Chapter 5 Recommendations on port management and on short-term basis

5.1 Legal and Organizational Framework

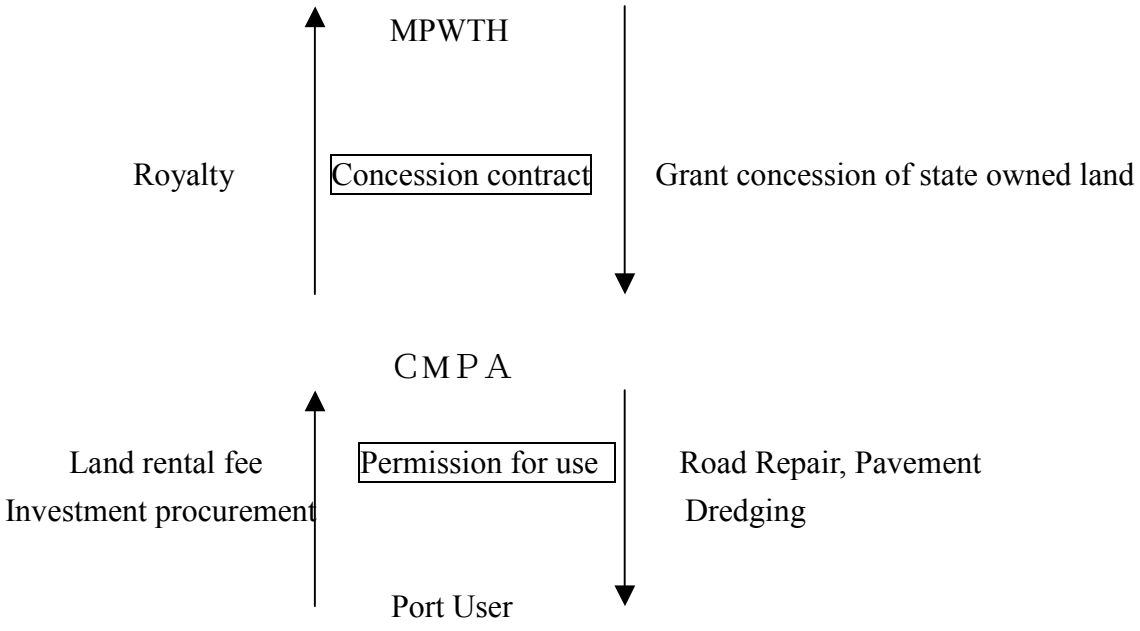
5.1.1 Romanian Legal Structure regarding Port Management and Facilities

The concession contract between MPWTH and CMPA provides for the interdiction to grant sub-concessions and also the interdiction to transfer any right obtained over these assets. Practically, there is no legal possibility up to now to give the port operators a sound right to stay and use the port land.

MPWTH has recently initiated a procedure with the view to correct these anomalies. The basic modifications of the Law no. 219/1998 intended to be introduced and which concern ports are:

1. The possibility for the concessionaires under art. 40 of the law to sub-concede public assets covered by the concession with the special agreement of the initial grantor (so the possibility for CMPA to sub-concede public assets);
2. The possibility to have a direct sub-concession of public assets towards the port operators which are already using these assets since they were first in place.

CMPA must be clearly given the right to grant sub-concessions as a Port Management Body. The relationship between MPWTH, CMPA, Port User (operator) is after the Concession is finalized is envisaged below.



5.1.2 Organizational Framework of Constantza Maritime Ports Administration (CMPA)

Proposal on Organizational Framework of CMPA (LAW GIBB report)

A. Rationalization of Departments

The organizational structure of CMPA have five departments. Reducing the number of departments could be considered.

a. Domains and Port Services department

The Cadestre function (civil engineering skills for the improvement of records about port assets and technical support for future works) could be transferred to the Technical division. And the contracts function(processing annual contracts with stevedores) performed in the Domains and Port Services department could be transferred to the Commercial department.

b. Commercial and Financial department

The main benefit in integrating the two departments would be to facilitate the flow of information and improve business control. This is seen to be particularly relevant to establishing the level of port tariffs and for the financial aspects of contracts between CMPA and other users of the port. Given the existing staffing levels in these departments, significant savings in staffing costs could be realized through integration of the two departments.

B. Use of the private sector in providing Branch Services

The branch activities are distinguished from the five departments of CMPA in that income is directly earned from most of the services provided. The services covered include:

Port telecommunication

Supply of electrical and thermal energy

Within the port services branch (Transport department, Construction department, Installation department)

Within the technical vessel branch (Vessel operation department, Pollution control and fighting department)

These functions are primarily non-core activities. The functions effectively cover supply of thermal and electrical energy, water, telecommunications and transports.

These functions

account for around 50% of staff employed by CMPA and

realize 30% of the income of CMPA, but only 6% of recorded operating profits

These functions could be transferred to the private sector. It is considered that the introduction of the private sector to provide these functions would be beneficial. The benefits would be expected to arise out of efficiency enhancements and should lead to lower user charges.

C. Incorporation of the Harbor Master Function into CMPA

In LAW GIBB report, it says the role of Harbor Master is transferred into CMPA. The incorporation of the Harbor Master function into CMPA will facilitate control over ship movement, allocation of ships to berths and an integrated approach to handling dangerous goods. Additional benefits will arise from centralization of management information and potentially from a rationalization in resources employed by eliminating existing duplication of roles in CMPA and the Harbor Master.

But we disagree to transfer the role of Harbor Master to CMPA. The function to administrate port and that to supervise and lead the traffic control of vessel navigation in the port do not always correspond. It is possible that some conflicts of interests may occur. Therefore we believe these two functions should be divided and it desirable to cooperate and check each other.

5.2 Management and Operation System

5.2.1 Recommendation on Strengthening coordination function

At present, final decisions of CMPA are made by the board of directors(Council of Administration). The board consists of the General Manager of CMPA and five members from the MPWTH and three members from the Ministry of Finance. The board does not include relevant private organizations (for example, CFR, Free Zone Administration and so on), or a local government. When a port development plan is formulated, coordination process will be required among port related government and private organizations. To conduct this process smoothly, an efficient coordination system which involves various port related organizations should be introduced.

There are some examples which require such coordination. For example, the existence of feeder lines of CFR in the wharves decreases the efficiency of loading and unloading. And roads in the ports are narrow and have many sharp curves and many crossings with railways, which hinders the traffic flow in the port.

In order to adjust these issues, it would be useful to establish some kind of committee to coordinate the interests of related parties.

This committee should include the following members;
- CMPA
- CFR
- Free Zone Administration (South-Constantza & Basarabi)
- Local Government (City of Constantza)
- Port Users
- Persons of knowledge and experience

And main functions of this committee should be as follows
- Approval of port development plan
- Coordination among CMPA, port users, and local government
- Supervision of port activities

5.2.2 Problems of the Custom procedure and Policy of "Free Port"

Problems of the customs procedures at present

The Romanian legislation provides that the customs duties be levied upon foreign goods that enter the Romanian ports and the customs control can be carried out on the board. According to such provisions, the customs control is practically carried out on board. This procedure leads to delay in ship's operation as well as immobilization of large amount of money for guaranteeing the customs duties upon import goods as well as transhipment goods. Where the amount of the guarantee cannot be determined, the biggest amount of the customs duties which would result from the customs clearing operation shall be considered." In conclusion as the above mentioned, it necessary to abolish complicated and time-consuming procedures. The total port area of Constantza should be designated as a "Free Port".

5.2.3 Influence of the Free Zone upon the Port of Constantza

Proposed Solutions of the Free Zone and CMPA issues

Since a part of the port waterfront (both water-side and land-side close to quay) is legally beyond administrative authority of CMPA, some difficulties may arise in berth allocation and construction of port facilities (for example a reclamation, a road construction) in the future. It is supposed the conflicts with the port management body and concessionaire will occur in the port planning.

The waterfront area is vital for the port planning. It's indispensable for the port

management body to administer the waterfront area.

It is desirable that CMPA secures administrative authority over the land-side area sufficient for administration behind the quay. It will be necessary to transfer a part of the Free Zone Administration's authority to CMPA, which will require modification of the existing GD concerning the Free Zone.

Chapter 6 Cargo Handling Equipment

6.1 Introduction

This chapter deals with the preliminary design of major cargo handling equipment including those proposed in the Short Term Development Plan following the Master Plan.

6.2 Scope of the Objective Terminal

The Short Term Development Plan includes the following terminals:

(1) Grain Terminal (Phase 1)
This grain terminal was planned to build to meet the excess cargo volume exceeding to the existing handling capacity. It will annually handle two million tons of grain. The required facility includes civil works and cargo handling equipment and these will be installed at once. When so required the equipment may be invested by private operator if this does not cause any delay in development.

(2) Barge Terminal
This terminal is not for handling cargoes directly. It will provide wet-basin and quay space for barges to prepare and to wait for the next voyage. Thus no cargo handling equipment will be placed.

(3) Inland Transport Facilities: Improvement of Inter Port Road Access
Purpose of this is to improve the existing inter-port access.
Existing alignment of entrance access near the Gate No. 5 is terribly sloped and shape bending down to the port area. This improvement will provide more safe traffic condition. No cargo handling equipment will be provided.

The following Sections are the detailed descriptions on each terminal, obtained through the continuing studies.

6.3 Summary of the Study

The summaries of the descriptions are as follows:

(1) Grain Terminal (Phase 1)

The terminal will be newly constructed at Pier S3, and will be designed based on the following concepts.

a. Cargo volume to be handled:
   i. Export and transit (export): 2.0 million tons per year
   ii. Import and transit (import): 0.5 million tons per year

b. Grain receiving facilities:
   i. From barges and/or vessels: 2 units of each 400 ton/hr (2 nozzles x 200 ton/hr) pneumatic unloaders
   ii. From railway wagons: 2 units of each 400 ton/hr receiving hopper
   iii. From road trucks: 1 unit of 100 ton/hr receiving hopper

c. Silos:
   i. Main silos: 20 units of each 5,000 ton storage capacity
   ii. Buffer silos: 3 units of each 500 ton storage capacity

d. Grain delivery facilities:
   i. To vessels and/or barges: 2 units of each 800 ton/hr loaders
   ii. To railway wagons: 1 unit of 200 ton/hr loading chute
   iii. To road trucks: 1 unit of 100 ton/hr loading chute

Cargo flows of grains through the Grain Terminal are shown in the following figures:

a. Export grains: Fig 6.2.1 (3) a. 1/3, 2/3, 3/3 Cargo Flow Chart

b. Import grains: Fig 6.2.1 (3) b. 1/3, 2/3, 3/3 Cargo Flow Chart

General layout of the Grain Terminal is shown in the following figure:

Fig. 6.2.3 A Grain Terminal General Layout Drawing

Concept of the Grain Handling Facilities at the Grain Terminal is shown in the following figure:

Fig. 6.2.3 B Grain Handling Facilities Conceptual Drawing

(2) Barge Terminal

At the Barge Terminal, no cargo handling equipment is considered since this terminal is mainly for the standby and preparation areas for the next trip up-stream of the barges. Even so, when any equipment is required, it will be provided by the related private sector operators, thus no equipment is provided here.

(3) Inland Transport Facilities: Improvement of Inter Port Road Access

This does not include cargo handling equipment.

6.4 Study Flow on Cargo Handling Equipment of Grain Terminal

The system study on cargo handling equipment at the grain terminal is carried out according to the following items:

(1) Cargo Characteristics

a. Cargo Volume to be handled
b. Cargo Traffic
c. Cargo Flow through the Terminal

(2) Transportation Means

a. Sea Transportation

b. Inland Transportation:
   i. Inland Waterway
   ii. Railway
   iii. Road

(3) Cargo Handling Means

a. Cargo Handling Facilities:
   i. System Layout
   ii. Traffic Route

b. Cargo Handling System:
   i. Consisting Cargo Handling Equipment
   ii Outline Specifications of Cargo Handling Equipment

c. Cargo Handling Equipment:
   i. Type Selection
   ii. Number and Capacity Calculation

The followings are the results of the studies according to the study flow described above.

Fig. 6.2.1 (3) a. 1/3 Cargo Flow Chart: Case 1, Grain Export in 2010

Export Cargo

Handling Commodity	**Grains**
Project Year:	**2010**
Case:	**Case 1**

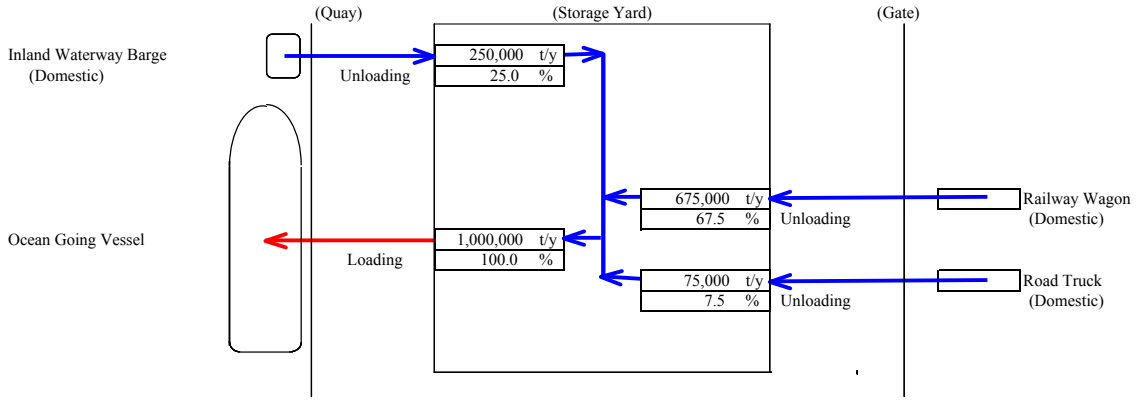


Fig. 6.2.1 (3) a. 2/3 Cargo Flow Chart: Case 1, Grain Transit Export in 2010

Transit (Export) Cargo

Handling Commodity	**Grains**
Project Year:	**2010**
Case:	**Case 1**

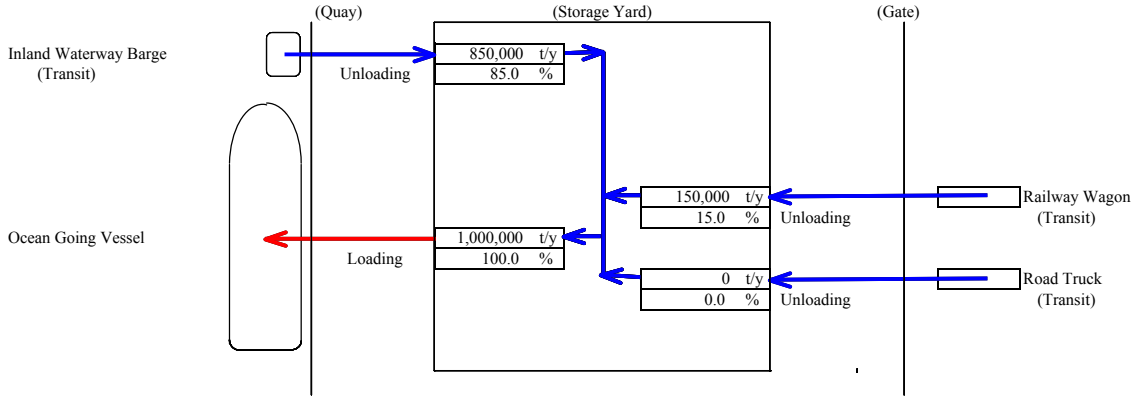


Fig. 6.2.1 (3) a. 3/3 Cargo Flow Chart: Case 1, Grain Total Export & Transit Export in 2010

Total Export & Transit (Export) Cargo

Handling Commodity	**Grains**
Project Year:	**2010**
Case:	**Case 1**

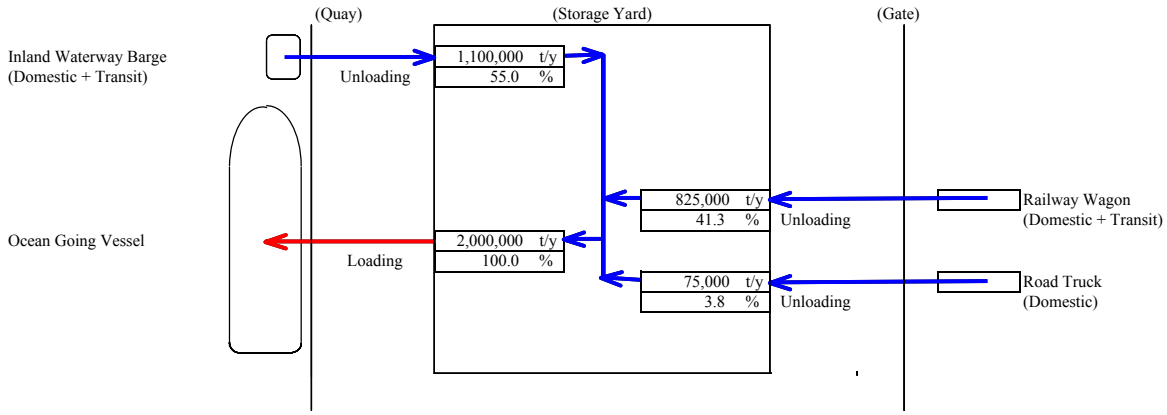


Fig. 6.2.1 (3) b. 1/3 Cargo Flow Chart: Case 1, Grain Import in 2010

Import Cargo

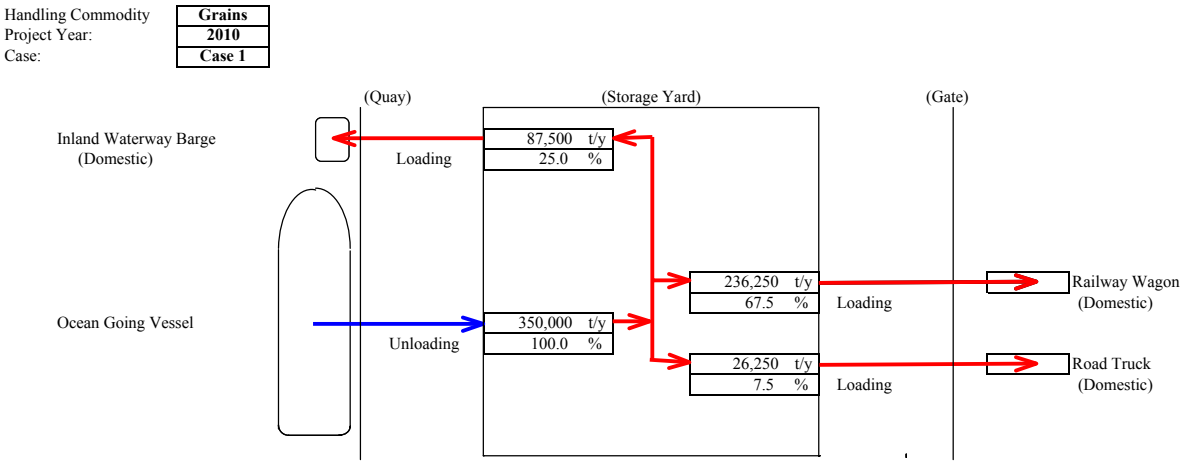


Fig. 6.2.1 (3) b. 2/3 Cargo Flow Chart: Grain Transit Import in 2010

Transit (Import) Cargo

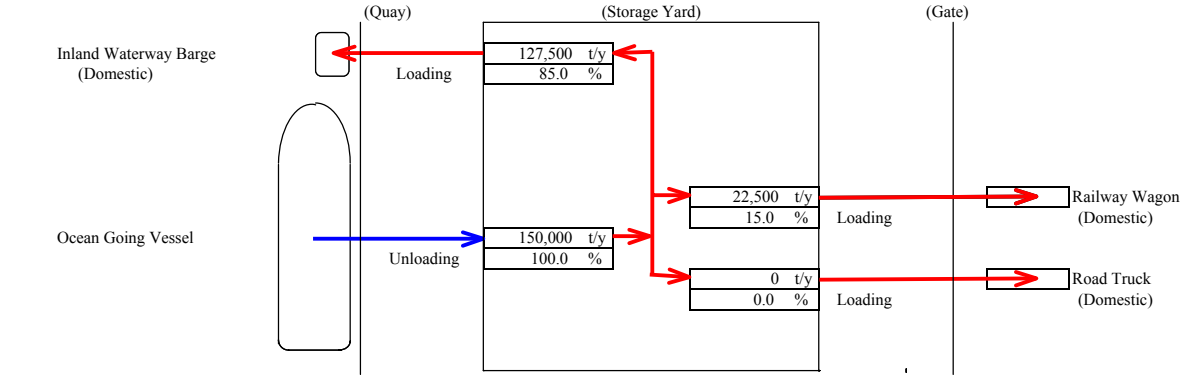
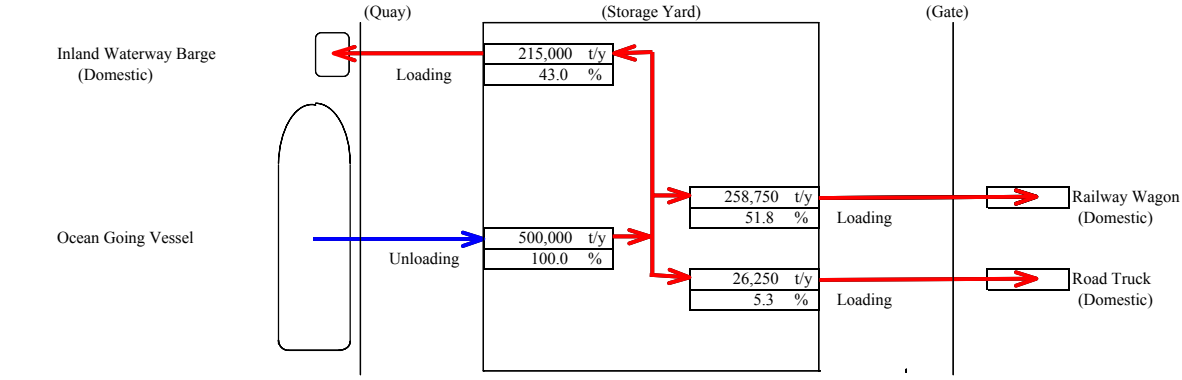
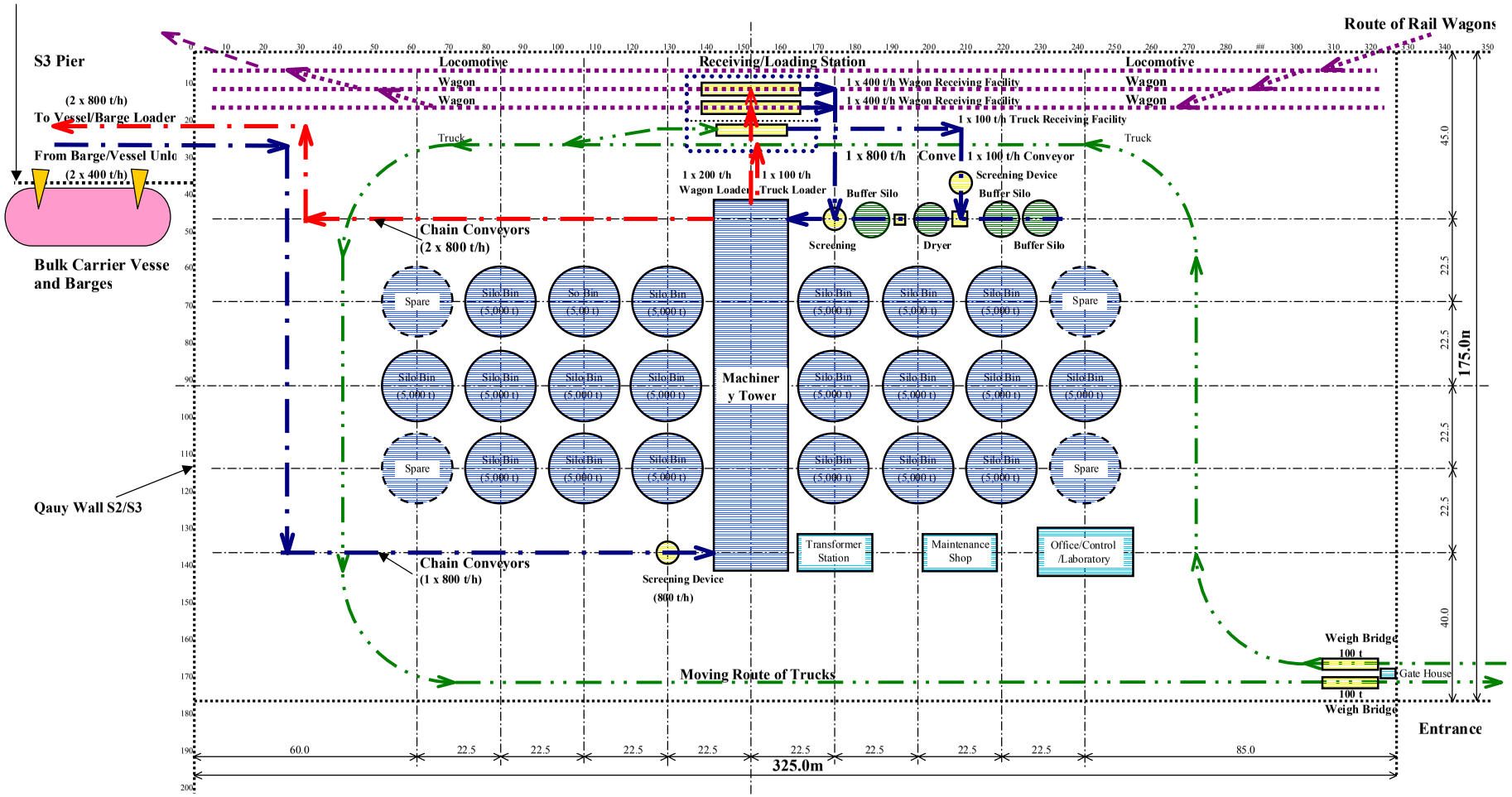


Fig. 6.2.1 (3) b. 3/3 Cargo Flow Chart: Grain Total Import & Traisit Import in 2010

Total Import & Transit (Import) Cargo



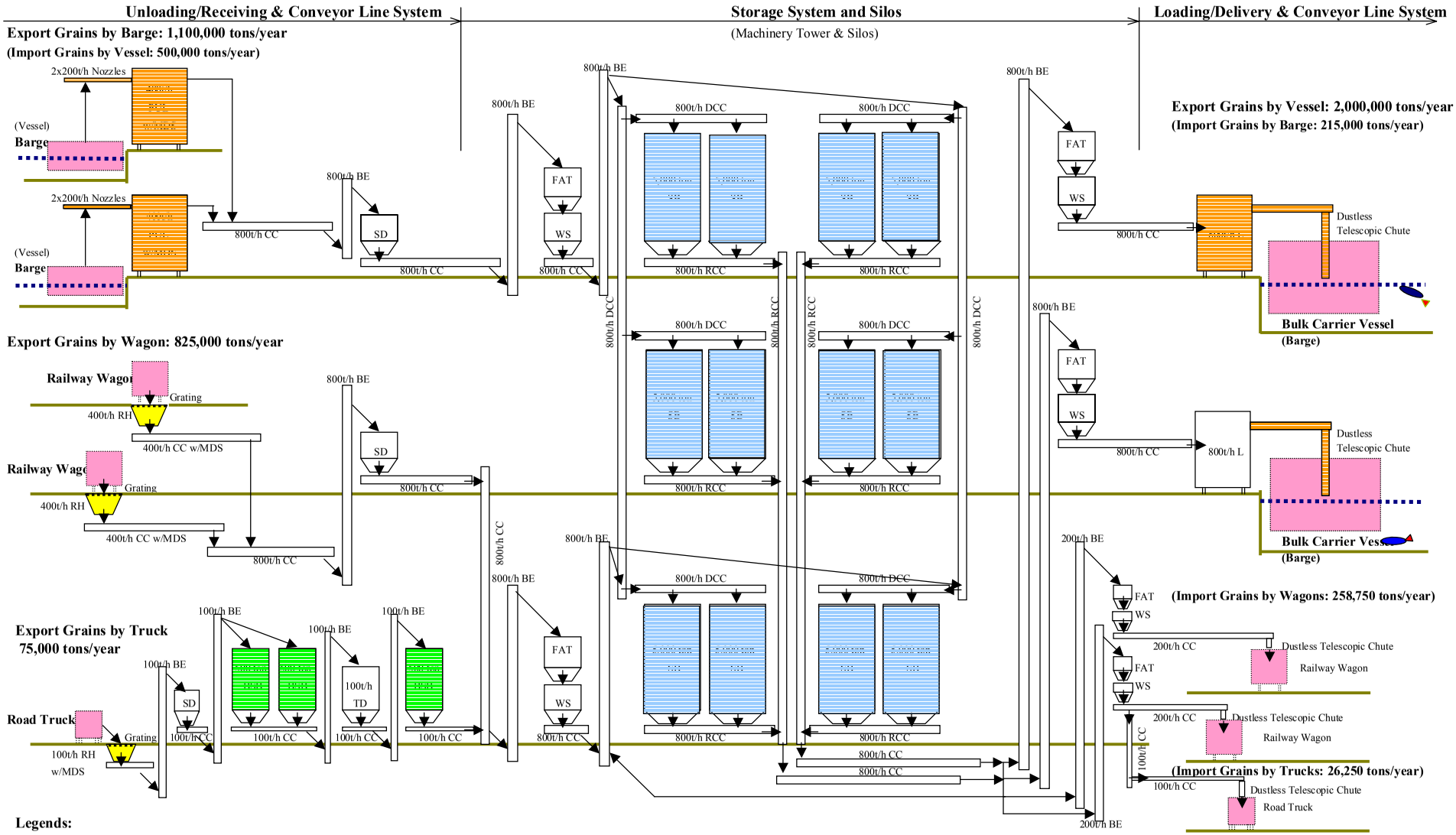


Cargo Volume to be Handled at the Termina

	Receiving from: (t/year)		Delivery to: (t/year)	
Export	Barges	1,100,000	Vessels	2,000,000
	Railway Wagons	825,000	-	
	Road Trucks	75,000	-	
	Total	2,000,000	Total	2,000,000
Import	Vessels	500,000	Barges	215,000
	-		Railway Wagons	258,750
	-		Road Trucks	26,250
	Total	500,000	Total	500,000

North

Port of Constantza Development Project
Grain Terminal
General Layout Drawing
Fig. 6.2.3 A


Unloading/Receiving & Conveyor Line System
Storage System and Silos
(Machinery Tower & Silos)
Loading/Delivery & Conveyor Line System
Export Grains by Barge: 1,100,000 tons/year
(Import Grains by Vessel: 500,000 tons/year)
Export Grains by Vessel: 2,000,000 tons/year
(Import Grains by Barge: 215,000 tons/year)
Export Grains by Wagon: 825,000 tons/year
Export Grains by Truck
75,000 tons/year
(Import Grains by Wagons: 258,750 tons/year)
(Import Grains by Trucks: 26,250 tons/year)
2x200t/h Nozzles
(Vessel)
Barge
800t/h BE
800t/h CC
SD
FAT
WS
800t/h DCC
800t/h RCC
Dustless
Telescopic Chute
Bulk Carrier Vessel
(Barge)
Railway Wagon
Grating
400t/h RH
400t/h CC w/MDS
800t/h L
100t/h BE
100t/h CC
100t/h TD
Road Truck
100t/h RH
w/MDS
200t/h BE
200t/h CC
Railway Wagon
Road Truck
Legends:
PUL: Pneumatic Unloader
RH: Receiving Hopper
CC: Chain Conveyor
BE: Bucket Elevator
MDS: Metal Detector/Magnet Separator
SD: Screening Device
BSB: Buffer Silo Bin
SB: Silo Bin
TD: Tower Dryer
FAT: Flow Adjusting Tank
WS: Weigh Scale
DCC: Distributing Chain Conveyor
RCC: Retrieving Chain Conveyor
L: Loader
20 x 5,000 ton Silo Bins
Including fumigation System, Sampling System, Dust Collecting System,
Explosion Preventing System, Temperature Sensing System, etc.
Port of Constantza Development Project
Grain Terminal
Grain Handling Facilities
Conceptual Drawing
Fig. 6.2.3.B

Chapter 7 Preliminary Design of Major Port Facilities

7.1 Grain Terminal

(1) General Description

It is recommended to allocate separately two grain terminals where each would have a two million ton annual handling capacity. Of course one of them (one unit of two million ton grain terminal for the Phase 1) is the grain terminal in focus. As recommended in Part II chapter 3, preliminary design of Phase 1 grain terminal will follow to Case-1 "High Scenario" traffics as follows:

Export Grain : 2.0 million tons
Import Grain: 0.5 million tons
Note: These two conditions will not co-exist.

Refer to Figure 7.1 'Cargo Demand and Required Grain Handling capacity by Proposed Terminal'.

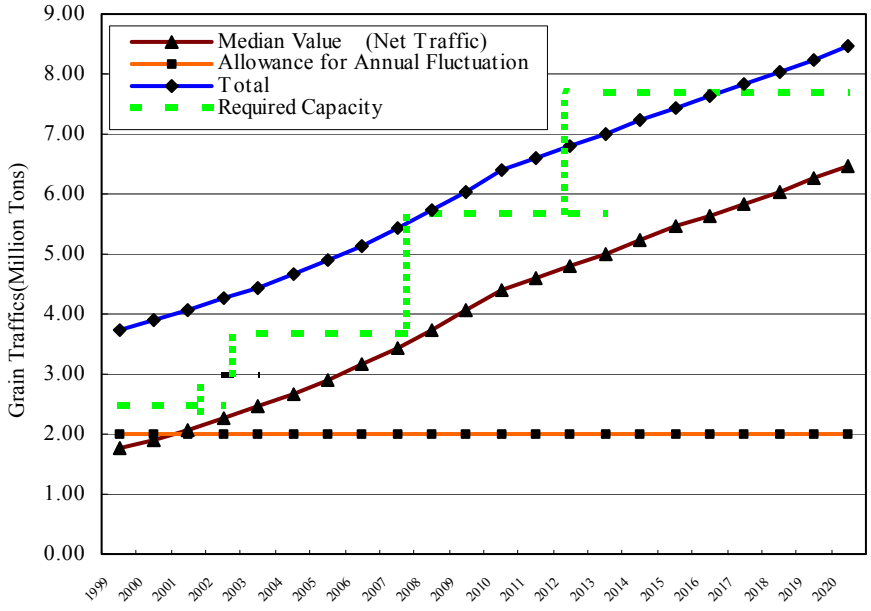


Figure 7.1 Cargo Demand and Required Grain Handling Capacity by Proposed Terminal

(2) Grain Terminal Development

Grain terminal will be constructed at the South Pier S3, the present condition of which is indicated in Figure 7.2. The works will consist of the civil works and provision of cargo

handling equipment. The former will cover the silo with handling equipment, pavement works, supplemental quay strengthening, and others.
The silo capacity will be 100,000 tons as recommended.
The major works components for the proposed grain terminal are:

a) Quay Construction including removing half-constructed concrete caisson
b) Reclamation and Site Development
c) Terminal Yard Development
d) Yard Utilities (Power, Water, Sewage, Telephone, etc.)
e) Road, Rail Access
f) Silo and related facilities
g) Machinery tower
h) Terminal Control Office
i) Loading /Delivery Equipment (Loader: 2 x 400 t/h,)
j) Unloading/ Delivery Equipment(Unloader: 2 x 800 t/h, etc)
k) Connecting conveyor system and
l) Fumigation, Non-explosion system, Grain dust suppressing facilities
m) Others

(3) Grain Terminal Layout Development Alternative at Pier S 3

There are two basic alternatives namely, Alternative L220 and Alternative L400.

The former indicated the MOT's original layout of S3 which has 220 m width slip, 260m width pier and 13ha area behind the quay should be reclaimed. The latter is modified layout with a 400m width of slip, 80m width pier with 4.4ha area and 10.0ha area in the south should be reclaimed.

Alternative L220 (25.4+38.9=64.3US$million, net construction cost including equipment before tax) can be constructed of lower cost than Alternative L400 (31.4+38.9=70.3US$million), since a full utilization of suspended quay wall. However Alternative L400 (400m slip) gives a safety maundering basin for the larger ocean-going vessels between Pier S2 and S3 than L220 (220m slip).

Refer to Figure 7.3 for the Site Allocation of Grain Terminal, Alternative L400: B2: South Pier 3.
Refer to Figure 7.4.for the Alternative L220: South Pier 3.

As seem in the figures advantage of L220 is economy in 10% lower cost and disadvantage is difficulty in vessel manoeuvring at the 220m-wide basin between pier S2 and S3.

After the evaluation, for the site of grain terminal phase 1 Alternative L400 was finally selected.

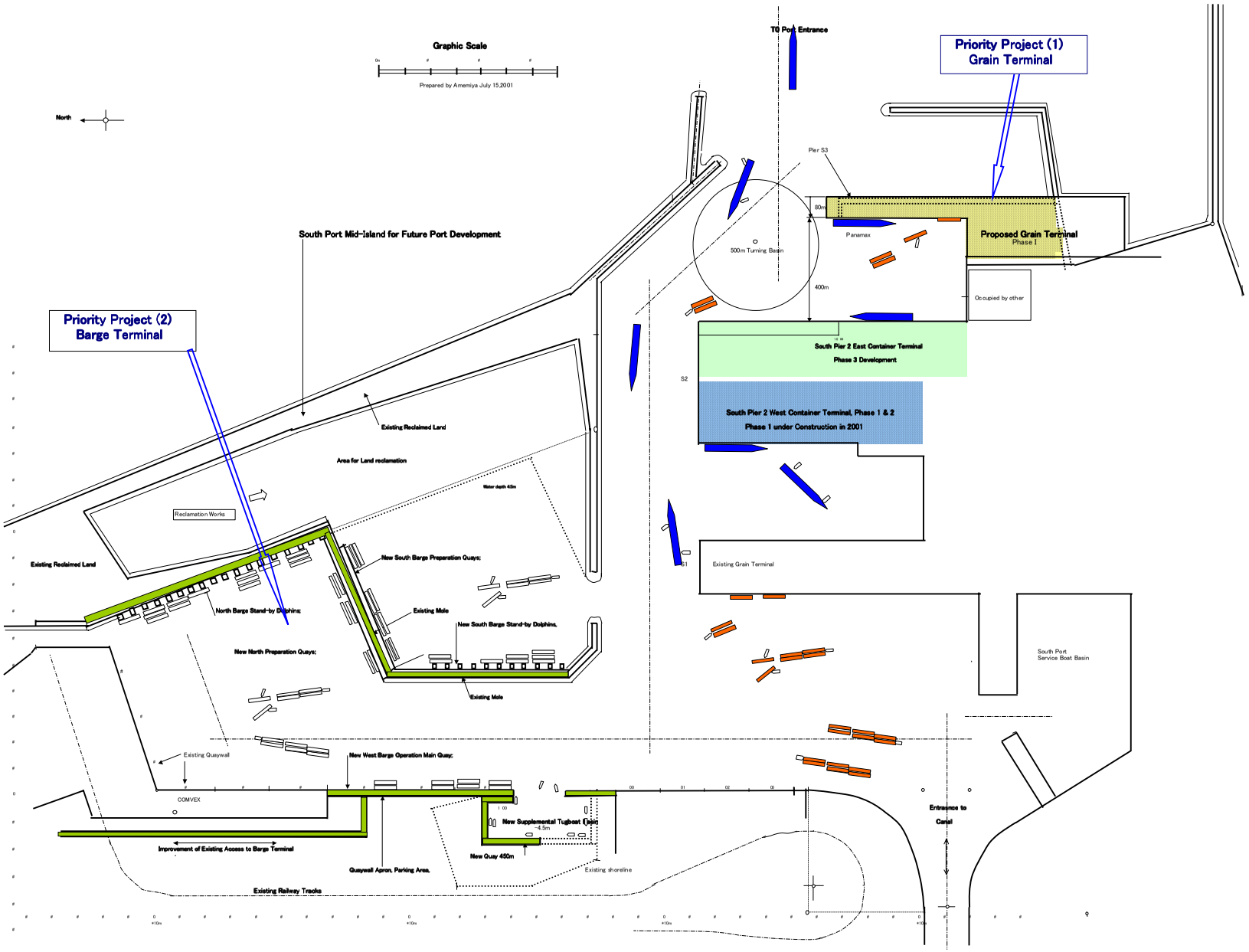


Figure 7.2 General Arrangement of Two Priority Projects

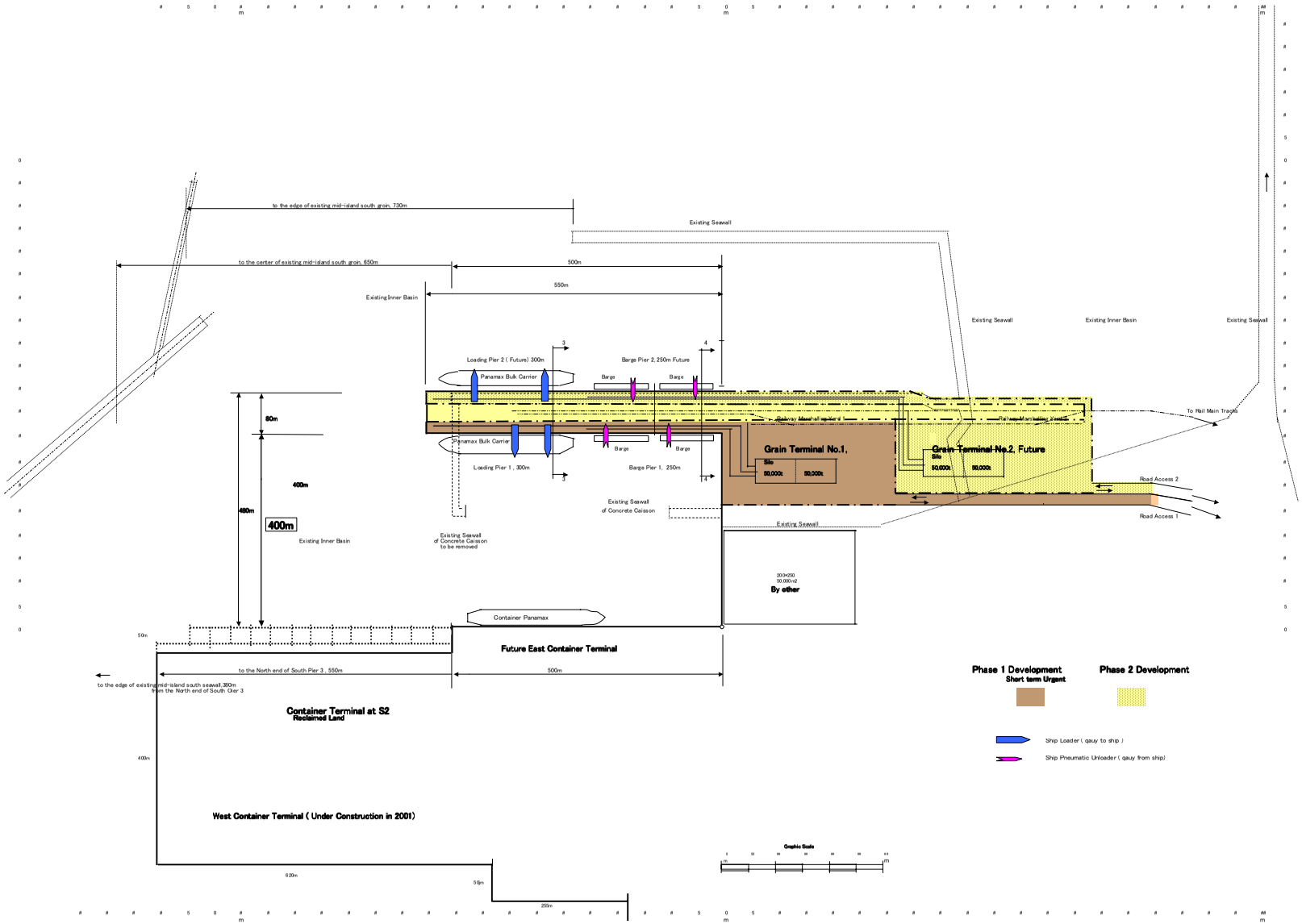


Figure 7.3 General Plan of Grain Terminal , Alternative B2 L400: South Pier 3

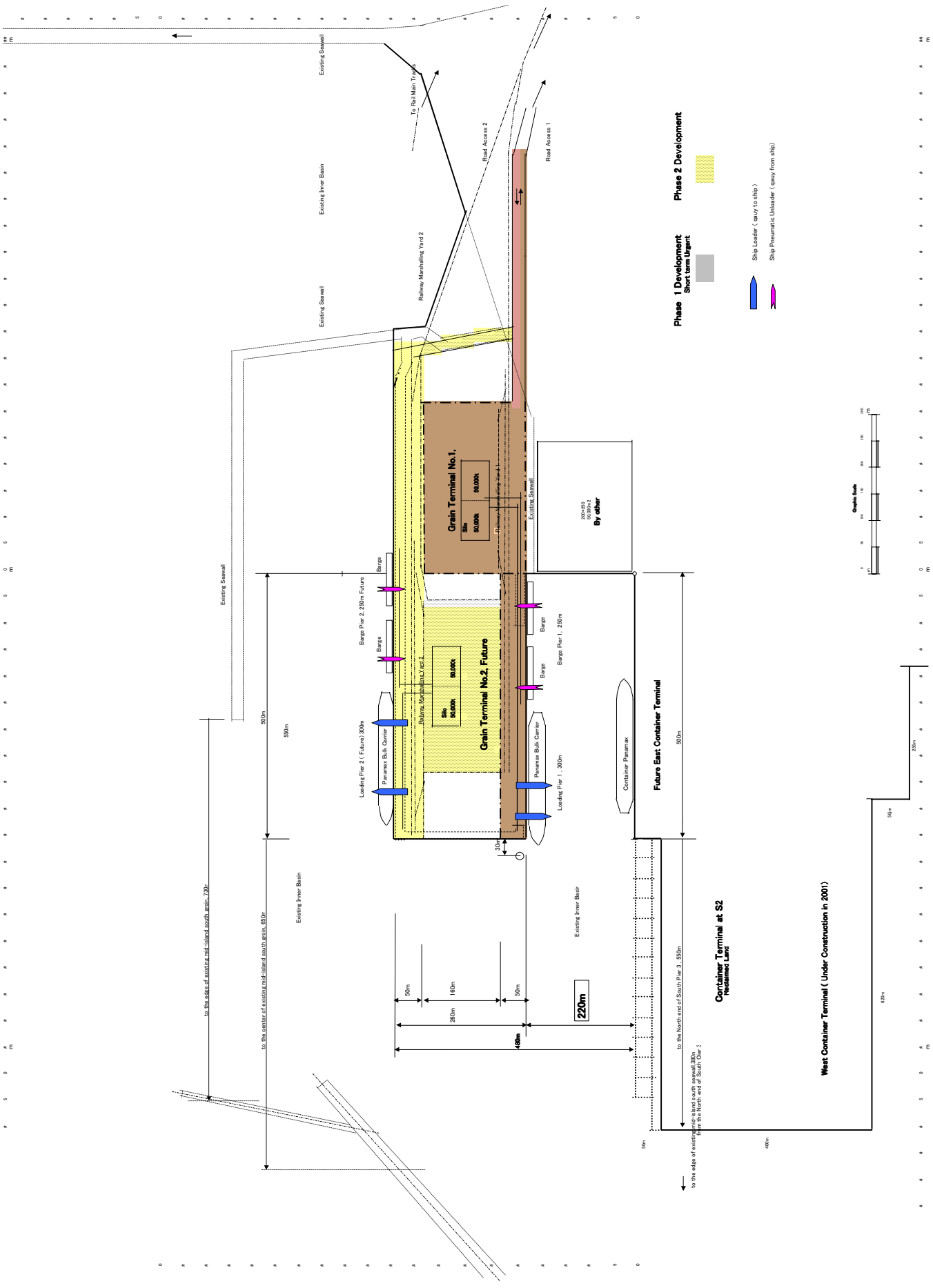


Figure 7.4 General Plan of Grain Terminal , Alternative L220: South Pier 3

(4) Proposed Grain Handling Equipment System

The Grain Terminal will be newly constructed at Pier S3, and will be designed based on the following system planning concepts:

a. Grain receiving facilities:

i. From barges and/or vessels: 2 units of 400 t/h pneumatic unloader
ii. From railway wagons: 2 units of 400 t/h receiving hopper
iii. From road trucks: 1 unit of 100 t/h receiving hopper

b. Silos

Main silos: 20 units of bin in each 5,000 ton storage capacity
Buffer Silos: three units of bins of 500 ton each also provided.

c. Grain delivery facilities:

i. To vessels and/or barges: 2 units of 800 t/h loaders
ii. From railway wagons: 1 unit of 200 t/h loading chute
iii. From road trucks: 1 unit of 100 t/h loading chute

7.2 Barge Terminal

The work would consist of several groups as classified by utilization and locations.

<u>Main Quay: Mother Land Side.</u>

1) New West Barge Operation Main Quay, 700 m -4.5m depth
2) New Supplemental Tugboat Basin
   B-37, 38 and 39
   Quay wall 450 m
3) Apron pavement
4) Utility
5) Improvement of existing access to Barge Terminal
   About 3,000 m for two lanes
6) Others

<u>River Basin: East Face and South Face: Island Side</u>

1) New North Preparation Quay, 600 m -4.5 m depth
2) Improvement of Existing Mole: 600 m

3) Improvement of Existing 18 Dolphins.
   Length 850 m
4) Apron pavement to Quay and Dolphin Berth
5) Others

Island Basin: Island Side

1) New South Preparation Quay, 500 m -4.5 m depth
2) New South Dolphins. 11 units
   Length 500 m
3) Apron pavement to Quay and Dolphin Berth
4) Others

7.3 Inland Transport Facilities: Gate No.5 Access Improvement

It is proposed to provide a new access at/after the existing Gate No.5 in order to improve the present physical constrains. Work will be installed over the railway siding yard and the steep cliff to the port boundary. Total road length including the gate house area is about 600 m as follows:

- ✓ Gate Platform L = 220 m
- ✓ Fly-over Bridges in nine spans L = 330 m
- ✓ Landing zone L = 50 m
- ✓ Total Length 600 m

A series of fly-over bridges will be provided between the raised platform (at 21m to 25m) and the earth mound road at about 8 meter ground height. They consist of nine spans including following combination:

- ✓ 30m Span Fly-over Bridge 6 units
- ✓ 45m Span Fly-over Bridge 2 units
- ✓ 60m Span Fly-over Bridge one unit
- ✓ Total 9 units