

ESER

CONSULTING ENGINEERING INCORPORATION

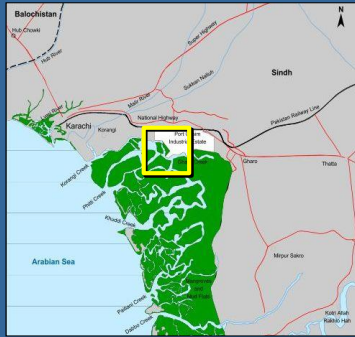
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since 1968



KEY REFERENCES

MARINE FACILITIES



Detailed Engineering
Start-up Inspections
Cost Control & Time Scheduling
Procurement Documentation
Contract Management
Construction Engineering Support Services

Bulk Terminal for Coal, Clinker and Cement

Sea Terminal Facilities

60,000 sqm Dredging Works

439 m Jetty

2,445 m Trestle

Mooring Dolphins

Gantry Crane and Conveyor Facilities

Land Terminal Facilities

250,000 sqm Land Terminal Area

Soil Improvement for Land Terminal

5 x 10,000 Ton Cement Silo

12 MW Power House and Network

Administration Office

Workshop, Mosque, Customs Office

Gate House, Driver Facility

Jetty Office, Weigh Bridges

Control Office for Silos

Water Supply, Fire Fighting Systems

Dust Control Sprinklers

Sewage and Storm Drainage System

Security Fencing

Internal Roads





**Detailed Engineering
Feasibility Study
Geophysical Studies
Geotechnical Studies
Topographical Surveys**

**Rock Filled Breakwater (1,675 m)
Steel Piled Anchor Pier (2,000 m x 30 m)
(60 m, 36" Steel Pipe Piles)
Container Terminal (1,100,000 sqm)
Logistic Terminal (1,000,000 sqm)
Lighting, Energy, Water Systems
Terrestrial Map (5.300.000 sqm)
Bathymetric Map (9.650.000 sqm)
1 Onshore Soil Boring
9 Offshore Soil Boring
Geotechnical Report
Feasibility Study
Demand Forecasting
Realization and Financing Scenarios
Financial Analysis**





01 - Software Development Building

02 - Fuel Storage Facilities

03 - Fueling Pier (75m x 10m+75m x 6m)

04 - Submarine Battery Charging Station 1

05 - Submarine Quay 1

06 - Submarine Piers 1-2 (60mx10 m+20mx7.5m)

07 - Submarine Quay 2

08 - Submarine Piers 3-4 (60mx10 m+20mx7.5m)

09 - Submarine Battery Charging Station 2

10 - Logistics Pier Extension (100 m x 25 m)

11 - Frigate Quay 1 Restoration

12 - Frigate Quay 2 Restoration



Detailed Engineering
Cost Estimations
Tender Evaluation
Tender Documentation
Construction Supervision
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East Submarine Piers

2 Submarine Finger Pier

(60m x 10m + 20m x 7.5m)

Transformer Rectifier Building (100 sqm)

2 x 100 KVA, 60 Hz Frequency Converter

2 x 200 KVA, 250 V DC Rectifier

800 kVA Dry Type Transformer



Torpedo HQ Building (866 sqm)

Ordnance HQ Building (1,670 sqm)

Spare Parts Warehouse (790 sqm)

Restoration of 9 Ammunition Igloo





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**Renewal of Navy Facilities at Golcuk Area
after 1999 Earthquake**

**MK-46 Torpedo Pier
Konca Mine Pier
Konca Fuel Loading Pier
Submarine Piers
Submarine Battery Charging Facilities
Submarine Converter Buildings
Submarine Water, Deionization Facility
Topel Airfield Flight Control Tower
Topel Airfield Fire Station
24" Steel Piling (3,750 m)
Rock Fill to Seafloor (16,064 cum)
Stabilized Material Fill (13,600 cum)
Concrete Pavement (2,392 cum)
Mechanical and Electrical Systems**





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Extension of the Existing Logistics Pier

100 m x 25 m

48" Steel Pipe Piles (2,000 m)

Anchoring Dolphen for Floating Pools

Transformer Rectifier Building (74 sqm)

Power Transformer (1,600 KVA)

34.5 kV MV Switchgear System

LV, Power Factor Correction Systems

220 VDC, 265 KW DC Rectifier System

Cathodic Protection System of the Pier

Steam and Compressed Air Lines

Freshwater, Wastewater Lines





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Fuel Loading / Unloading Pier

75 m x 8 m + 75 m x 6 m Fueling Pier

126 Steel Pile (Dia. 800 mm)

4" and 6" Fuel Pipes

Fire Water, Potable Water Systems

Pressurized Air Systems

Pump Station on the Pier (120 cum/h)

Transformer / Generator Building

400 kVA Transformer

400 kVA Stand-by Generator

4", 6", 8" Fuel Pipelines (2,5 km)

Restoration Works

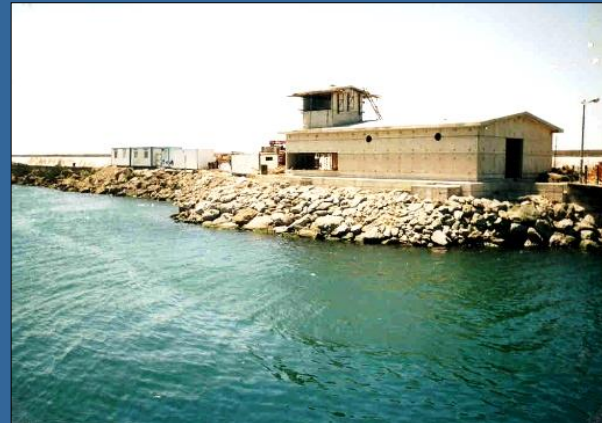
Pump Stations, Storage Tanks

Valve Pits, Pipe Galleries





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Kdz.Ereğli Naval Base

Steel Power Plant 150 sqm

1,500 kVA Rectifier

1,250 kVA Transformer

Switchgear Systems

15 kV MV Cable (800 m)

Pier Service Boxes

Charge and Discharge Systems

Telephone, Fire Alarm Systems

Lighting, Grounding Systems

Golcuk Naval Base

Concrete Power Plant 300 sqm

2x1,500 kVA Rectifier

2x1,250 kVA Transformer

Switchgear Systems

34.5 kV MV Cable (2,000 m)

Pier Service Boxes

Charge and Discharge Systems

Telephone, Fire Alarm Systems

Lighting, Grounding Systems



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G/M Pier Extension

Extension of the Pier (42 m)
45 Steel Pipe Pile (Dia. 600 mm)
Pneumatic and Panel Type Fenders
Fire Extinguishing, Grounding, Lighting
Pier lighting, cathodic protection
150 kVA Frequency Converter
5 x Ex-proof Cranes

Fast Patrol Boat Pier

Extension of the Pier (70 m)
Pneumatic and Panel Type Fenders
Fire Extinguishing, Grounding, Lighting





Detailed Engineering
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450 m x 25 m Pier

39,760 m 40 inch Steel Pipe Piles

Administration Building

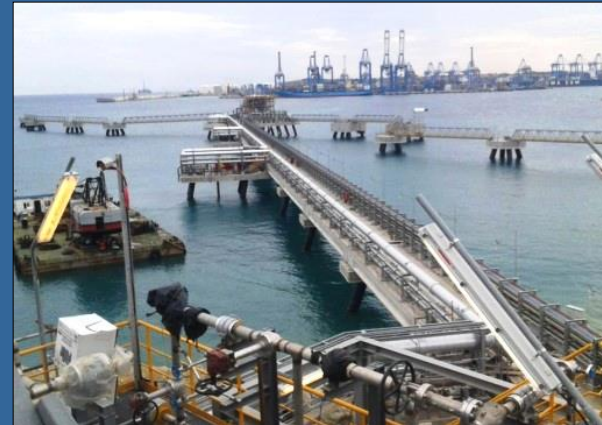
Open Storage Area





**Detailed Engineering
Cost Estimations
Construction Specifications**

**Small Boat Harbour
Main Breakwater
Approach Trestle
Travellift Pool
Temporary Breakwater
Solids Berth Pier (2,330 m)
Loading and Unloading Platform
Mooring Dolphins
Conveyor Platforms
Service Platform (62 m x 38 m)
Pier Access Road**





**Detailed Engineering
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Izmir Alsancak Harbour Quays and Piers

**Reinforced Concrete Piles
with 65 ton Carrying Capacity
at 26, 30, 32 m Length**



**Mine Ore Pier (1,500 sqm)
Goods Quay (15,000 sqm)
3 x Container Quay (45,000 sqm)
Heavy Cargo Quay (14,500 sqm)
Pile Pier
Concrete Block Pier
Service Piers**



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