6.5 Basic Layout Plans

6.5.1 Introduction

This section deals with the Layout of the Master Plan.

Section 6.5.2 deals with the major concepts of the zoning for the master plan.
Section 6.5.3 to **Section 6.5.5** deal with two alternatives of Layout Plans, Layout-A and Layout-B, and evaluation of both alternatives.
Section 6.5.6 deals with two alternatives of future expansion areas.

6.5.2 Zoning for Port Activities

Figure 6.5.1 shows proposed zoning for port activities.
It is assumed that depth of berth and channel are based on the draft achieved by the present dredging plan of CMPA.

Major concepts of this zoning are as follows;

1) Bulk cargoes that require special handling equipment such as ore, fertilizer, cement, liquid bulk, are allocated to present location, if there is no problem for future use.

2) Projects that are already on going or will be implemented mainly by private sectors are basically allocated to planned location.
For example, LPG terminal area is allocated to follow the ongoing project site.

3) Terminals which require accommodating large vessel in the future are allocated in the South Port.
So that Container terminal, and Grain terminal are allocated in the South Port.

4) Cargoes which are handled at various terminals in the port at present are put together in one terminal to improve port operation in the future.
Timber and steel products are allocated to concentrated and specialized area for each type of commodity.

5) Old North Port area should be modified to non-cargo use such as for passenger and business use.
Since Old North Port does not have sufficient depth of berths for the future vessel size, this area is to be shifted from cargo use to non-cargo use such as for passenger service and port related business services. International business center

and passenger terminal for cruisers are allocated here, due to its location close to the city center. Furthermore, car and passenger terminal for short sea ferryboat can be allocated this area, as required.

6) Barge operation area which includes barge and pusher/tug terminals is allocated to the South Port, due to easy connection to the canal and barge related terminals such as ores, cokes, steel products and grains.

6.5.3 Master Plan (Layout Plan-A)

Layout Plan -A is formulated to concentrate the terminals accommodating large vessels to the south port based on above concepts of zoning.

In Layout Plan –A, new Grain Terminal is allocated at the South Port pier S3.

Steel Product Terminal is allocated at South Port pier S1, taking following reasons into consideration.

- Most steel products are hauled by barge
- A sufficient yard space is available
- 50000 DWT class vessels will be use in the future
- A substantial quantity of steel products has already been exported through Pier S1

Timber terminal is allocated at North Port pier 3, taking following reasons into consideration.

- A sufficient yard space will be available
- A substantial quantity of products has already been exported through Pier 3

Figure 6.5.2 shows Layout Plan-A for the year 2020 based on the demand forecast Case-1.
Figure 6.5.3 shows Layout Plan-A for the year 2010 based on the demand forecast Case-1.
Figure 6.5.4 shows the Layout Plan-A for the year 2020 based on the demand forecast Case-2.

The difference among these Layouts is the required scale of a container terminal.

6.5.4 Master Plan (Layout Plan-B)

Layout Plan -B is formulated to concentrate the required terminals to the North Port.
Grain Terminal is allocated at the North Port pier 1, and Steel Product Terminal is allocated at North Port pier 4. This plan can make good use of existing berths and facilities

and will not change much interference with existing North Port and South Port activities. Timber terminal is allocated at North Port pier 3.

The shortcoming of Plan-B is that the draft of Grain Berth (Berth 31-33) is not sufficient for the maximum size of expected vessels (30,000DWT to 50,000 DWT). However, the existing S1 grain terminal can handle these vessels, and thus the new grain terminal can serve especially for smaller vessels.

Figure 6.5.5 shows the Layout Plan-B for the year 2020 based on the demand forecast Case-1.

6.5.5 Evaluation of Both Plan

Considering future vessel size, future expansion room and proximity to the Black Sea-Danube Canal, the Study Team recommends Layout Plan-A, demand forecast Case-1 as the Master plan of the port of Constantza.

The following projects are also considered as possible projects, when a future demand changes:

- Import / export / transit car terminal
- Heavy and oversized cargo terminal

  These terminal require wide spread open yards, so South Port pier 1S can be currently used. Both proposed Steel Product Terminal and Timber Terminal have open yards and firm platforms and are functioned as some multi-purpose terminals, so both terminals will be able to used tentatively.
- Exotic fruit terminal (citric, bananas etc.), Fruit juice and edible oil terminal

  Location is allocated depending on its volume of demand. Generally South Port is for larger scale, North Port is suitable for smaller scale.

Figure 6.5.1 Zoning for Port Activities

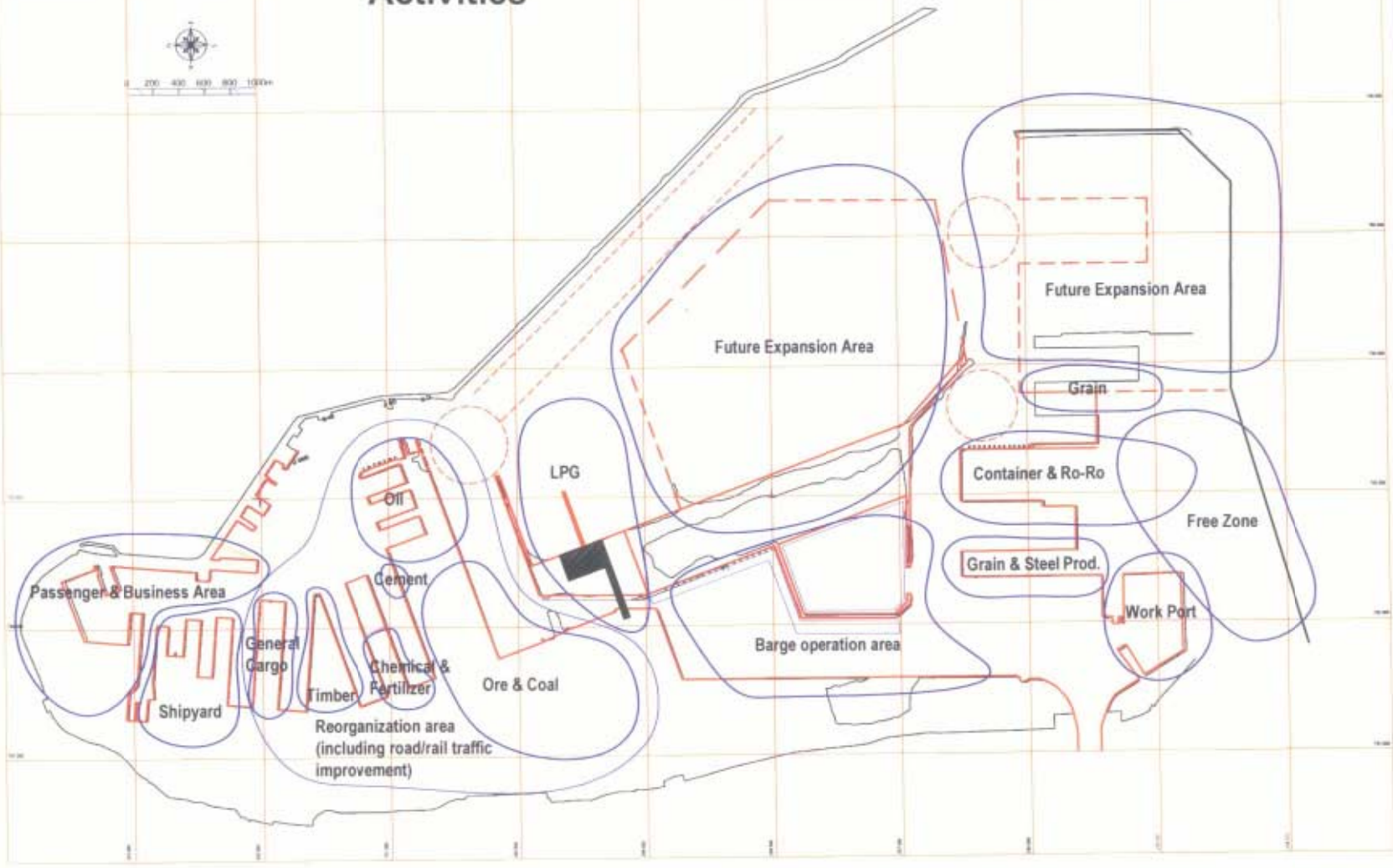


Figure 6.5.2 Master Plan Layout (Case-1, 2020,Layout Plan-A)

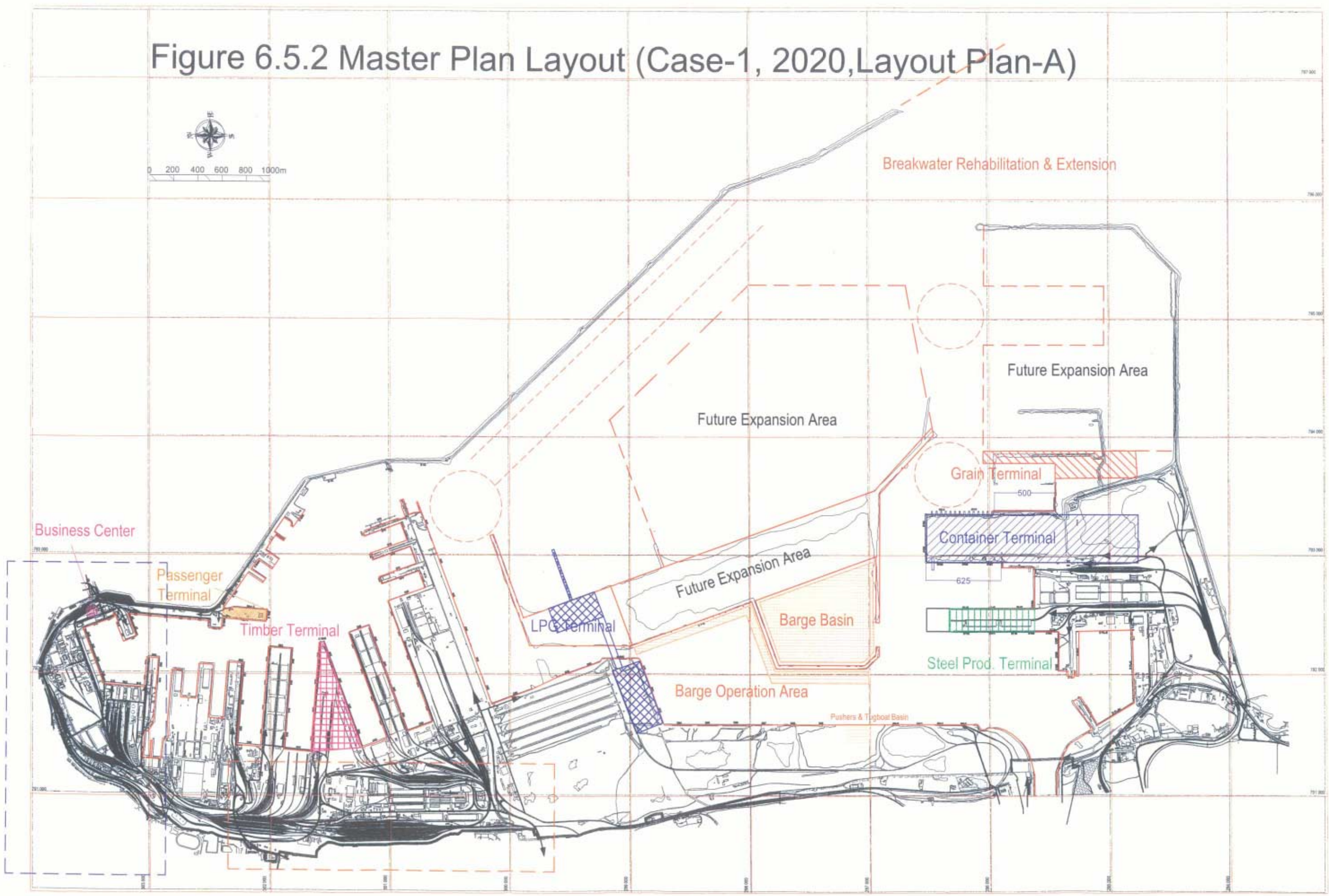


Figure 6.5.3 Master Plan Layout (Case-1, 2010,Layout Plan-A)

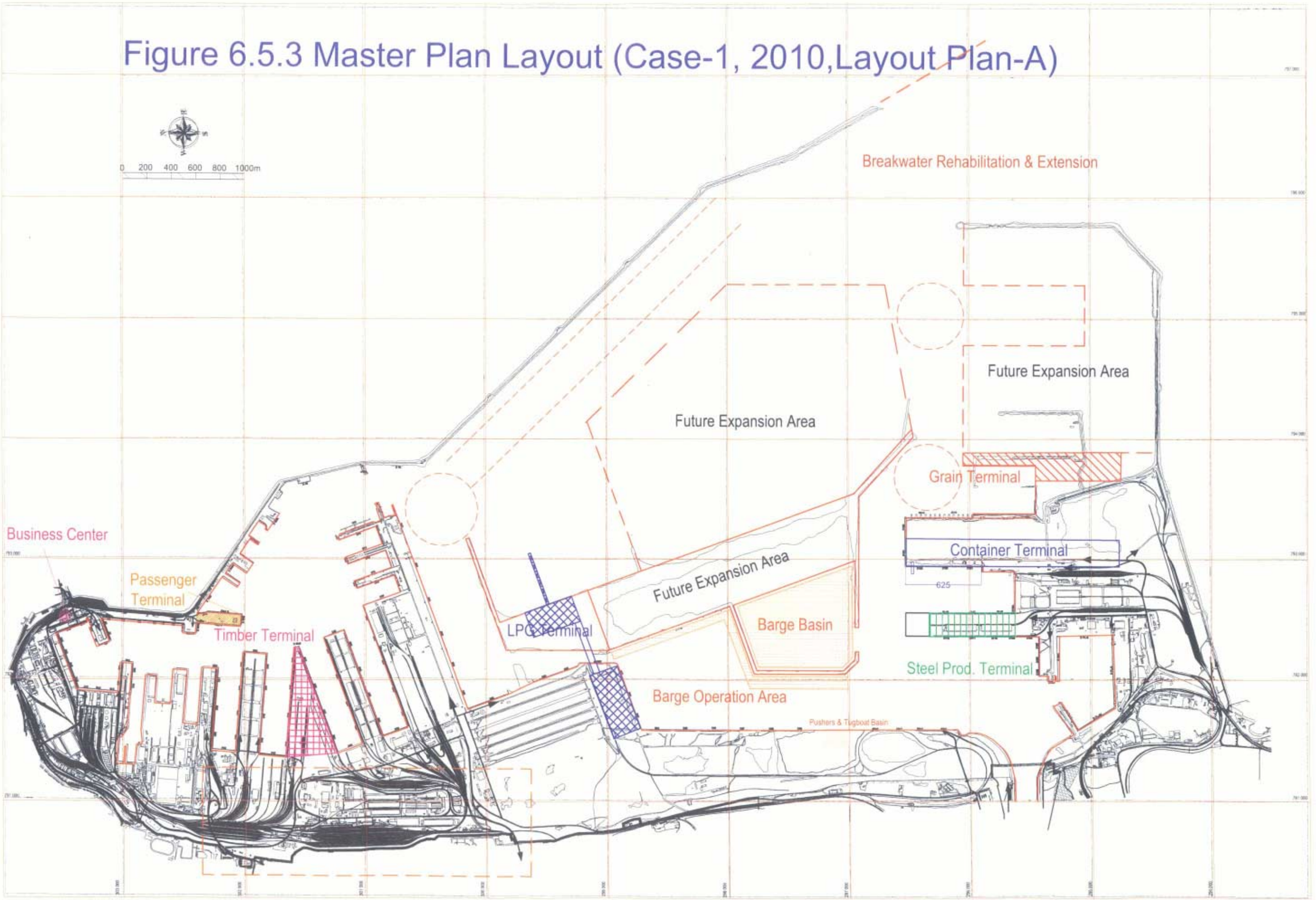


Figure 6.5.4 Master Plan Layout (Case-2, 2020,Layout Plan-A)

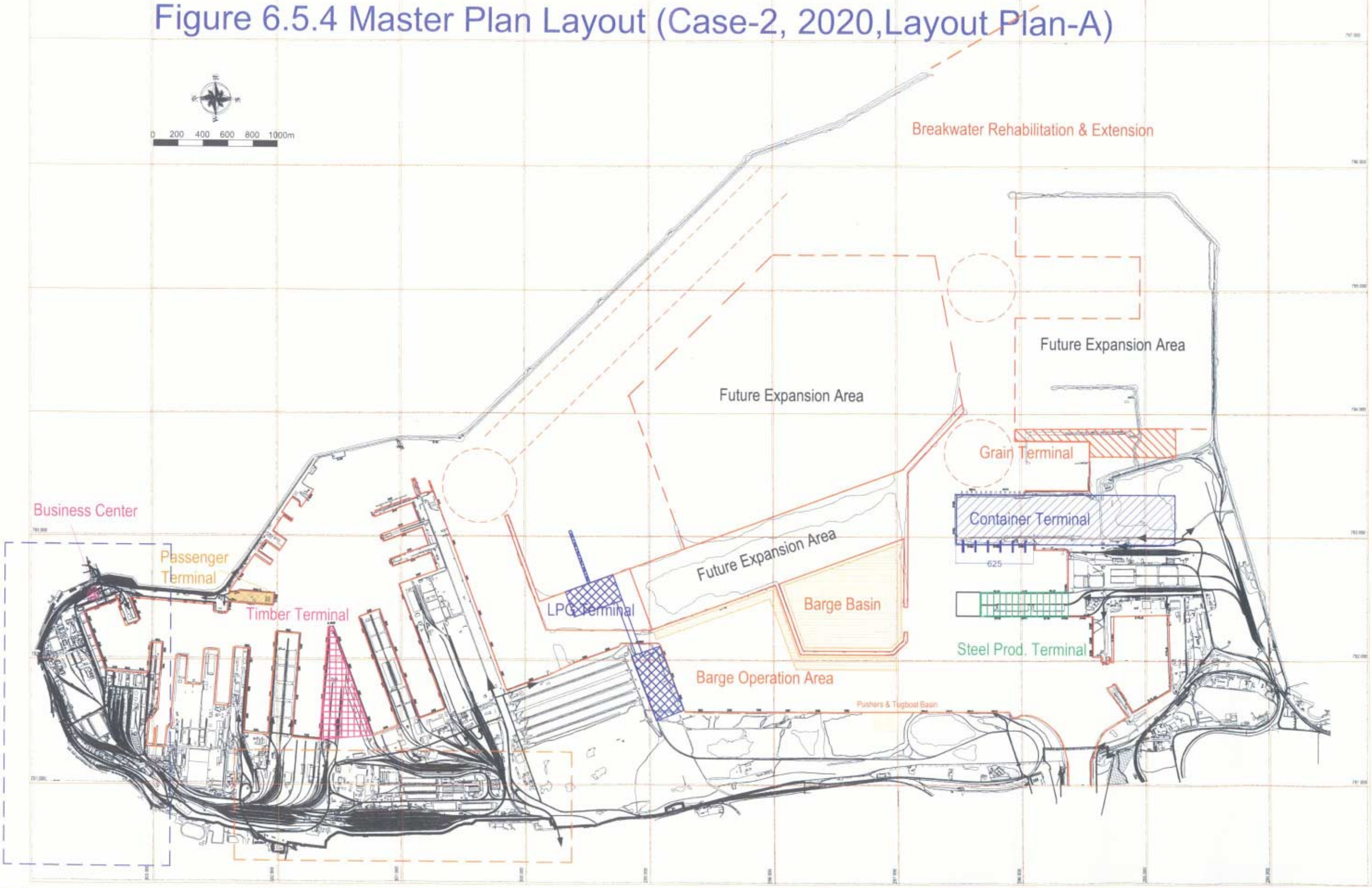
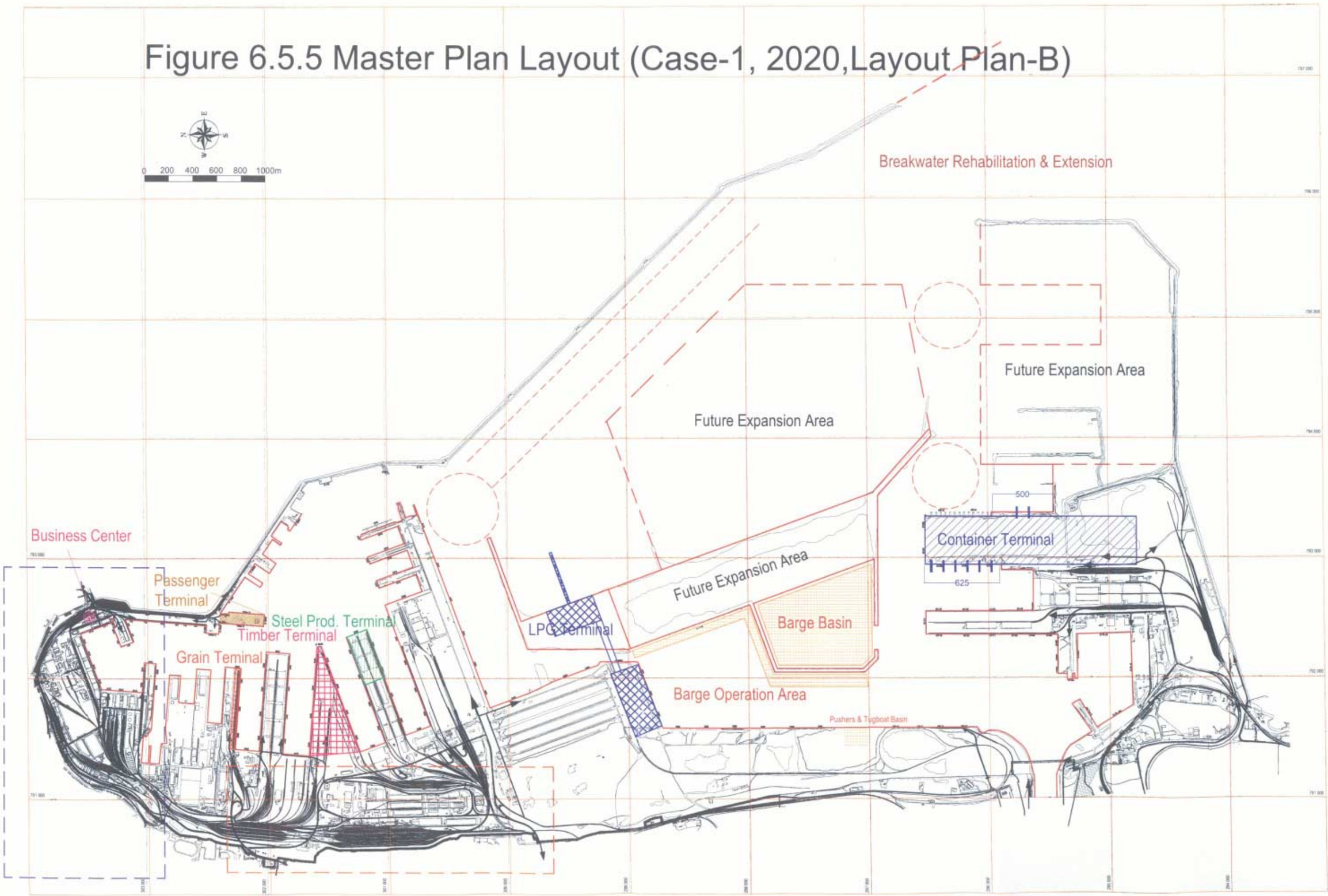


Figure 6.5.5 Master Plan Layout (Case-1, 2020,Layout Plan-B)



6.5.6 Future Expansion Area

Figure 6.5.6 and Figure 6.5.7 show two alternatives of the future expansion areas.

Basic plan is shown as figure 6.5.6. In this plan, no change is made to the existing breakwaters and revetment of the central island.

Alternative plan is shown as figure 6.5.7. In this plan, longer in-line berths are provided. However this plan requires removal of existing central island revetment and extension of south breakwaters.

The Study Team recommends Basic plan, fig. 6.5.6. It is confirmed that this plan can secure enough calmness of waterways and basins in the South Port by reviewing the wave calmness study (see details in Part III chapter 4). In addition, ongoing breakwater extension project is necessary to secure the calmness in the south Port.

Figure 6.5.6 Future Expansion Area

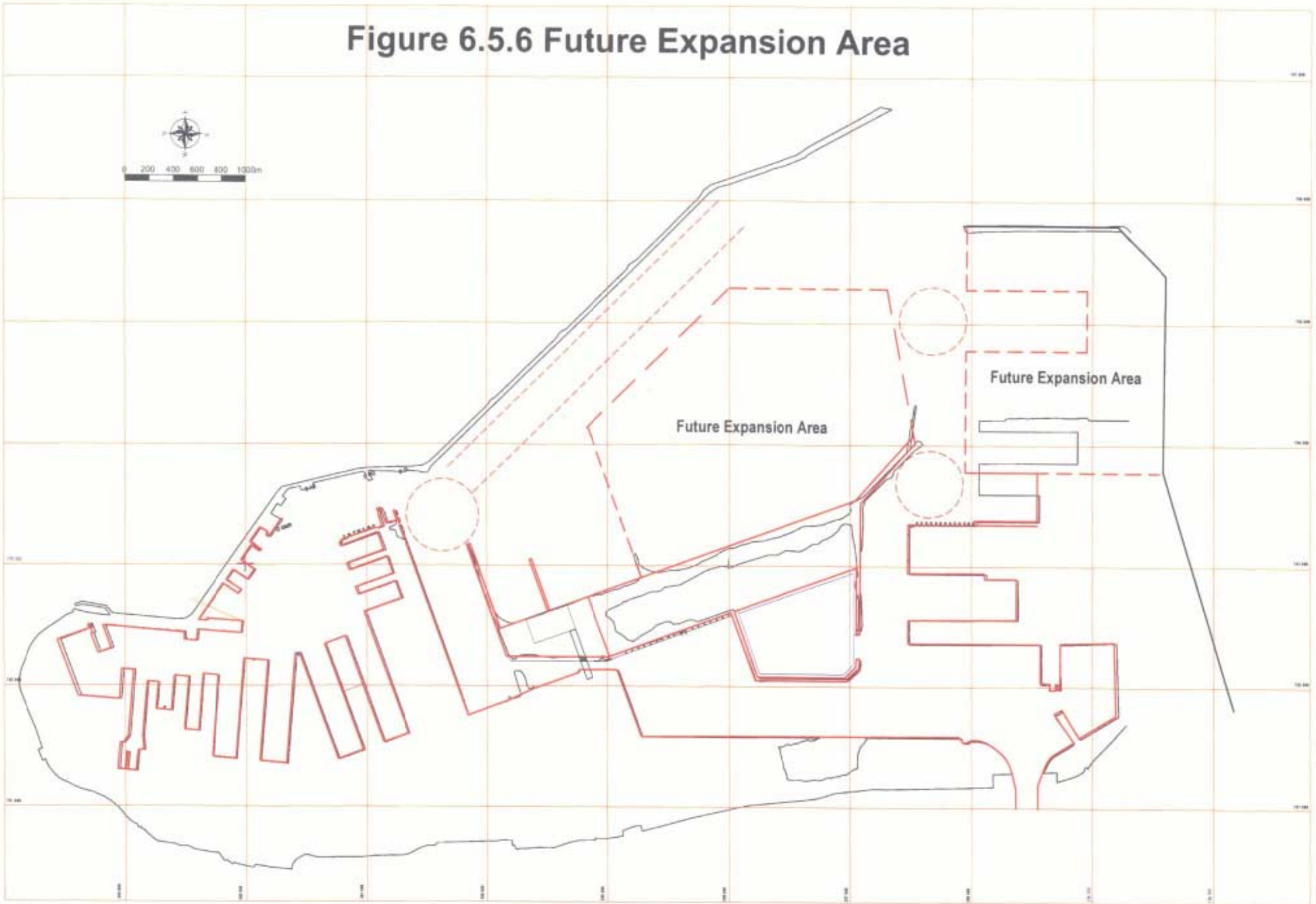
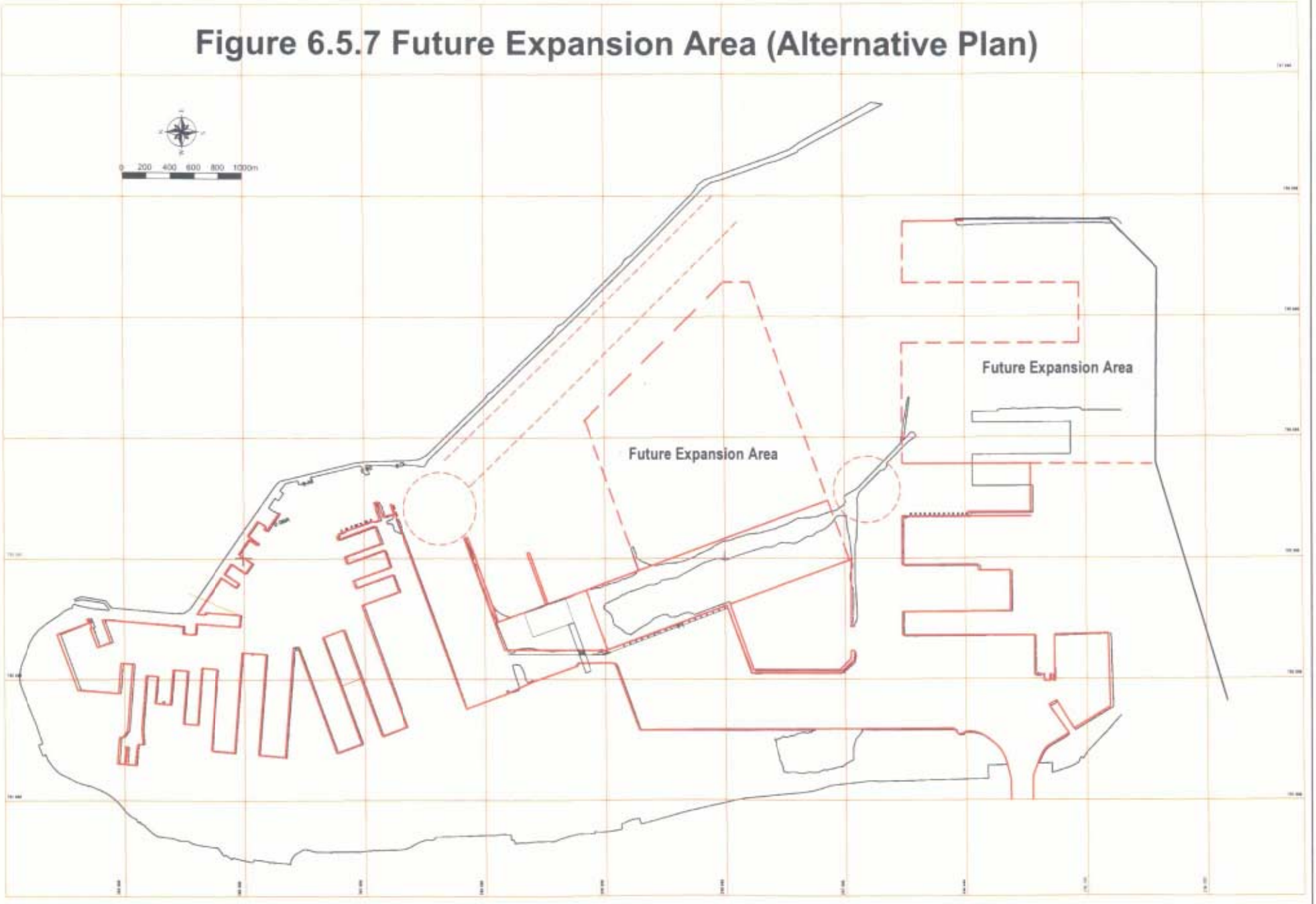


Figure 6.5.7 Future Expansion Area (Alternative Plan)



6.6 Phased Implementation Plan

New Master plan Projects proposed in section 6.3 can be classified into three (3) major categories.

The first category represents those projects which deal with the capacity constraints of Constantza Port and the increasing cargo traffic. Both Container Terminal Development Project and Grain Terminal Development Project are included in this category.

Regarding **container terminal development**, JBIC Loan Phase-I Project is going to start on Pier-2 of South Harbor with two berths (600m long west side of the pier), three gantry cranes and relevant yard facilities. At the completion of this Project, Constantza Port will have a container handling capacity of 357,000TEU per annum. After adding one gantry crane, this terminal will be able to handle the container traffic demand of the New Master Plan in 2010 (384,000 TEU per annum in Case 1). To deal with the traffic demand in 2020 of the New Master Plan (790,000 TEU per annum in Case 1), three berths along Pier-2, two berths on the west side and one berth on the east side, eight gantry cranes and extension of relevant yard space are necessary.

Regarding **grain terminal development,** additional terminal with the capacity of 2,000,000 tons per annum will be required by 2010.

The second category represents those projects which are designed to improve the present operations of the Port, i.e., to integrate certain cargoes that are presently handled on a small scale by each operator in one or two areas in the Port so as to improve handling efficiency, and to deal with the future trend of the maritime transportation, i.e., increasing size of vessels. Steel Product Terminal Development Project, Timber Export Terminal Development Project and Relocation of General Cargo Terminals of Old North Port are included in this category.

The third category represents those projects which improve the accessibility of terminal operation to the inland transportation network in Romania. In order to realize smooth and effective operation of the port, some of the inland transportation channels in the port have to be improved. Barge Basin improvement for setting up convoy and barge pool, road alignment improvement between Gate 5 to 6 of the port and relocation of the railway in the Old North Port are included in this category.

Implementation of the Railway Relocation Project would best be done after 2020 because it will take a long time before appropriate usage of the Old North Port area becomes clear. Road Alignment Improvement Project (which will be studied in more detail in the study of

North Port reorganization) is to be allocated in the short-term implementation project up to 2010. The Barge Terminal Development Project is also considered as a short-term development project because some urgent countermeasures for smooth inland waterway transportation are required from river and canal transportation sector of the Ministry of Transport in Romania.

The projects and implementation schedules are summarized in Table 6.6.1.

Table 6.6.1 Summary of Phased Implementation Plan

				2010	2020	Future Development Plan
Traffic Demand Related Projects	1	Container Terminal	Forecast Case-1	2 Berths 4 Gantry Cranes	3 Berths 8 Gantry Cranes	
			Forecast Case-2	2 Berths 3 Gantry Cranes	2 Berths 6 Gantry Cranes	
	2	Grain Terminal		2.0 Million Ton per annum		
Renovation & Improvement Projec	3	Steel Products Terminal			○	
	4	Timber Terminal			○	
	5	Relocation of General Cargo Terminals			△	
Inland Transportation Access Improvement Projects	6	Barge Terminal		○		
	7	Railway Relocation (Old North Port)			△	○
	8	Road Improvement		○		