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Beneficial Use of Dredging.....  
.....it's not as easy as it sounds.

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Solent and South Downs Area

# Southampton today

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A record 43 million tonnes of cargo handled in 2007

7% of all UK trade by tonnage passes through Southampton – 4<sup>th</sup> largest by tonnage

23% by value of UK international non-EU sea borne trade passes through Southampton – more than any other UK port

# Containers

## Southampton's Container Terminal (DPWS)



- Second largest container terminal in the UK
- Handled approx. 1.3 million teu in 2009
- Approx. 50% of UK trade with the Far East and China

# Vessel Size

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Latest generation: 8,000 to  
13,000 TEUs  
+ 350m in length  
14.5 m draught



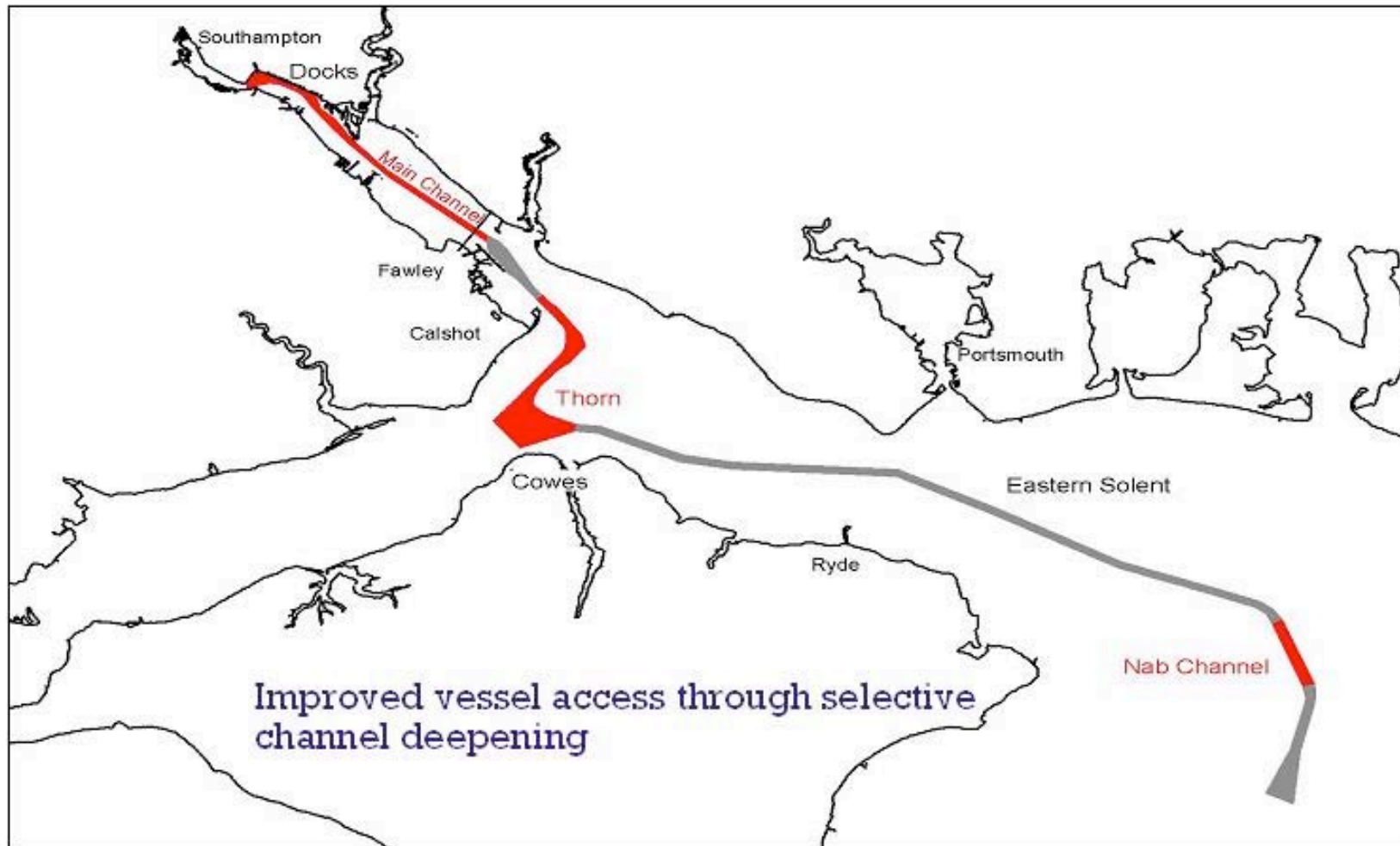
+ 300 m in length  
48m beam  
+ 9m draught

# Project Rationale

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- Increase the ability of vessels to pass in the approach channel between Dock Head and Fawley
- Improve the tidal access window to the Port  
e.g. From current asymmetric 22% to balanced 47% for a 14.5m draught vessel
- Both of these will improve operational flexibility
- Further enhance navigational safety

# Southampton Approach Channel Dredge



# Identification of Dredged Materials

- Volume of material to be dredged
- Soil properties for dredge, disposal and beneficial use
- Modelling parameters
- Contamination
- Palaeo-environmental features

# Identification of Dredged Materials

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Over £0.5 million site investigation to determine material characteristics

- Marine boreholes
- Grab samples
- Vibrocores
- CPTs

# Identification of Dredged Materials

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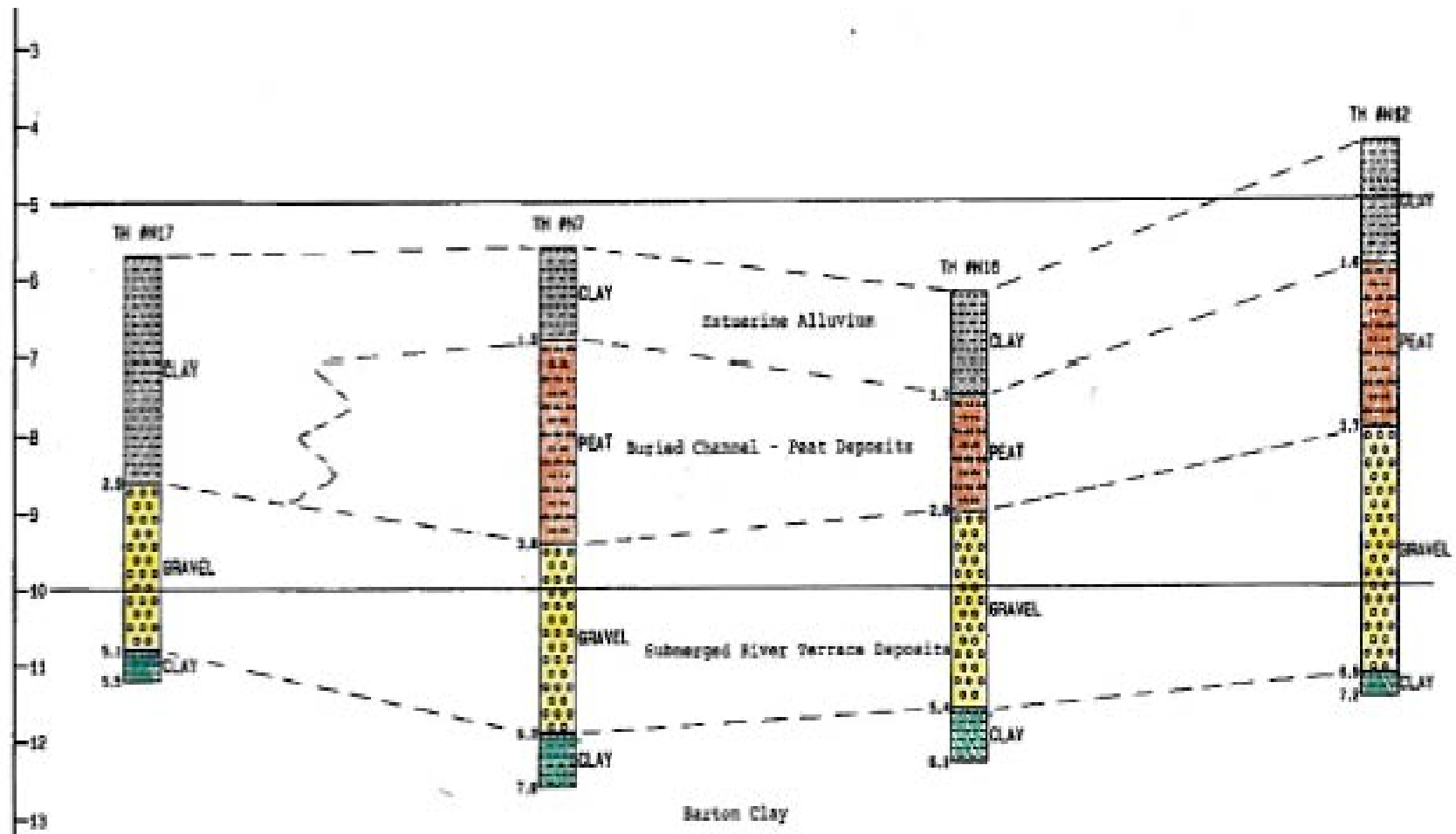
## Material volumes

- 9.6 million m<sup>3</sup> net in-situ. volume
- 11.6 million m<sup>3</sup> with allowance for dredging tolerance

## Type of material

- |                            |                            |
|----------------------------|----------------------------|
| • Stiff clays/ dense sands | 4.4 million m <sup>3</sup> |
| • Glacial gravel           | 1.7 million m <sup>3</sup> |
| • Alluvium and peat        | 2.4 million m <sup>3</sup> |
| • Solent sands and gravels | 3.1 million m <sup>3</sup> |

# Type of Material



# Beneficial Use

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## Food and Environment Protection Act 1985 (FEPA)

The licensing authority has a duty to “*have regard to the practical availability of any alternative methods*” of disposal, including the beneficial use of dredged materials.

### The Options:-

- Environmental enhancement schemes. E.g. beach nourishment.
- Engineering schemes. E.g. reclamation, flood defence
- Commercial exploitation

# Beneficial Use

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## The Challenges:-

- The need to marry quantity and quality of material available with a defined beneficial use
- The need to obtain the necessary consents and funding to meet the dredging timetable
- To develop compatible contractual and operational arrangements

# Consultation

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January 2008 initial consultation with:

- Ten local authorities
- Four private developers
- Three government agencies, including the Environment Agency
- Two NGOs.....
  
- .....and ABP

# Constraints

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- The end user would be responsible for obtaining all necessary design, consents and funding
- ABP would make all geotechnical and geophysical data freely available and would assist wherever possible
- ABP would make material available on the basis of no net increase in project costs
- Contractual and operational arrangements to be agreed

# Potential schemes



- Seven potential schemes identified
- Six different local authorities