Portsmouth
the island city
building better
flood resilience
for southsea’s
frontage
+ common

WALTER MENTETH
Walter Menteth Architects
Director Project Compass
Portsmouth School of Architecture
PORTSMOUTH - THE ISLAND CITY

Portsmouth is a truly unique Island City

One of only two similar island cities in Europe which, like Venice, is founded on maritime power.

This distinct legacy is relatively under recognised

With roughly 12% of Portsmouth’s economy now derived from tourism....

...it is imperative to nurture its most valuable assets and amenities for the future....

..particularly the fabulous Southsea to Eastney frontage, so it remains one of the UK’s premier urban sea side destinations.
The city’s environment and economy has always been shaped by people and their relationship to the sea, and it is this treasured relationship that should be enhanced.
we are here today probably because we all love it ...)
so when considering the future, realising the overall value of the beach, the frontage & common should be foremost
Portsmouth is uniquely vulnerable to climate change induced rises in sea levels. Not only is the city on an island, but the island is relatively low lying. The majority of its surface area is about 3m above sea level, with Kingston Cross at 6.4m the highest natural point.

On current predictions, sizable areas of the island city are at risk (fig. 3). Projections however are currently tentative. In recent years, improved data gathering and analysis have increased the projections, with those built into strategic planning policy 10 years ago now out of date.

Government policy and planning is typically founded upon adoption of the IPCC (International panel on Climate Change) projections. However, these remain uncertain. The lower and medium level scenarios for CO2 emissions are not matched by current global trends or initiatives. The lowest require drastic early emissions reductions, zero carbon emissions by 2070 and subsequent negative emissions by CO2 capture. For this reason, they are already largely hypothetical.

The projections of the AR4 report (2007), regarded by some at the time as highly conservative (fig. 4) are approximately 60% lower than the AR5 report (2015). For high emissions, IPCC now predicts a global rise of 52-98 cm by the year 2100. But this modelling avoids the marine based ice sheets. In all cases, the climate change induced rise in sea levels is predicted to continue for considerably more than 100 years.

Given that the city of Portsmouth is so low lying, it would therefore be intelligent to plan sensibly with sufficient margins for contingent risk, to ensure future resilience. We should be looking to build infrastructure that is expected to last for more than 100 years.

The uncertainty of Portsmouth’s vulnerability to coastal flooding is high. The city is at risk from:

1. Aging sea defence structures
2. Climate change induced sea level rises
Government have now agreed Portsmouth an allocation of around £86m for sea defence works along roughly 4.5km of the Southsea frontage for flood cell 1.

“Southsea has one of the UK’s premier & most unique urban seafronts.”
The current sea defence strategy is based on a Portsmouth City Council & Eastern Solent Coastal partnerships (ESCP) policy of: ‘Holding The Line’

Government funding is allocated on the basis of saving: Lives and Property

other ‘social values’, including benefits or dis-benefits to the population, amenity or economy, are not an equivalent priority
SOUTHSEA - CURRENT SEA DEFENCE PROPOSALS

The current sea defence design strategy

Examples of the ESCP sea defence design proposals (at Nov. 2016), are available for viewing in the accompanying exhibition

Here’s how to read the drawings...
This box & the insert shows you where this main detail is located on the front.

THE SEA

This wiggle and the area extending back to the road - is a plan of the concrete revetment.

These circles with numbers in them - are where the sections are then taken.

THE COMMON

NB. normally this denotes a pre-tender drawing.
**THE COMMON**

- **2.4m** backwall to catch over-topping.
- **3.1m**
  - NB. along Clarence Esplanade the road is already raised above the common along the frontage c.0.5m.
  - the road is also being raised further in this area.

**THE SEA**

- revetment steps are c. 0.33m (13”) high.

**NOTES**

- All dimensions are millimetres unless noted otherwise.
- All levels are metres unless noted otherwise.
- Sections produced using topographic survey data arranged in September 2014.
- Inspection, assessment and potential upgrading of existing drainage networks to be investigated during detailed design stage.

---

**SECTION 3.1**

- Scale 1:100

**SECTION 3.2**

- Scale 1:100

---

NB. this section is taken through an isolated access stair.

NB. normally this denotes a pre-tender drawing.
These are the projected and existing tidal height ranges (to yr. 2100)

3.8m

This section shows a groyne
“roads & parking account for roughly 16% of Southsea Common’s total area”
SOUTHSEA - CURRENT SEA DEFENCE PROPOSALS

Existing frontage

Current ESCP frontage proposal

NB: The ESCP proposal is contingent on retention of the road
ESCP cite the new Cleveleys frontage & promenade (north of Blackpool) as an example of excellent coastal design.

Portsmouth’s proposed Clarence esplanade sea front then closely follows the Cleveleys example.

For children, the elderly or any age, descending these revetments is more hazardous than descending a beach.
SOUTHSEA - CURRENT SEA DEFENCE PROPOSALS

Impact on sea views and access to Southsea’s frontage -

Section
at max. apparent height

A full size model showing the height of the proposed sea defences viewed from the land-side, in 5 locations

There are Models also on display in the exhibition
“Southsea Common is inseparably part of the sea front and should be considered conjunctively.”

Clarence Esplanade montage looking west showing the proposed new sea wall
“In the C20th many of the UK’s finest cities were destroyed by roads now considered a liability. Are we in danger of doing something similar to our coastline?”

Clarence Esplanade montage looking east showing the proposed new sea wall
DESIGN RESEARCH & ANALYSIS
THE PORTSMOUTH ELEPHANT CAGE, 2016-17
addressing the problem...

organised by:

Walter Menteth
Director Project Compass,
Walter Menteth Architects
+ Portsmouth Architecture school

Francis Graves
Senior lecturer Portsmouth
Architecture school

Indira van't Klooster
Senior project manager
Architectuur Lokaal

Cilly Jansen
Director Architectuur Lokaal

& funded by:

stimulerings fonds creatieve industrie

Project Compass

WALTER MENTETH - SOUTHSEA COASTAL DEFENCES
DESIGN RESEARCH & ANALYSIS
THE PORTSMOUTH ELEPHANT CAGE, 2016-17

7 Eminent international architects, landscape architects, engineers & planners having expertise in the field of coastal design came to Portsmouth to mentor this innovative design research competition process.

Julia Barfield
Founding Director Marks Barfield Architects.
London Eye, i360 Brighton, Kew Gardens Tree walk

Martin Knuijt
Director OKRA
Landscape architect
Katwijk, Cadzand-Bad, Berlin, Athens & Dutch water designer

Nick Clarke
Director of Ports and Marine at Ramboll Engineer, West Bay Dorset, with works in Portsmouth

Matthijs Bouw
Director One Architecture
New York’s sea defences post hurricane Sandy ‘The Big U’ & Dutch water designer

Sophie Thompson
Director LDA Design
Landscape architect Blackpool, with works in Portsmouth

Frank de Graaf
Royal Haskoning DHV
Urban Waterfront Planner, North Portsea Coastal defences, working with ESCP

Alexander Lee
Royal Haskoning DHV Engineer. Team leader Rivers, Deltas and Coasts

Zane Gunton
ESCP Engineer, Portsea Coastal defences

Deniz Beck
Director Deniz Beck Architects
Hot Walls, Spitbank Fort

supported by...

delivering knowledge, seminars & supporting the design processes with....
DESIGN RESEARCH & ANALYSIS
THE PORTSMOUTH ELEPHANT CAGE, 2016-17

17 early career architects, landscape, engineers & planners, selected by international competition to work beside the mentors on design research for Portsmouth’s sea defences.

supported by masters students from Portsmouth School of Architecture.

working in three teams over three days to explore different scenarios....
DESIGN RESEARCH & ANALYSIS
THE PORTSMOUTH ELEPHANT CAGE, 2016-17

TEAM A - asleep / awake / dreaming

A single defence line is split into multiple adaptive defence lines having economic & environmental benefits

TEAM B - The New Common

Likely future scenarios are resolved with a plan having 3 different strategic approaches responding to specific frontage conditions

TEAM C - Dancing Coastlines

Coastal change expectation and its management can lead to better community engagement and improved opportunities

Research & outputs available at: www.portsmouthisland.uk/the-portsmouth-elephant-cage.html
SOUTHSEA - ALTERNATIVE SEA DEFENCE STRATEGY

Current ESCP frontage proposal 'Holding the Line'

'Supported Coastal Realignment' using 'Soft Engineering' is an alternative

KEY FINDINGS

if the existing road, parking & promenade are reconsidered there is opportunity for an alternative and more appropriate sea defence strategy
CASE STUDY: KATWIJK, NL

Cut away view showing how different functions are integrated

Schematic beach profile of the sea defence structure

Dike in the Dune on NAP +8m
P = parking garage

220m overall
“The genius of this sophisticated solution is that it is hardly noticeable.”
Coastal defence strategy:

- A new dike links together & re-purposes the Ravelin Wall & Southsea Castle battlements

- Underground parking is provided behind the dike. This reduces the impact from cars & generates revenue.

- East of the Castle another new dike is backed by a water cistern relieving drainage capacity in the ‘Great Morass’.

- New dikes are buried under a naturalised landscape offering unimpeded beach access.

- Hard engineering solutions retained around Southsea Castle, Nelsons redoubt and South Parade (where backed by properties)
Augmenting the city economy:

- A lido is provided in the Ravelin Long Moat
- Clarence pier is redeveloped to provide a sea groyne to reduce longshore drift & create sheltered coves to either side.
- An underground conference centre is proposed in close proximity to the hotels.
- The Pyramids facility is relocated, discretely, within the D-Day museum car park, and within the Castle quarter.
SOUTHSEA VISION
Southsea Common proposed transport strategy

Transportation Strategy:
New underground parking, transport access & servicing is placed in proximity to all facilities including:
• Clarence Pier,
• The conference centre,
• The relocated Hoverport &
• The beach front.

A public transport terminal & drop off route connect directly with the underground garage.

..with the new underground garaging and the proposed re-arrangement of the roads the usable area of the common is then enlarged
Connections & Circulation
Access, connections & permeability between the city and the front are improved

KEY
- Portsmouth road network
- Southsea common roads
- Southsea common promenades

1 Underground parking access
2 Transport terminus
3 Hotel + Conference centre route for drop off

SOUTHSEA VISION
Connections & Circulation
Access, connections & permeability between the city and the front are improved
The concept for the Old Portsmouth coastal zone is focused around the reappraisal of the area’s history through public interaction and the active engagement with a hard-engineered coastal flood defence. This is achieved through:

- Encouraging public engagement with forgotten historic monuments.
- Improving pedestrian permeability by removing barriers to open space.
- Enhancing the experience of hard engineered coastal flood defence, through the notion of ‘journey’.
- Developing a high-quality landscape proposal.

“further enhancing the Portsmouth visitor experience”
SOUTHSEA VISION, DETAIL

CLARENCE PIER

Redevelopment of existing

Alternative redevelopment

"Rotating the site area 90 degrees significantly reduces impact on views from Southsea frontage"
Elevation diagram. The current ground level volume could effectively be raised like a lighthouse, increasing the site's development density.
The Portsmouth War Memorial is repositioned on the crest of the new dike, giving better protection from salt water erosion & increasing the monuments stature & prominence from land & sea.

SOUTHSEA VISION, DETAIL
THE HISTORIC MONUMENTS

foregathering the dispersed memorials... together with the War Memorial into a considered landscape ensemble offers a powerful, focused & evocative setting, improving their stature.
SOUTHSEA VISION, DETAIL

Conference Centre
A Portsmouth Conference centre built here and below ground, would be well located to:

• Sustain all new & existing facilities & amenities.
• Enhance inward investment
• Retain the open landscape character

Further contributing to project funding & the city economy.
Landscape strategy

For Southsea Common this can deliver a coastal defence & landscape strategy that's:

- Sustainable
- Resilient
- Enjoyed by all and
- **FIT FOR THE FUTURE**
A full report on this proposal is at:
http://www.portsmouthisland.uk/southsea-common-s-sea-defences.html

Facebook campaign at:
Southsea Seafront at Risk

If you can display the exhibition please contact us
SOUTHSEA VISION
indicative view over Castle quarter, from south east

THANK YOU
Q & A

A full report on this proposal is at:
http://www.portsmouthisland.uk/southsea-common-s-sea-defences.html
Facebook campaign at:
Southsea Seafront at Risk
If you can display the exhibition please contact us
The current policy of ‘holding the line’ should be reviewed to allow for:
- the development of the most appropriate, high quality and best value coastal defences for Portsmouth
- with the public offered a genuine choice from all available coastal design strategy scenarios, through consultation.

Economic and environmental impact assessments of any proposed sea defences should fully evaluate all approaches relating to flood cell 1, including these alternatives, and do so in a city wide context.

From the requirement for new sea defences, a better sea front design should be developed that’s appropriate to the city’s context and aims to enhance its assets and ecology.

With roughly £86.28m being invested on flood cell 1, the design of new sea defences needs to be more thoroughly considered with the investment better deployed to maximise benefits.

Further levering of investment should be explored and alternative scenarios studied for addressing the long term risks, opportunities and rewards.