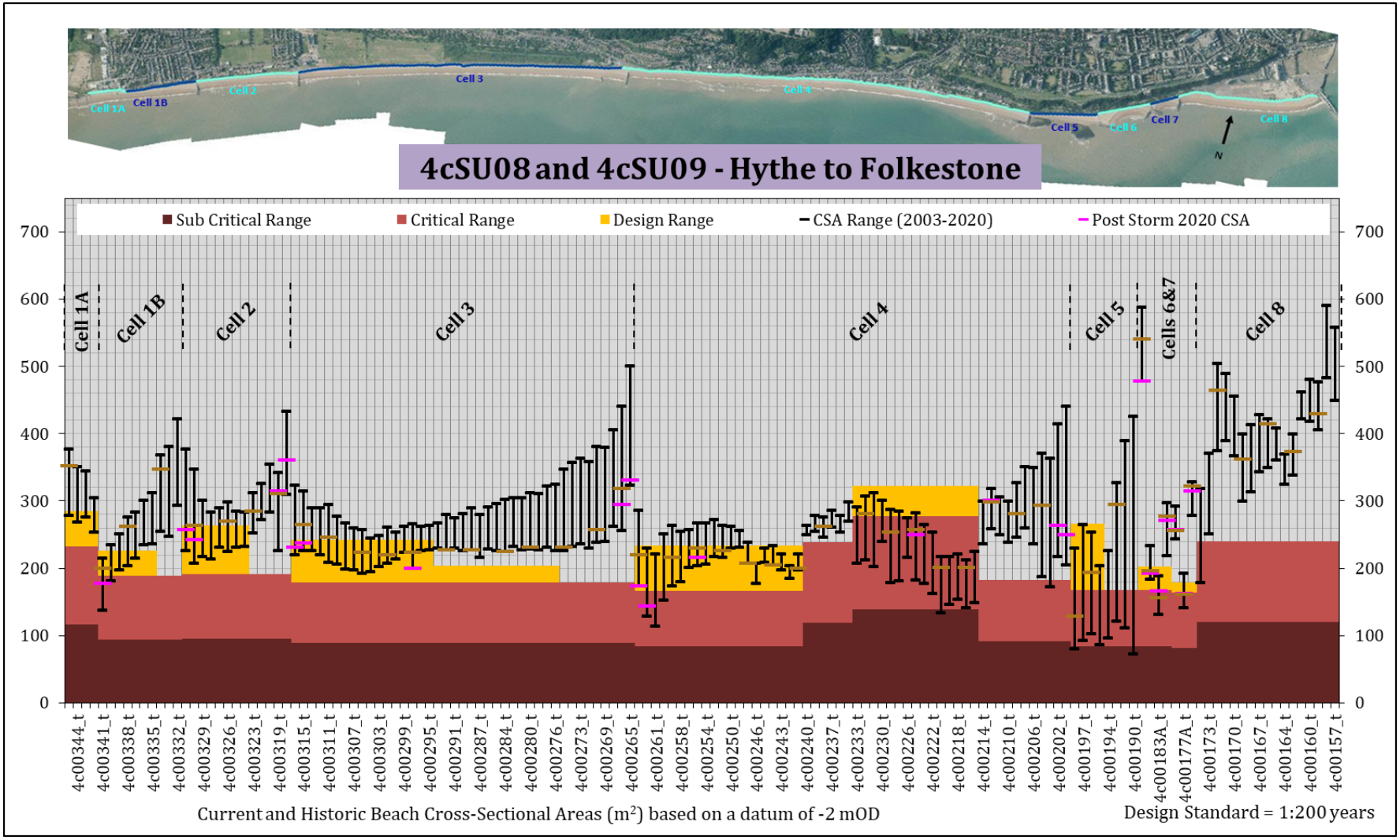
Figure 4 – Profile 4c00330 demonstrating a reduction in the crest height.

Figure 5 – Concrete groyne at Profile 4c00330, current (left) and October 2019 (right).

Figure 6 – Undermined ramp, and displaced boarding on promenade.

2.2 Whole Beach CSA

Figure 7 – Trigger Level Chart



3. Hydrodynamics

Highest storms at Folkestone	
Date	Significant wave height (m)
20-Nov-2016	3.92
28-Mar-2016	3.65
10-Mar-2008	3.58
08-Jan-2004	3.25
23-June-2004	3.18
30-Dec-2005	3.15
09-Mar-2016	3.12
13-Dec-2011	3.11
03-Dec-2006	3.1
15- Dec- 2018	3.08

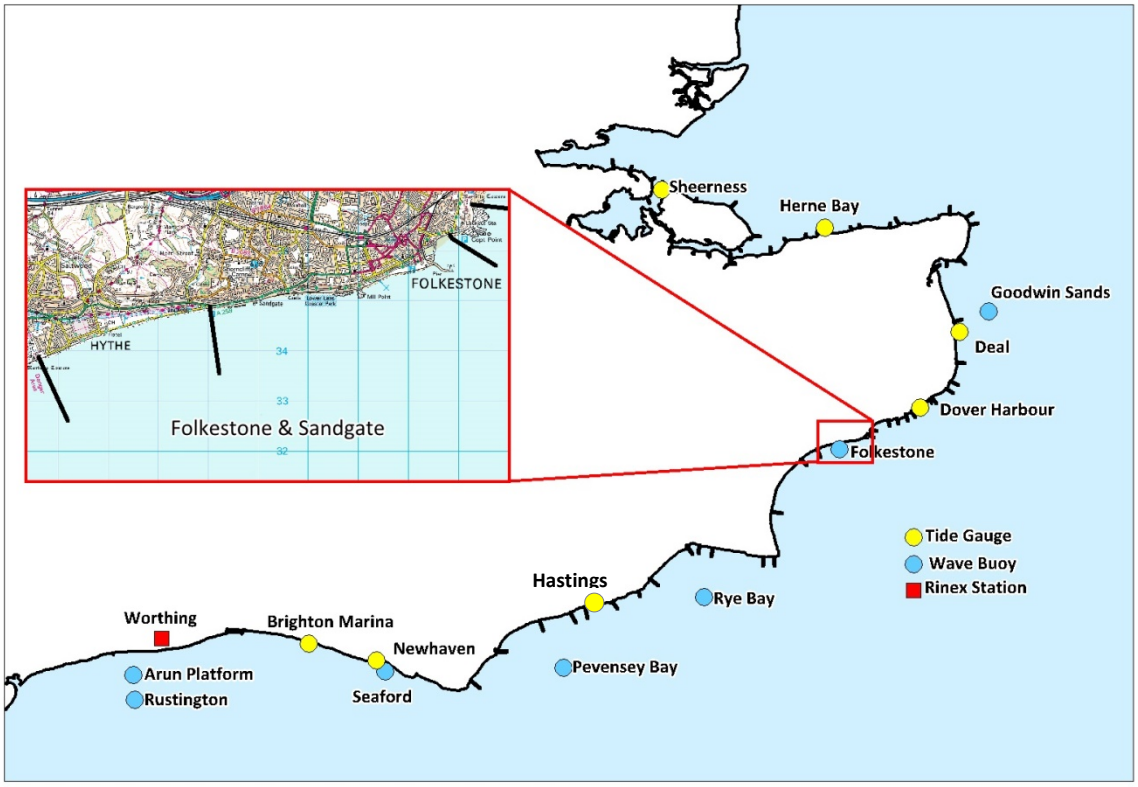
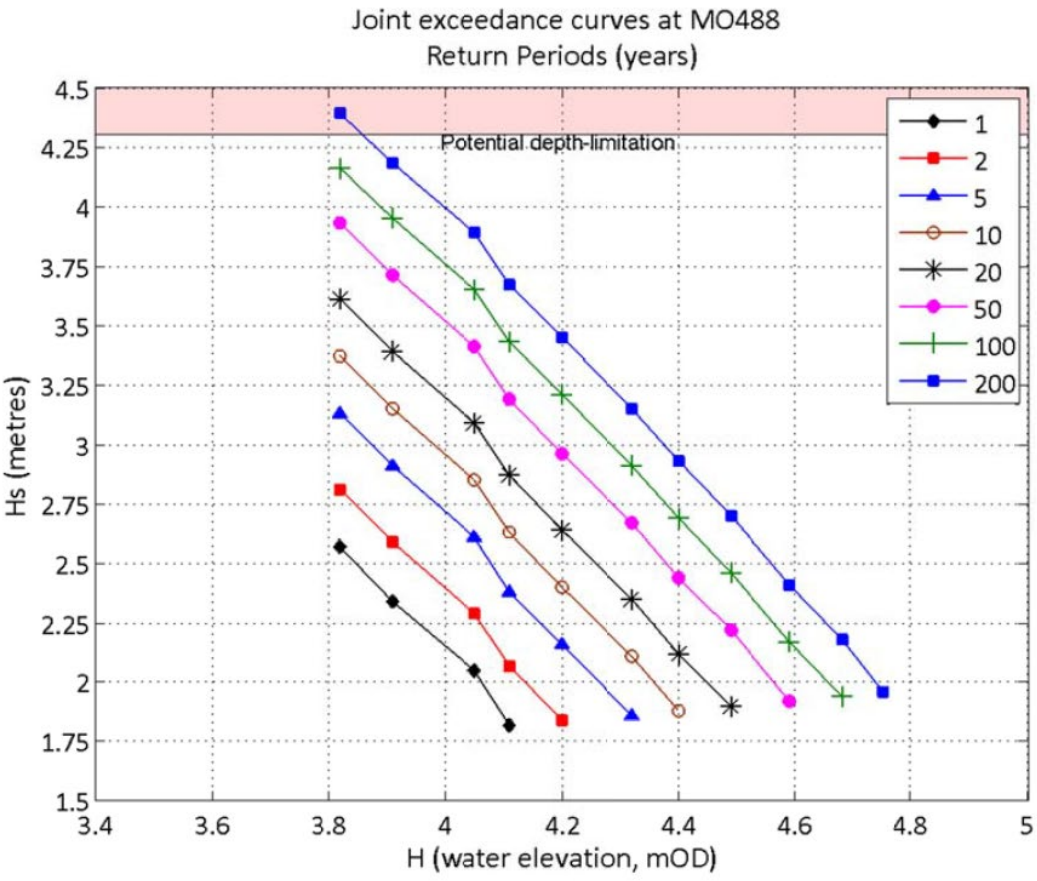


Figure 8- Map of Tide and Wave Gauges

Observation Period	July 2003 to June 2018	
Return Period (years)	**Significant Wave Height (m)**	**Comments**
0.25	2.48	No depth limitations
1	3.02	
2	3.24	
5	3.49	
10	3.65	
20	3.79	
50	3.94	
100	4.04	

(Sourced from Annual Wave Report 2018 – Folkestone from http://www.channelcoast.org/reports/)

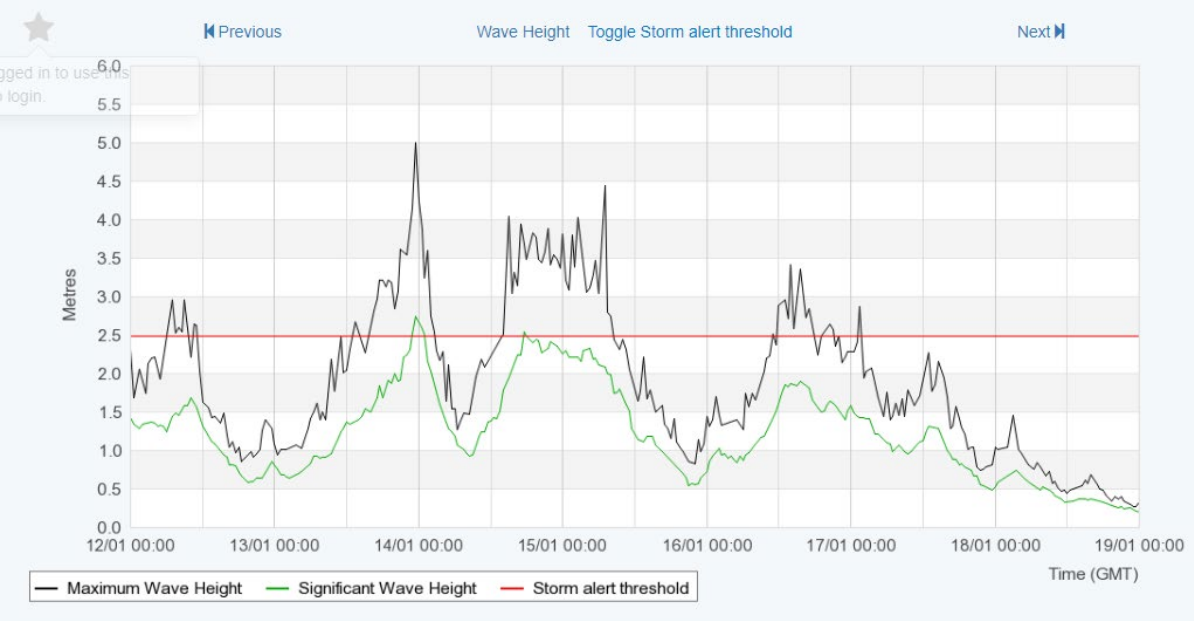
3.1 Joint Return Periods



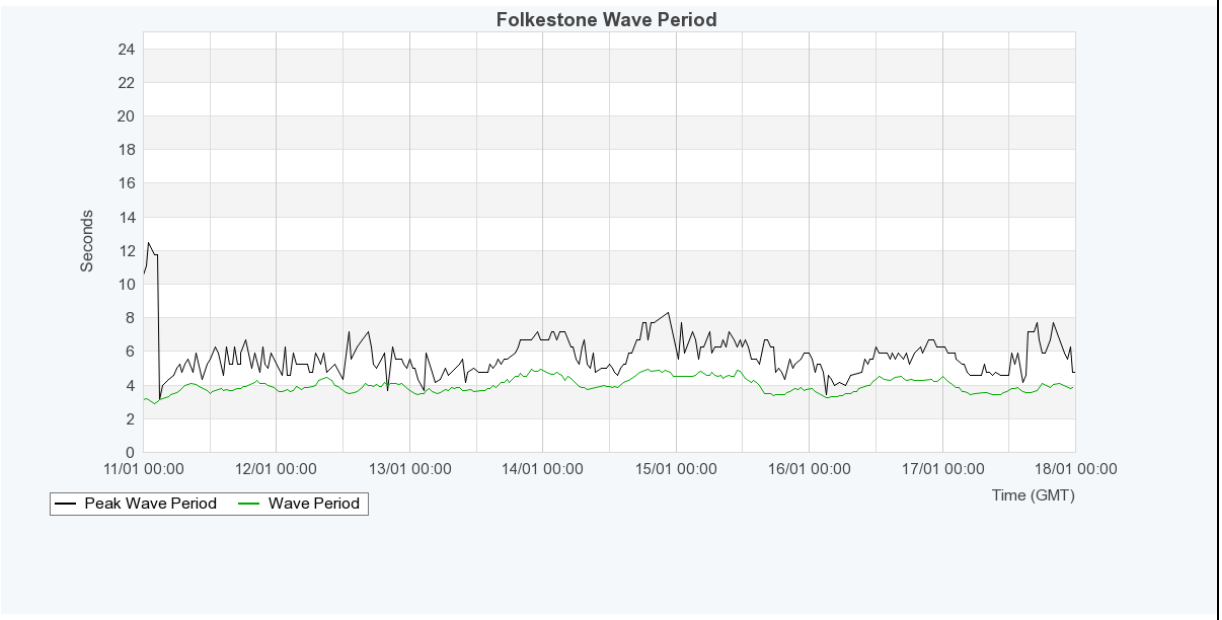
	Date/Time	Tidal elevation (mOD)	Hs (m)	Hmax (m)	RP (Hs)
At time of maximum water elevation	14/01/2020 at 1400hrs	+2.7	+1.78	+2.51	-
At time of highest wave height	13/01/2020 at 2330hrs	+1.1	+2.75	+5.00	0.25 - 1

3.2 Ambient wave, tide and met conditions

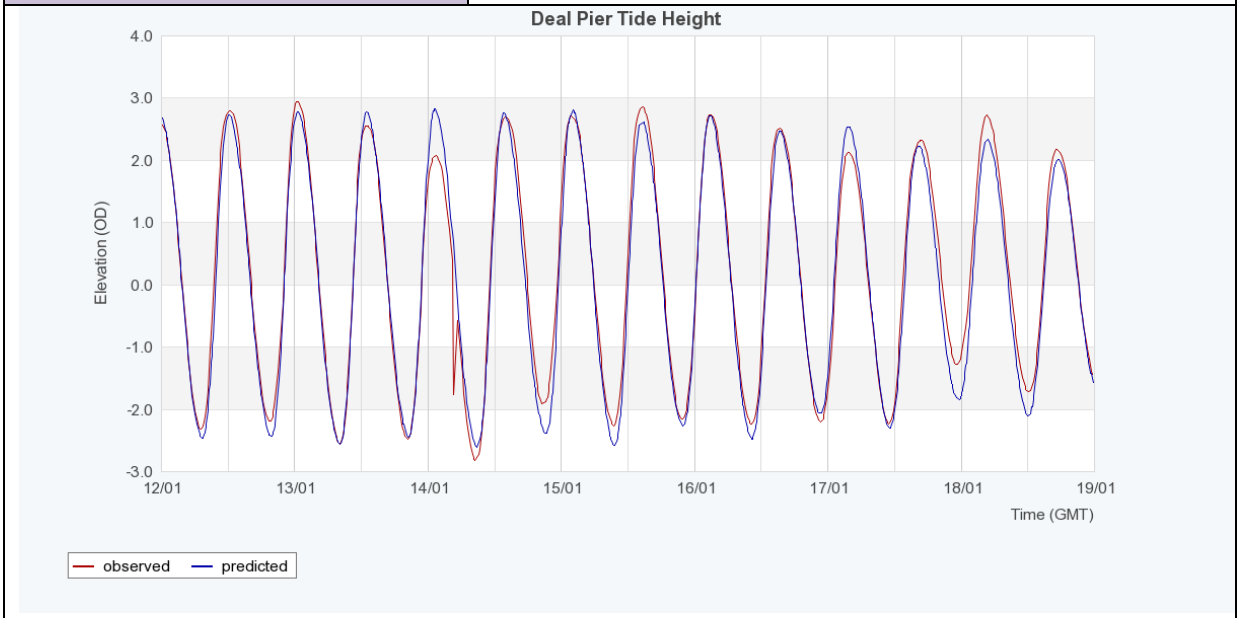
Nearest wave buoy	Folkestone
Wave height	Maximum wave height reached: +5m on 13/01/2020 at 2330hrs. Significant wave height reached: +2.75m on 13/01/2020 at 2330hrs.



Wave period	The peak wave period reached: 8.3 seconds on 14/01/20 at 2200hrs. Significant wave period reached: 4.9 seconds on 14/01/20 at 2200hrs.



Nearest tide gauge	Deal Pier
Tidal range	The highest SWL measured +2.7mOD on 14/01/2020 at 1400hrs.



Nearest Met Station	Folkestone
Wind Speed and direction	Maximum wind speed on 14/01/2020: 30.4 knots at 2010hrs Wind gusts reached on 14/01/2020: 59.6 knots at 2010hrs Direction at highest wind speed: SW