Maximising Beneficial Reuse through the use of a Novel Dredging Contract

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Contents

• Requirement for the Dredging of Princes Channel
• The Dredging Contract
• Case Study – The Rochester Riverside Development
Port of London Authority

- Established in 1908
- Public trust
- Self-financing

Primary responsibilities
- Safety of navigation
- Protection of the environment
  - Sites of Special Scientific Interest (SSSI)
  - Special Protection Areas (SPA)
  - Special Areas of Conservation (SPA)
  - Ramsar sites
“Upper River”
Teddington to Putney
“Middle River”
Putney to Thames Barrier
“Lower River”
Thames Barrier to Harwich/Margate line
Legislative Context: Dredging

- Coast Protection Act 1949
- Port of London Act 1968 (as amended)

- PLA is also required to take account of:
  - Section 48A of the Harbours Act;
  - Conservation (Natural Habitats &c.) Regulations 1994;
  - Countryside and Rights of Way Act 2000;
  - Environmental Impact Assessment (EIA) Directive;
  - Shellfish Waters Directive;
Princes Channel Deepening Project

Phase 1
• Trial dredge took place in 2003.
• A narrow section deepened to -7.0mCD to study stability and rate of infill.
• 350,000m$^3$ of dredged material was used beneficially in a construction scheme.
• Intensive bathymetric survey programme.

Phase 2
• Provide 300m channel dredged to -8.0mCD.
• Approximately 2,500,000m$^3$ of dredging.
The PLA concluded that Phase 2 of the Princes Channel Deepening Project was unlikely to have any significant effects on the natural environment in the vicinity of the Princes Channel.
Dredging Contract

PLA’s requirements
- Method of dredging that would leave no high spots;
- Contract form that would encourage the use of dredged material rather than disposal;
- Contract form that would encourage dredging contractors to use Princes Channel material rather than other sources of fill;
- Contract that would be reasonably easy to administer.

Dredging contractors’ perceived requirements:
- Source of material that could be used for future reclamation projects;
- Quantifiable cost of obtaining material from Princes Channel;
- Assurance that sufficient material would be available;
- No fixed requirement to use Princes Channel material.
Pro-Forma Contract

Based on The FIDIC Conditions of Contract for Dredging and Reclamation Works.

Provisions of Dredging Contract

- Material could be dredged at any production rate (within reason).
- No obligation to dredge any fixed quantity of material.
- Channel must be dredged in relatively thin layers.
- More than one company may be dredging at any one time.
- PLA would neither make nor receive payment for any material dredged – contractor would pay the Crown Estate royalty for the removal of the seabed.
Incentive Dredging

“For every 100m$^3$ of sand removed, in hopper, from the site and reused in a reclamation project, the contractor would be paid to dredge another 25m$^3$, in hopper, and this material would be taken to a licensed placement site in the North Edinburgh Channel.”

Advantages of the Incentive Dredging

- Increased the size of the project for the contractor by ~20%.
- Increased the amount of channel dredging for the PLA by ~20%.
- Allowed PLA to specify dredging areas in final phases to ensure maximum navigational benefit (removing high spots).
Operation of the Contract

• Pro-forma issued in December 2004.
• In 2006 Van Oord used dredged material from Princes Channel for reclamation at Rochester Riverside Development.
• Further dredging programmed for December 2007.
The Rochester Riverside Development
Preparatory Engineering Works Contract

• Awarded by Medway Council to an Edmund Nuttall / Van Oord Joint Venture in Autumn 2005

• Scope:
  – Improved flood defences
    • 2.5km of new / refurbished river walls
    • Raising of the land by approx. 1m
  – Remediation of Contaminated Soils
  – Creation of Inter-tidal Habitat
Outline Methodology

• Previous heavy industrial use of site, including gas works
• Presence of contaminated soils & ground water
• Risk of contaminating transportation water
• Importation of sand into sealed reception pits
• Onward movement and placement using conventional earthmoving equipment
Regulatory Approval

- Environment Agency required approvals:

<table>
<thead>
<tr>
<th>Licence</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management Licence</td>
<td>Control of importation of sand material into Reception Pits</td>
</tr>
<tr>
<td>Site Recovery Licences</td>
<td>Control of subsequent movement of sand from Reception Pits to its required location on site</td>
</tr>
<tr>
<td>Discharge Consent Licence</td>
<td>Control of quality and quantity of transportation water back into the River Medway</td>
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</tbody>
</table>

- Minimum 4-month application period for each Licence
Reception Pits

• Construction of Reception Pits commenced prior to receipt of various EA Licences
• Layout of Reception Lagoons varied between Tender and Construction Phases due to site constraints
Material Importation
Conclusions

• A Contract Form that incentivised Contractors to acquire opportunities for beneficial reuse of dredged material
• Significant part of Princes Channel deepening undertaken in compliance with Governmental and International requirements for beneficial reuse of dredged material
• Rochester Riverside is a successful demonstration that estuary dredgings can be used in the construction sector
• Commercial benefits to both the PLA and Medway Council
Thank you for your attention

Any questions?