

WATERFRONT REDEVELOPMENT

IZOLA EAST

24-28 September 2012

Izola, Slovenia

Construction and Civil Engineering Works in Coastal Area

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PLANNING A NEW DEVELOPMENT

Existing situation and area requirements

- environmental parameters - meteorological, hydrographical
 - . wind analyses
 - . wave analyses
 - . currents
 - . depths
 - . tides

- geological parameters
 - . soil
 - . rock
 - . dredgeability

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STRUCTURE SELECTION

Marine structures are different related to:

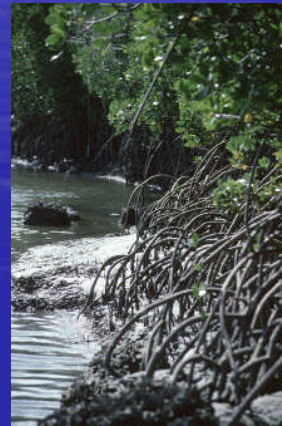
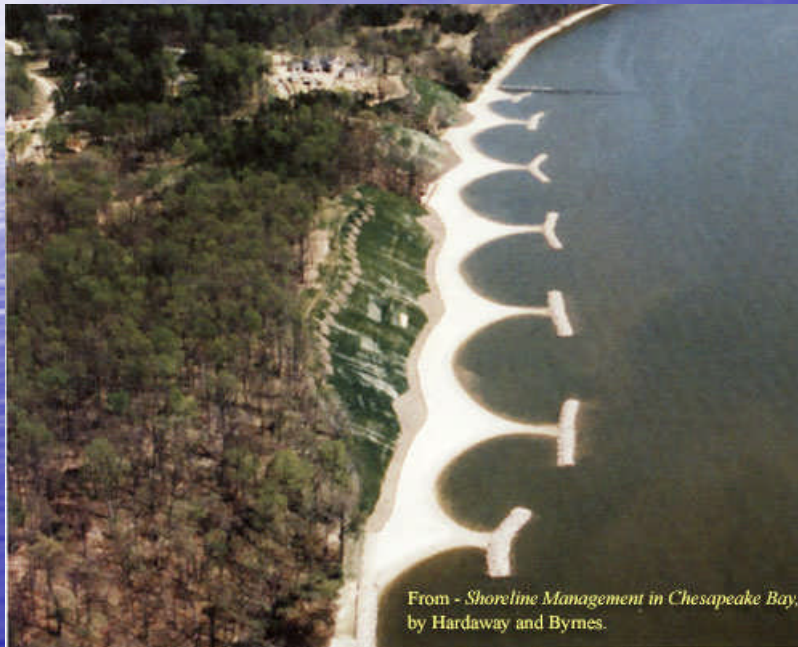
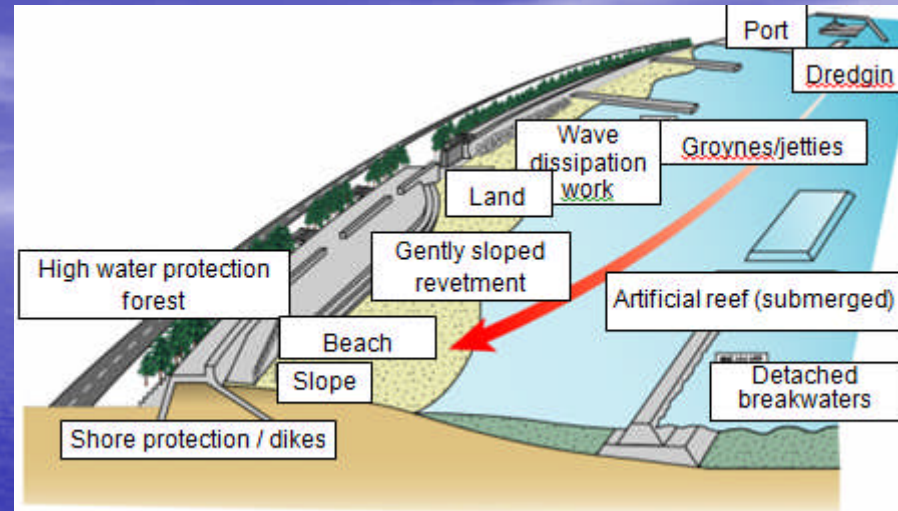
- their purpose
 - . coastal protection
 - . beach
 - . harbour
 - . marina
 - . port

- their hydraulic performance
 - . impermeable, fully reflecting walls – gravity walls, caissons, sheet pile wall
 - . open, not fully reflecting energy absorbing walls – deck on piles

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COASTAL PROTECTION

- . natural or construction coastal protection
- . breakwater



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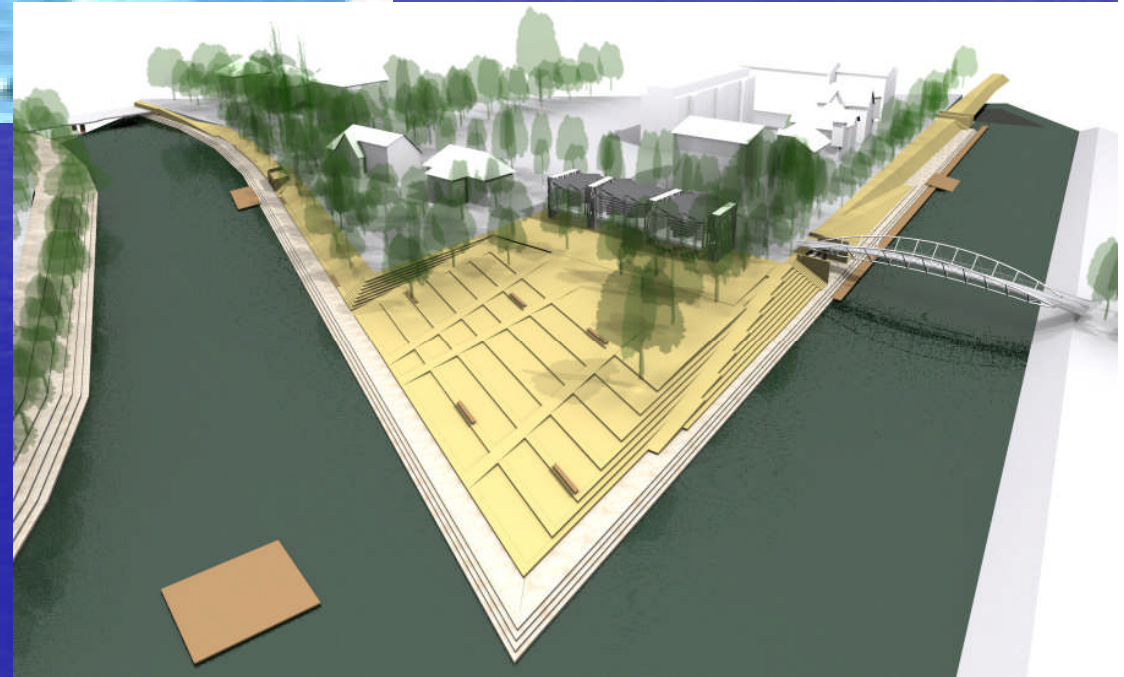
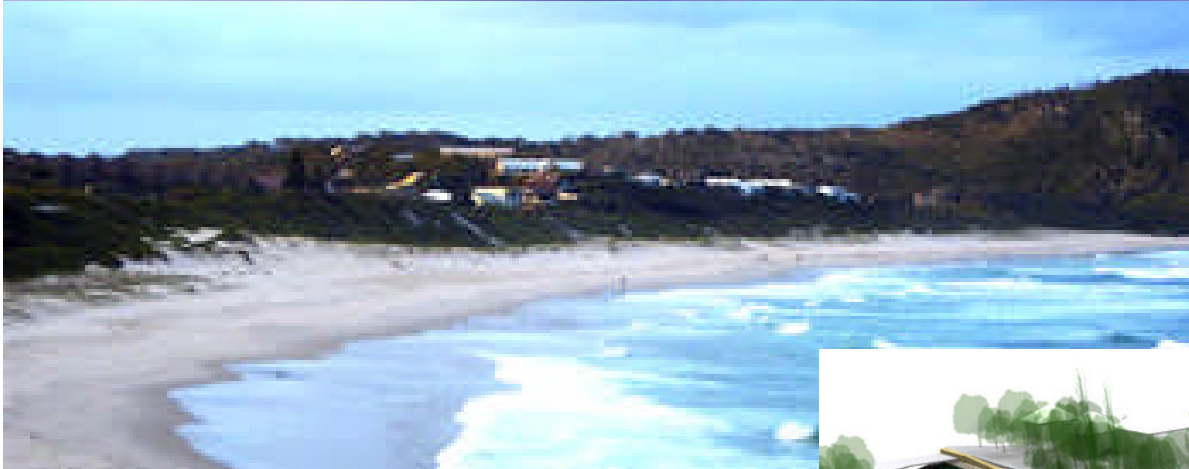
COASTAL PROTECTION – DREDGING AND RECLAIMING



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BEACH



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HARBOUR



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MARINA



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PORT

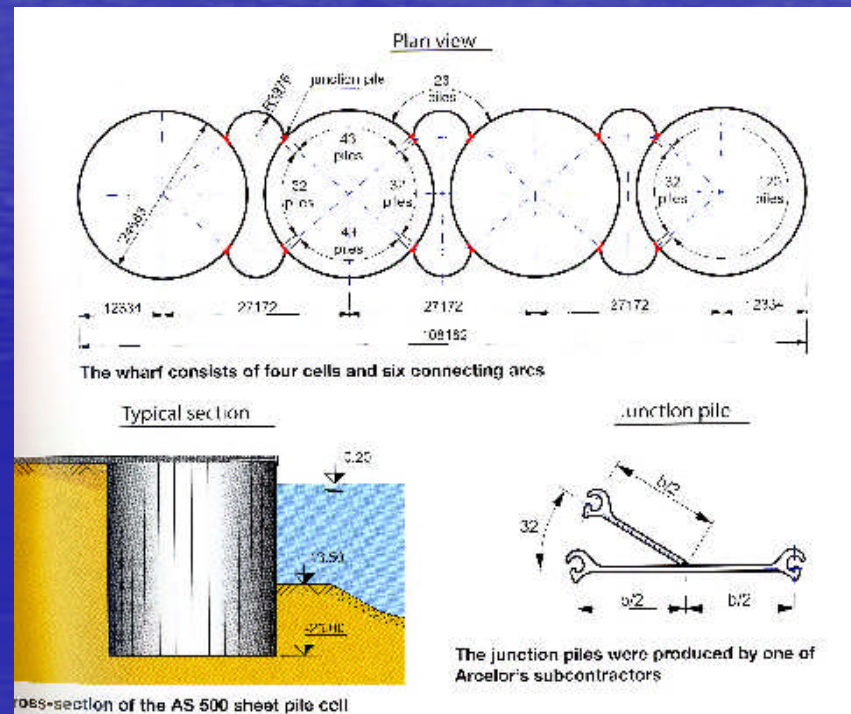


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hydraulic performance: impermeable, fully reflecting walls

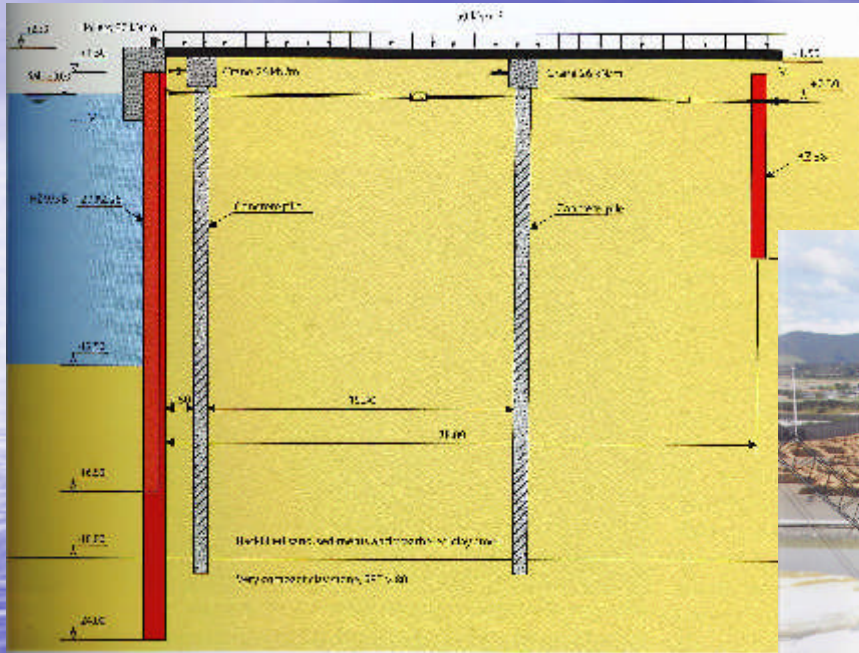
- . caissons
- . Cellular cofferdams



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hydraulic performance: impermeable, fully reflecting walls

- sheet pile wall



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hydraulic performance: open, not fully reflecting energy absorbing walls –
deck on piles



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Forces acting on marine structure

1 from sea side

- horizontal loads – waves, vessel berthing, bollard forces
- Vertical loads – vessel hangs up on fendering, bollard, life saving equipment
- Vessel lying on berth – wind, current on vessel, wire on bollard

2 From quay itself

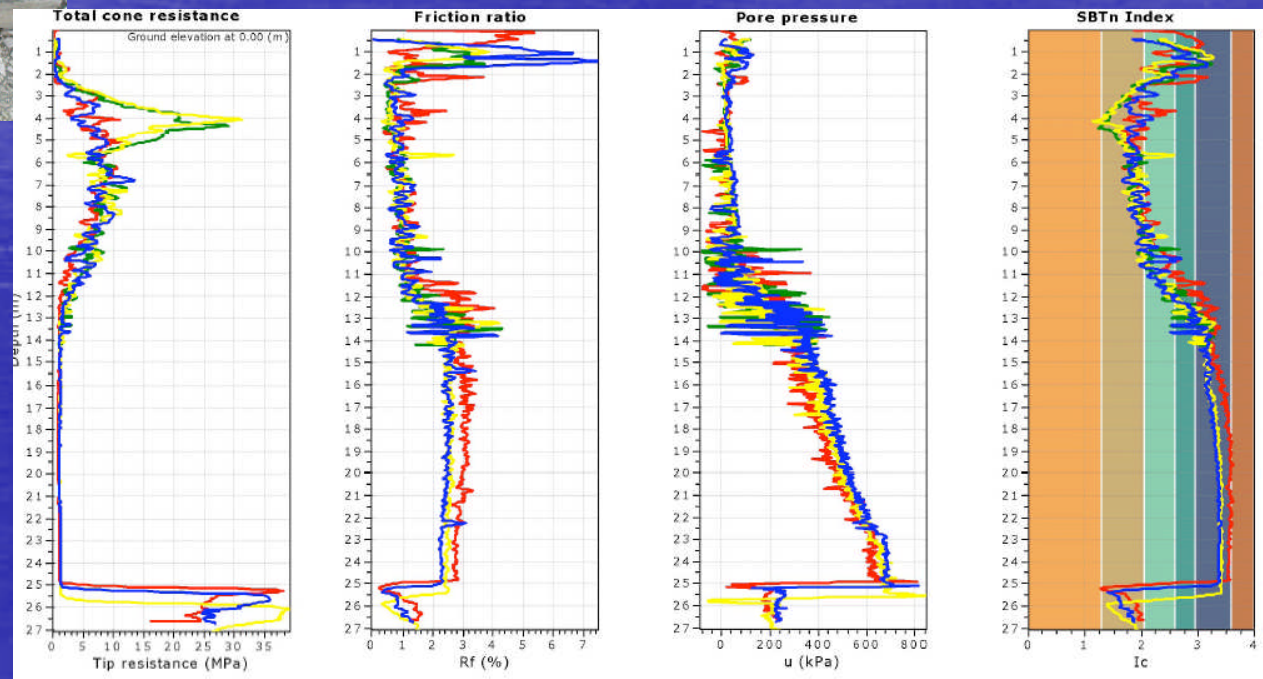
- horizontal loads – temperature, cranes
- Vertical loads – own weight, superimposed loads

3 From landside

- horizontal loads – own weight of filling, superimposed load on filling, waterpore pressure
- Vertical loads - own weight of filling, superimposed load on filling

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Soil conditions – soil investigations – field and laboratory tests



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Soil conditions

Soil conditions determine the choice of design or soil improvement

- Replacing poor soil with good soil
- Compaction of sub-soil
- Preloading
- Drain acceleration
- Chemical injection



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Discussion

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