

PRESIDENTE KENNEDY  
PORT AND INDUSTRIAL COMPLEX  
ESPIRITO SANTO BRAZIL

MAY 2010

VITOR FEITOSA



**FERROUS**

The Global Iron Ore Supplier





**FERROUS**

# FERROUS AT A GLANCE

Six distinct iron ore properties in the Minas Gerais Iron Quadrangle and Bahia state in Brazil with access to local infrastructure

JORC measured, indicated and inferred iron ore resources of 4.5 billion metric tonnes<sup>(a)</sup>  
Planned exploration programmes to target potential of 1.9-2.6 billion metric tonnes

Staged plan to develop a 65 Mtpy iron ore producer with >90% of production to be pipeline concentrate

- Minas Gerais Stage 1 – 25 Mtpy by 2013: advanced development plan with pre-feasibility study for stage 1 complete
- Minas Gerais Stage 2 – expansion to 50 Mtpy by 2016: targeting completion of pre-feasibility study in 2012
- Jacuípe project – target production of 15 Mtpy by 2016

Initial stages of infrastructure development underway

- 13 square km of coastal land purchased for port in southern Espírito Santo
- Slurry pipeline system connecting mines and plant to the port in permitting stage

Estimated US\$3.0 billion<sup>(b)</sup> of capital expenditures required for Stage 1 development

Approximately US\$1.2 billion raised through private placements to date with US\$0.5 billion in cash available

Management team with extensive experience in the Brazilian and global iron ore business and in large public companies

- Established track record in delivering the project to date
- Experience with Rio Tinto, Fortescue Metals, CSN, Vale

**FERROUS strategic vision is to leverage on its substantial resource base and own future infrastructure to become a major global supplier of iron ore and an active consolidator in the Iron Quadrangle**



# ESTABLISHED TRACK RECORD

## DELIVERING ON PROJECT

- ✓ Significant growth in JORC resources
- ✓ Strong management team assembled
- ✓ US\$1.2 billion of private financing
- ✓ Number of employees exceeds 200
- ✓ Pre-feasibility study for Stage 1 complete
- ✓ Water permits secured for Stage 1 and half of Stage 2
- ✓ Viga mining permit received
- ✓ Port and pipeline permitting on track

## PLATFORM FOR FURTHER CONSOLIDATION IN IRON QUADRANGLE

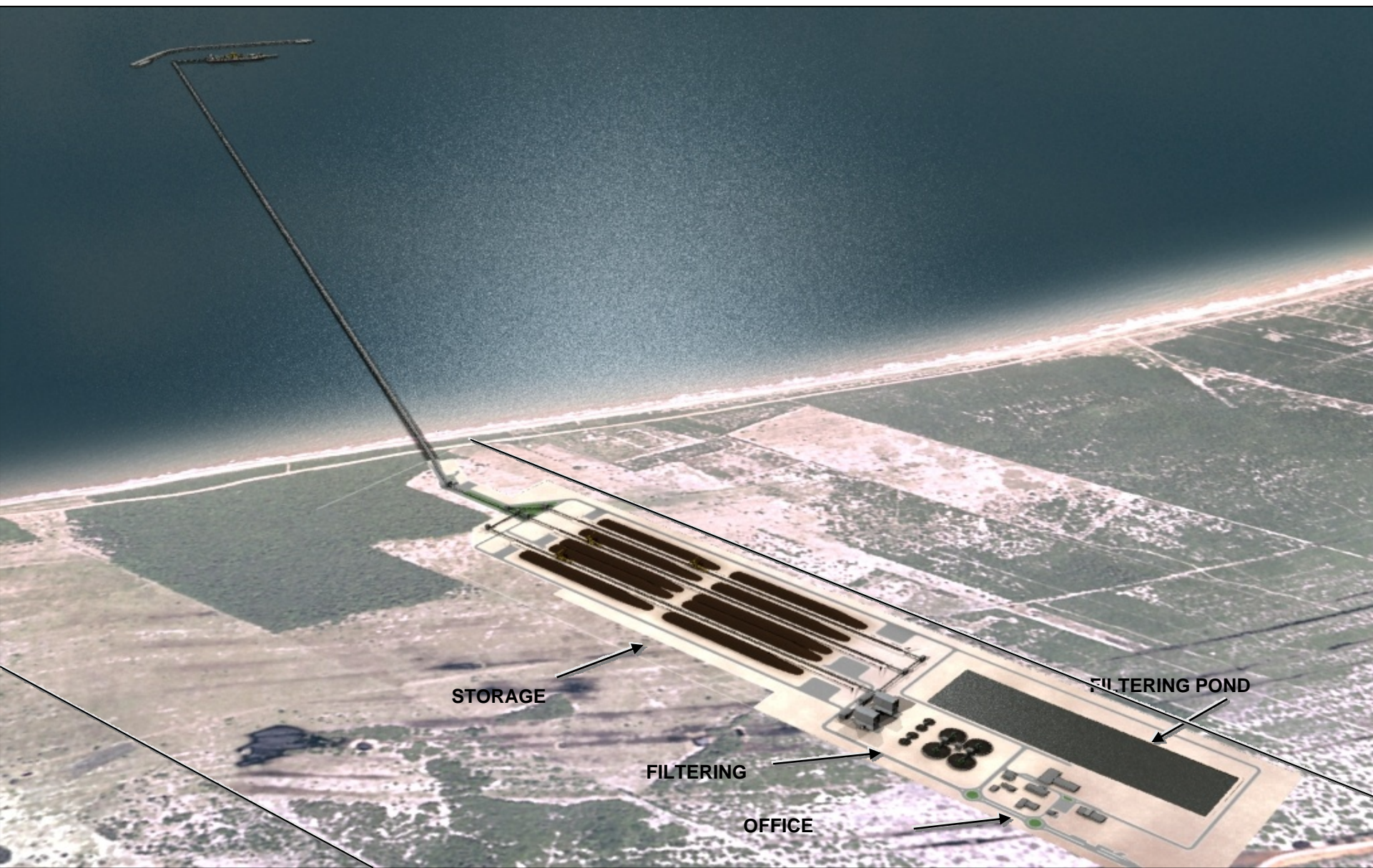
FERROUS is well positioned to continue consolidation in the Iron Quadrangle

- Very few properties available to purchase or JV in the Iron Quadrangle
- Opportunities for FERROUS to acquire additional properties
- Most are near existing FERROUS properties
- Legal or financial issues with some of the available properties, FERROUS has a track record of resolving such issues
- Many lack critical size for a stand alone fully integrated producer
- Most future product anticipated to be minus 150 micron product suitable for pipeline transportation
- Many steel makers in the region lack scale for the fully integrated infrastructure approach being developed by FERROUS
- Significant opportunities for FERROUS to purchase pipeline concentrate on a life of mine basis
- Non-binding MOU's for two such purchase contracts already signed



**FERROUS**

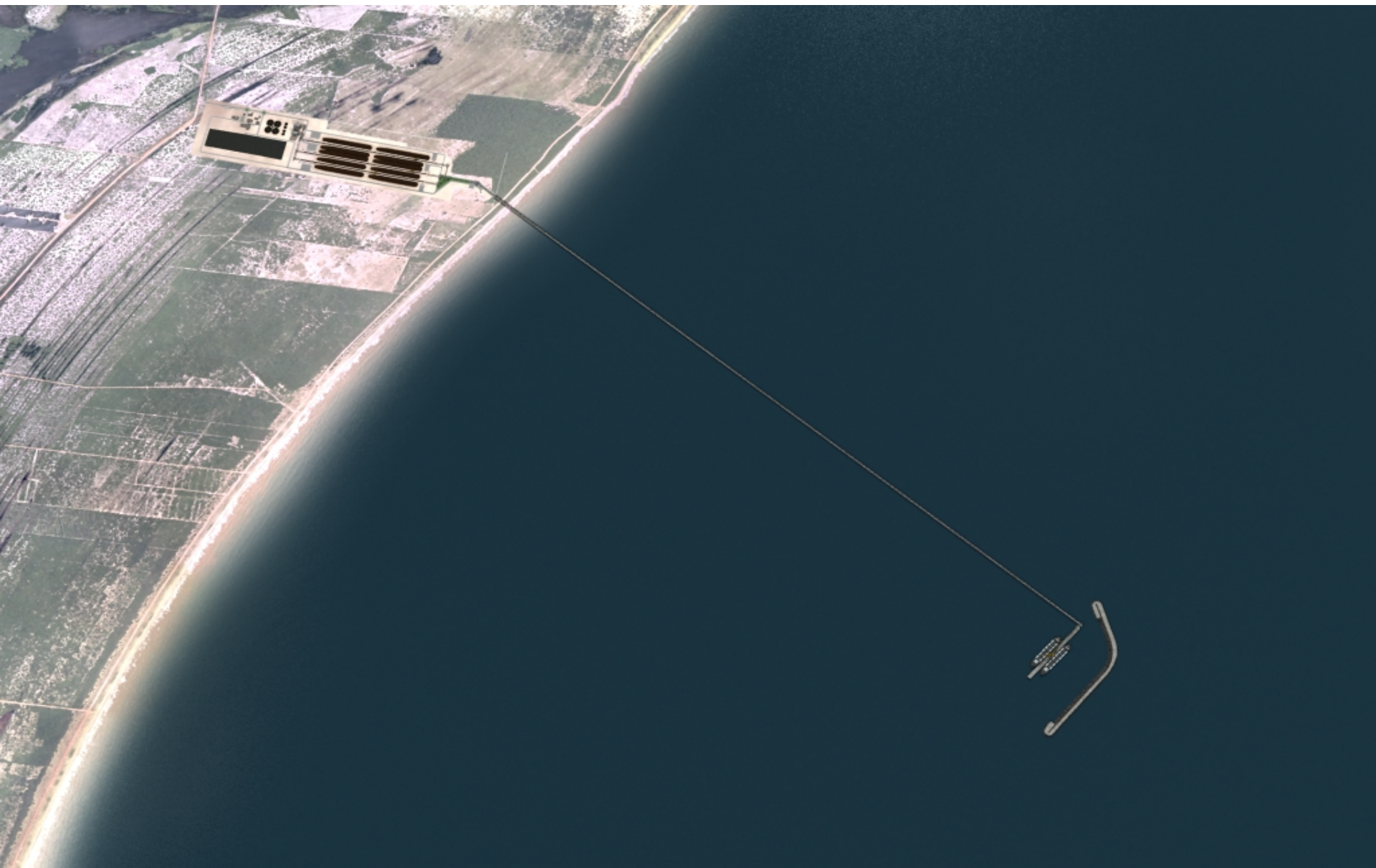
# GENERAL LAY OUT – PORT BACK AREA





**FERROUS**

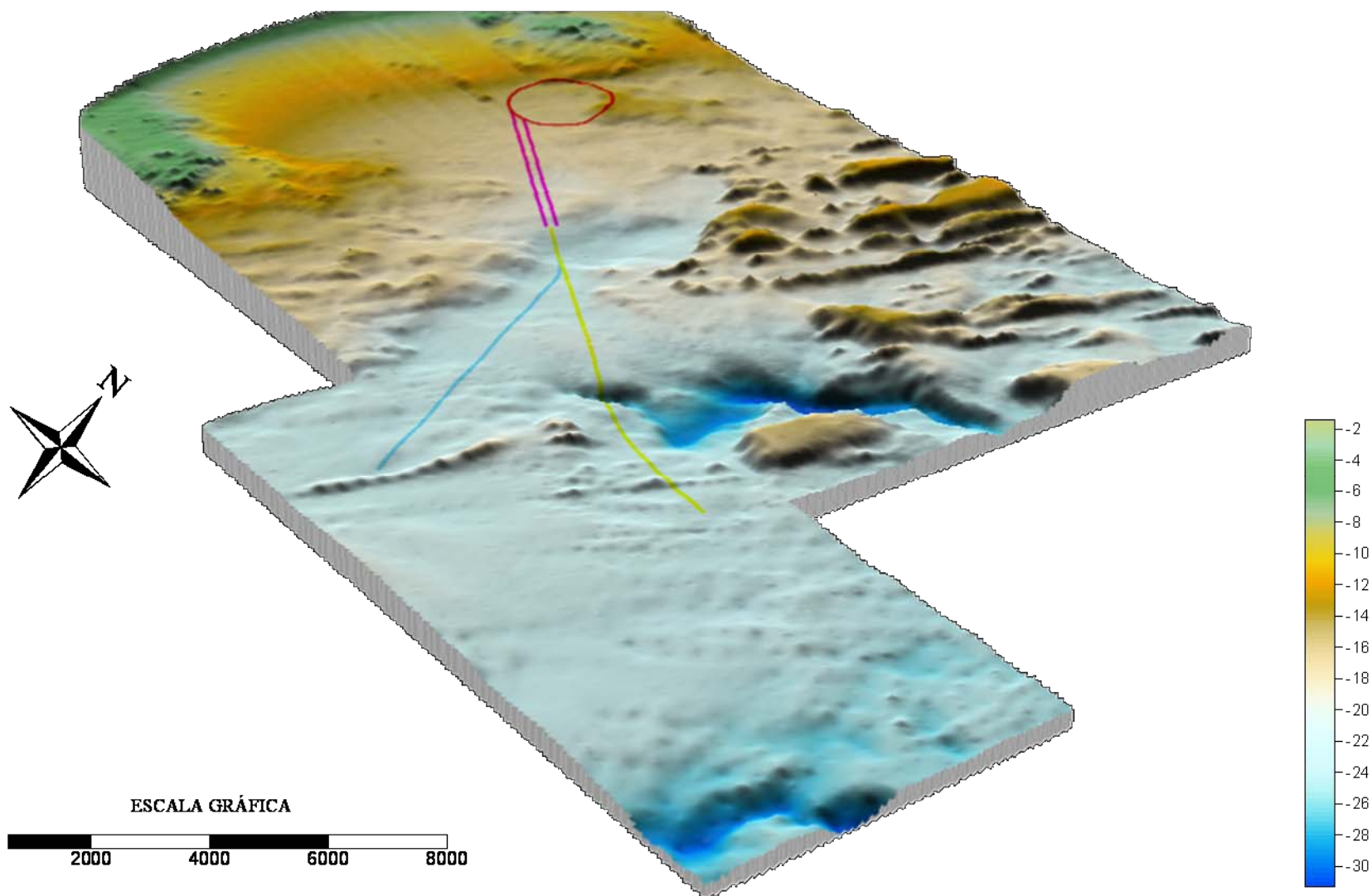
## GENERAL LAY OUT – AERIAL VIEW





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# SEABED CONFIGURATION DETAILS





## BASIC PROJECT DETAILS

- ◆ **PIPELINE PRODUCTIVITY**
  - ◆ PHASE 1: 3,217 TON/H IN ONE LINE
  - ◆ PHASE 2: 6,434 TON/H IN TWO LINES
- ◆ **FILTERING SYSTEM**
  - ◆ PFF AT 9% MOISTURE
  - ◆ POND CAPACITY OF 3 TIMES THE TOTAL MINERAL PIPELINE VOLUME
  - ◆ POND AREA AT 106,400 M<sup>2</sup> / CAPACITY AT 500,000 M<sup>3</sup>
- ◆ **STOCKYARD**
  - ◆ PHASE 1: 1,74 Mi/TON – 03 EQUIPMENTS AT 13,700 TONS/H
  - ◆ PHASE 2: 2,96 Mi/TON – 05 EQUIPMENTS AT 18,400 TONS/H
- ◆ **ENGINEERED TO BE INTEGRATED WITH FUTURE PELLET PLANTS**
- ◆ **OPTION TO DIRECTLY SHIPLOAD FROM FILTERING**
- ◆ **CONVEYOR BELT SYSTEM AT 18,400 TONS/HOUR**
- ◆ **SHIPLOADING AT 18,400 TONS/HOUR**
- ◆ **DESIGNED TO TYPICALLY OPERATE WITH 220.000 DWT VESSEL**
- ◆ **PORT AND FILTERING OPERATION 365 DAYS/YEAR**



## BASIC PROJECT DETAILS

### ◆ ENERGY:

- ◆ Supplied through A 345 Kv transmission line derived from the national grid, located 35 Km from Presidente Kennedy ;
- ◆ Estimated Demand – Port/Filtering: 24,48/32,14 MW (PHASE 1/PHASE 2)

### ◆ WATER:

- ◆ Estimated water for industrial activities at 887m<sup>3</sup>/h, using treated water coming from the slurry pipeline;
- ◆ In Phase 1, an excess of 524 m<sup>3</sup>/h will be discharged in the sea, after treatment;
- ◆ In Phase 2, all excess water will be used in industrial processes;
- ◆ Drinking water demand for construction period: 432 m<sup>3</sup>/day;
- ◆ Drinking water demand for port operations: 72 m<sup>3</sup>/day;
- ◆ Supply sources: Public Service, own facilities including water treatment station and additional wells and local rivers.

### ◆ WASTE WATER AND SEWAGE TREATMENT:

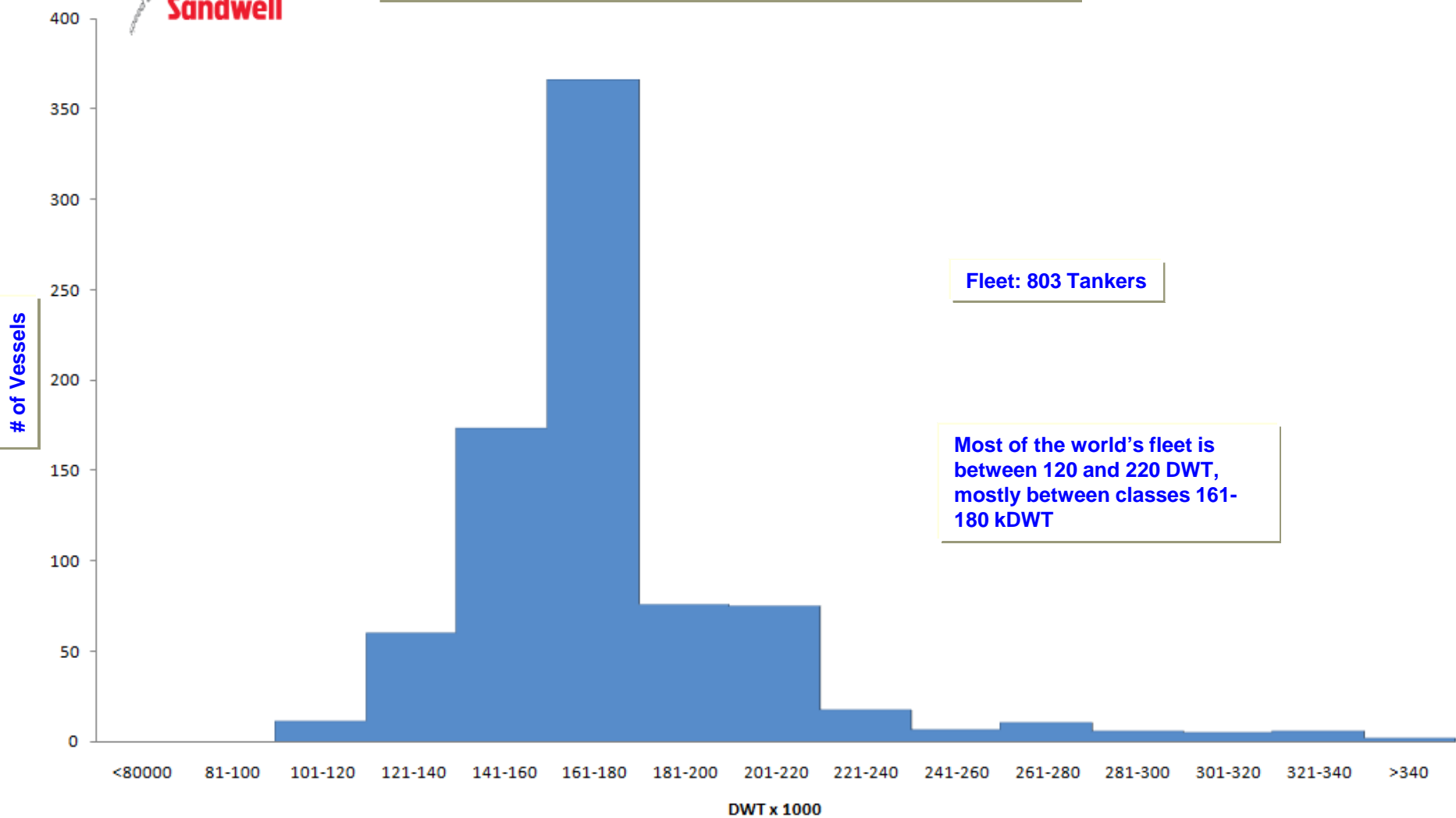
- ◆ Water Treatment Plant to assure water release in accordance with CONAMA 357;
- ◆ Wastewater Treatment Plant – Sewage is treated and water released in accordance with CONAMA 357.



## VESSEL SIZE-TYPE DIMENSIONS

Speed and precision worldwide  
**Sandwell**

### Fleet Distribution by Vessel DWT Class



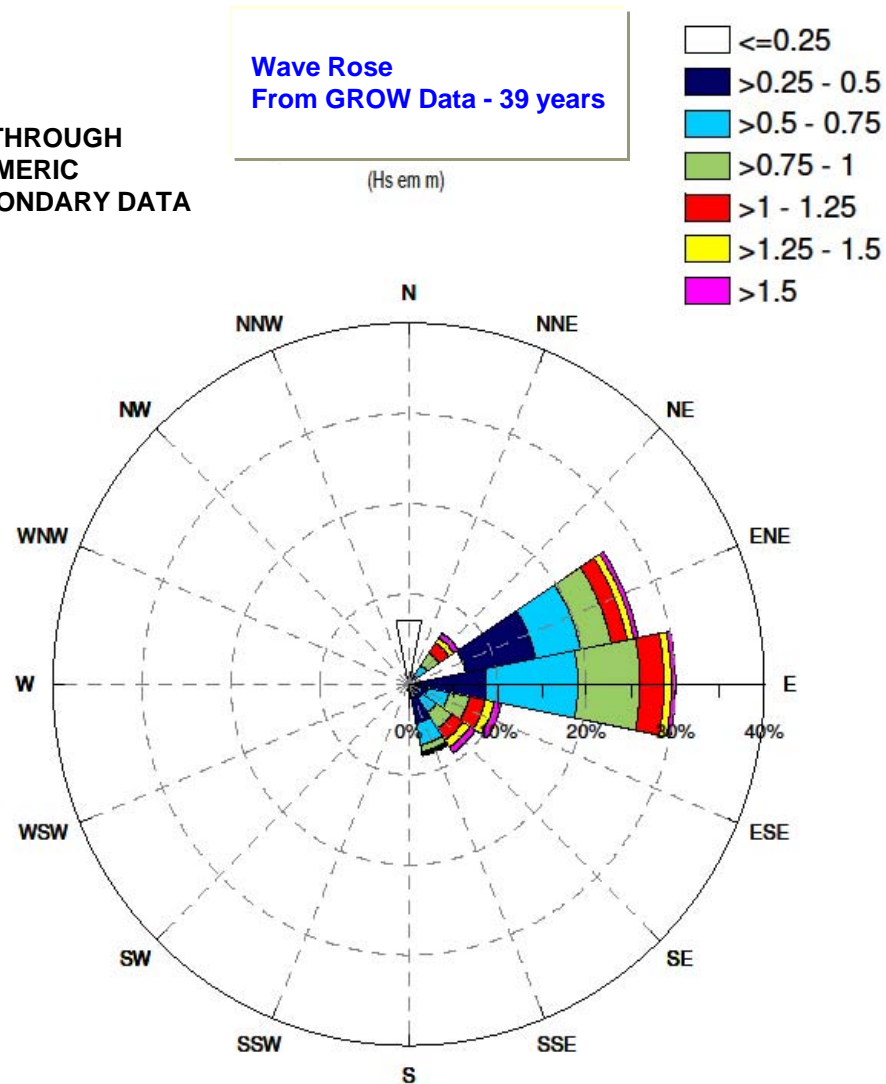
Fleet: 803 Tankers

Most of the world's fleet is between 120 and 220 DWT, mostly between classes 161-180 kDWT



## WAVES, CURRENTS AND WINDS STUDY

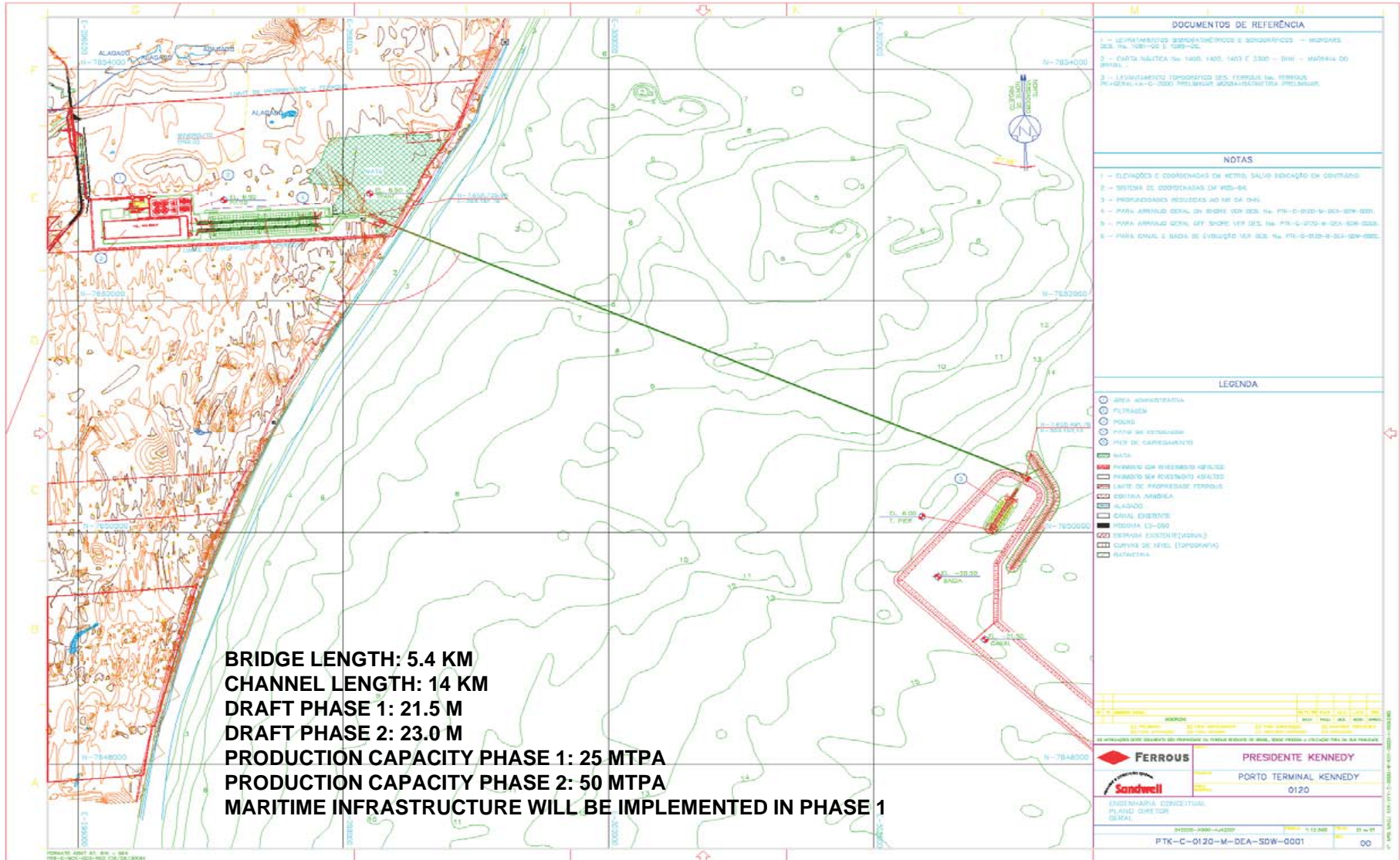
HYDRODYNAMIC MODELING DONE THROUGH  
SIMULATION OF SYSTEMATIZED NUMERIC  
PROCESS, WITH PRIMARY AND SECONDARY DATA



# GENERAL PORT LAY OUT



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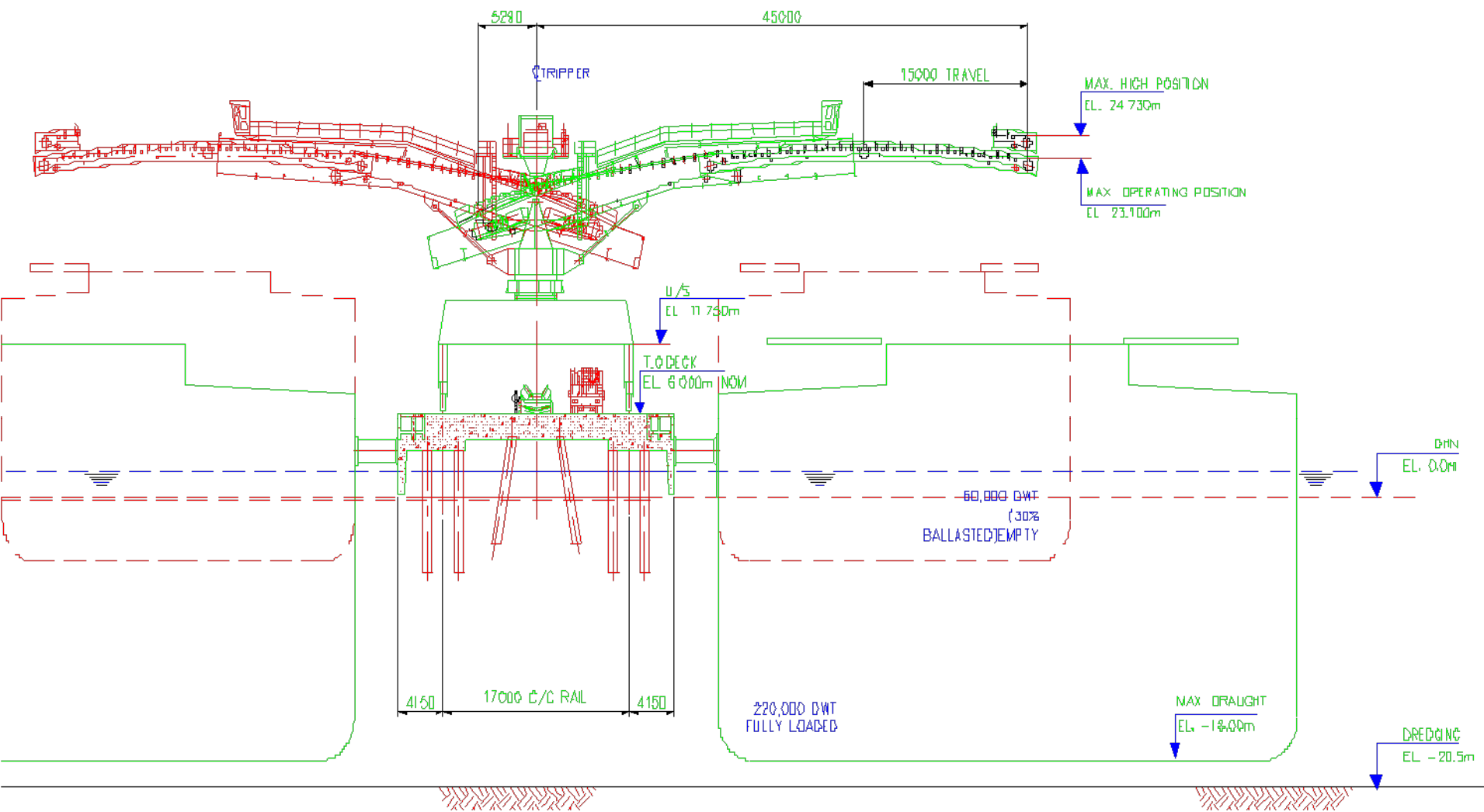






# SHIP LOADING SYSTEM

# FERROUS





# SUMMARY - CAPEX & OPEX

<b>TERMINAL PRESIDENTE KENNEDY</b>		
	<b>FASE I</b>	<b>FASE 2</b>
<b>CAPEX - R\$</b>	<b>1.728.795.764,00</b>	<b>523.171.268,00</b>
<b>OPEX - R\$/Ton</b>	<b>5,22</b>	<b>4,54</b>

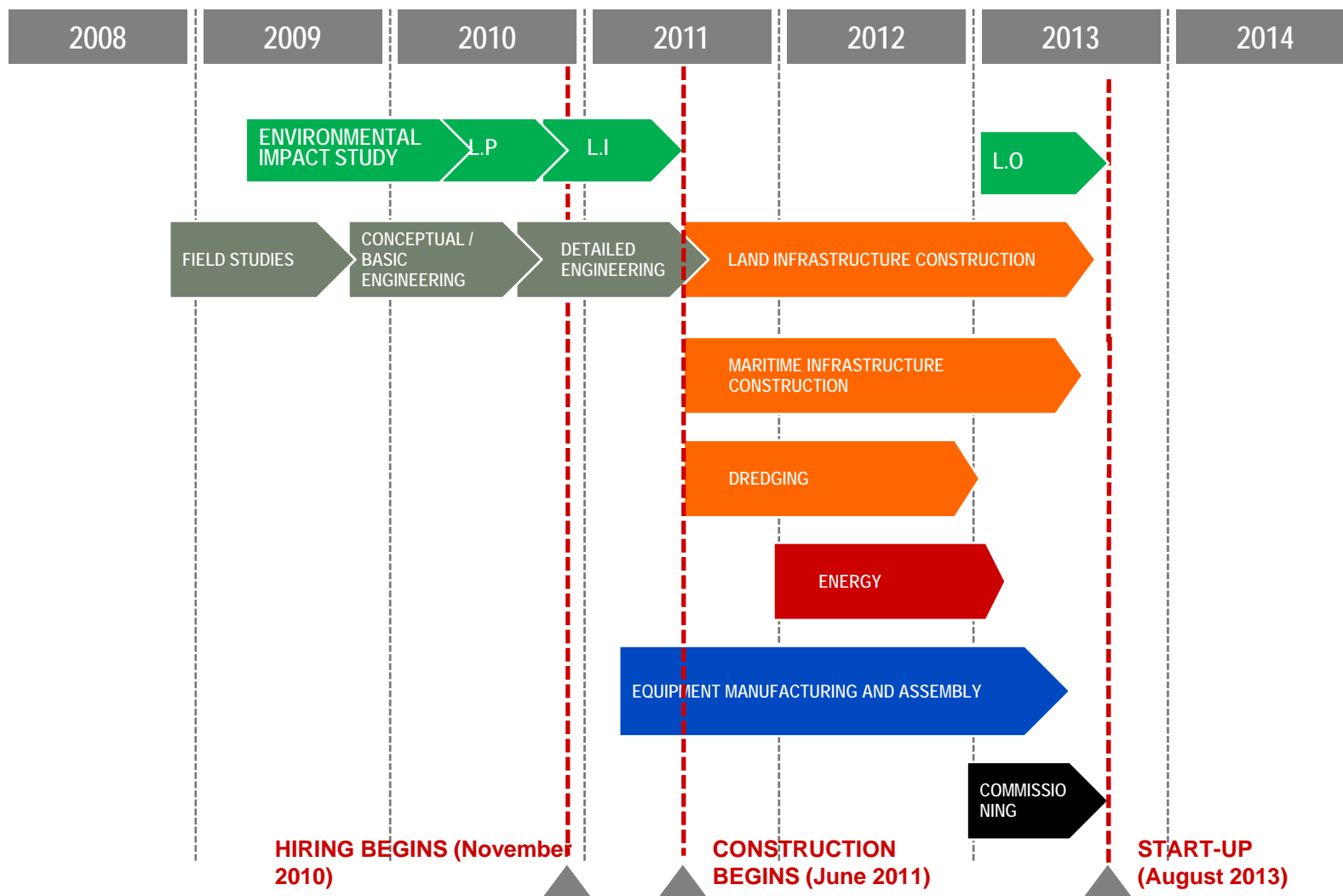
**PHASE 1**

**PHASE 2**

NOTE 1: DATA SOURCE SANDWELL CONCEPT PROJECT  
NOTE 2: DOES NOT INCLUDE COSTS OF MINERAL PIPELINE



## IMPLEMENTATION SCHEDULE – PHASE 1





## PROJECT CURRENT STATUS

- ◆ **FIELD STUDIES**
  - ◆ CONCLUDED TOPOGRAPHY, BATHYMETRY, SEISMIC AND ULTRA-SOUND MODELING, JET PROBE, METOCEAN DATA SINCE JULY/09
  
- ◆ **HYDRODYNAMIC MODELING**
  - ◆ DEVELOPED SYSTEMATIZED DHI MODEL TO ASSESS SEDIMENTATION AND DEFINE FACILITY PLACEMENT
  
- ◆ **CONCEPTUAL ENGINEERING**
  - ◆ PERFORMED BY SANDWELL ENGENHARIA
  
- ◆ **BASIC ENGINEERING**
  - ◆ IN DEVELOPMENT WITH SANDWELL ENGENHARIA – SEPT/10
  
- ◆ **ENVIRONMENTAL IMPACT STUDIES**
  - ◆ EIA BEING DELIVERED TO IBAMA ON 25/05/10



# CHARACTERISTICS THAT DIFFERENTIATE THE PROJECT

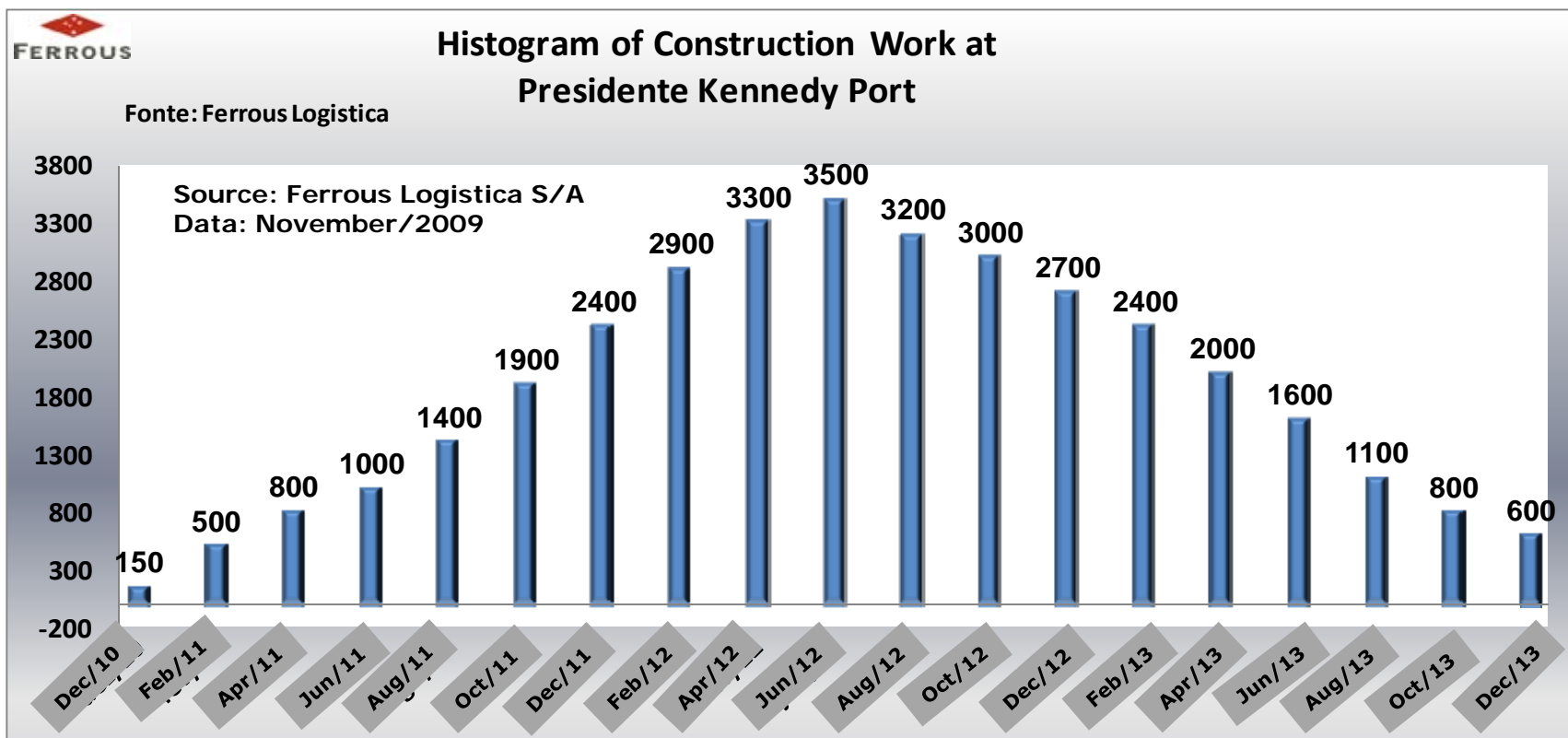
**FERROUS**

- ◆ **OWN LAND**
  - ◆ LAND IS OWNED BY FERROUS, COMPLETELY UNOBSTRUCTED
  - ◆ DISTURBED AREA, WITHOUT SIGNIFICANT ENVIRONMENTAL IMPACTS
  - ◆ SOIL AND WEATHER CONDITIONS APPROPRIATE FOR THE PROJECT
  - ◆ MUNICIPAL ORDINANCE OF INDUSTRIAL ZONING
  
- ◆ **STRATEGIC LOCATION**
  - ◆ POSITIONED IN AREA EVALUATED BY ANTAQ, THROUGH CENTRAN, AS AN APPROPRIATE AND SPECIFIC AREA FOR THE IMPLEMENTATION OF PORT TERMINALS FOR MINERAL LOADING
  - ◆ EFFECTIVE EXTENSION FOR MINERAL PIPELINE
  - ◆ POWER GRID AT 35 KM DISTANCE FROM PRES. KENNEDY
  
- ◆ **UNOBSTRUCTED ACCESS TO WATERWAY**
  - ◆ THERE ARE NO OTHER PORT FACILITIES IN IMMEDIATE AREA
  
- ◆ **ZERO IMPACT ON SURROUNDING AREA**
  - ◆ HOUSING LOCATED 20 KM FROM PROJECT
  - ◆ ZERO URBAN AREAS AND NOT IN TOURISTIC REGION
  
- ◆ **LABOR AVAILABILITY**
  - ◆ ESPIRITO SANTO HAS THE VOCATION FOR OPERATING MINERAL TERMINALS



# LABOR/CONSTRUCTION WORK

**FERROUS**



- Unqualified: 27%
- Qualified: 40%
- Techs and supervision: 17%
- Top level: 6%
- Management and indirect support: 10%



# FERROUS

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