



# Colombo Port Expansion Project – Harbour Infrastructure Works



## Attachment B





# Colombo Port Expansion Project – Harbour Infrastructure Works



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23<sup>rd</sup> February 2007





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## The Existing Port

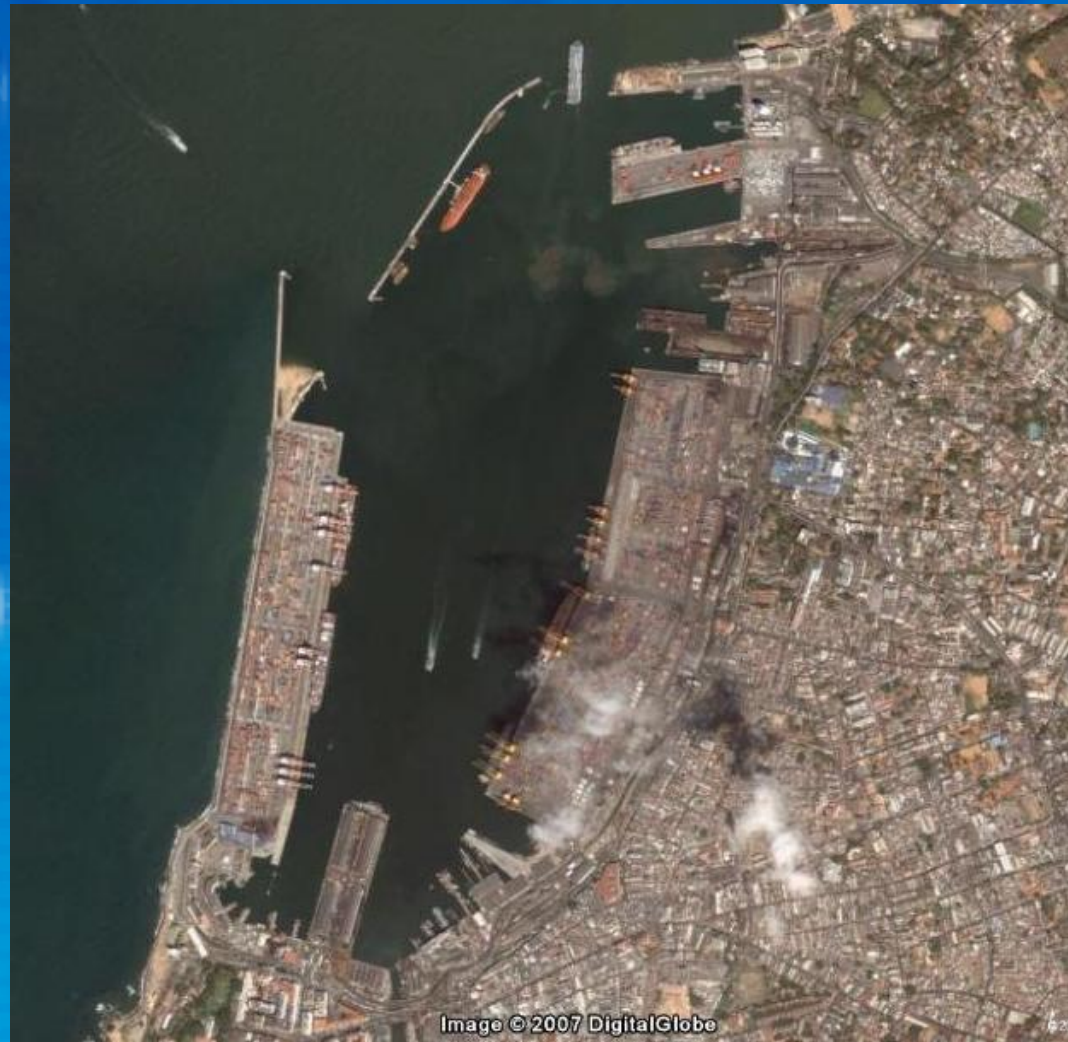
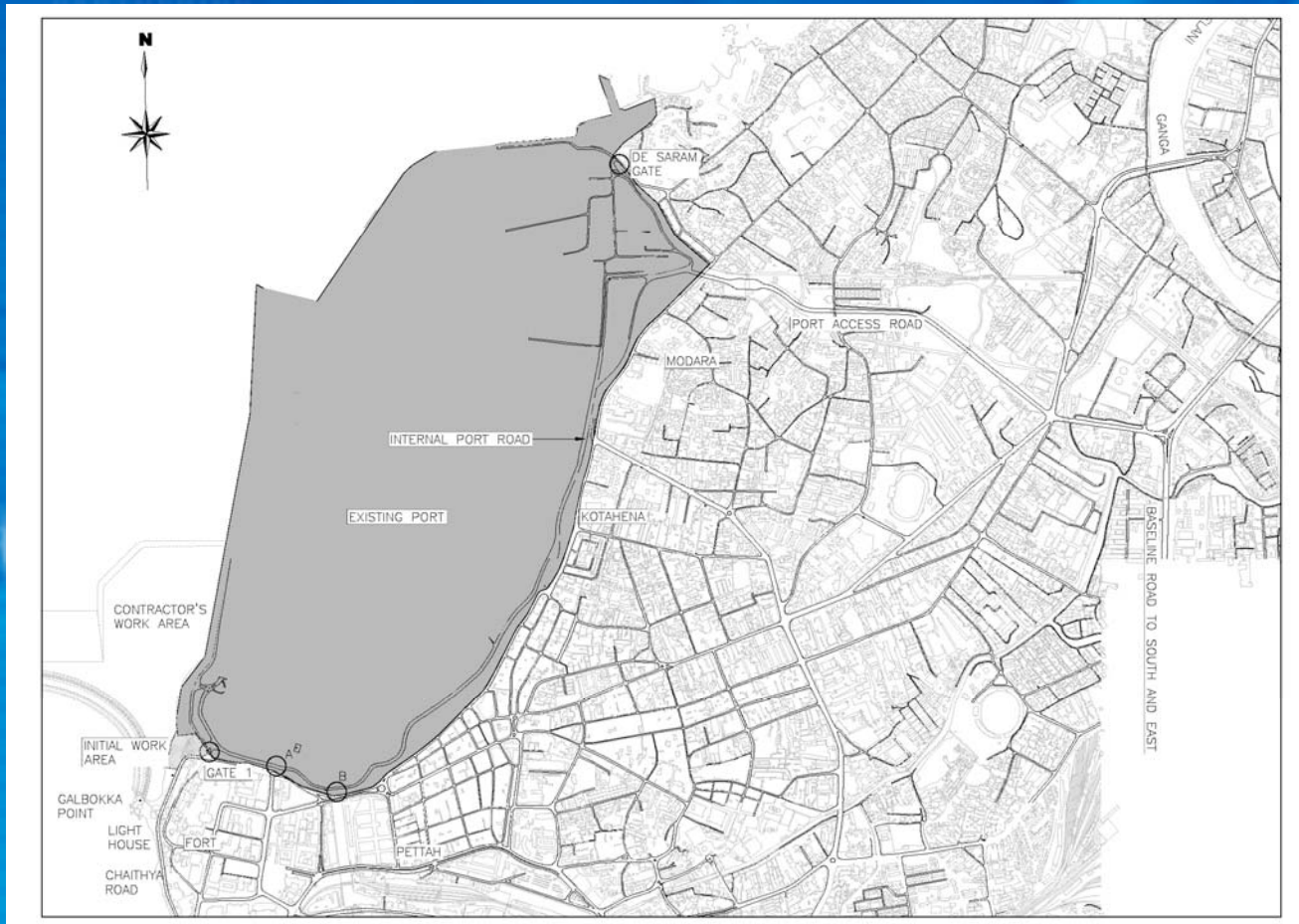


Image © 2007 DigitalGlobe



# Colombo Port Expansion Project – Harbour Infrastructure Works Existing Port and Access Road

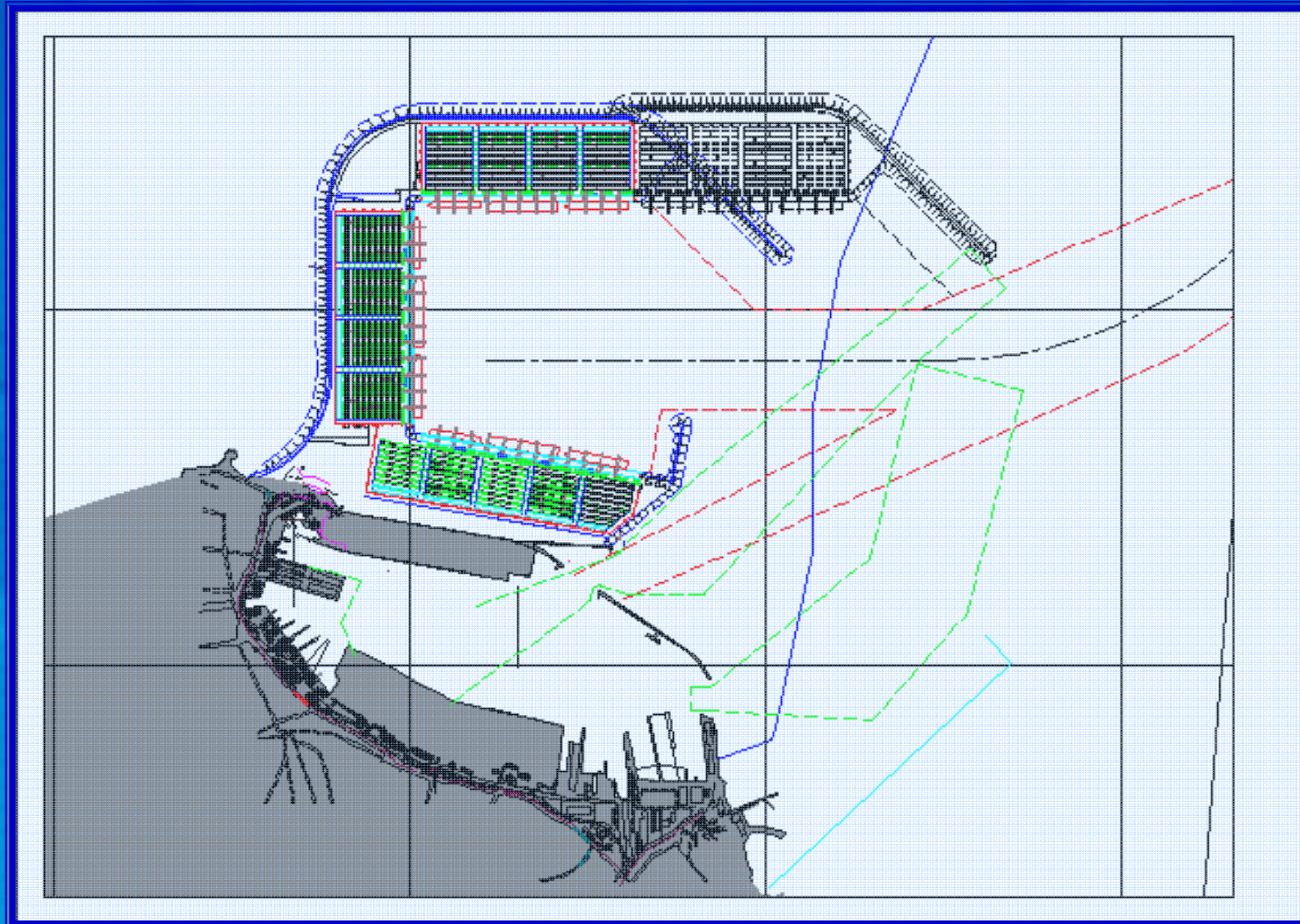




# Colombo Port Expansion Project – Harbour Infrastructure Works



## The Expanded Port





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## Procurement Route

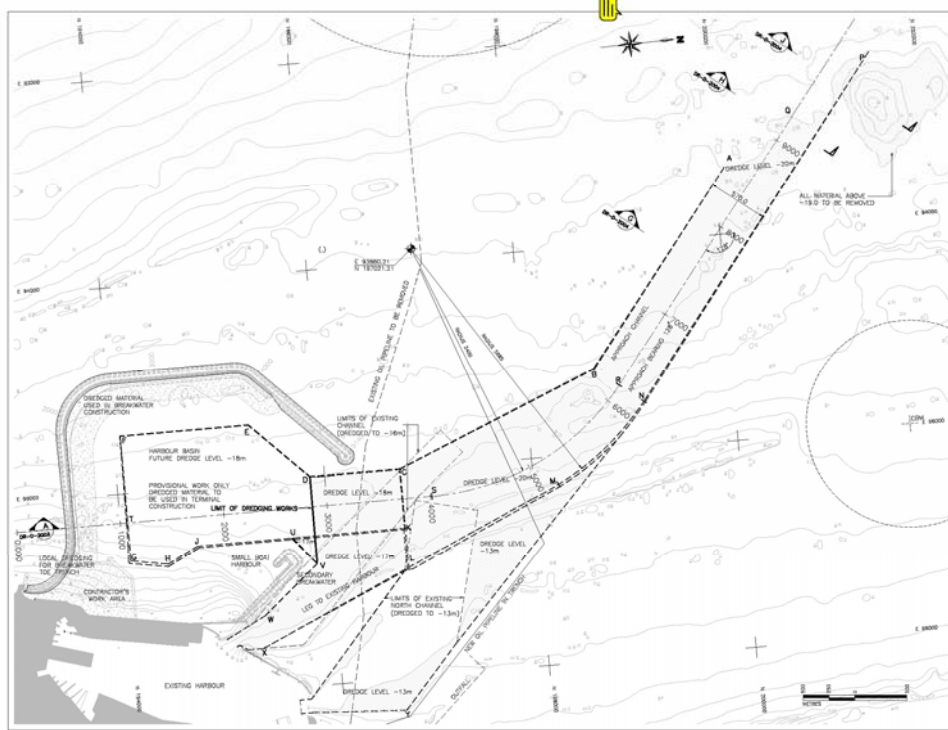
- **Harbour Infrastructure Works:**
  - Conventional civil engineering contract, FIDIC-based
  - SLPA as Employer
  - Funding through ADB loan to Sri Lankan Government
- **South Terminal:**
  - BOT concession, includes:
    - Terminal construction and harbour dredging
    - Handling equipment
    - Operation
  - SLPA as landlord
- **Common features:**
  - Open bidding procedures
  - Parallel development



# Colombo Port Expansion Project – Harbour Infrastructure Works

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## Harbour Infrastructure Works Layout



- Main breakwater ~5km long
- Dredging new access channel and realigned channel to existing harbour:
  - Material to be used to provide fill, mainly for breakwater
- Re-routing of 36" submarine pipeline ~6km long
- Secondary breakwater ~1km long, enclosing:
  - Small boat harbour with quay wall ~400m long
- Onshore works including buildings, roads and services



# Colombo Port Expansion Project – Harbour Infrastructure Works



## Offshore Surveys

- Bathymetric
- Geophysical
- Geotechnical
- Environmental



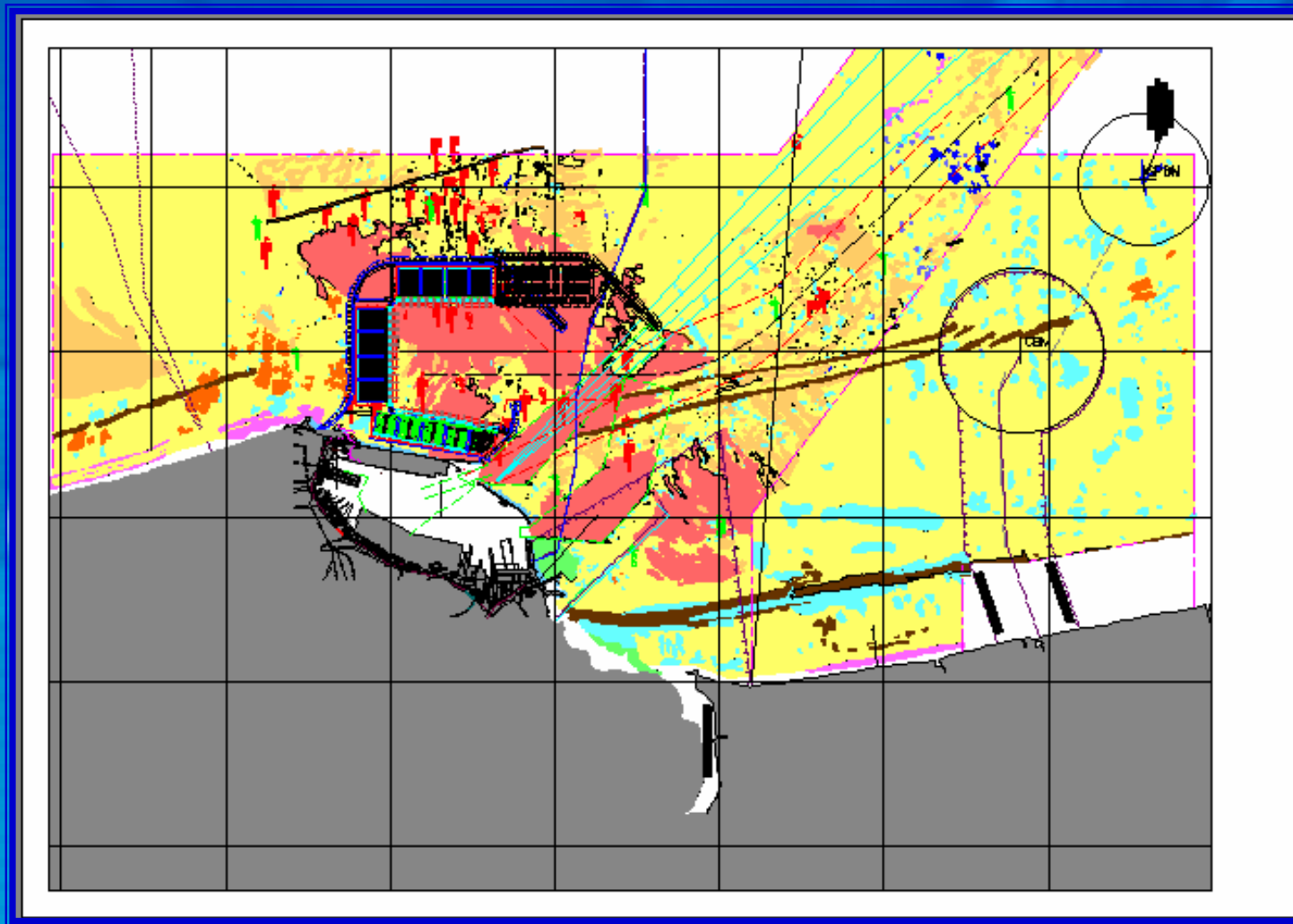




# Colombo Port Expansion Project – Harbour Infrastructure Works

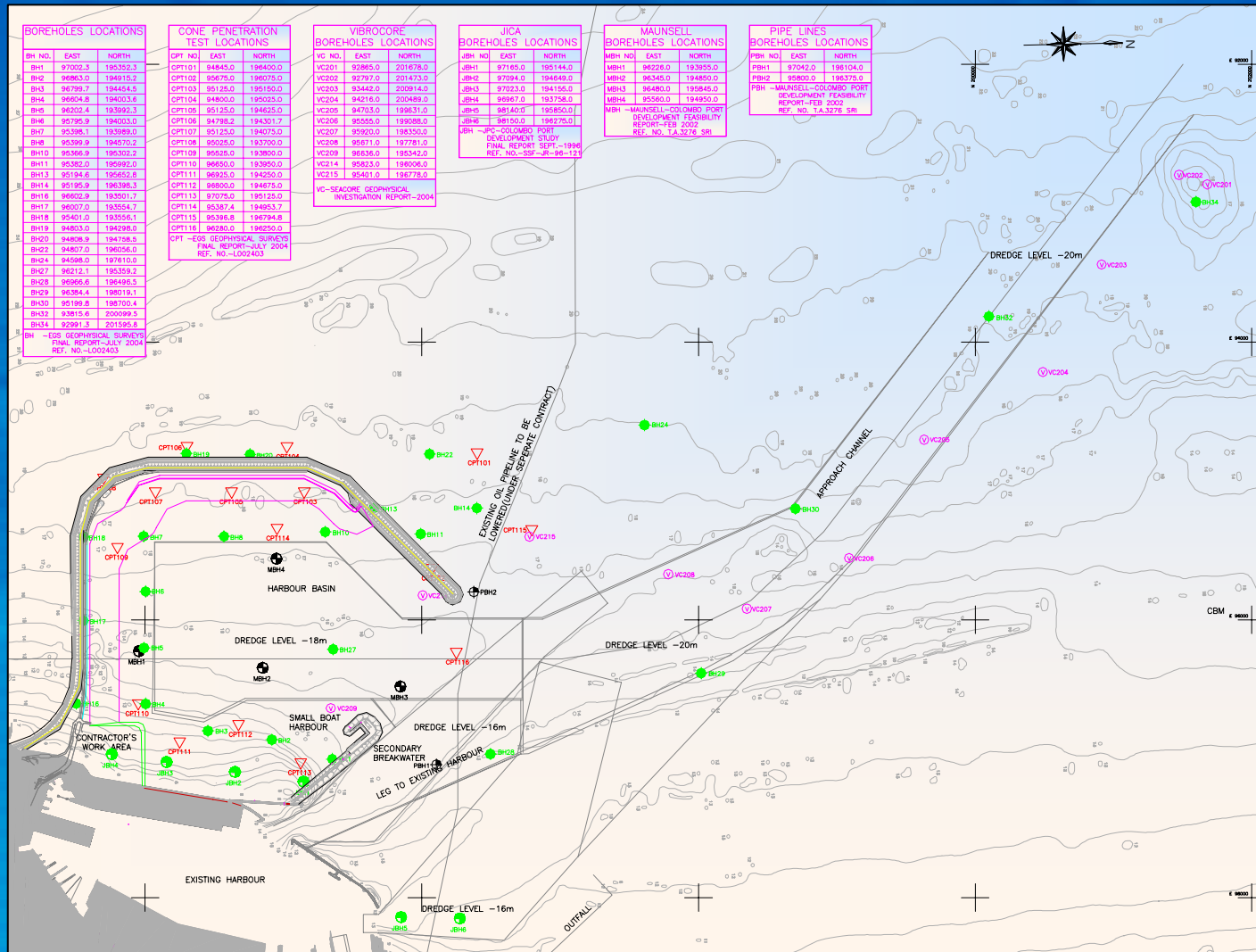


## Results of Side Scan Survey





# Colombo Port Expansion Project – Harbour Infrastructure Works Geotechnical Investigation

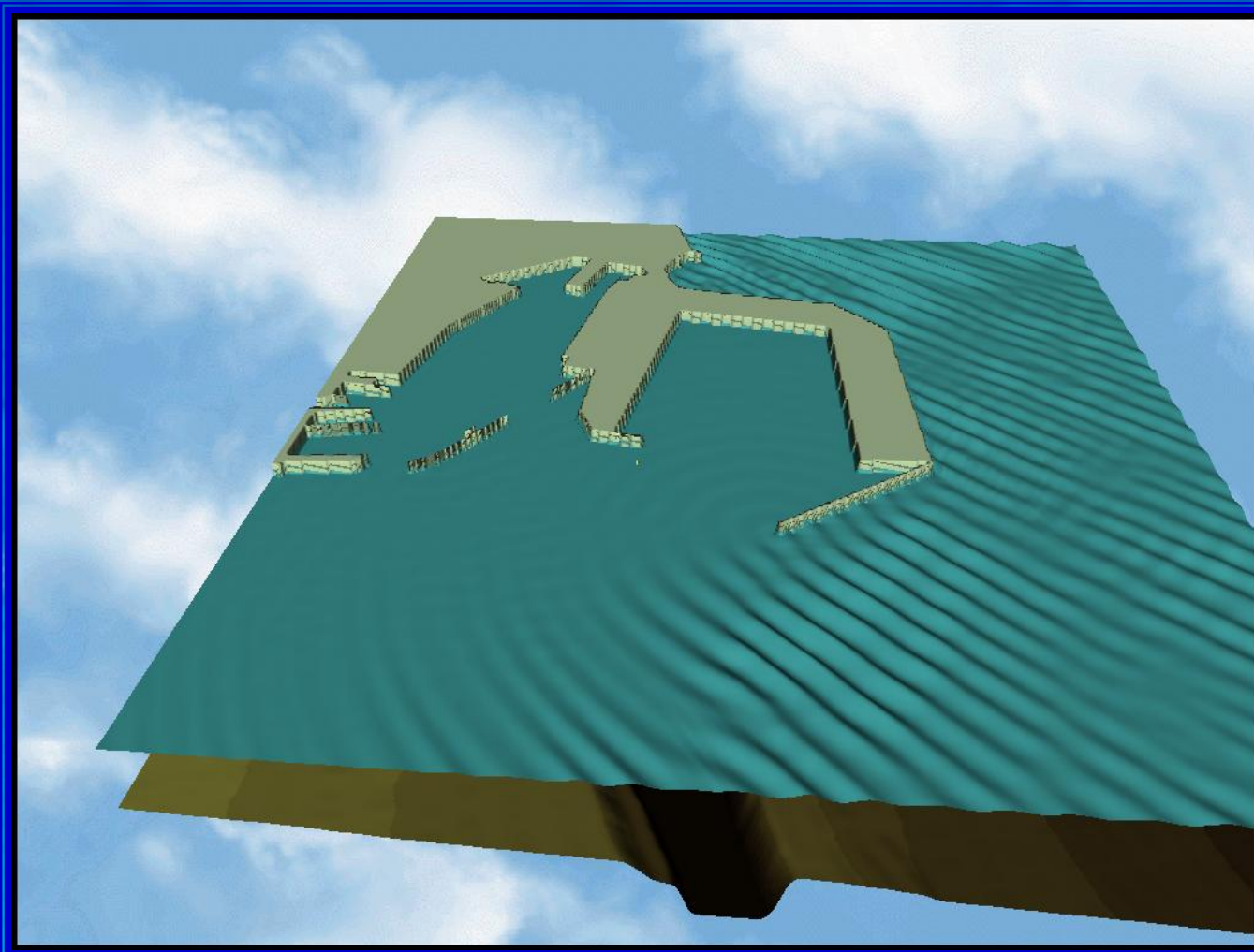




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## Harbour Disturbance Model





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## Main Breakwater

### Physical modelling:

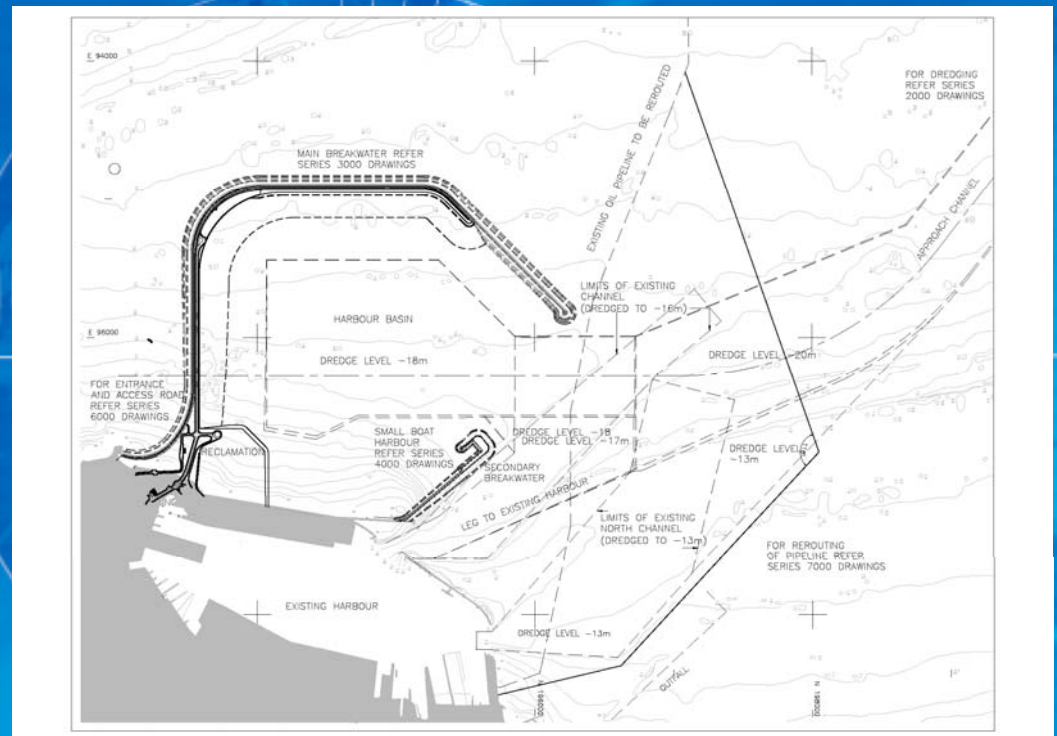
- 2D flume
- 3D basin

### Form of construction:

- Maximises use of sand
- Rockfill + concrete armour units
- RC wave wall

### Foundation:

- Soft sea bed
- Wide toe required
- Two stage construction
- Surcharge improves ground conditions





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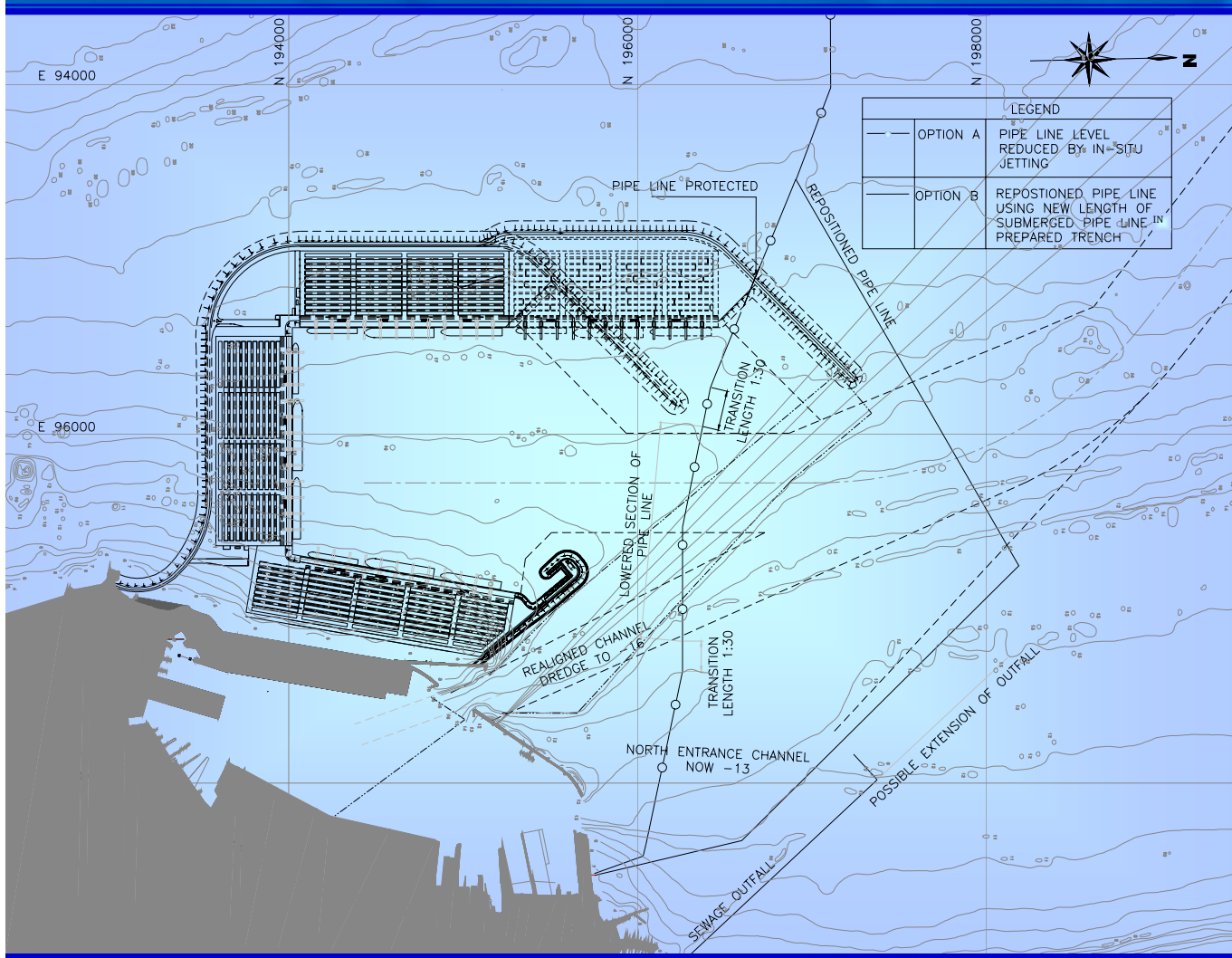
## Material Resourcing

- Abundant good quality rock
- Sea transport to avoid Colombo roads
- Contractor to obtain licences and environmental permits



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## Submarine Pipeline Re-routing



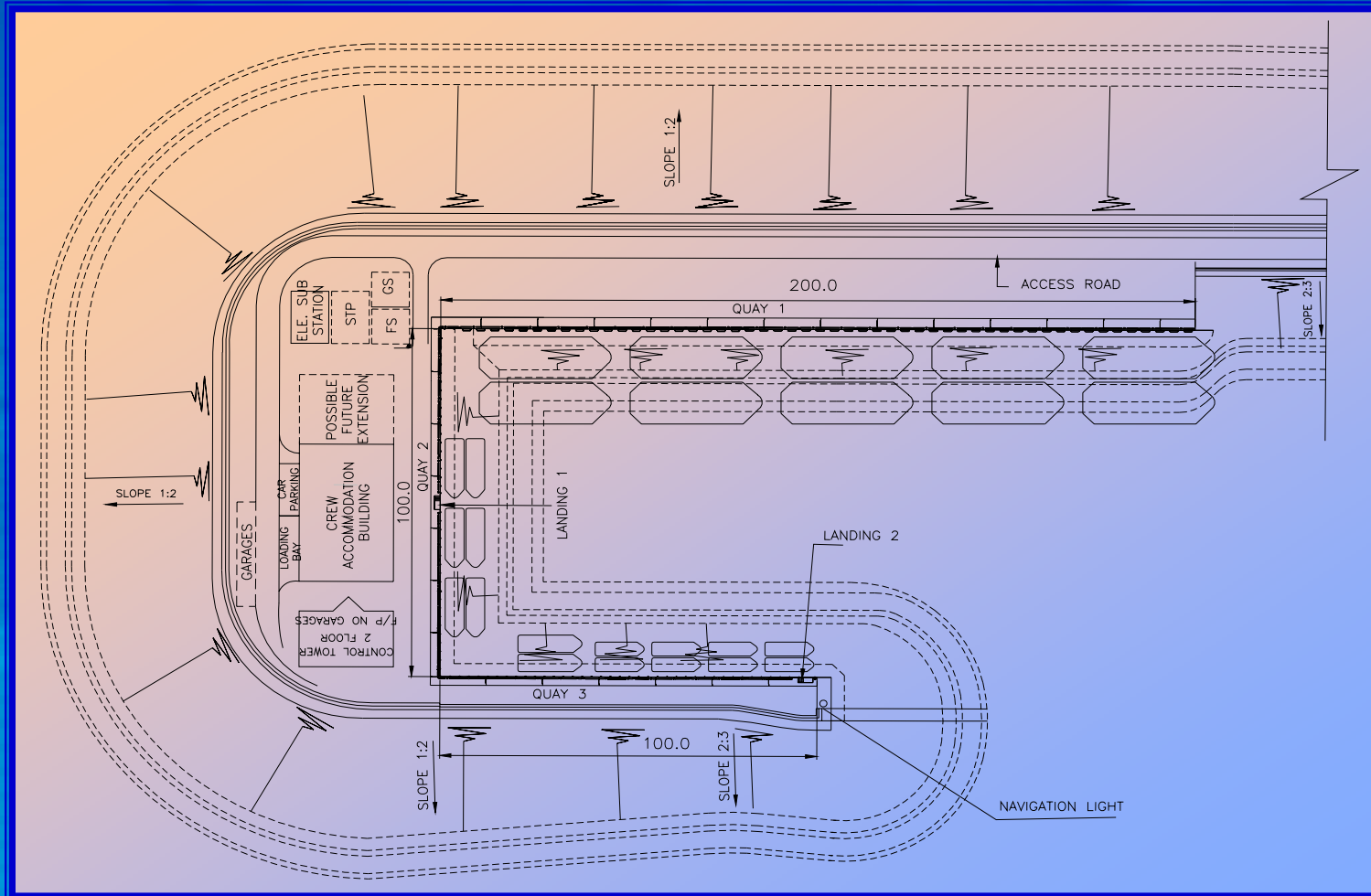
- Trench requires rock removal
- Close interfacing with Owner CPC
- Contractor responsible for design



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## Small Boat Harbour



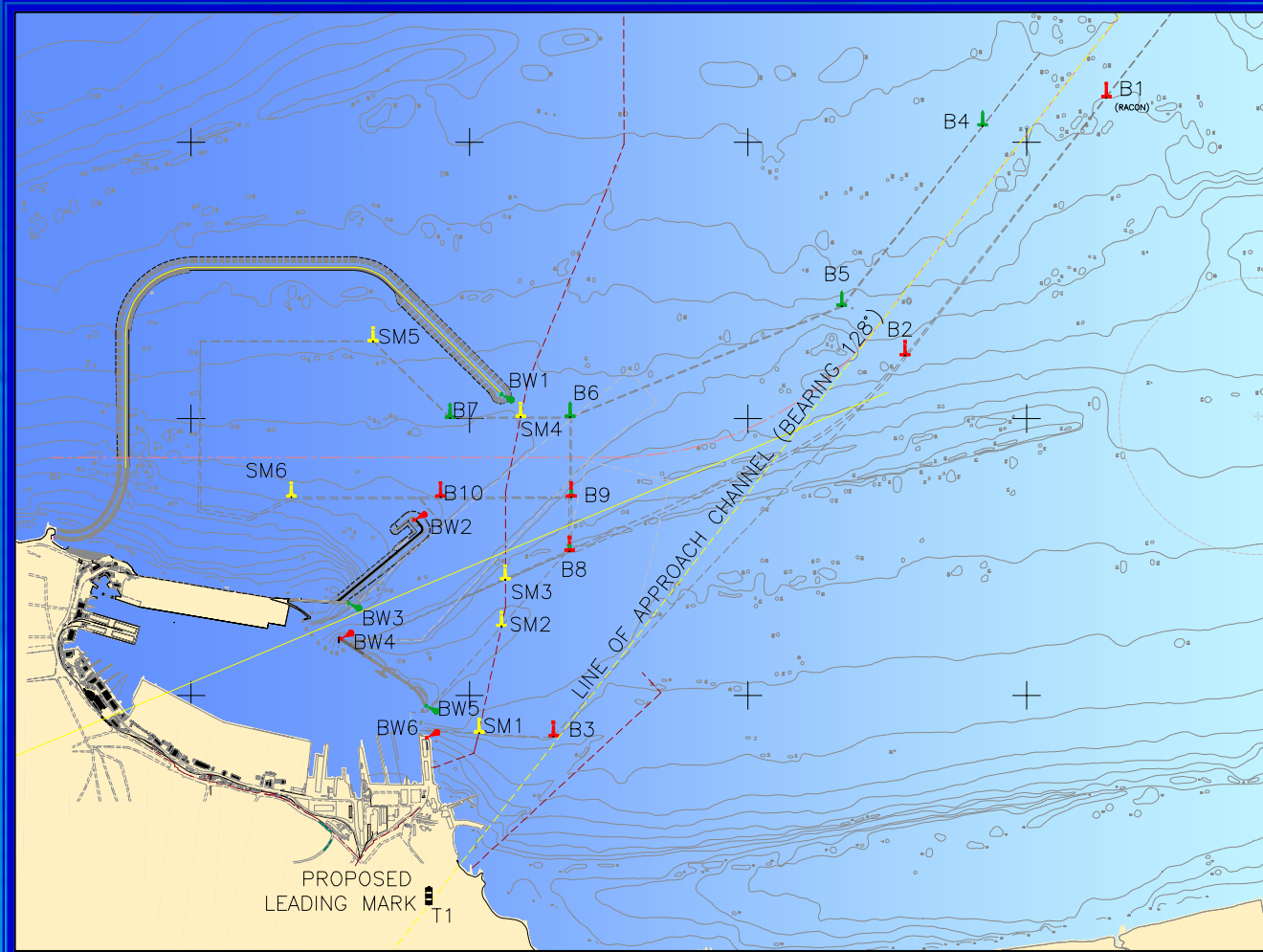
Secondary breakwater armour is only designed for the final harbour layout



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## Channel & Navigational Aids



A TO N	S.L.M.G.	
	EAST	NORTH
B1	93678.657	200574.410
B2	95544.208	199128.430
B3	98297.142	196604.121
B4	93883.208	199686.078
B5	95185.005	198673.549
B6	95992.820	196876.253
B7	95995.208	195860.596
B8	96958.583	196719.145
B9	96565.530	196731.135
B10	96565.208	195792.757
BW1	95823.647	196228.764
BW2	96732.021	195604.144
BW3	97331.761	195133.065
BW4	97589.767	195077.151
BW5	98075.924	195689.055
BW6	98306.374	195694.343
SM1	98272.420	196069.50
SM2	97501.247	196230.075
SM3	97164.626	196258.492
SM4	95987.168	196368.836
SM5	95443.00	195308.388
SM6	96565.208	194721.290
T1	99510.050	195710.103

Channel 570m wide, -20m depth

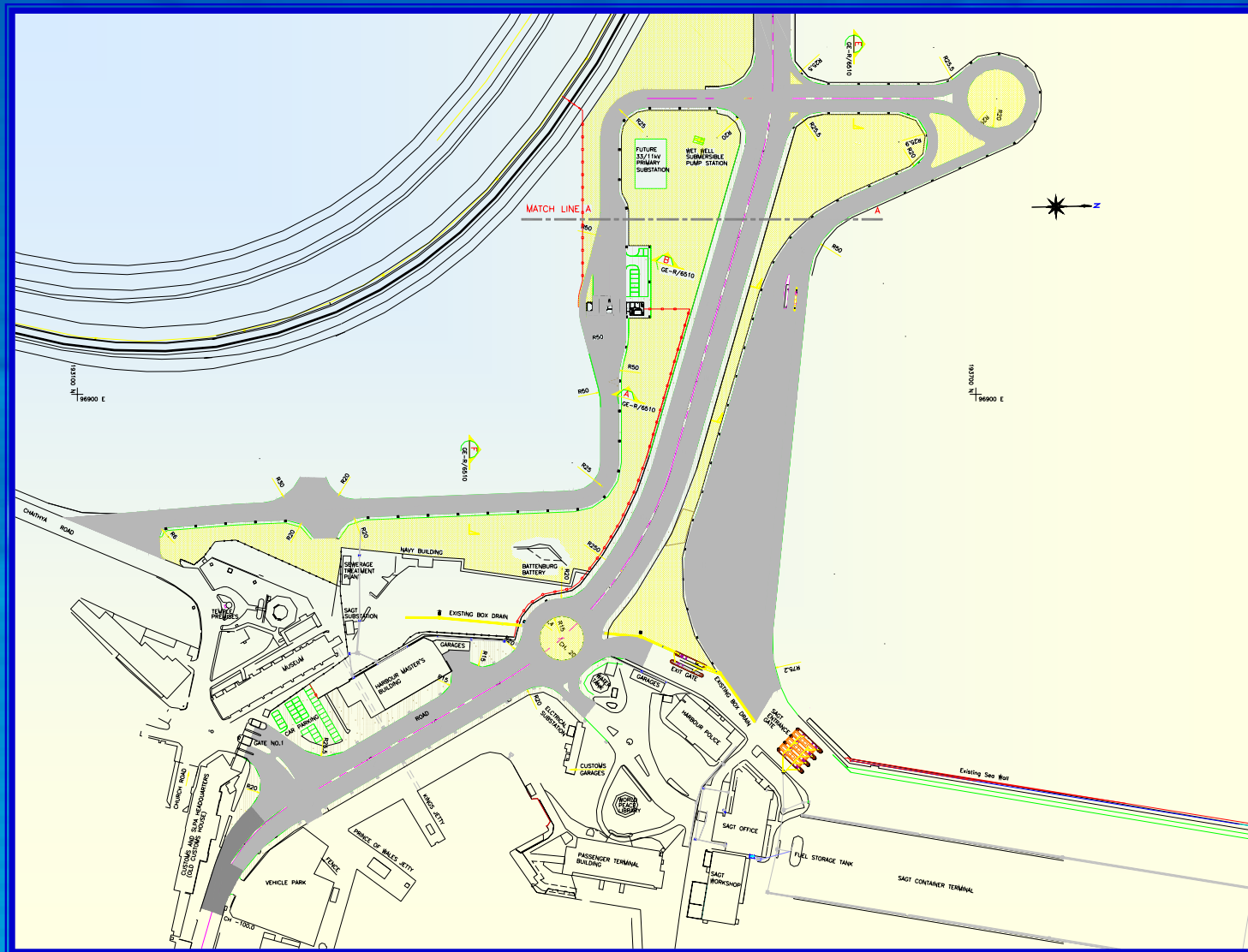




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## Overall Layout at Entrance to New Harbour





# Colombo Port Expansion Project – Harbour Infrastructure Works



## Some General Requirements

Include:

- Programming will be of prime importance
- Measures to allow for weather delays and protecting the works (eg monsoon)
- Establishing a working area with temporary offloading facility
- Programming the works to match the main breakwater construction
- Using all dredged material in the Permanent Works
- Environmental Management Plan

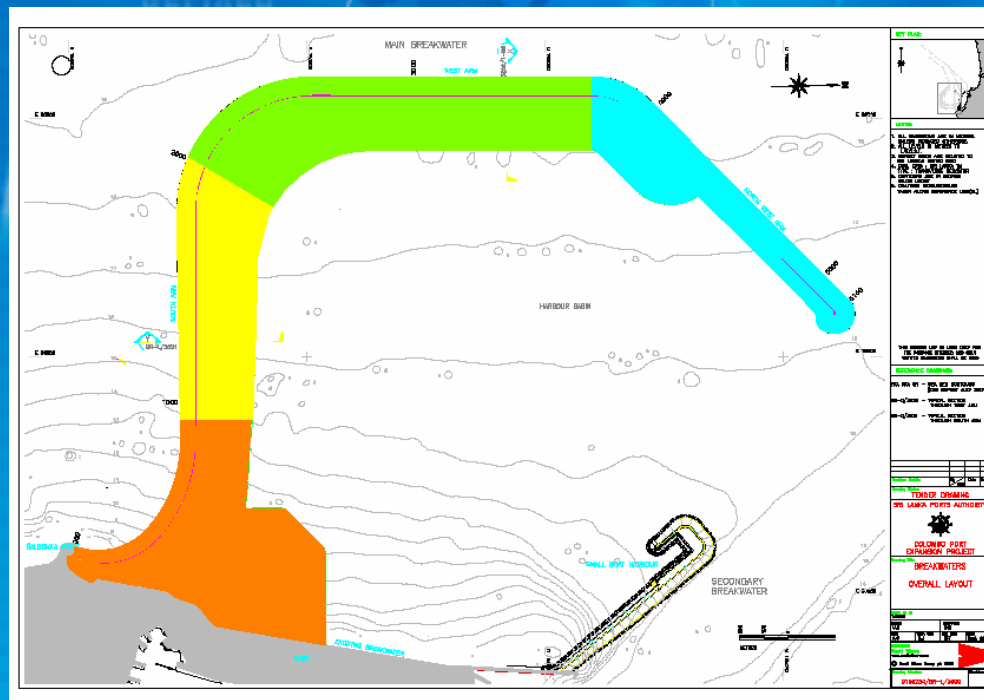


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## Construction Programme

- Time for completion: 39 months
- Sectional completions:
  - Main breakwater to Ch 2,000: 15 months [required for South Terminal]
  - Main breakwater to Ch 3,750: 27 months





# Colombo Port Expansion Project – Harbour Infrastructure Works



## Bidding Stage

- Bid documents available for purchase: 1 January
- Pre-bid conference / site visit: 23/24 January
- Deadline for clarification requests: 13 March
- Bid submission / opening of technical: 3 April
- Bids valid until: 1 August
- Evaluation of qualification / technical
- Opening of financial
- Evaluation and comparison of financial
- Award expected in July



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**Thank you  
and  
good luck**