

Ministry of Transport
The Republic of Indonesia

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR IMPROVEMENT OF PORT
SECURITY SYSTEM
IN
THE REPUBLIC OF INDONESIA

June 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

JAPAN PORT CONSULTANTS, LTD.

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Preface

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for improvement of port security system and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Indonesia a study team from 28th October to 4th December, 2007.

The team held discussions with the officials concerned of the Government of Indonesia, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Indonesia in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the teams.

June, 2008

Masafumi Kuroki
Vice-President
Japan International Cooperation Agency

June, 2008

Letter of Transmittal

We are pleased to submit to you the basic design study report on the project for improvement of port security system in the Republic of Indonesia.

This study was conducted by Japan Port Consultants, Ltd., under a contract to JICA, during the period from October, 2007 to June, 2008. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Indonesia and formulated the most appropriate basic design for the project under Japan's Grant Aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Yuzo Suzuki
Project manager,
Basic design study team on
the project for improvement
of port security system
Japan Port Consultants, Ltd.

Summary

(1) Outline of the country

Indonesia has a population of 222 million, a land of 1.89 million km² and consists of about 17,500 islands. Those islands scatter on either side of the equator, about 5,110km from east to west and about 1,888km from north to south. As the islands consist of a part of the circum-Pacific volcano belt, volcanic eruptions and earthquakes occur frequently and big tsunamis by earthquakes have attacked the islands several times. The climate comes under tropic category and there are no extreme changes in temperature all the year round, about 30 and about 20 There are certain distinction between dry season and rainy season.

Indonesian GDP per capita was US\$ 1,947 in 2007 (according to the Indonesian national statistics), and its 12.9% was accounted for by the primary industry, 47.0% by the secondary industry (including mining, electric and gas supply industry and construction industry), 40.1% by the tertiary industry. The real economic growth rate was 6.3% and the consumer price increase rate was 6.6% in 2007. Indonesian economy depends on some main industries such as mining industry (crude oil, natural gas and aluminum etc.), agriculture industry (rice, rubber and crude palm oil etc.) and producing/manufacturing industry (lumber, cement and fertilizer). As Indonesia is islands country, the international trade play an important role in Indonesian national and regional economy. The main export items are abundant natural resources such as crude oil, natural gas and crude palm oil, and electrical machineries and appliances.

(2) Background the project

The GOI joined in IMO in 1961 and has been taking necessary steps to improve maritime safety and to increase efficiency of ship operation and to prevent marine pollution according to IMO's recommendations. On the occasion of the terrorist attacks in U.S.A. in 2001, IMO amended the SOLAS Convention in order to impede terrorism by means of the concord between ships and port facilities in 2002. In response of the international movement, the GOI had to take urgent measures to strengthen the port security system of core international ports. The GOI requested to the GOJ to install security equipment, such as CCTV camera monitoring systems and X-ray inspection systems at Port of Tanjung Priok, Port of Tanjung Perak and Port of Batam together with the procurement of security equipment at 8 airports. The installation work was done by Japanese grant aid project in 2004.

The amendment of the Convention came into effect and its annexed ISPS Code in July 1st, 2004. The GOI, a member country of IMO, ratified the amended SOLAS Convention and has been tackling to enhance security system for the international ports.

Indonesia is an islands country. Many ports other than the above-mentioned 3 ports also play a strategic role of international trade for supporting the national and regional economy. Enhancement of port security system needs to make and revise the port facility security plans, to

provide completely security equipment, to strengthen port security organization and to improve the capability of the staff concerned on security. But due to lack of governmental funds, these matters were not coped with sufficiently. Therefore the GOI requested the GOJ to do the study on the improvement of port security system in Indonesia. In response to the request, the GOJ carried out the study on the port security enhancement program of major Indonesian trading ports in 2005-2006 and proposed that it was necessary to conduct the urgent development of port security system. Based on the proposal of the study, the GOI requested again to the GOJ for the grant aid on the installation of port security equipment at 9 target ports.

(3) Summary of the basic design study and the contents of the project

JICA dispatched the basic design study team to Indonesia from Oct. 28th to Dec. 4th in 2007. The team held discussions with the officials concerned of Directorate of Guard and Rescue, DGST and port facility security officers of 4 PELINDOs and conducted field surveys. Based on those discussions and the surveys, the team examined the feasibility of the request and the rationale of the project due to the present situation about port security system and the operation and maintenance system at 9 target ports. And they also examined the equipment deployment plan for each port. After the team returned to Japan, they analyzed the data and the information which they had gotten during the site surveys and prepared the draft basic design report. JICA dispatched the draft basic design report team to Indonesia from Mar. 12th to Mar. 20th, 2008 to explain the draft report to the concerned officials.

In accordance with the outcome of the discussion, the basic design of the procurement of the security equipment was decided in order to strengthen security system of the restricted area based on ISPS Code at 8 international trading ports as follows.

Name of Port	Kind of Equipment						
	CCTV Camera Monitoring System	Lighting Equipment	Public Address System	X-ray Inspection System	Walk-through Type Metal Detector	Uninterruptible Power Supply	Emergency Power Generator
Belawan Port (*)	2 sets	2 sets	2 sets		1 unit	2 units	
Dumai Port	1 set		1 set	1 unit	1 unit	1 unit	
Tanjung Pinang Port	1 set					1 unit	1 unit
Teluk Bayur Port	1 set	1 set	1 set			1 unit	
Palembang Port	1 set		1 set			1 unit	
Pontianak Port	1 set	1 set	1 set			1 unit	
Benoa Port	1 set		1 set	1 unit	1 unit	1 unit	
Makassar Port	1 set		1 set			1 unit	
Total	9 sets	4 sets	8 sets	2 units	3 units	9 units	1 unit
Note: 2 sets (units) of equipment except of walk-through type metal detector will be installed at Belawan Port because there are 2 different port offices, that is, Container terminal unit and Belawan port office.							

Port of Bitung, which was requested to be one of the target ports by the GOI, is excluded from the list of target ports due to the on-going renovation work of the terminal, such as the reconstruction of transit sheds.

It has already been agreed by the GOJ and the GOI that the construction of new gates and new fences shall be done by Indonesian side.

(4) Implementation schedule and cost estimation of the project

The total period from detail design and tender procedure to taking-over of the equipment is expected to be sixteen (16) months.

The cost to be borne by the GOI is estimated to be roughly Rp. 2773 million. GOI should repair gates and fences, construct new ones and prepare electric power boxes etc..

(5) Project evaluation

The project will be expected the following things.

1) Direct effect

(Improvement of security system for the terminal)

Surveillance system will be changed from patrol inside the terminal every 2 or 3 hours to 24 hour-a-day continuous surveillance from the monitoring room.

(Improvement of inspection system for passengers' baggage and personal belongings)

Inspection system for passengers' baggage and personal belongings will be changed from limited number of inspection for baggage to 100% inspection by the equipment.

2) Indirect effect

(Stable growth of economic activity in the hinterland of the ports)

By strengthening the port security system, there will be no fear and anxiety that foreign vessels will avoid calling at 8 target ports. That means the stable development of the regional economy can be secured through the project and contribute the stable development of 20~25% of Indonesian economy and international trade.

(Shortening of inspection time)

By the installation of X-ray inspection system and walk-through type metal detector, inspection time for passengers can be shortened. That means the service level for passengers will be improved.

As for the operation and maintenance of the equipment, PELINDOs and ADPELs will conduct daily as routine works based on the PFSPs. After the installation of the equipment, security work will change from guarding by personnel to guarding by equipment. It is considered that no serious problem will happen on personnel assignment. And the type of the equipment will be the same as ones which was procured by the 2004 grant aid project, so it is also considered that no serious technical problem will happen on the operation. Every PELINDO keep the balance in

the black every year, so there will happen the problems that the maintenance cost of the equipment will cause the financial difficulties to each PELINDO in future.

The project is expected to bring the large effect as stated above and also to contribute to keep peace and stability in Indonesia. Furthermore security staff and necessary budgets will be secured. It is expected that the project will be implemented more smoothly and effectively through the technical cooperation about the training for the improvement of staff's capability and awareness for security job.

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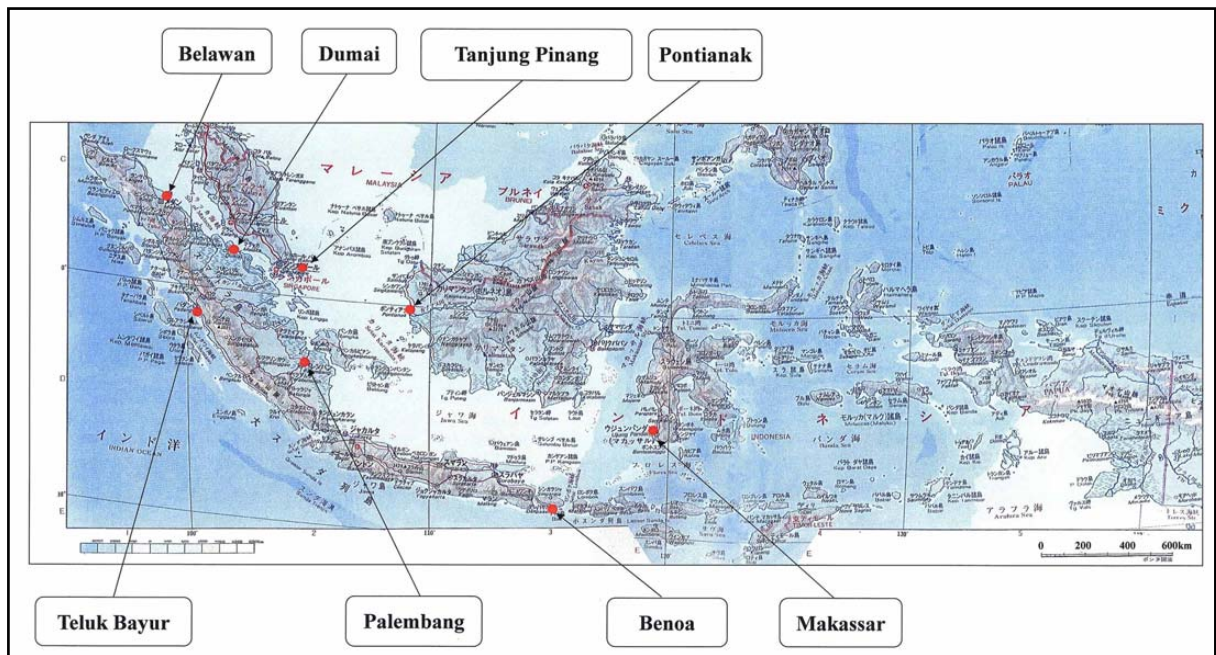
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Abbreviations

Term	English (Indonesian)
A/P	Authorization to Pay
ADPEL	Port Administrator (Administrator Pelabuhan)
AIS	Automatic Identification System
ASEAN	Association of Southeast Asian nations
B/A	Banking Arrangement
BJTI	Berlian Jasa Terminal Indonesia
CPO	Crude Palm Oil
DGST	Directorate General of Sea Transportation
E/N	Exchange of Notes
EU	Europe Union
FAA	Federal Aviation Association
GDP	Gross Domestic Product
ISPS Code	International Code for the Security of Ships and Port Facilities
JICA	Japan International Coordination Agency
KANPEL	Port Office (Kantor Pelabuhan)
KM	Decree of Ministry of Communication
KPLP	Sea and Coast Guard Unit (Kesatuan Penjagaan Laut Dan Pantai)
KPPP	Port Police (Kesatuan Palaksana Pengamanan Pelabuhan)
M/D	Minutes of Discussion
PELINDO	Indonesia Port Corporation (Persero Pelabuhan Indonesia)
TPS	Surabaya Container Terminal (Terminal Petikemas Surabaya)
TEU	Twenty-foot Equivalent Unit
CSO	Company Security Officer
IMO	International Maritime Organization
PFSO	Port Facility Security Officer
PFSP	Port Facility Security Plan
PSC	Port Security Committee
PSO	Port Security Officer
SOLAS	International Convention for Safety of Life at Sea
SSO	Ship Security Officer
AC	Alternating Current
CCD	Charge Coupled Device
CCTV	Closed Circuit Television
CD	Compact Disk
CD-R/W	Compact Disk-Read/Write
DVD	Digital Versatile Disk

F	F number
GPS	Global Positioning System
GUI	Graphical User Interface
HDD	Hard Disk Device
IP	International Protection
L2-SW	Layer 2-Switch
PC	Personal Computer
TFT	Thin Film Transistor
UPS	Uninterrupted Power Supply

Chapter 1 Background of the Project

Chapter 1 Background of the Project

1-1 Background of the project

On the occasion of the several heinous terrorist attacks which occurred concurrently in U.S.A. on Sep., 2001, the International Maritime Organization (known as “IMO”) amended the International Convention for the Safety of Life at Sea (known as “SOLAS Convention”) in order to impede terrorism by means of the concord between ships and port facilities in 2002. The Government of the Republic of Indonesia (hereinafter referred to as “GOI”) requested urgently the Government of Japan (hereinafter referred to as “GOJ”) to install security equipment, such as CCTV cameras, X-ray Inspection Systems at Port of Tanjung Priok, Port of Tanjung Perak and Port of Batam by the Japanese Grant Aid Program together with the donation of security equipment for the main 8 airports. The installation works were carried out in the fiscal year 2004. Those equipment has been utilized well so far.

The amendment of the Convention came into effect and its annexed International Ships and Port Security Cord (known as “ISPS Code”) from July 1st, 2004. The member nations of IMO must be owed a duty to strengthen their own security systems for vessels and international ports. The GOI, a member of IMO, ratified the amended SOLAS Convention and has been tackling to enhance security system for the international ports.

Indonesia is an islands country. Many other ports, in addition to the above-mentioned 3 ports, also play strategic roles of international trade for supporting the national and regional economies. Enhancement of port security system needs to make and revise the port facility security plans, to provide completely security equipment, to strengthen port security organization and to improve the capability of staff concerned on security. But due to lack of governmental funds, these matters were not coped with sufficiently. Therefore the GOI requested the GOJ to do the study on the improvement of port security system in Indonesia. In response to the request, the GOJ carried out the Study on the port security enhancement program of major Indonesian trading ports and proposed that it was necessary to conduct the urgent development of port security system. Based on the proposal of the Study report, the GOI again requested the GOJ for Japanese Grant Aid on the installation of port security equipment as follows at 9 target ports.

(Outline of the request)

Design, procurement and installation of the following security facilities and equipment with technical and financial support

New gate, new fence, CCTV camera monitoring system, lighting equipment, public address

system (PA system), X-ray inspection system, walk-through type metal detector, uninterruptible power system (UPS), emergency power generator (9 items)

Those facilities and equipment will be procured for security system improvement at the following 9 ports.

(Target ports)

Port of Belawan, Port of Dumai, Port of Tanjung Pinang, Port of Teluk Bayur, Port of Palembang, Port of Pontianak, Port of Benoa, Port of Makassar, Port of Bitung

1-2 Natural condition

Indonesia has a population of 222 million, a land area of 1.89 million km² and consists of about 17,500 islands. Those islands scatter on either side of the equator, about 5,110 km from east to west and about 1,888km from north to south. As the islands consist of a part of the circum-Pacific volcano belt, volcanic eruptions and earthquakes occur frequently and big tsunamis by earthquakes have attacked the islands several times. The climate comes under the tropical category and there are no extreme changes in temperature all the year round (temperature ranges from approx 20 to 30). There are certain distinctions between the dry season and rainy season.

There are 8 project sites and 5 of them belong to tropical rain-forest climate zone of which the annual rainfall exceeds 3000 mm. The rest of the sites also have 2300 - 2600 mm of rainfall. All of the sites are subject to heavy rain. The maximum temperature of Pontianak is 35° while the maximum temperatures of other sites range from 32 - 33°. The minimum temperatures of those sites are around 20°. There are small changes of temperature around the project sites. On the other hand, there is rather gentle wind all the year around in Indonesia. A few sites have a maximum wind velocity with 20m/sec annually, but velocity is around 10m/sec at most sites. There are few examples of significant damage being caused by strong wind.

1-3 Consideration for environment and social matters

There is no certain environmental impact on the surrounding area of the project sites, because the project involves installing security equipment inside the port terminal and most of the equipment has no extreme influence on environment.

But some impact on port operation and traffic flow will be foreseen, but it is not expected to be serious. The civil work will be done along the road in order to lay cables of cameras and speakers. Most of the work will be done at the sides of the roads and there will only be a small

influence on traffic flow. The work of taking away the pavement and excavating the trench across the roads will be limited at several sections. The influence on traffic flow during civil works can be minimized if coordination and adjustment between the organs concerned and the contractor will be done appropriately in advance, such as informing and requesting the removal of obstacles to civil works and traffic flow, splitting the working section and adjusting the working process and schedule.

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic concept of the project

(1) Comprehensive goal of the project

The GOI is a member country of IMO and ratified SOLAS Convention which was revised in 2002 and came into effect in 2004 as well as its annexed ISPS Code. Based on the revised SOLAS Convention and ISPS Code, the GOI has been trying to strengthen the countermeasures against terrorism. The requirement of ISPS Code is that member countries have a duty to equip Automated Identification System on international sailing passenger boats and international freighters which are over certain gross tonnage. And Indonesian ports which are used by those boats and ships must take the measures to make Port Facility Security Plan (known as “PFSP”) to designate the restricted area in ports and to monitor persons and vehicles to have access to the restricted area. Port security officers who are responsible for the security of the restricted area must be assigned according to the PFSPs.

To satisfy the international standards, it is important for the GOI to strengthen the security system at international ports so that they comply with the ISPS Code. If the port security system is vulnerable, there is certain possibilities that international vessels which called at Indonesian ports would be rejected to call at foreign ports. That might lead to foreign vessels intentionally avoiding Indonesian ports and would be disastrous for Indonesia’s international trade and cultural exchanges. In order to avoid coming into such serious situation, the GOI have the intention to strengthen port security system by the installation of the equipment such as CCTV camera monitoring system and X-ray inspection system. The purpose of the project is to strengthen security system to the possible highest level at major international ports which are playing strategic roles in the regional economy. The comprehensive goal of the project is to prevent to terrorist attacks and to promote international trade and cultural exchange.

(2) Outline of the Project

The project is to install port security equipment based on the port facility security plan, the so called “PFSP”, of 8 target ports which are main international ports in Indonesia. The purpose of the project is to strengthen the port security system at these 8 target ports. The undertakings cooperatively done by the GOJ are the installation of equipment mentioned as follows. The specific purpose of the project is to establish 24 hours-a-day monitoring system to surveillance suspicious intruders into the terminal and set up 100% inspection system for passengers’ baggage and personal belongings at passenger terminal buildings.

(Target Ports)

Port of Belawan, Port of Dumai, Port of Tanjung Pinang, Port of Palembang, Port of Teluk

Bayur, Port of Pontianak, Port of Benoa, Port of Makassar

(Required Equipment)

1. Closed Circuit Television (CCTV) Camera Monitoring System
2. Lighting Equipment
3. Public Address (PA) System
4. X-ray Inspection System
5. Walk-through Type Metal Detector
6. Uninterruptible Power Supply (UPS)
7. Emergency Power Generator
8. Materials for Incidental Work (Hand hole, Underground Pipe and Cable)

Port of Bitung, which was requested to be one of the target ports by the GOI, is excluded from the list of target ports due to the on-going renovation work of the terminal, such as the reconstruction of transit sheds.

It has already been agreed by the GOJ and the GOI that the construction of new gates and new fences shall be done by Indonesian side.

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

(1) Basic Policy

The GOI, as a member of IMO, ratified the SOLAS Convention which was amended in 2004 and its annexed ISPS Code. On the basis of the Convention and the Code, the GOI has been attempting to enhance security system in the field of maritime affairs. To satisfy international standards, it is important for GOI to strengthen the security system based upon Port Facility Security Plans (known as “PFSP”) at international ports so that they comply with the ISPS Code.

According to the current situation of port security matters, equipment shall be installed to monitor the restricted area prescribed in the PFSP of 8 target ports. The layout plan of equipment is determined based on the characteristics of each terminal, necessary function to enhance the security system and the activity of the terminal. If the ports already have the same kind of equipment mentioned here, the location and quantity of equipment to be installed under this project will be carefully considered so as to prevent excessive installations. The quality of equipment is to be determined based on the capability required at the project site, such as the extent of monitoring and the size of objects for inspection.

(2) Policy for coping with Natural Conditions

Some CCTV cameras, lighting facilities and hornspeakers are installed outdoors. The outer casing of such equipment is to be considered to prevent damage from briny air. On the other hand, equipment installed indoors is not greatly affected by briny air. As for the coating of such indoor equipment, standard specification recommended by each maker is adopted.

Outdoor works consist of erecting work of poles on which CCTV cameras, lighting facilities are installed and the laying work of optical fiber cables and power supply cables. These works are not greatly influenced by natural conditions. But most of the target ports have rainfall of more than 3000mm each year. Such heavy rainfall may hamper the efficiency of concrete works and excavation works of the trench for laying cables. Accordingly, the work schedule takes the influence of heavy rain into account.

(3) Policy on Social and Economic Conditions

Indonesia, an archipelago, depends on seaports to sustain its economic activities, cultural activities and the development of natural resources. These 8 target ports play an important role as strategic ports which support the local economies. Total population of the hinterlands of the 8 target ports is about 46 million people, almost 20% of the total population of the country. As for economic activity, the gross regional products of their hinterlands total approximately 20% of the gross national product. Total volume of maritime export in the hinterlands amounts to 37.5 million tons (FY2004). That means one fourth of the national maritime export volume.

Accordingly, this project to enhance the reliability of port security in Indonesia has a direct impact on 20~25% of the Indonesian people and the national economy through strengthening the security level of international trade. In addition, it will ensure stable growth of the export-dependent national economy.

The project is to support and cooperate with the Government of Indonesia through the installation of port security equipment to contribute to strengthening the security system of 8 target ports which play important roles in the regional economy through international trade and international cultural exchange.

(4) Policy on Procurement of Equipment

Among the equipment donated by the Government of Japan, CCTV camera monitoring system, PA system, UPS and emergency power supply equipment shall be procured in Japan. The equipment shall be transported to Port of Tanjung Priok and be exempt from tax during customs procedures. Then they shall be transported to the project sites by ship.

The procurement of X-ray inspection system and walk-through type metal detector shall also be done in Japan, but it is possible that the equipment could be manufactured in other countries. Such equipment shall also be transported to Port of Tanjung Priok with tax exemptions during customs clearance.

The lighting equipment shall be procured in Indonesia because it is possible to find the equipment with the fitting specifications.

All of the equipment shall be installed, adjusted and given a trial run under the supervision of relevant engineers for makers or its agencies. Then initial guidance on operation will be given by those engineers.

Installation work will be done by local workers employed at the region of the project site.

It will be stipulated as the bidding conditions that suppliers must establish an adequate aftercare system to support the maintenance service, to respond smoothly to any breakdowns and to provide spare parts promptly.

Incidental works include the erecting a pole on which CCTV camera and horn-speakers are installed, the building work of hand hole and the excavation work of the trench for laying cables. The materials (pole, underground pipe, concrete, prefabricated steel and pavement materials) used for these works are able to be procured in Indonesia. As for cables, optical cables which are used for CCTV camera monitoring system shall be procured in Japan. Electric power supply cables for lighting equipment and PA system shall be procured in Indonesia.

Spare parts are excluded from the procurement in principal. As CCTV camera monitoring system and X-ray inspection system are precision machines, parts should be replaced during annual maintenance checks by makers or their agents. So their spare-parts are not included in

the procurement except for expendables.

(5) Policy on Utilizing Local Companies

Trench excavation work, cable-laying and ground-refilling work and erecting work of pole shall be done by local companies in principle. Installation work of equipment on site shall be done by local workers under the supervision of engineers for makers or their agencies.

(6) Policy on Operation and Maintenance Condition of the Implementing Body

The 8 target ports already have their PFSP and their daily security routines are conducted based on those PFSP. Port Security Officers (PFSOs) are also appointed by managers in the office. And security staff on site are employed to make up for any shortages in manpower. After installation of the new equipment, some security staff must be assigned to the CCTV monitor room and the entrance of the passenger terminal where X-ray inspection system and walk-through type metal detector shall be installed. These assignments should be done by reallocation of staff or new employment.

Operating the CCTV camera monitoring system and X-ray inspection system etc. does not require a high level of technical skill. It should be sufficient for relevant engineers of makers or their agencies to train security staff on how to operate the equipment. Some PELINDOs already have some experience in managing and operating this type of equipment as the same equipment at the time of the 2004 grant project. The Indonesian side should be able to make the most of this experience. However, the staff does not have any experience in monitoring port security with equipment and thus it will be necessary to improve their initial reactions to irregularities and to introduce a system that allows them to easily report to the relevant officer. This type of training is expected to be conducted as part of the technical cooperation program for the improvement of port security system which is now ongoing.

As for management and maintenance of the equipment, the PELINDO branch offices and ADPEL offices should carry out such tasks by themselves.

(7) Policy on the Technical Grade of Equipment

Most of the equipment requested by the Indonesian side is the same kind as that procured by Japanese grant aid in 2004. Problems on technical matters have not arisen to date, based on the site survey for ascertaining the condition of their practical use. Accordingly the technical grade of equipment should be the same as the previous one or higher. But there are certain improvement points mentioned as follows, based on the result of the survey.

Concerning the CCTV monitoring system, the nighttime monitoring function shall be upgraded and a network camera system be introduced for ease of operation and managing image data. Image data shall be stored for one (1) week plus the shipping period to a main destination port.

Standard specification of CCTV camera shall be decided under consideration of the following items.

/The maximum range covered by a single camera shall be 50-350m in consideration of the length of the berth.

/In the assumed illuminance of 3 lx at night, the camera and lens shall be of the specifications that enable to identify the motions of a person at the largest shooting range.

/There shall be telescopic function and auto-focusing function (any object in the scope of the camera gets automatically in focus irrespective of night or day)

/Camera which shall be installed at boundary of the terminal shall be swing type camera to be able to surveillance piers, area along the fences and the inside of the yard.

/Camera which shall be installed at gates shall be fixed type camera to monitor workers, drivers and vehicles passing through gates.

The size of X-ray inspection system shall be medium type only considering the baggage size of passengers on board. (Small and medium types were included in the previous procurement.)

The equipment which shall be newly donated this time is mainly to enhance the function of CCTV camera monitoring system. Those technical grades are considered as follows.

The lamp size and the placement of lighting equipment is based on that assumption the illumination of 3 lx can be secured around fences.

A paging address system is installed in order to broadcast to all areas of the terminal in case an emergency situation is detected by CCTV camera monitoring system.

(8) Policy Based on the Previous Grant Project

a) CCTV Camera

At the time of the 2004 grant project, many CCTV cameras were installed in the container yard to monitor the inside of the restricted area. However, this alignment of cameras cannot monitor all areas due to high mounted containers meaning that the detection of an intruder would be delayed. Therefore CCTV cameras shall be installed alongside the restricted area to eliminate no blind corners. And also cameras will be installed to monitor the quay and prevent intrusions from seaside.

Therefore the number of cameras can be decreased while at the same port security inside the restricted area can be maintained at a satisfactory level.

b) Monitor

In the previous project, sixteen (16) cameras were allocated to one (1) monitor. However, the images provided were too small. Therefore four (4) cameras shall be allocated to one monitor and one more monitor for zoom in function shall be provided.

c) Lighting Equipment

In the previous project, lighting equipment was not provided making it difficult to see at night with the CCTV cameras.

In order to deter intruders at night and allow guards to identify them using the naked eye as well as CCTV cameras, lights should be installed along the restricted area.

d) PA System

In the previous project, PA system was not considered. Hornspeakers shall be installed to make announcements inside the restricted area in case of emergency.

e) X-ray Inspection System

In the previous project, small size and middle size apparatus were supplied. However baggage size of passengers is generally large. Accordingly, middle size apparatus shall be supplied.

(9) Policy on Procurement Method and Schedule

a) Tender System

Tender system is a general competitive bidding for the procurement of equipment

b) Expected Tenderer

The equipment to be procured by this project are CCTV camera monitoring system, lighting equipment, PA system, X-ray inspection system, walk-through type metal detector, UPS and emergency power generator. These equipment are manufactured by different makers. As there are very few Japanese makers which produce X-ray inspection systems and walk-through type metal detectors, these equipment may be manufactured in other countries. This project is centered on equipment, but quite a large amount of civil works related to laying cables are included as well. It is necessary for a contractor to manage the whole schedule by putting together and arranging with the various relevant manufacturers, civil work contractors and cable laying companies in the interest of smooth implementation of the project. But also for coping with various problems that could occur once operation commences, the contractor should deal with those problems promptly. Therefore the contractor is expected to be a trading company which has a lot of experiences of procuring various kinds of equipment and the coordination among institutions concerned. And a manufacturer of CCTV camera system, as a main manufacturer and installer of the equipment, is also expected as the contractor.

c) One Package Tender and Split Tenders

The project is to install a CCTV camera monitoring system and X-ray inspection system etc. in the 8 target ports. There are two ways to split tenders: one is to separate by project site and the other is to separate by the kind of equipment. In the former case, it is possible that different products could be installed. That might lead to complaints and dissatisfaction if there would be tangible differences in quality from one site to another. Furthermore, this would make it difficult to respond timely to problems with equipment since there would be no central database on typical malfunctions. In the latter case, the installation of the CCTV camera monitoring system constitutes the major part of the project. There is little meaning in splitting the project. From a

consultant's point of view, it is not appropriate to split the project because the consultant must supervise the projects respectively and that is not economical and efficient. Accordingly, one package tender is considered to be appropriate.

d) Implementation Schedule

The required term to implement the project is considered to be about 5.5 months for manufacturing equipment and about 6 months for the transportation, installation and adjustment of equipment. It shall take about 11.5 months from the signing of the contract with the supplier to the delivery of equipment to the Government of Indonesia.

2-2-2 Basic Plan (Equipment Plan)

(1) Kind /Purpose of use / Function of Grant Aid Facilities

In order to maintain port security, it is necessary to establish a suitable port security surveillance system, and to carry out security management tasks such as issuing a report / warning / and confirmation based on the surveillance in and around the restricted area.

The security facilities corresponding to the basic policy of the design are as follows.

<u>Basic requisites for port security</u>	<u>Corresponding security facilities</u>
1.Surveillance of comings/goings to port facilities	CCTV Camera Monitoring System (Fixed type camera)
2.Surveillance of port facilities	CCTV Camera Monitoring System (Swing type camera)
3.Surveillance of suspicious person (car) entering the restricted area	CCTV Camera Monitoring System, (Swing type camera) Lighting Equipment
4.Inspection of the passenger's baggage	X-ray Inspection System
5.Inspection of passenger's personal possession	Walk-through Type Metal Detector
6.Communication device for emergency announcements	PA System
7. Maintenance of surveillance function & data during power failure	Emergency Power Generator Uninterruptible Power Supply(UPS)

In this project, given that preventing terrorism is central aim, the following equipment are selected to meet the above needs and to satisfy the requirements of the port facility security plan.

a) CCTV Camera Monitoring System

Mainly there are three kinds of CCTV cameras of middle and short distance visibility, that is, outdoor swing type (visibility 350m, 200m, 100m), outdoor fixed type (visibility 50m), and indoor swing type (50m). Cameras will be selected in accordance with condition of each setting place.

An outdoor type CCTV monitoring camera will survey the port boundary or yard and identify suspicious persons or vehicles intruding through either a fence or gate. Indoor type cameras monitor the movement of passengers in the passenger terminal building.

In case of swing type cameras, it is possible to get the required picture by PTZ(pan, tilt and zoom). In addition, outdoor fixed type camera will monitor vehicles and drivers at the gate of the terminal.

Outdoor type camera will be located 1.5-2m inside the fence of the port boundary limit and be

basically set on a pole 10 m in height. In the vicinity of quay, camera will be set on a pole 5 m in height because there are few obstacles.

Indoor type camera will be basically set at a height of 5-7m, and should be attached to an indoor pillar or wall. In addition, setting position or height should be arranged appropriately depending on the situation of the setting location within basic specifications.

The monitoring control equipment digitizes pictures and control signals of plural CCTV cameras transmitted by signal transmission converter, and display selected images on a monitor. In addition, monitoring control equipment has functions to perform control / change of CCTV camera, and records all camera images for two weeks by hard disk recorder.

b) Lighting Equipment

Lighting equipment will be installed at the boundary of port facilities, and be set on pole of 12m in height in order to intimidate would-be intruders and provide sufficient illumination for the monitoring camera. In addition, lighting equipment will be installed on shed part or wall of terminal building to secure illumination in the front part of the terminal building in places deemed necessary.

c) PA System (Hornspeaker)

PA System will be installed to facilitate urgent communication (through hornspeaker) with people engaging in work and anchoring ships in port

d) X-ray Inspection System

X-ray inspection system is a facility for checking the baggage of passengers as well as detecting weapons, explosive substances, and prohibited articles.

Structure of system will be indoor self-standing type made by steel panels with roller casters. Tunnel size should be 1000mmWx1000mmH or more, conveyer height around 230-350mm, and maximum load of conveyer should be 150kg or more, and also be able to operate from monitoring desk, for controlling “Forward, Reversed, Stop“. In addition, UPS will be prepared as a back-up in case of power failure.

As functions of image process, it should be able to discriminate material properties, emphasize outlines, have a function to restore former images and be able to record more than 40GB of camera images.

e) Walk-through Type Metal Detector

Walk-through type metal detector is equipment to inspect personal possessions of passenger as well as detect weapons, explosive substances, and prohibited articles.

Structure of detector should be indoor walk-through and self-standing type on the floor.

Gate size should be 700mmW x 1995mmH or more, and should detect articles of ferrous and non-ferrous metal. The sensitivity can be arranged by caution level, and able to be set by operator. In case of detection, warning signal should be output by visible indication and warning sound ,and volume and tone should be adjustable.

f) Uninterruptible Power Supply (UPS)

In case of installation of CCTV camera monitoring system, UPS should be installed as a back-up in case of power failure. The output rating should be 10KVA, and time rating of interruption compensation should be for ten (10) minutes. In normal conditions, UPS should supply power to connecting system with inverter control unit, and battery of UPS should be charged by floating charge method.

g) Emergency Power Generator

Emergency Power Generator is for supplying electric power to monitoring cameras and monitoring control system during sudden interruption of electric power within the UPS power supply limit. In case of a sudden power failure, this facility should start automatically and stop automatically by recovery signal of attached automatic control starter. Output power rating should be 25KVA on the basis of the result of the site investigation, and power supply time should be two (2) hours.

h) Hand-hole, Embedded Pipe, Buried Cable

These equipment will be used for laying wiring cables underground between security facilities and equipment such as monitoring camera, lighting equipment or hornspeaker and monitoring control panels in the monitoring room of PELINDO or ADPEL. These cables such as cable for transmission of camera picture or control signal or power supply for lighting equipment should be laid in wiring pipe (approx. 60cm underground). Hand-hole will be installed in intervals of approx. 50 m for maintenance of wiring cables.

i) Poles for facility setting (for monitoring cameras, hornspeaker, lighting equipment)

Poles will be used for setting of monitoring cameras or lighting equipment. Hornspeakers will be installed on the same pole for monitoring cameras (12m height), or on the same poles for lighting equipment (7-10m height). And when necessary, boxes for signal transmission converter or distribution boxes will be installed.

(2) Main specifications of Grant Aid Facilities

Table 2-2-2-1 Specification of Equipment

CCTV Camera Monitoring System
<p>(1) Outdoor Swing Type Camera</p> <p>1) Class: outdoor swing type camera with pan/tilt mechanism (non-dome type)</p> <p>2) Lens: optical zoom lens * Focus distance: 8 ~ 120mm equivalent, Max aperture ratio: F1 .6 equiv.</p> <p>3) Camera and transmission function * Imaging element: 1/2~1/3" interline transfer CCD image sensor, 380,000 pixels or more * Minimum illumination: 0.55lx (F1.2) in color mode, 0.05lx (F1.2) in monochrome mode * Compression Method: MPEG-4 (JPEG is applicable for recording) or other equivalent method * Resolution: 640x480 pixels (VGA) or more</p>

- * Frame rate: MPEG-4 15 fps or more
 - * Transmission rate: 1 ~ 3 Mbps
- 4) Pan/tilt mechanism
- * Structure: outdoor type electric turntable
 - * Turning angle: horizontal 0° ~ 360° vertical +5° ~ - 70° degrees
 - * Max turning speed:
In movement of pre-set: horizontal 100° /sec, perpendicular 30°/sec or more
- 5) Camera case
- * Structure: outdoor type jet-tight housing (based on IP65)
 - * Materials: aluminum alloy
 - * Attached mechanism: windshield wiper
- 6) Others
- * Lightning-proof
 - * Anti-chloride treated (salt-resistant painting etc.)
- (2) Outdoor Fixed Type Camera**
- 1) Class: outdoor fixed type camera (non-dome type)
- 2) Lens: optical zoom lens
- * Focus distance: 4~48mm equivalent, Max aperture ratio: F1.6 equiv.
- 3) Camera and transmission function
- * Imaging element: 1/2~1/3" interline transfer CCD image sensor,
380,000 pixels or more
 - * Minimum subject illumination: 0.55lx (F1.2) in color mode,
0.05lx (F1.2) in monochrome mode
 - * Compression Method: MPEG-4 (JPEG is applicable for recording) or other
equivalent method
 - * Resolution: 640x480 pixels (VGA) or more
 - * Frame rate: MPEG-4 15 fps or more
 - * Transmission rate: 1~3 Mbps
- 4) Camera case
- * Structure: outdoor type jet-tight housing (based on IP55)
 - * Materials: aluminum alloy
 - * Attached mechanism: windshield wiper
- 5) Others
- * Lightning-proof
 - * Anti-chloride treated (salt-resistant painting etc.)
- (3) Indoor Swing Type Camera**
- 1) Class : indoor swing type camera with pan/tilt mechanism (non-dome type)
- 2) Lens : optical zoom lens
- * Focus distance: 4~48 mm equivalent, Max aperture ratio: F1.6 equiv.
- 3) Camera and transmission function
- * Imaging element: 1/2~1/3" interline transfer CCD image sensor,
380,000 pixels or more
 - * Minimum subject illumination: 0.55lx (F1.2) in color mode,
0.05lx (F1.2) in monochrome mode
 - * Compression Method: MPEG-4 (JPEG is applicable for recording) or other
equivalent method
 - * Resolution: 640x480 pixels (VGA) or more
 - * Frame rate: MPEG-4 15 fps or more
 - * Transmission rate: 1~ 3 Mbps
- 4) Pan/tilt mechanism

<ul style="list-style-type: none"> * Structure: indoor type electric turntable * Turning angle: horizontal 0° ~ 360°, vertical +5° ~ - 70° * Max turning speed: In movement of pre-set: horizontal 100°/sec, perpendicular 30°/sec or more
<p>5) Camera case</p> <ul style="list-style-type: none"> * Structure: indoor dustproof-type housing * Materials: aluminum alloy
<p>6) Others</p> <ul style="list-style-type: none"> * Corrosion-resistant treated
<p>(4) Monitoring Control Facilities</p> <p>1) PC for controlling facilities</p> <ul style="list-style-type: none"> * Structure: rack mount or mini-tower type * CPU: enough high speed for image processing * Memory: 1GB or more * HDD: 250GB or more * Display: 20 inches color TFT type LCD Resolution 640x480 pixels (VGA) or more * CD & DVD drive mounted <p>3) Software</p> <ul style="list-style-type: none"> * GUI software * Camera control function * Image data accumulation function * Image data search function * Function of changing from full image to quad image <p>4) Monitor (Full image and quad image)</p> <ul style="list-style-type: none"> * Type: 20 inches color TFT type LCD * Resolution: 640x480 pixels (VGA) or more
<p>(5) Image Disk Recorder (stand-alone type or PC based type of network video recorder)</p> <ul style="list-style-type: none"> * Structure: rack mount type * Image record specifications: JPEG or MJPEG 4fps or more * Resolution: 640 x 480 pixels (VGA) or more * Number of cameras able to record: 10 cameras or more * HDD: Image recording volume is able to record image of all cameras for two weeks running * CD & DVD drive mounted * Time server: GPS time server or other equivalent time server
<p>(6) Communication Management Institution</p> <p>1) Switching Hub : L2-SW or equivalent functional switch</p> <ul style="list-style-type: none"> * Network interface: 100 Base-TX/ 10 Base-T (RJ-45) <p>2) Wireless Communication System (For transmission of camera image between the monitoring room of PELINDO container terminal and the monitoring room of ADPEL at Belawan Port)</p> <ul style="list-style-type: none"> * Transmitter-receiver: 1 wave of carrier 5~25GHz wave band * Antenna: corresponding to the wave band * Transmission speed: 20 Mbps or more * Transmission distance: approx. 3km (transmission of camera image) <p>3) Optical fiber media converter: 100 Base-TX media converter</p> <ul style="list-style-type: none"> * Transmission rate: 100 Mbps full duplex * Transmission distance: 5km or over * Wave length: 1310 nm

<p>(7) Others</p> <ul style="list-style-type: none"> * Power supply: AC220V 50Hz 1 phase 2 line-style * Environmental condition : temperature 0°~40°C * Relative humidity: 10%~80%
<p>Lighting Equipment</p> <p>(1) Lighting Lamp</p> <ul style="list-style-type: none"> * High pressure sodium lamp or equivalent * Lamp size: 250W or equivalent AC220V 50Hz 1 phase * Waterproof (based on IP65) * Anti-chloride treated (salt-resistant painting etc.) * Installed on 12m height lighting pole <p>(2) Distribution panel (box)</p> <ul style="list-style-type: none"> * Incoming panel (box) for power supply (including terminal board with 4 terminals) * Outdoor type (IP65 equivalent), Anti-chloride treated (salt-resistant painting etc.)
<p>PA System</p> <p>(1) Horn speaker</p> <ul style="list-style-type: none"> * Outdoor use horn-type speaker * 50W, 110dB AC220V 50Hz 1phase * Anti-chloride treated (salt-resistant painting etc.) <p>(2) Microphone</p> <ul style="list-style-type: none"> * Remote control type * With circuit choice switch <p>(3) Amplifier</p> <ul style="list-style-type: none"> * Rated output: 180W or more * Output rating should be decided according to number of connecting speakers.
<p>X-ray Inspection System</p> <ol style="list-style-type: none"> 1) Structure: indoor self-standing type made by steel panels with roller casters. 2) Tunnel size: 1000mmW x 1000mmH equivalent or more 3) Conveyer height: around 230mm ~ 350mm 4) Conveyer load: 150kg equivalent or more (uniform load) 5) Conveyer speed: 12m/min equivalent or more 6) Conveyer control: Forward / Reversed / Stop (possible to control from monitoring desk) 7) Radiation area of X-ray: Whole part of inspected materials should be possible. 8) Resolution: 36AWG (0.13mmΦ) or more 9) Penetration (steel) : 27mm (steel) or more (to have function for clairvoyance enhancement and attenuation) 10) Monitor: Color/monochrome 17 inch or more (with monitor desk) 11) Zoom function: 16 times or more 12) Image processing function : <ul style="list-style-type: none"> * Quality discrimination of materials and edge enhancement (discrimination of organic/inorganic materials, discrimination of suspicious materials as explosives, operator assist and threat image projection) * Function of image archives (more than 40GB hard disk) * Function of recording image data on hard disk (40GB or more) * CD-R/W driver included 14) Emergency stop button : Furnished on main body and monitor desk 15) Self protection function : over-voltage, over-current and over-heating Furnished with UPS (more than UPS 10 minutes) 16) Quantity of leak X-rays : less than 5μSv/h (0.5mR/h) equivalency

17) Power supply : AC220V, 50Hz
Walk-through Type Metal Detector
1) Structure : walk through type, self-standing type 2) Gate size : 700mmW x 1995mmH or equivalent 3) Zone composition : multi (8 zone or more) 4) Object of detection : ferrous and non-ferrous metal 5) Sensitivity : should be adaptable to threat level * Setting of sensitivity be possible by authorized operator * To conform to “3 Gun“ Test in FAA Standard * Electromagnetic field of inside of metal detector should be as uniform as possible. 6) Alarm sign : Visible (should be adjustable to size of metal) 7) Alarm sound : Audible (Sound volume and tone should be adjustable) 8) Power supply : AC220V 50Hz
Uninterruptible Power Supply (UPS)
1) Output rating: 10KVA 2) Feeding method : Normally controlled inverter feeding method 3) Power incoming : Single-phase 3 wire system, AC220V $\pm 15\%$ equivalent, 50Hz $\pm 5\%$ 4) Power supply : Single-phase 3 wire system, AC220V 50Hz $\pm 3\%$, 50 ~ 60Hz 5) Interruption compensation time : 10 minutes and more 6) Overload capacity : 120% 60 seconds and more 7) Auto-return function : Possible to switch automatically to bypass circuit in case of 300% over of load current 8) Battery model : Small size sealed lead-acid storage battery 9) Others : Provided with automatic transfer switch application in interruption of supply, and with contact of signal for automatic transfer switching in interruption in load operation
Emergency Power Generator
(1) Main body of generator 1) Generator * Output rating : 25 KVA (20 KW equivalent) * Rated voltage : AC 220V single-phase 3 wire system * Frequency : 50Hz 2) Diesel engine * Engine type : series, vertical, water-cooled type, 4 cycles engine or equivalent 3) Fuel tank * Capacity : possible to run consecutively more than two hours 4) Start time *within 40 seconds 5) Sound level * 75dB (A) or less 6) Others * Be to start automatically by shutdown signal of power supply from Automatic Transfer Switching Unit, and stop in release of power automatically. * Corrosion-resistant treated
(2) Automatic Transfer Switching Unit 1) Function * Automatic start of Emergency Power Generator by detecting of interruption of commercial power supply * After release of commercial power supply, Emergency Generator should stop automatically by a signal from Automatic Transfer Switching Unit.

(3) Equipment Deployment Policy

Port facility shall be classified into three categories: Container Terminal, Passenger Terminal and the rest (general cargo, multipurpose and so on) and standard measures were decided.

a) Container Terminal

- CCTV Camera

CCTV Cameras shall be installed around the restricted area to monitor unauthorized intrusion from the fence or quay. The basic ideas for installation of cameras are shown in Table 2-2-2-2. CCTV cameras shall be installed along the fence by this objective not making any blind corner. The height of camera along the fence shall be 10m and at quay shall be 5m. CCTV along the fence shall be installed around 1.5m to 2m away from the fence.

Among the terminals where CCTV camera shall be installed by the Project, Belawan Port container terminal has the longest linear distance which is 435m. The linear distance of other terminals is mostly between 300 to 350m. Therefore, a camera with a visibility range of 350m shall be adopted generally while cameras with visibility ranges of 100 m and 200 m shall be installed depending on the distance of monitoring range. In addition, 350m visibility camera shall be adopted at the Belawan container terminal considering the shape of the restricted area.

A gate camera shall be fixed type and short range camera shall be adopted.

CCTV cameras can monitor any places within the operation range and detect intruders early, give warnings and provide a deterrence effect or retreat effect. Surveillance images shall be preserved for a certain period. (shipping period to the destination plus 1 week or more)

Table 2-2-2-2 Basic Idea for Installation of CCTV Camera at Container Terminals

Monitoring Position	Purpose	Installation Condition
Quay	<ul style="list-style-type: none"> • Monitor intrusion from quay • Identify the specific activities of suspicious person 	<ul style="list-style-type: none"> • Can see far into apron and monitor unauthorized access to a ship • Height of a camera shall be decided considering maintenance, vibration, theft and damage to camera
Along the Fence	<ul style="list-style-type: none"> • Monitor intrusion from the fence • Identify the specific activities of suspicious person 	<ul style="list-style-type: none"> • Monitor inside the restricted area • Monitor along the fence • Height of a camera shall be decided considering maintenance, vibration, theft and damage to camera
Gate	<ul style="list-style-type: none"> • Record the people and vehicles going in and out • Identify the specific activities of suspicious person 	<ul style="list-style-type: none"> • Install a camera where face of the driver and a plate number of the car can be monitored • Basically install a camera on the gatehouse or gatepost

- CCTV Monitor

It is not clearly mentioned in the request how many cameras should be allocated to one monitor. At the time of the grant project in 2004, sixteen cameras were allocated to one monitor. However, the provided images were too small. Therefore four cameras shall be allocated to one monitor and another monitor for zooming in will be provided. There was a strong request from DGST that camera images should be seen in ADPEL office. Therefore monitors shall be installed in ADPEL office depending on the necessity of installation.

- Lighting Equipment

Security lights should be installed to provide sufficient illumination for monitoring the restricted area (more or less three lux). Psychological effect of security lights is also effecting for deterring intruders.

- Public Address System (PA System)

Hornspeakers shall be installed to communicate with security personnel, workers and ships in the restricted area such as ordering an alert or evacuation in case of emergency and also to intimidate intruders.

b) Passenger Terminal

- CCTV Camera

CCTV camera shall be installed for monitoring the movement of baggage and personnel possessions in the passenger terminal building and quay. CCTV cameras installed inside the terminal building shall monitor suspicious activities of flow line of passenger and waiting lounge and those cameras shall be swing type and adopt short visibility range type.

Table 2-2-2-3 Basic Idea for Installation of CCTV Camera at Passenger Terminals

Monitoring Position	Purpose	Installation Condition
Waiting Lounge	<ul style="list-style-type: none"> • Monitor the behavior of passengers • Identify the specific activities of suspicious passenger 	<ul style="list-style-type: none"> • Can monitor all areas of waiting lounge • Chose the best place for installation from beams, ceilings and walls
Flow Line of Passenger	<ul style="list-style-type: none"> • Monitor the behavior of passengers on flow line • Identify the specific activities of suspicious passenger 	<ul style="list-style-type: none"> • Can monitor the passenger who moves backward of flow line • Chose the best place for installation from beams, ceilings and walls
Entrance Gate	<ul style="list-style-type: none"> • Monitor the people and baggage going in and out • Identify the specific activities of suspicious passenger 	<ul style="list-style-type: none"> • Do not set a camera at backlight position • Chose the best place for installation from beams, ceilings and walls

- Lighting Equipment

Security lights should be installed to provide sufficient illumination for monitoring the restricted area (more or less three lux). Psychological effect of security lights is also effecting for deterring intruders.

- PA System

Hornspeakers should be installed to direct passengers or alert a ship in case of emergency.

- Baggage Inspection System

X-ray inspection system and walk-through type metal detector shall be installed to inspect the passengers' baggage. The X-ray inspection system shall be medium size and must display the entire object and have sufficient discrimination capability and penetrating power.

Walk-through type metal detector shall be able to detect metallic objects irrespective of their directions and positions and the operator can adjust sensitivity.

c) General Cargo and Multipurpose Wharf (other than container terminal and passenger terminal)

- Lighting Equipment

Monitoring of the restricted area shall be conducted by manpower. Therefore, security lights should be installed to provide minimum illumination of three lux. When the existing lights are not enough, additional security lights shall be installed.

- Public Address System

Hornspeakers shall be installed to communicate with security personnel, workers and ships in the restricted area such as ordering an alert or evacuation in case of emergency and also to intimidate intruders.

(4) Equipment Deployment Plan for each Port

Equipment deployment plan for each port is shown in **Table 2-2-2-4**.

Table 2-2-2-4 Number of Equipment to be Supplied by Port

PORT	Location of Installation TYPE	CCTV Camera Monitoring System												Lighting Equipment	PA (Hornspeaker)	X-ray Inspection System	Walk Through Type Metal Detector	UPS (Note 7)	Emergency Power Generator
		CCTV(Outdoor)				CCTV(Indoor)	Monitoring System (Monitoring Center)(Note 1)				Wireless Communication System (Note 6)	ADPEL							
		350m (swing type)	200m (swing type)	100m (swing type)	50m (fixed type)	50m (swing type)	Monitor		Video recording apparatus (Note3)	Control PC		Monitor (Note2)							
							4 divided display	Full display				4 divided display (Note 4)	Control PC (Note 5)						
Belawan	International Container Terminal	6			2		2	1	1	1	1	2	1	6	6			1	
	International Passenger Terminal	2				2	1	1	1	1		1	1	1	4	2		1	1
Dumai	Gen. Cargo Wharf														2				
	Passenger Terminal		1			3	1	1	1	1		1	1		1	1	1	1	
Tanjung Pinang	International Passenger Terminal					4	1	1	1	1		1	1					1	1
Teluk Bayur	Beton & Container Wharf	2	2		2		2	1	1	1		2	1	7	3			1	
Palembang	International Container Terminal	1	3	2	2		2	1	1	1		2	1		3			1	
	Conventional Wharf														2				
Pontianak	Container Terminal	2	2				1	1	1	1		1	1	6	3			1	
Benoa	Passenger Terminal		2	2		2	2	1	1	1		2	1		3	1	1	1	
Makassar	Hatta Container Terminal	3	2	1	4		3	1	1	1		3	1		4			1	
Total		16	12	5	10	11	15	9	9	9	1	15	8	23	29	2	3	9	1

(Note 1) Monitoring center will be placed in the PELINDO building.

(Note 2) The signal for the ADPEL Monitoring room should be transmitted from the Monitoring Center of PELINDO office.

(Note 3) PC for the Video recording apparatus is acceptable. However, the Control PC cannot be used as Video recording apparatus. Each equipment should be installed independently.

(Note 4) Basically, the display at the ADPEL office should be 4 divided display. But, the full display change function should be also required.

(Note 5) The control PC for the ADPEL office should not include camera contro functi. This PC only enables to monitor the video.

(Note 6) Wireless Communication System will be installed to send image date of CCTV camera of container terminal from PELINDO office to ADPEL office only at Belawan Port.

(Note 7) UPS will be installed in the monitor room of PELINDO building.

(Unit)

a) Belawan Port

Table 2-2-2-5 Equipment Deployment Plan for Belawan Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 350m	unit	8
CCTV Camera (outdoor/ fix type)	Visibility 50m	unit	2
CCTV Camera (indoor/ swing type)	Visibility 50m	unit	2
TV Monitor		unit	8
Recorder		unit	2
Lighting Equipment		unit	10
PA System (hornspeaker)		unit	8
Walk-through Type Metal Detector		unit	1
UPS	10min. 10KVA	unit	2

- CCTV Camera

CCTV Camera shall be installed to monitor around the restricted area and the quay line of the container terminal. Two sets of swing type CCTV camera shall be installed at the passenger terminal to monitor all areas of the passenger terminal. And also two sets of fix type CCTV camera shall be installed in the waiting room to overview the area.

- CCTV Camera Monitor

Eight cameras shall be installed in the container terminal. Therefore the number of monitors shall be $8/4 = 2$ sets and one set for a zoom in purpose shall be installed (total of three). For the passenger terminal, four cameras shall be installed, therefore the number of monitor shall be $4/4 = 1$ and a set for zoom in use shall be installed (total of two). The total number of cameras in the port shall be eight cameras in the container terminal and four cameras in the passenger terminal. Therefore the number of monitors in ADPEL shall be $(8+4)/4 = 3$.

- Recorder

Since the administrator of the container terminal and the passenger terminal is different, two sets of recorders shall be supplied.

- Lighting Equipment

PELINDO is preparing the security lights by themselves, but additional security lights shall be installed because still there are no lights at the boundary of the international container terminal and the domestic container terminal. And also, security lights shall be installed at the passenger terminal due to lack of illumination.

- PA System

To cover the whole area of the wharf, four sets and two sets of hornspeaker shall be installed at the container terminal and the passenger terminal, respectively.

- Walk-through Type Metal Detector

Baggage and belongings of passengers should be inspected by an X-ray inspection system and a walk-through type metal detector which should be provided together. An X-ray inspection system is already provided by customs and not necessary, but walk-through type metal detector is not yet provided. Therefore it shall be installed to inspect passengers' belongings.

- UPS

Since the administrator of the container terminal and the passenger terminal is different, two sets of UPS shall be supplied.

b) Dumai Port

Table 2-2-2-6 Equipment Deployment Plan for Dumai Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	1
CCTV Camera (indoor/ swing type)	Visibility 50m	unit	3
TV Monitor		unit	3
Recorder		unit	1
PA System (hornspeaker)		unit	3
X-ray Inspection System		unit	1
Walk-through Type Metal Detector		unit	1
UPS	10min. 10KVA	unit	1

- CCTV Camera

One camera will be installed in the middle of two piers to monitor both piers simultaneously. And three fixed type indoor cameras will be installed in the passenger terminal.

- CCTV Monitor

Four CCTV cameras shall be installed, so the number of monitor shall be $4/4 = 1$, and one camera for zooming in. Therefore, in total two monitors shall be installed. And one set of monitor shall be installed at ADPEL office.

- Recorder

One set shall be provided.

- PA System

We propose that the size of the restricted area of the general cargo wharf be reduced, two sets of hornspeakers will be installed. On the other hand, two sets of hornspeakers for the multi-purpose wharf shall not be installed due to the ongoing construction at the site as explained previously. Since the area is small, one hornspeaker will be sufficient for the passenger terminal.

- X-ray Inspection System

One set of the apparatus shall be installed at the entrance gate of the passenger terminal building.

- Walk-through Type Metal Detector

One set of the apparatus shall be installed at the entrance gate of the passenger terminal building together with the x-ray inspection system.

- UPS

One set of UPS shall be installed to back up CCTV in case of power failure.

Note: There was a request to introduce a lighting system at the general cargo wharf, but the consultant team proposed that the size of the restricted area be reduced, thereby eliminating the need for additional lighting. The multi purpose wharf where security equipment was also requested is now under construction (for extension of the pier by JBIC loan). Therefore it is considered that installation of the security equipment shall be conducted by the Indonesian side as appropriate.

c) Tanjung Pinang Port

Table 2-2-2-7 Equipment Deployment Plan for Tanjung Pinang Port

Equipment	Specification	Unit	Quantity
CCTV Camera (indoor/ swing type)	Visibility 50m	unit	4
TV Monitor		unit	3
Recorder		unit	1
UPS	10min. 10KVA	unit	1
Emergency Power Generator	25 KVA	unit	1

- CCTV Camera

The international passenger terminal is isolated from the domestic passenger terminal at this port. A berthing pontoon can see very well from the inside of the terminal building and the structure of the pier is a jetty type and hard to intrude from outside. For these reasons, four swing type cameras shall be installed at the waiting lounge and on the flow line of passenger.

- CCTV Camera Monitor

Four CCTV cameras shall be installed at the terminal, so the number of monitor shall be $4/4 + 1 = 2$. And one set of monitor shall be installed at ADPEL office.

- Recorder

One set shall be provided

- UPS

One set shall be provided.

- Emergency Power Generator

There was a strong request from the site and since power failures often occur, one set shall be installed.

Note: A medium sized X-ray inspection system is already installed at the terminal by police, so it is considered not necessary to install new apparatus.

d) Teluk Bayur Port

Table 2-2-2-8 Equipment Deployment Plan for Teluk Bayur Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 350m	unit	2
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	2
CCTV Camera (outdoor/ fix type)	Visibility 50m	unit	2
TV Monitor		unit	5
Recorder		unit	1
Lighting Equipment		unit	7
PA System (hornspeaker)		unit	3
UPS	10min. 10KVA	unit	1

- CCTV Camera

Considering the size of the restricted area, two sets of swing type cameras with a visibility of 350m and 200m shall be installed (4 in total). And also two sets of fixed type camera shall be installed at the gate to strengthen the access control.

- CCTV Camera Monitor

Six CCTV cameras shall be installed at the terminal so the number of monitors shall be $6/4 + 1 = 3$. And two sets of monitors shall be installed at ADPEL office.

- Recorder

One set shall be installed

- Lighting System

Seven sets of security lights shall be installed at the west side of the restricted area.

- PA System

Three sets of hornspeakers shall be installed to enhance the emergency communication tools inside the restricted area.

- UPS

One set shall be installed.

Note: An emergency power generator is already installed at the container terminal, therefore it is considered that a new generator is not necessary.

e) Palembang Port

Table 2-2-2-9 Equipment Deployment Plan for Palembang Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 350m	unit	1
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	3
CCTV Camera (outdoor/ swing type)	Visibility 100m	unit	2
CCTV Camera (outdoor/ fix type)	Visibility 50m	unit	2
TV Monitor		unit	5
Recorder		unit	1
PA System (hornspeaker)		unit	5
UPS	10min. 10KVA	unit	1

- CCTV Camera

Because the shape of the restricted area is very complicated, three cameras shall be installed to eliminate blind corners. Two gate cameras shall be installed to strengthen the access control.

- CCTV Camera Monitor

Eight CCTV cameras shall be installed at the terminal so the number of monitor shall be $8/4 + 1 = 3$. And two sets of monitors shall be installed at ADPEL office.

- Recorder

One set shall be provided

- PA System

Three hornspeakers shall be installed at the container terminal and two sets at the general cargo wharf.

- UPS

One set shall be supplied.

Note: Security lights are already installed and have enough illuminance. Therefore it is considered that additional lighting system is not necessary.

f) Pontianak Port

Table 2-2-2-10 Equipment Deployment Plan for Pontianak Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 350m	unit	2
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	2
TV Monitor		unit	3
Recorder		unit	1
Lighting Equipment		unit	6
PA System (hornspeaker)		unit	3
UPS	10min. 10KVA	unit	1

- CCTV Camera

Considering the size of the restricted area, two sets of camera with visibility 350m and 200m camera shall be installed.

- CCTV Camera Monitor

Four CCTV cameras shall be installed at the terminal so the number of monitor shall be $4/4 + 1 = 2$. And one set of monitor shall be installed at ADPEL office.

- Recorder

One set shall be supplied.

- Lighting System

It is recommended to cut the trees alongside of the restricted area and the clear zone shall be secured, then the necessary number of security lights shall be six.

- PA System

To cover the whole restricted area, three hornspeakers shall be installed.

- UPS

One set shall be provided.

g) Benoa Port

Table 2-2-2-11 Equipment Deployment Plan for Benoa Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	2
CCTV Camera (outdoor/ swing type)	Visibility 100m	unit	2
CCTV Camera (indoor/ swing type)	Visibility 50m	unit	2
TV Monitor		unit	5
Recorder		unit	1
PA System (hornspeaker)		unit	3
X-ray Inspection System		unit	1
Walk-through Type Metal Detector		unit	1
UPS	10min. 10KVA	unit	1

- CCTV Camera

Benoa Port is the gateway of Bali Island which is the largest tourist spot in Indonesia. There was no request for CCTV camera initially. However, since large cruisers are calling Benoa, there was a request for CCTV from PELINDO and ADPEL during site inspection. It was decided to install four CCTV cameras.

There is a CCTV camera in the waiting lounge installed by the police, but the images are provided to neither ADPEL nor PELINDO and furthermore it is not clear whether police are conducting monitoring operation or not. Therefore two sets of swing type CCTV cameras shall be installed to monitor whole area of the waiting lounge.

- CCTV Camera Monitor

Six CCTV cameras shall be installed at the terminal, so the number of monitor shall be $6/4 + 1 = 3$. And two sets of monitors shall be installed at ADPEL office.

- Recorder

One set shall be installed.

- PA System

It was not included in the request, but there is no equipment for simultaneous announcement; therefore, one set of hornspeaker at the parking area and two set at the quay shall be installed

- X-ray Inspection System

One set shall be installed at the entrance of the passenger waiting lounge.

- Walk-through Type Metal Detector

One set shall be installed beside the X-ray inspection system

- UPS

One set shall be installed to back up CCTV cameras in case of power failure.

h) Makassar Port

Table 2-2-2-12 Equipment Deployment Plan for Makassar Port

Equipment	Specification	Unit	Quantity
CCTV Camera (outdoor/ swing type)	Visibility 350m	unit	3
CCTV Camera (outdoor/ swing type)	Visibility 200m	unit	2
CCTV Camera (outdoor/ swing type)	Visibility 100m	unit	1
CCTV Camera (outdoor/ fix type)	Visibility 50m	unit	4
TV Monitor		unit	7
Recorder		unit	1
PA System (hornspeaker)		unit	4
UPS	10min. 10KVA	unit	1

- CCTV Camera

Because the shape of the restricted area is very complicated, 100m to 350m visibility cameras shall be installed depending on the distance. And four sets of fixed camera shall be installed at the gate to strengthen the access control.

- CCTV Camera Monitor

Ten sets of CCTV cameras shall be installed at the terminal, so the number of monitors shall be $10/4 + 1 = 4$. And three sets of monitors shall be installed at ADPEL office.

- Recorder

One set shall be installed.

- PA System

Four sets of hornspeakers shall be installed to cover the restricted area.

- UPS

One set shall be installed.

2-2-3 Basic Design Drawing

(1) Deployment Plan of Security Equipment

The deployment plans of CCTV cameras, hornspeakers, security lights are shown from Fig. 2-2-3-1 to Fig. 2-2-3-11.

(2) CCTV Monitoring System Configuration Plan

The configuration plans of CCTV Monitoring System are shown from Fig. 2-2-3-12 to Fig. 2-2-3-19.

(3) Cable and Hand Hole Installation Plan

The installation plans of cable and hand holes are shown from Fig. 2-2-3-20 to Fig. 2-2-3-28.

(4) General Construction Plan of Incidental Work

General construction plans of incidental works are shown in Fig. 2-2-3-29 and Fig. 2-2-3-30.

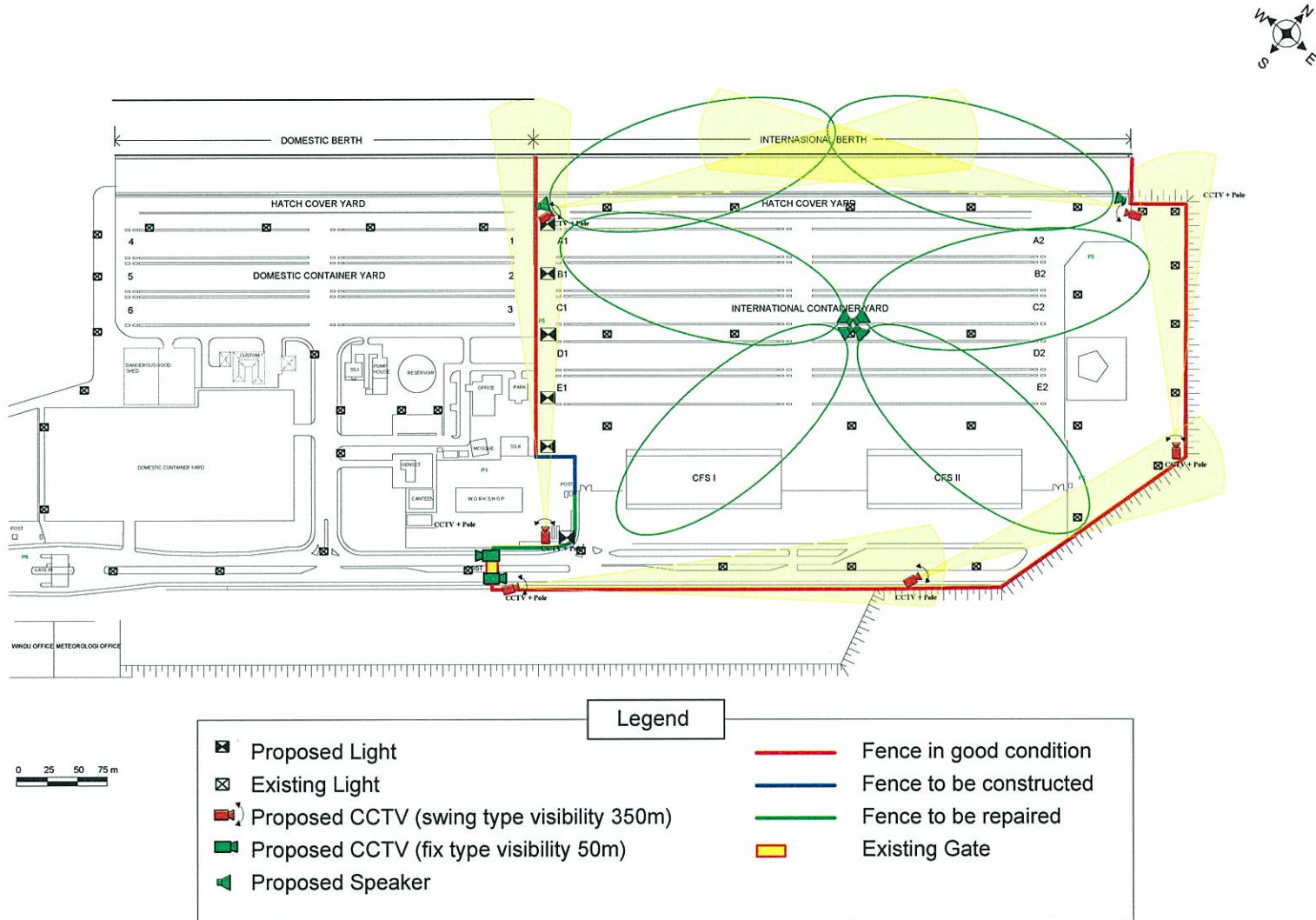


Figure 2-2-3-1 Equipment Deployment Plan (Belawan Container Terminal)

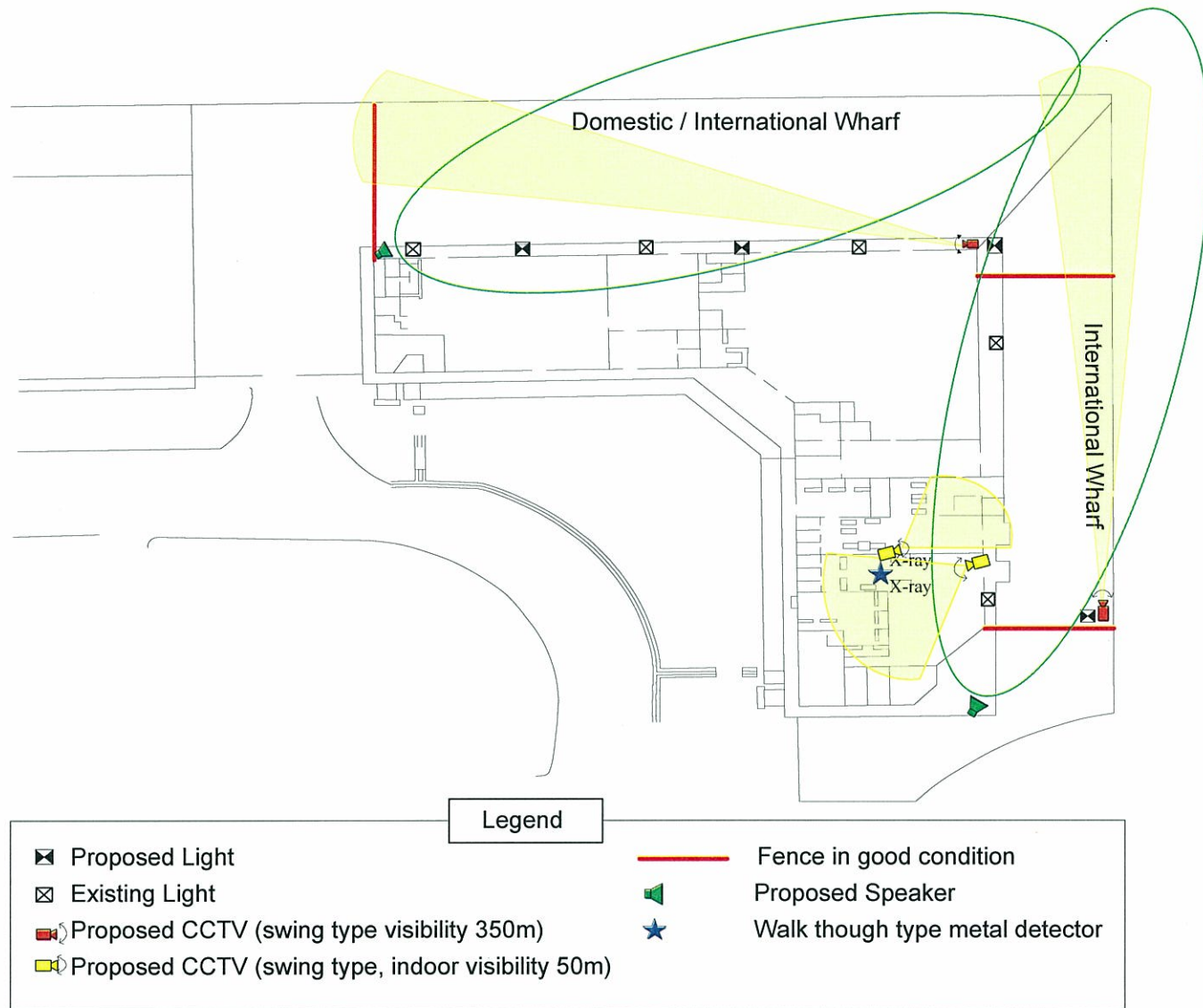


Figure 2-2-3-2 Equipment Deployment Plan (Belawan Passenger Terminal)

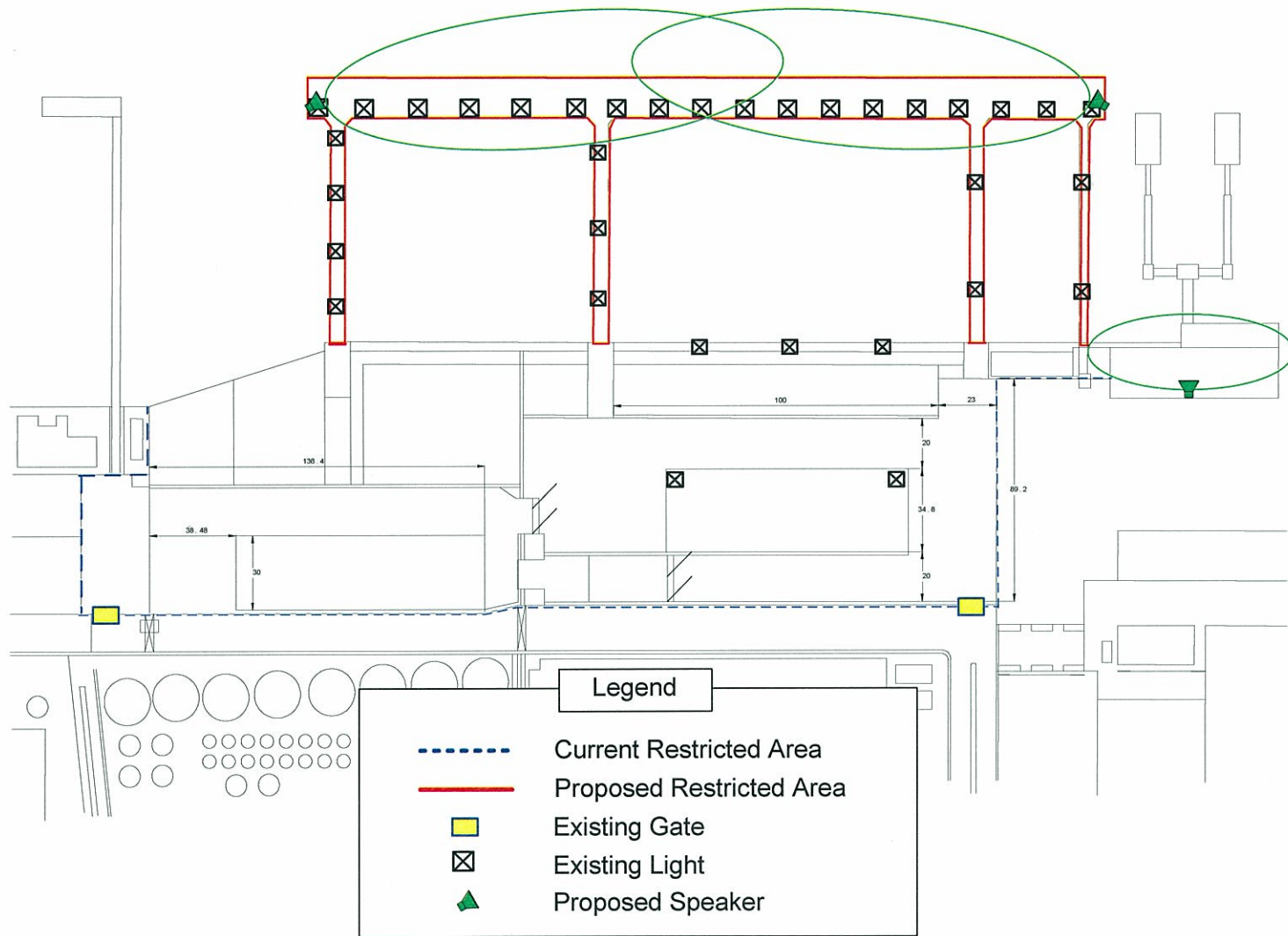


Figure 2-2-3-3 Equipment Deployment Plan (Dumai General Wharf)

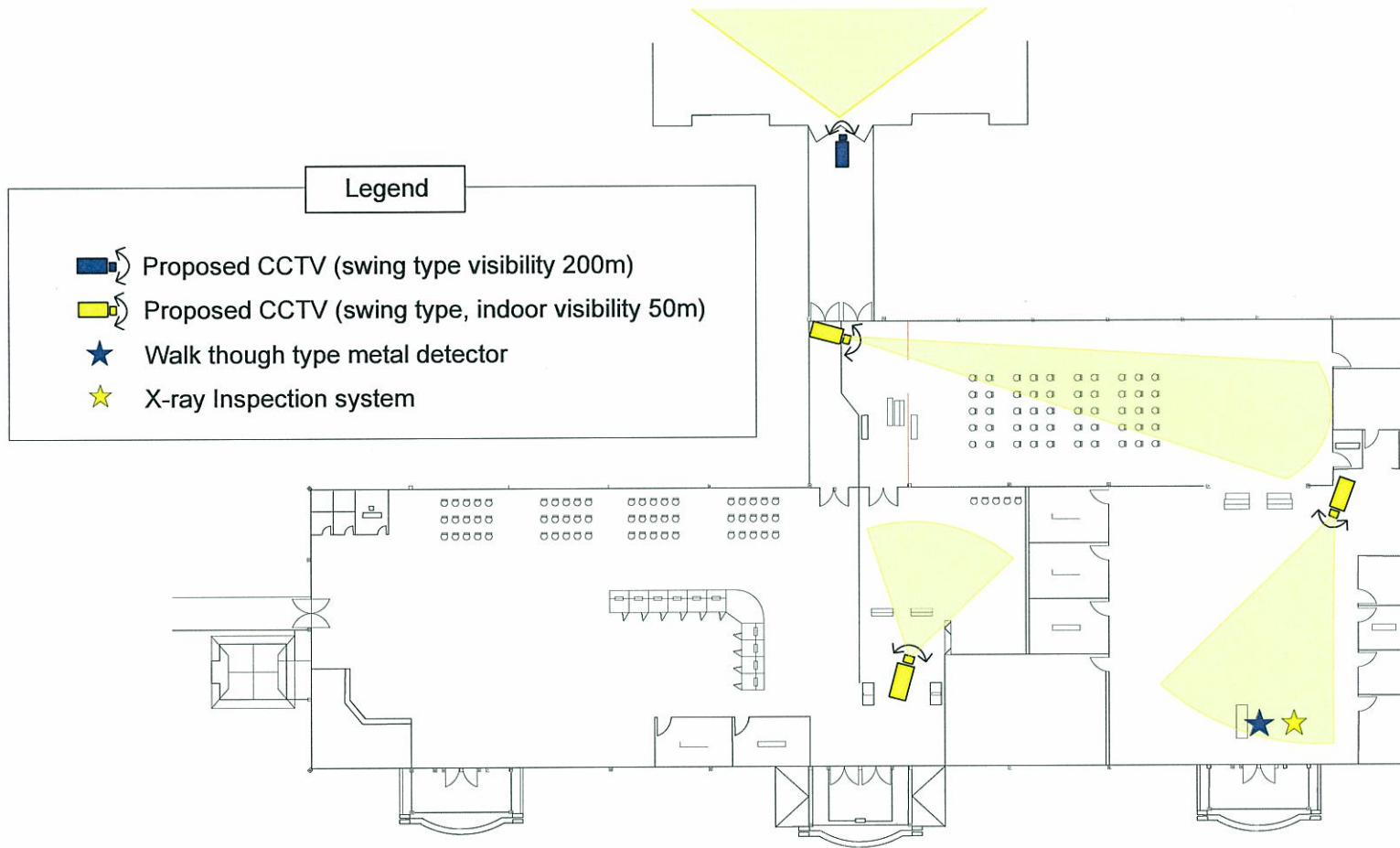


Figure 2-2-3-4 Equipment Deployment Plan (Dumai Passenger Terminal)

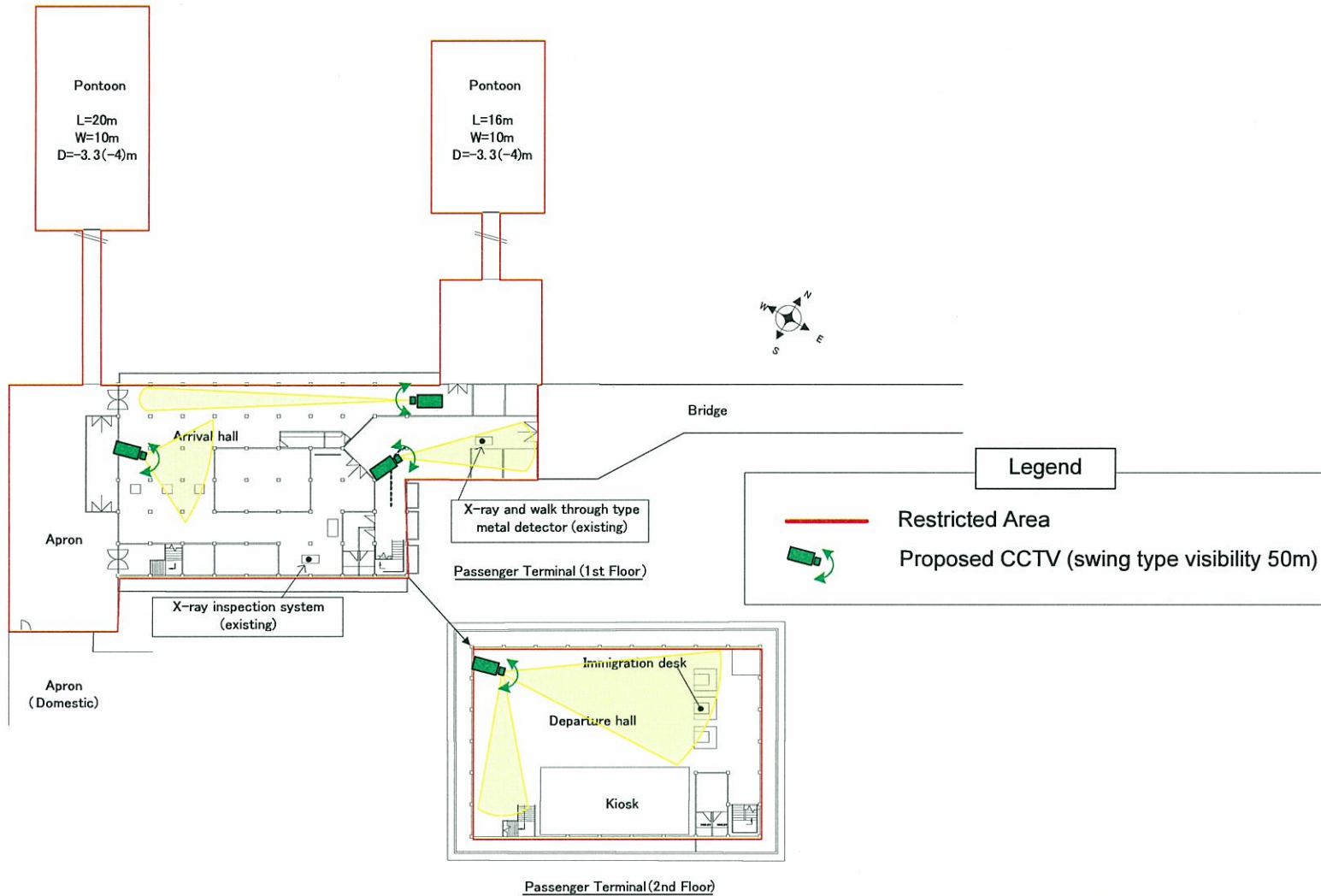


Figure 2-2-3-5 Equipment Deployment Plan (Tanjung Pinang Passenger Terminal)

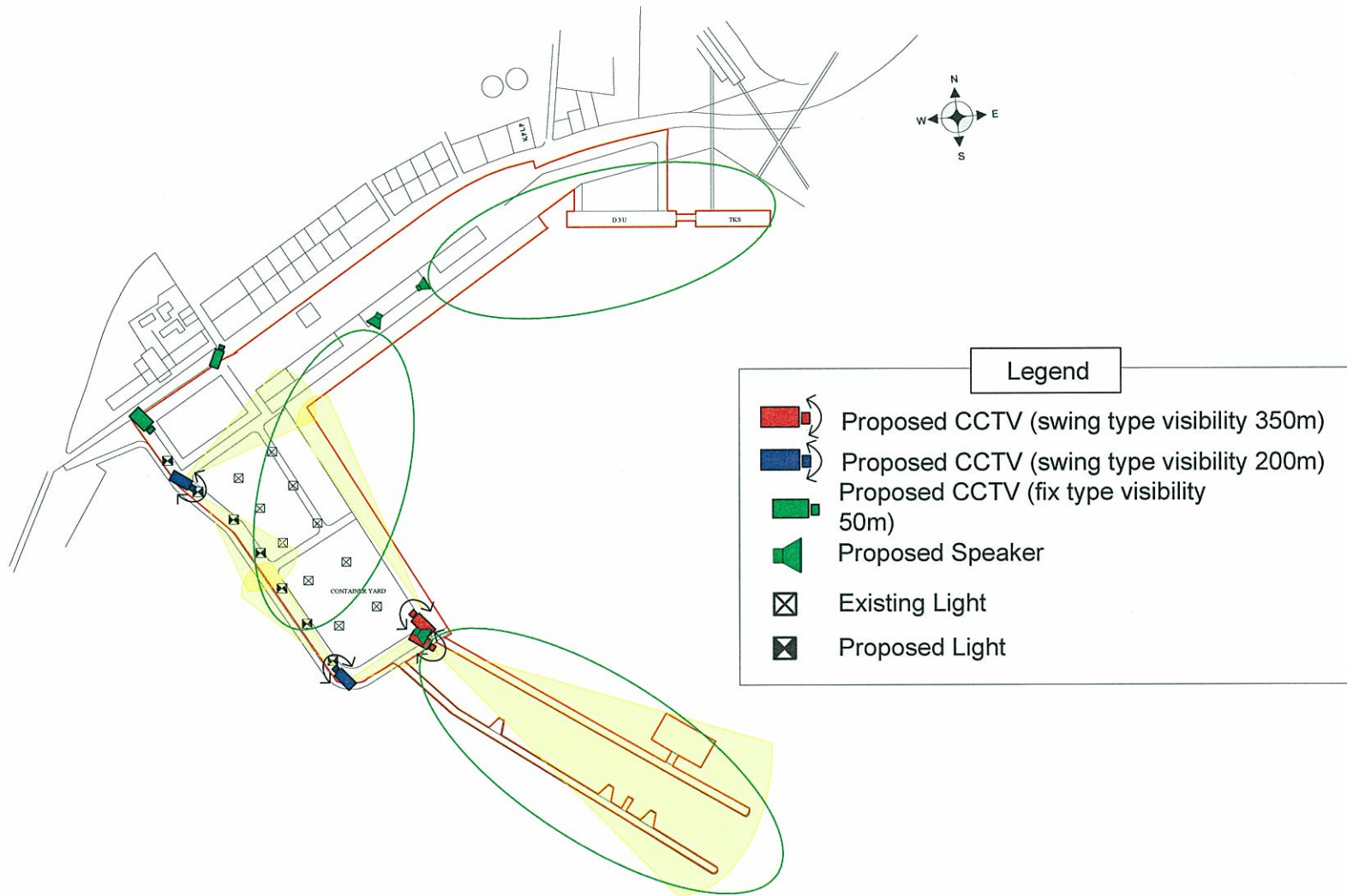


Figure 2-2-3-6 Equipment Deployment Plan (Teluk Bayur Container Terminal)

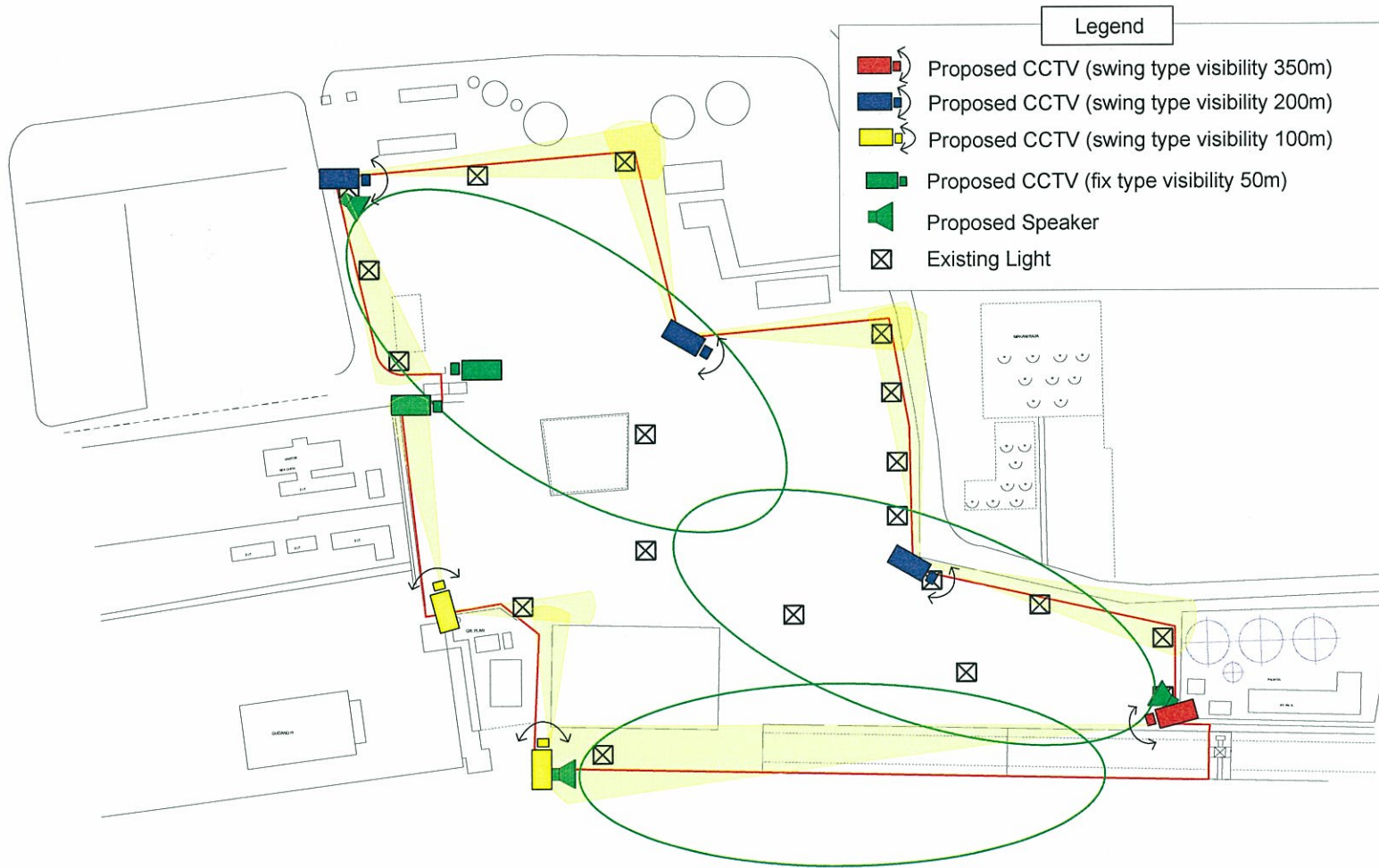


Figure 2-2-3-7 Equipment Deployment Plan (Palembang Container Terminal)

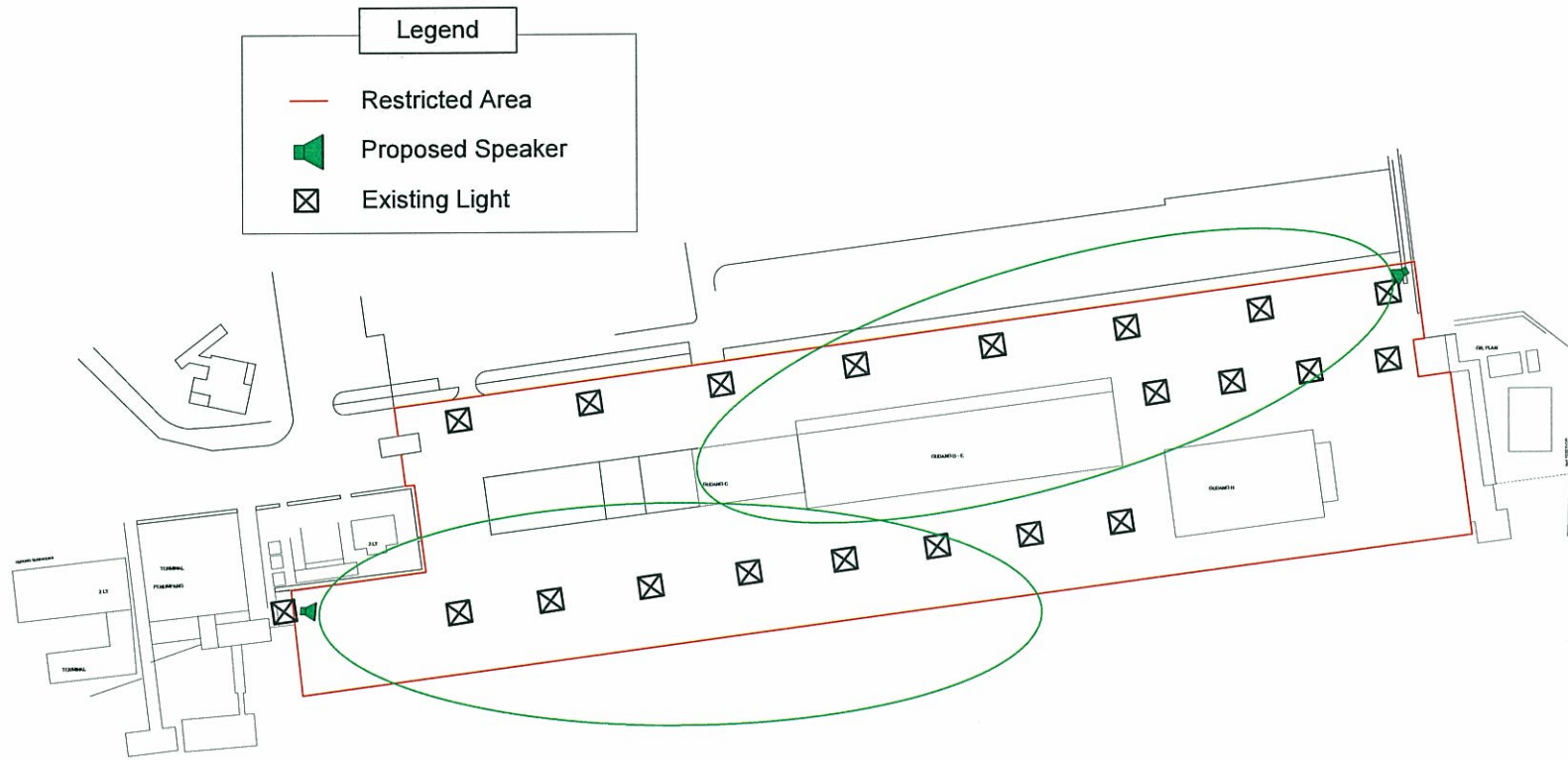


Figure 2-2-3-8 Equipment Deployment Plan (Palembang Conventional Wharf)

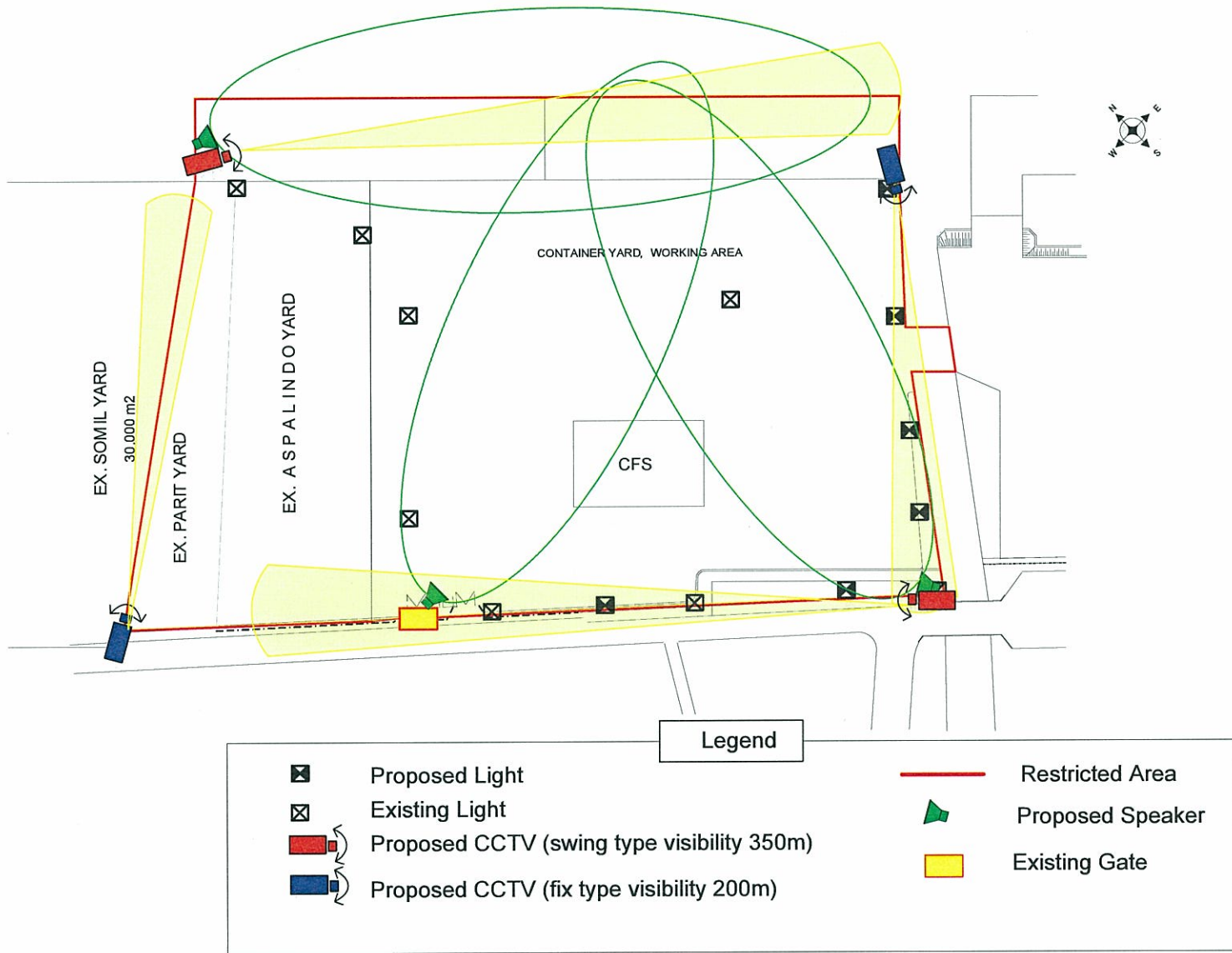


Figure 2-2-3-9 Equipment Deployment Plan (Pontianak Container Terminal)

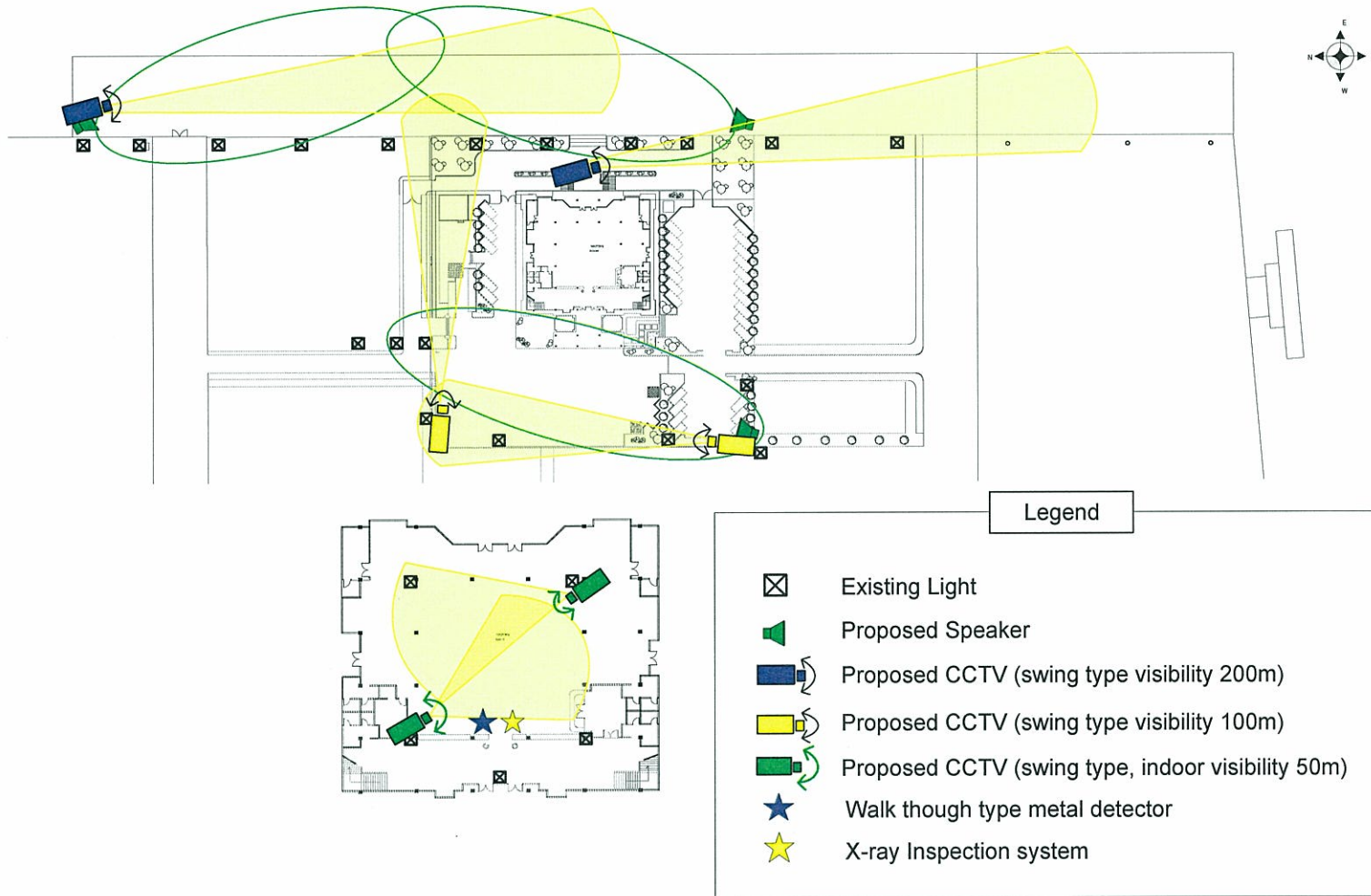


Figure 2-2-3-10 Equipment Deployment Plan (Benoa Passenger Terminal)

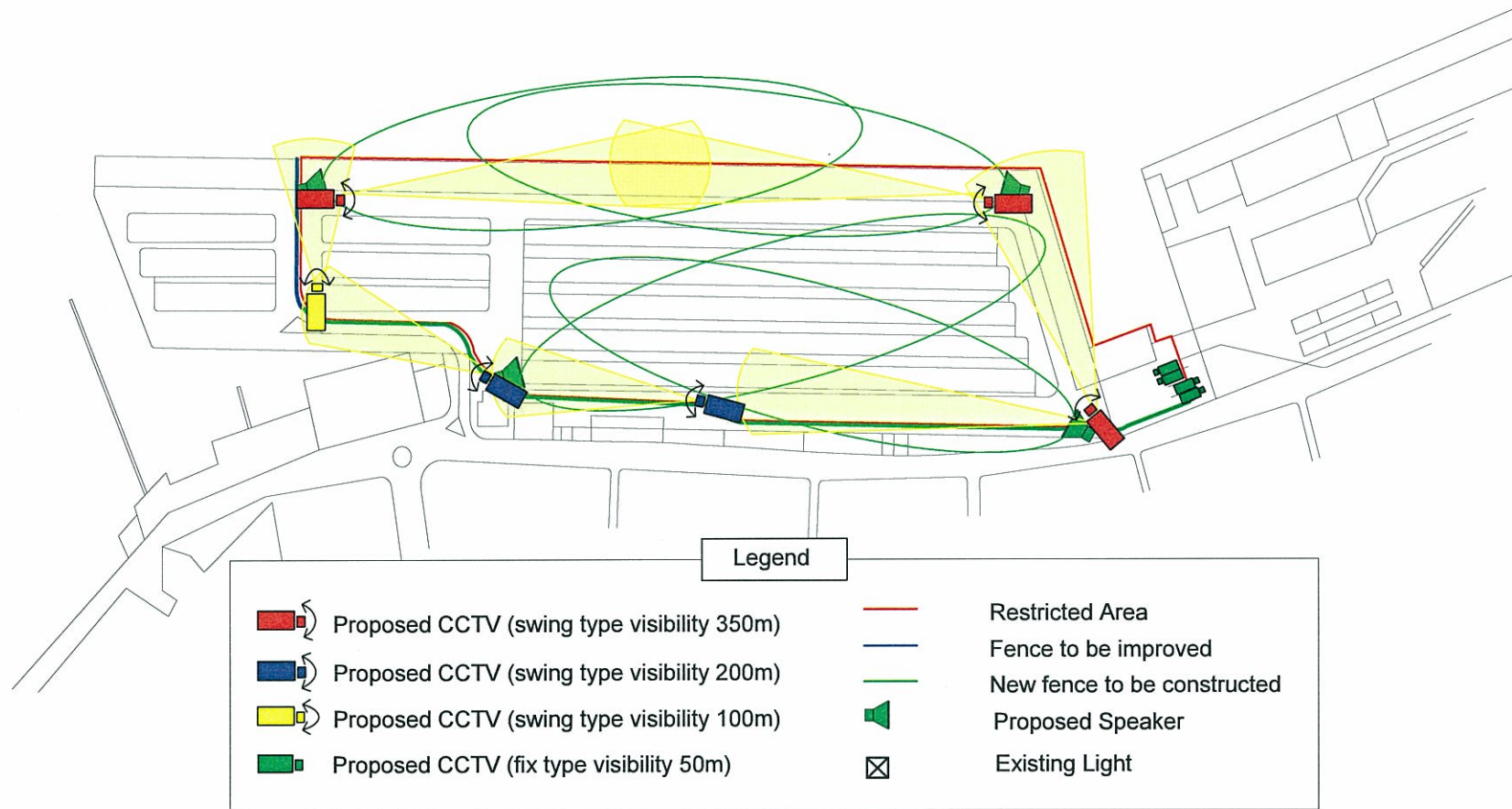


Figure 2-2-3-11 P Equipment Deployment Plan (Makassar Container Terminal)

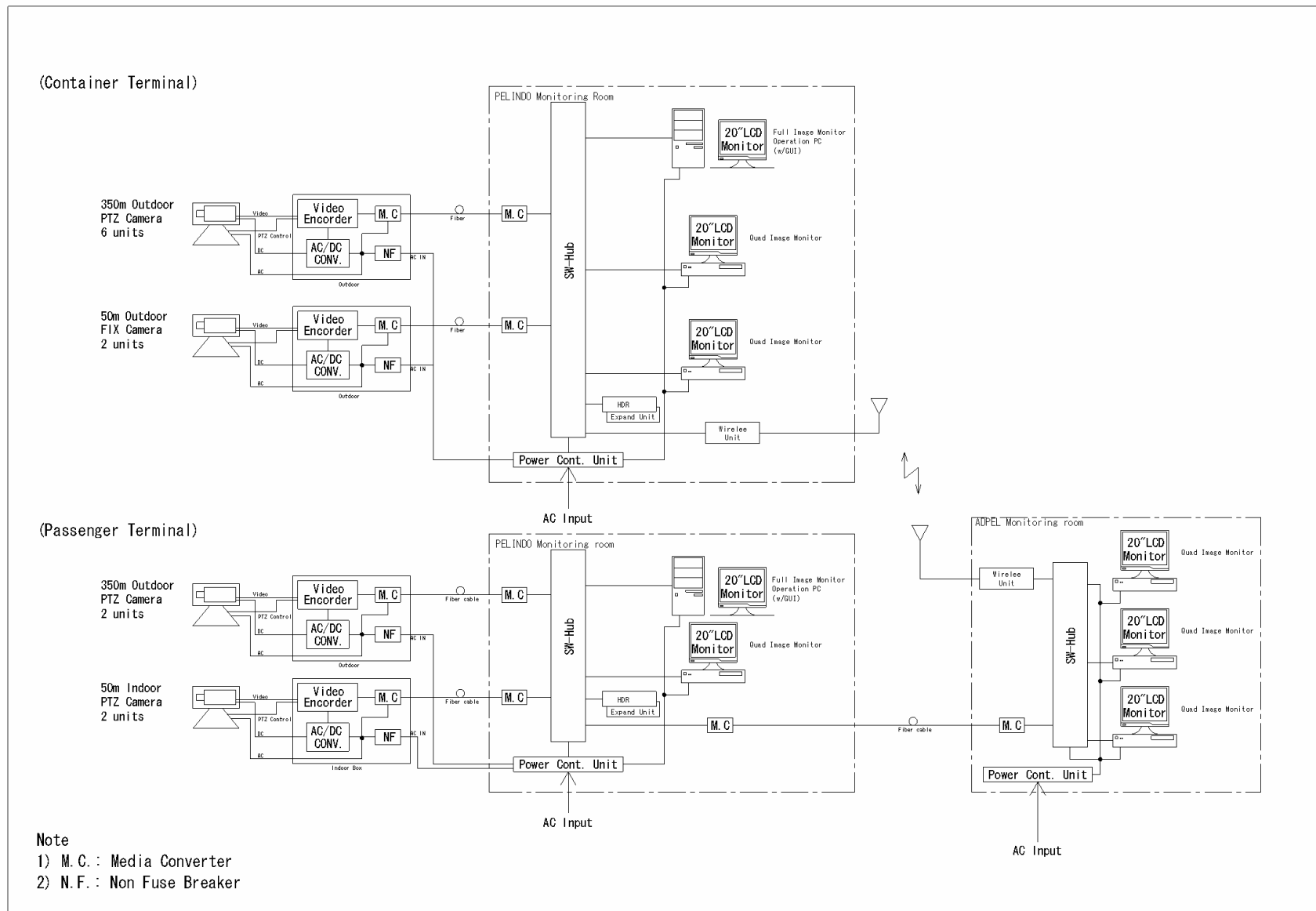


Figure 2-2-3-12 CCTV Camera Monitoring System Configuration Plan (Port of Belawan)

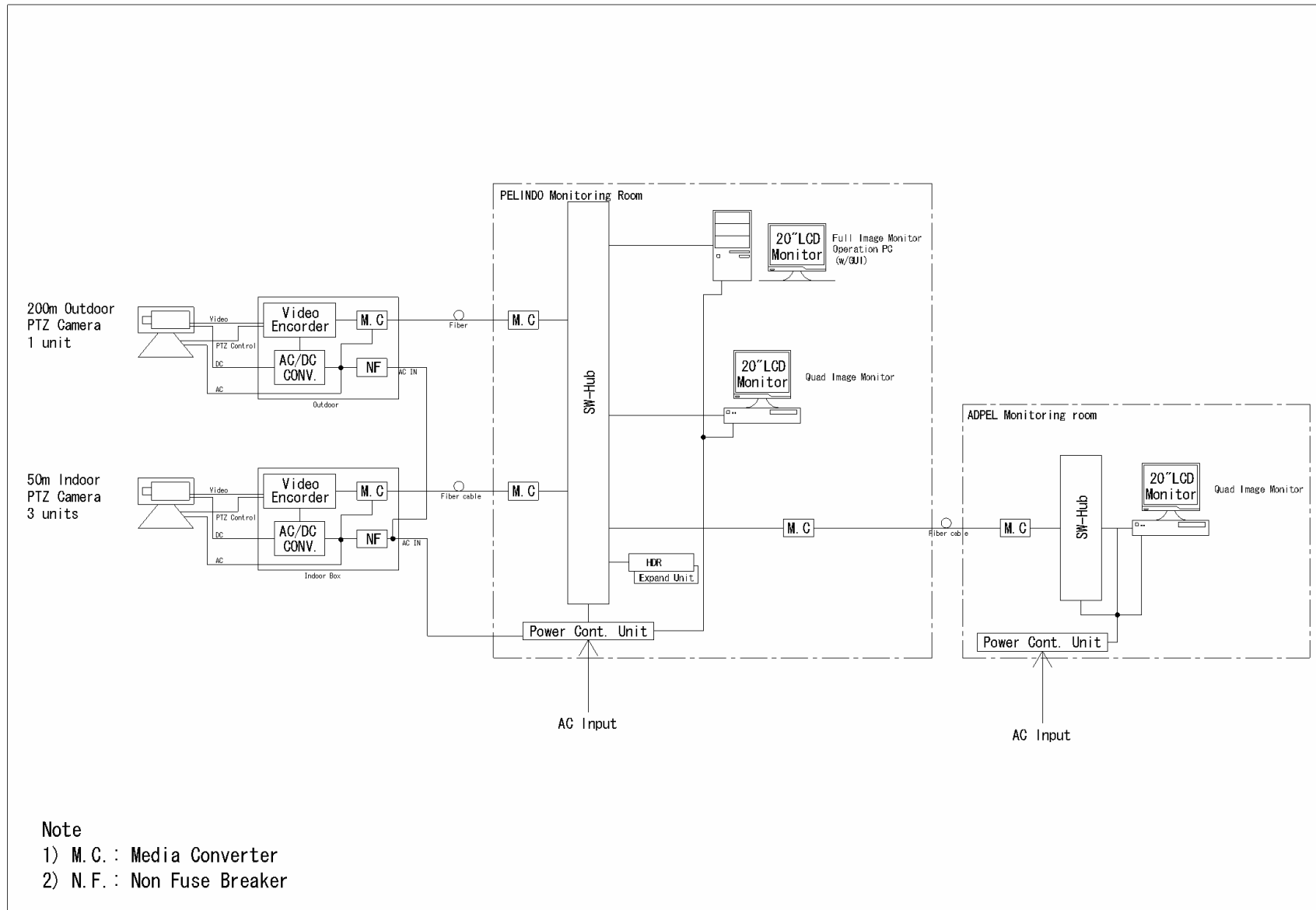


Figure 2-2-3-13 CCTV Camera Monitoring System Configuration Plan (Port of Dumai)

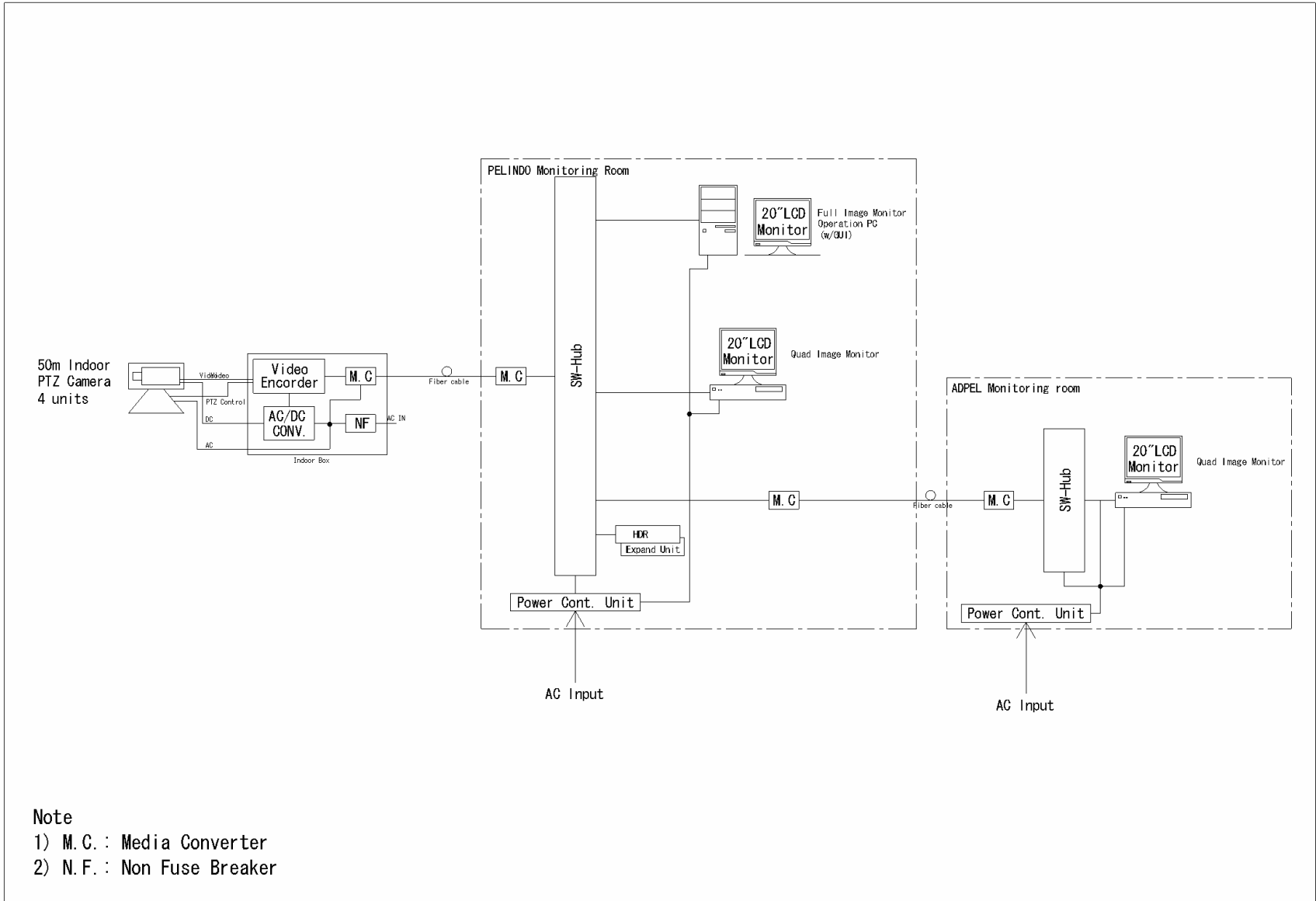


Figure 2-2-3-14 CCTV Camera Monitoring System Configuration Plan (Port of Tanjung Pinang)

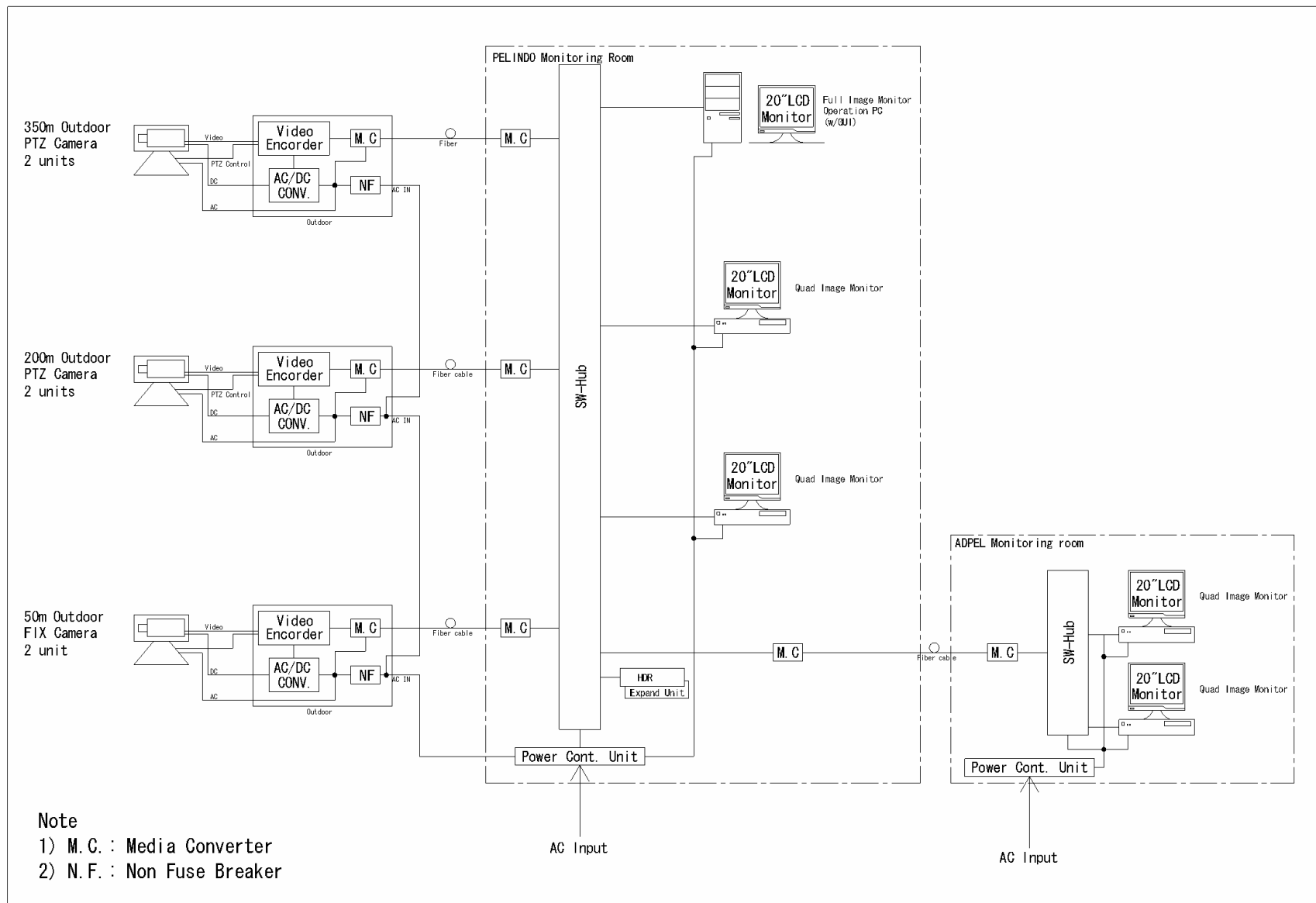


Figure 2-2-3-15 CCTV Camera Monitoring System Configuration Plan (Port of Teluk Bayur)

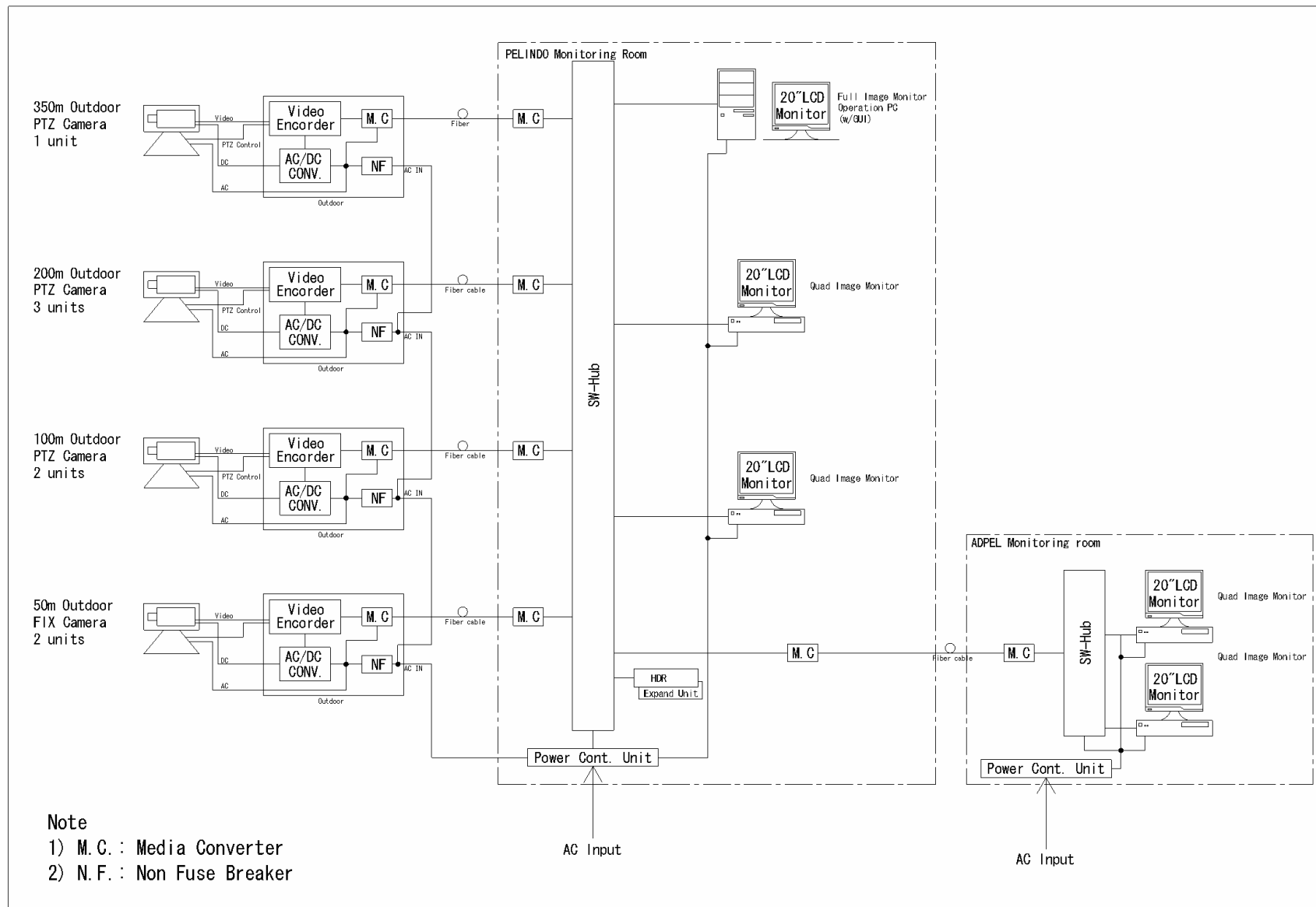


Figure 2-2-3-16 CCTV Camera Monitoring System Configuration Plan (Port of Palembang)

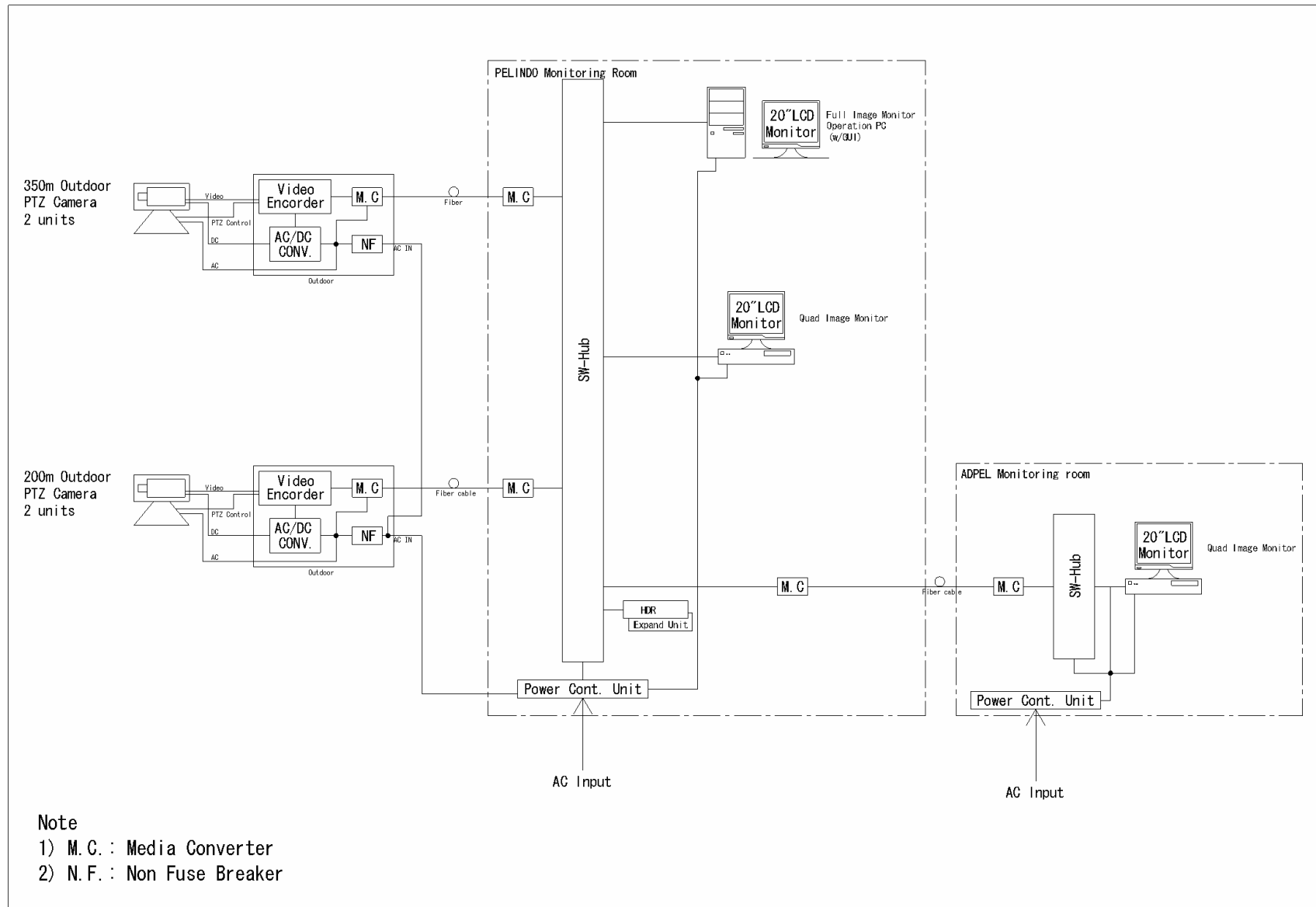


Figure 2-2-3-17 CCTV Camera Monitoring System Configuration Plan (Port of Pontianak)

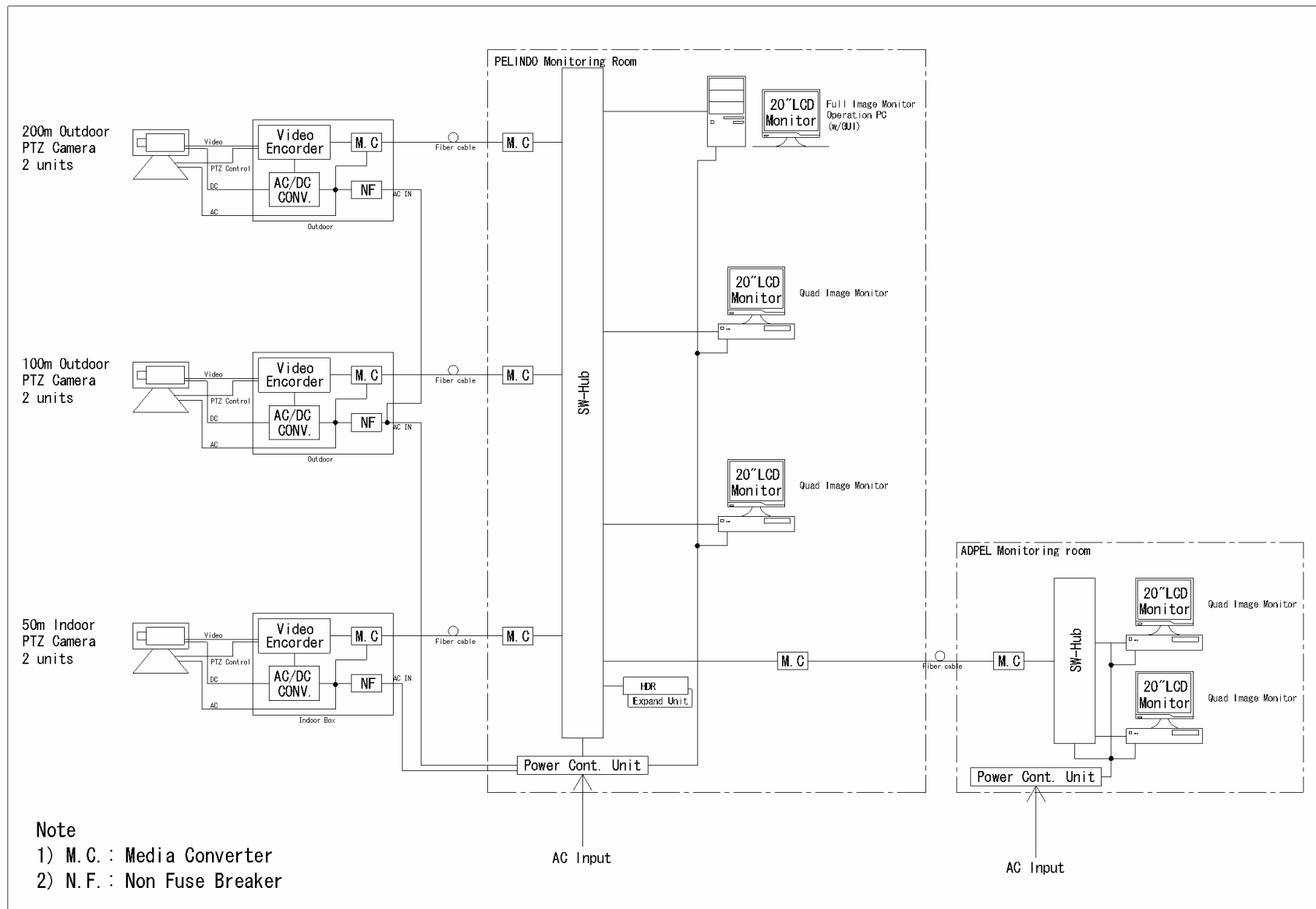


Figure 2-2-3-18 CCTV Camera Monitoring System Configuration Plan (Port of Benoa)

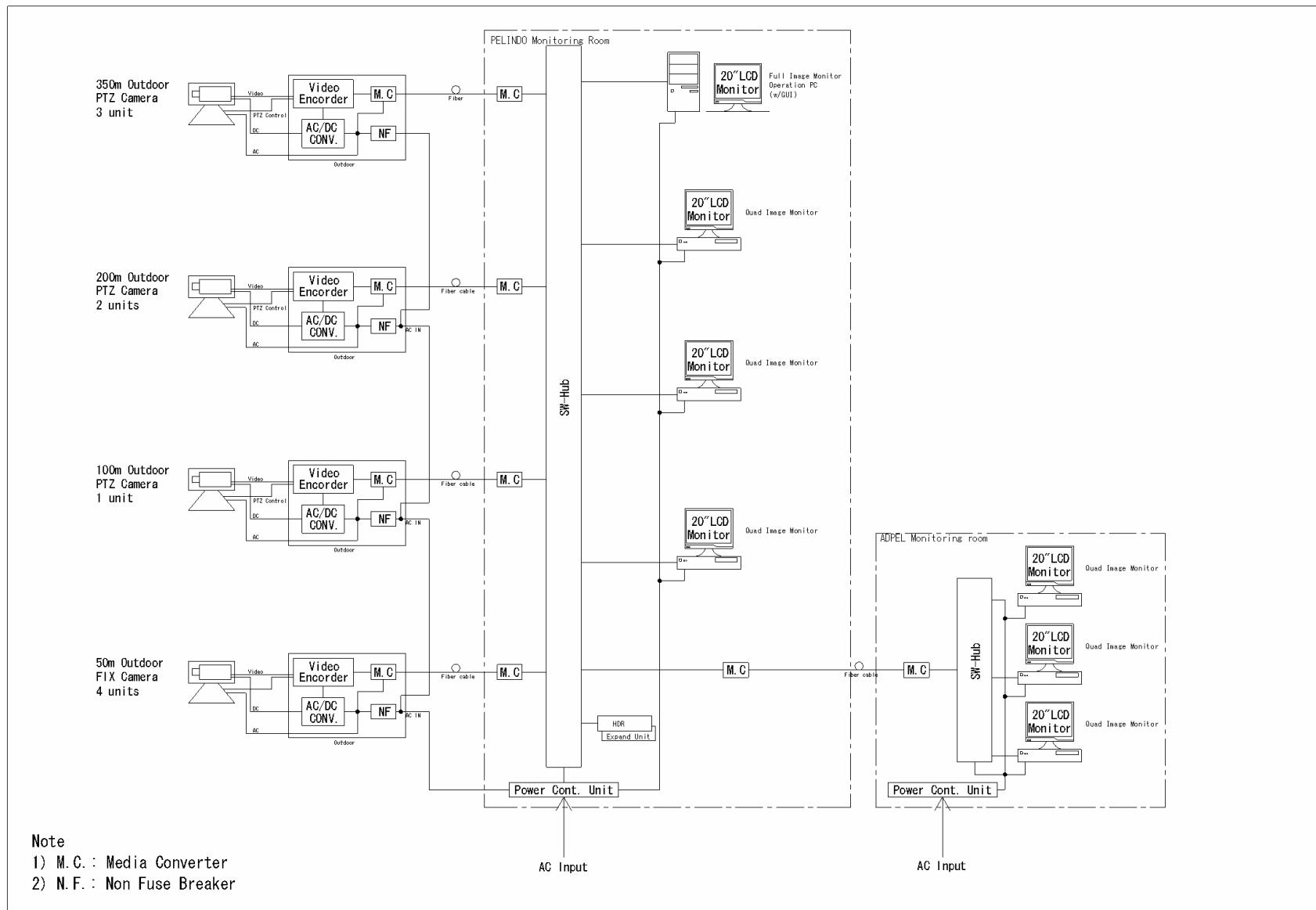


Figure 2-2-3-19 CCTV Camera Monitoring System Configuration Plan (Port of Makassar)

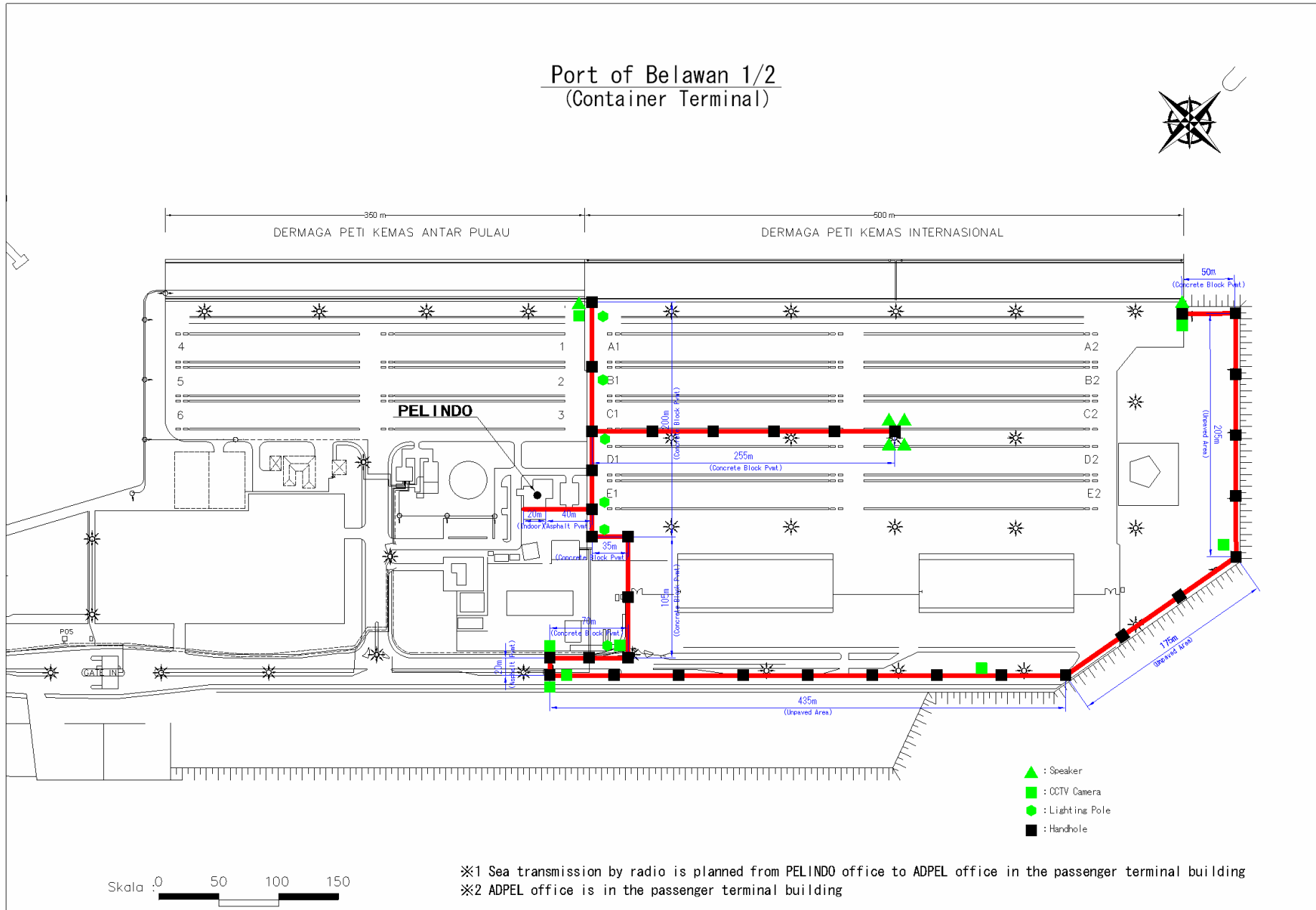


Figure 2-2-3-20 Cable and Hand Hole Installation Plan (Port of Belawan: Container Terminal)

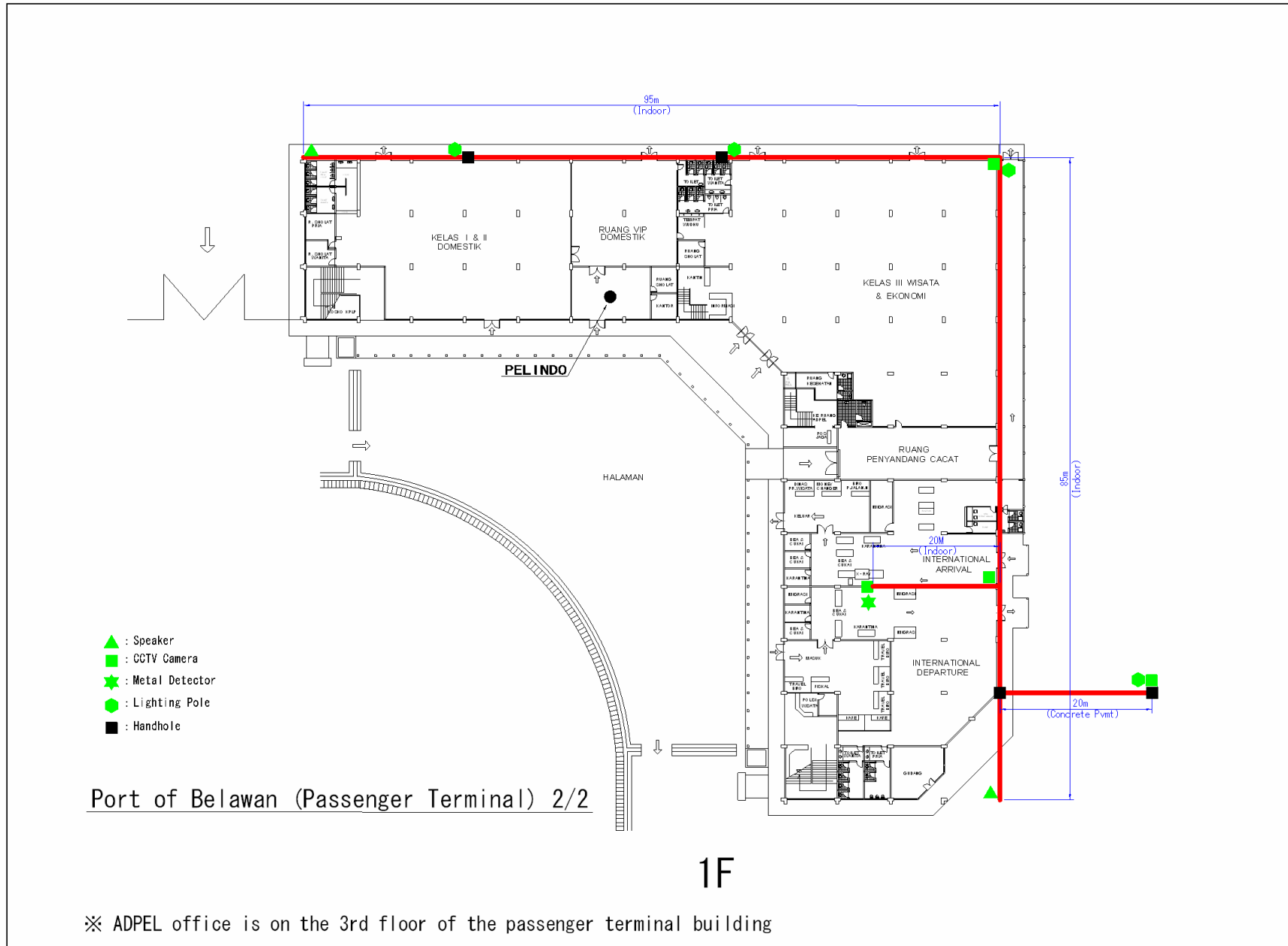


Figure 2-2-3-21 Cable and Hand Hole Installation Plan (Port of Belawan: Passenger Terminal)

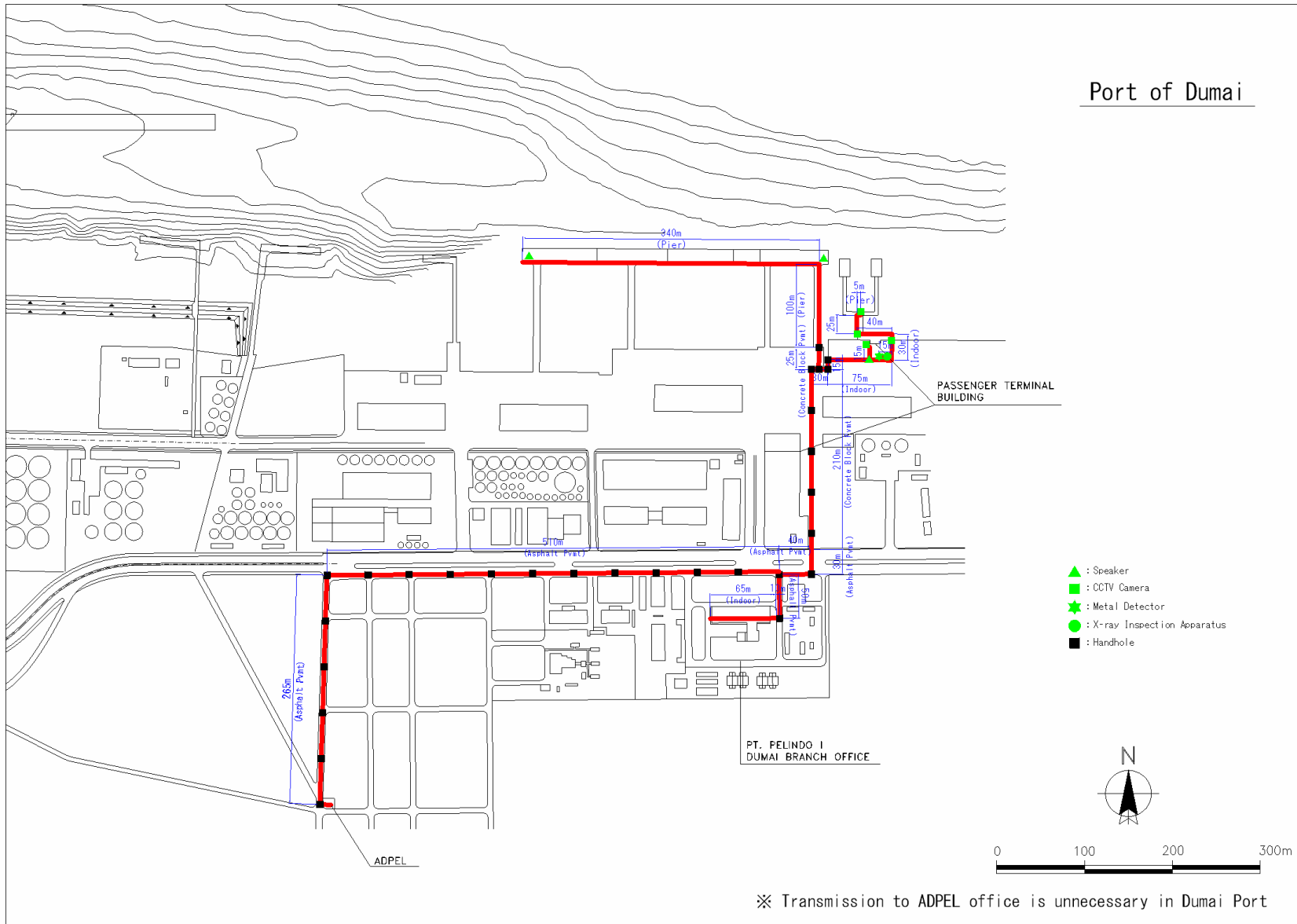


Figure 2-2-3-22 Cable and Hand Hole Installation Plan (Port of Dumai)

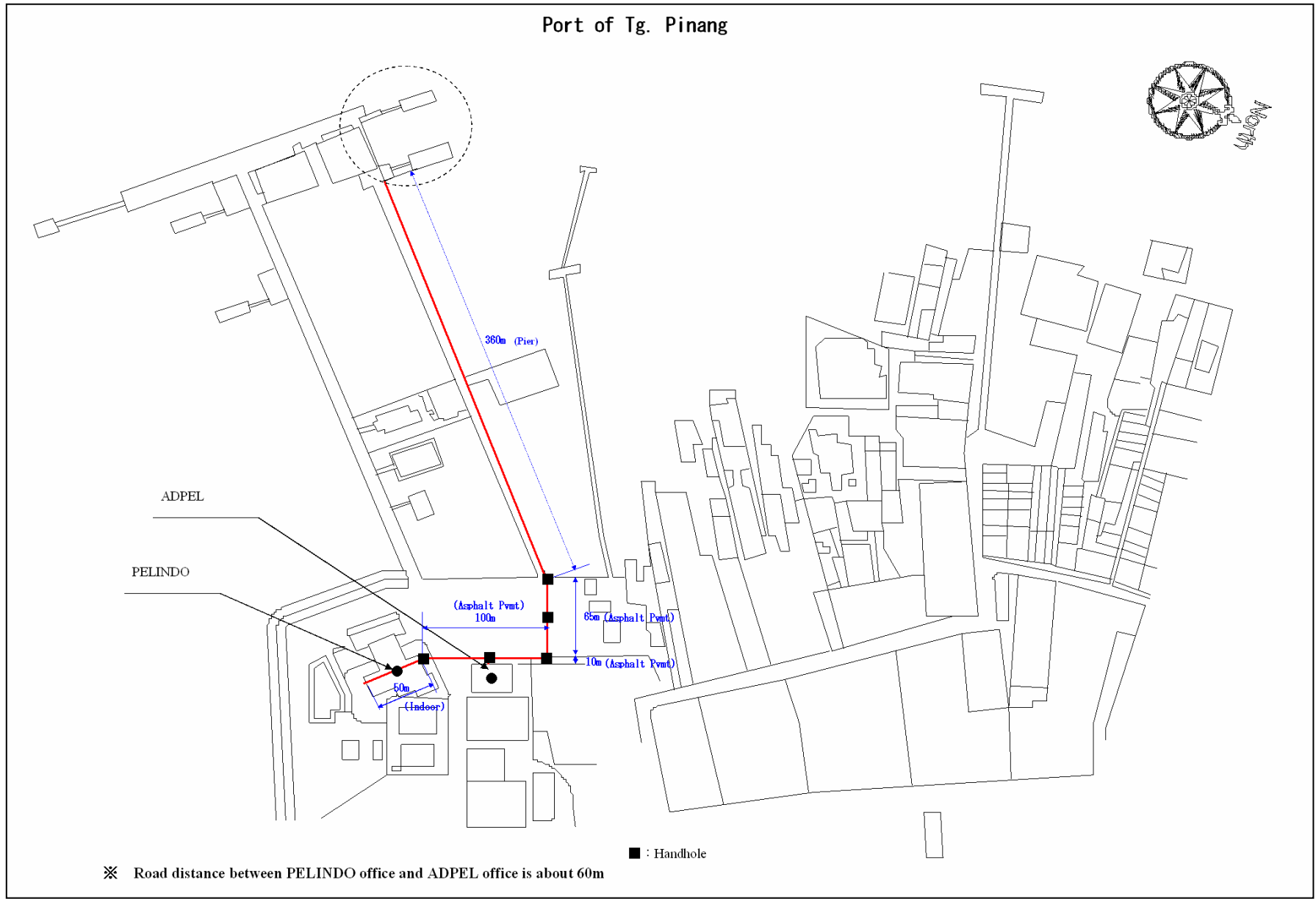


Figure 2-2-3-23 Cable and Hand Hole Installation Plan (Port of Tanjung Pinang)

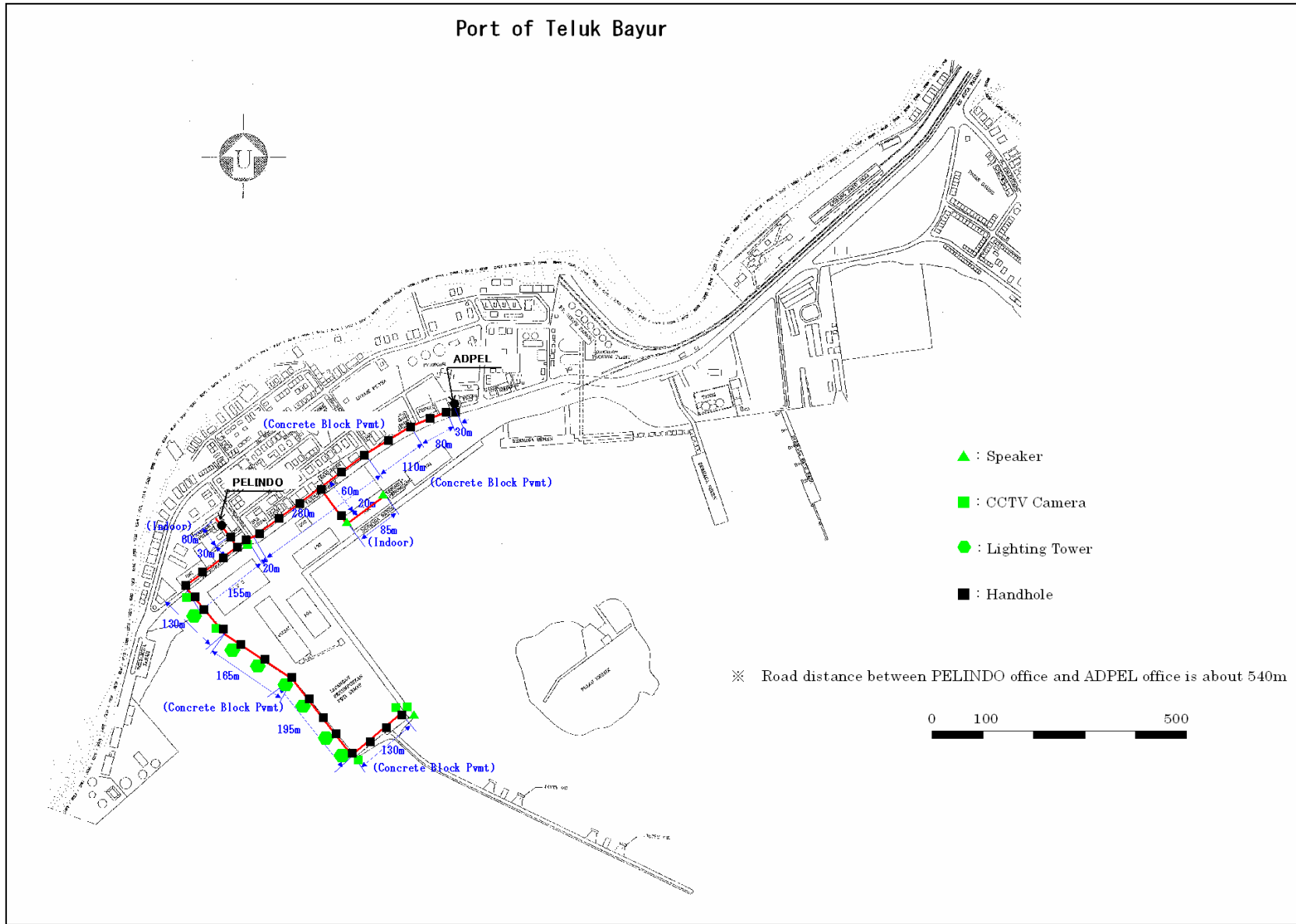


Figure 2-2-3-24 Cable and Hand Hole Installation Plan (Port of Teluk Bayur)

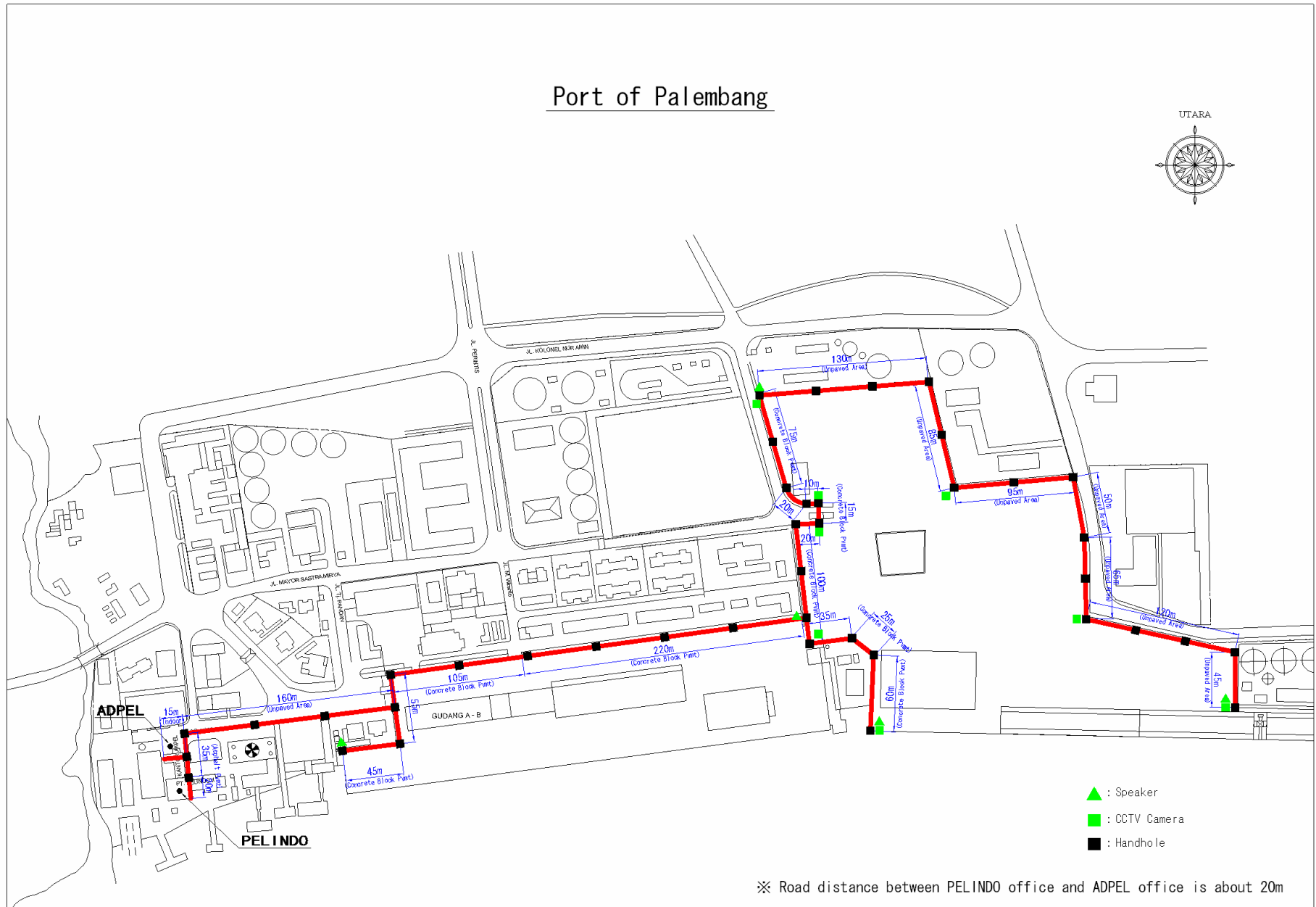


Figure 2-2-3-25 Cable and Hand Hole Installation Plan (Port of Palembang)

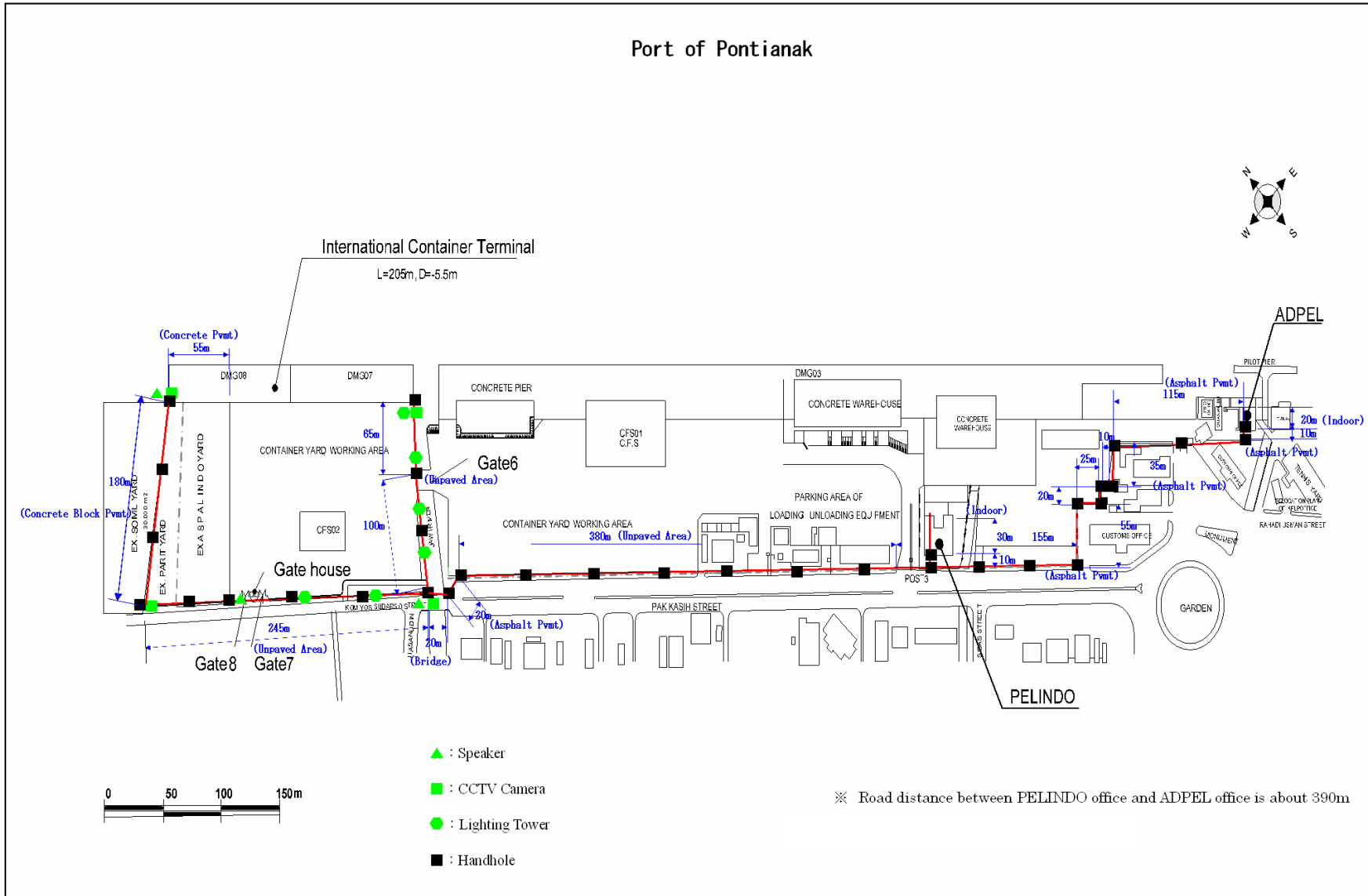


Figure 2-2-3-26 Cable and Hand Hole Installation Plan (Port of Pontianak)

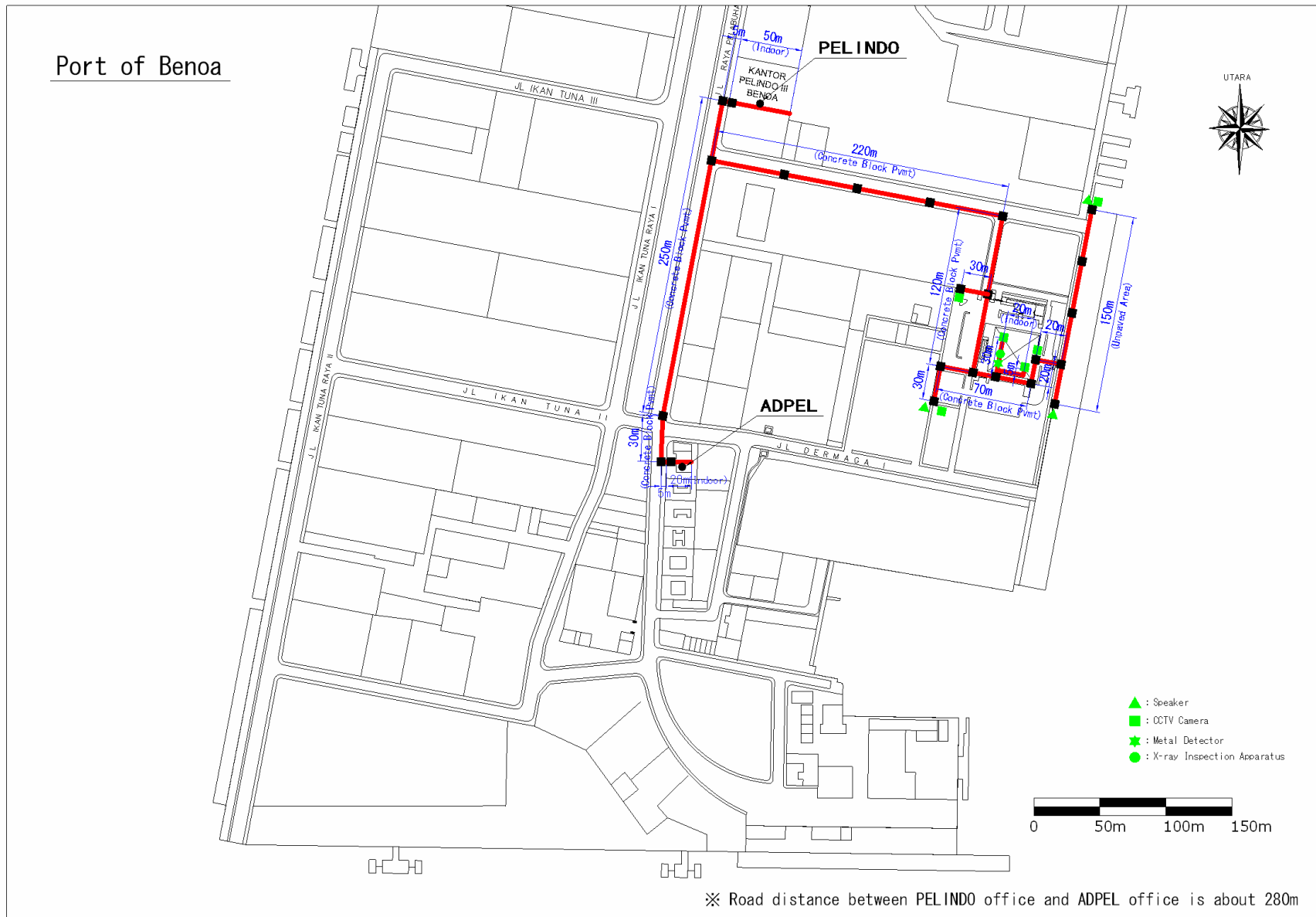


Figure 2-2-3-27 able and Hand Hole Installation Plan (Port of Bena)

Port of Makassar

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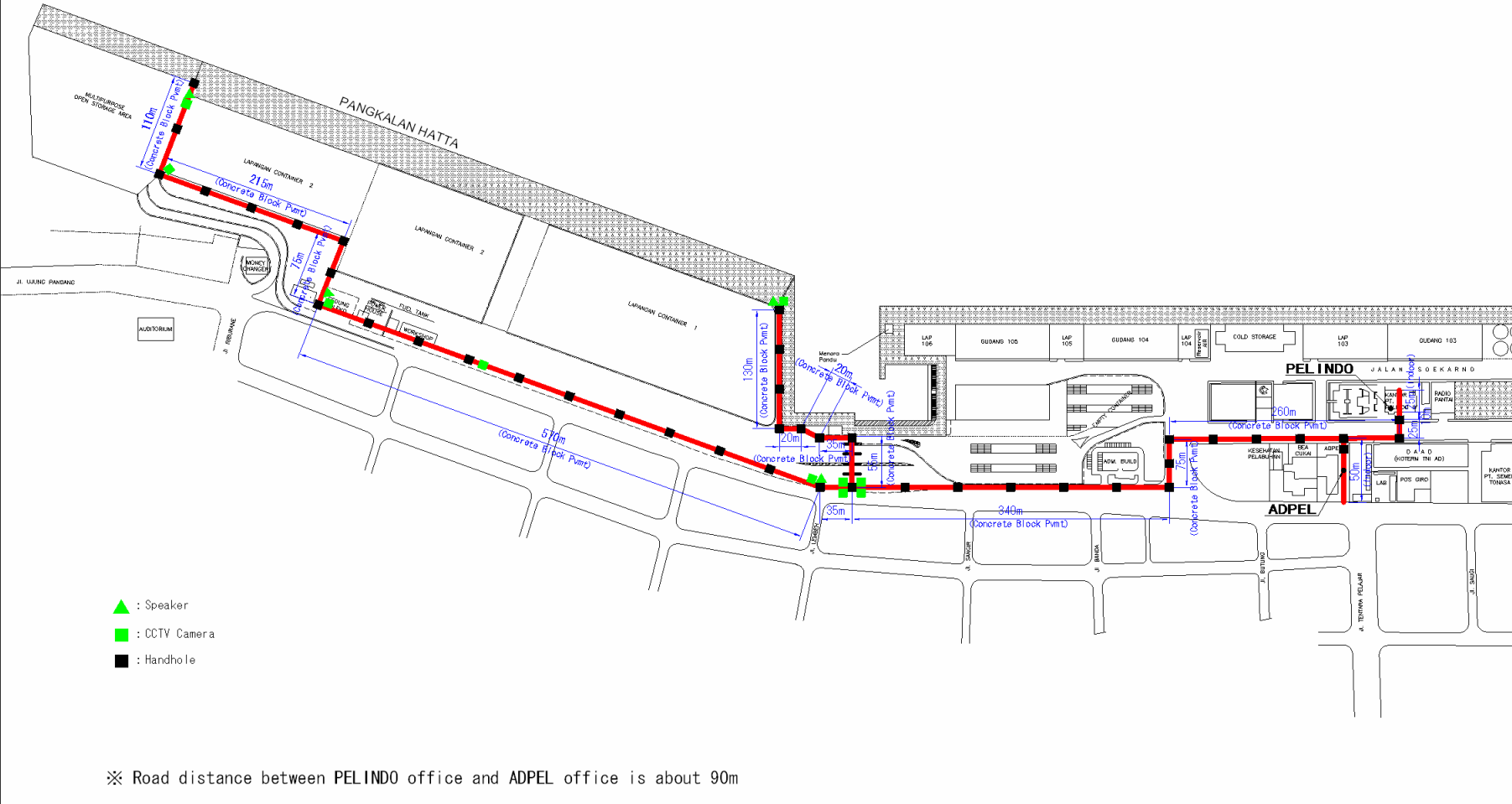


Figure 2-2-3-28able and Hand Hole Installation Plan (Port of Makassar)

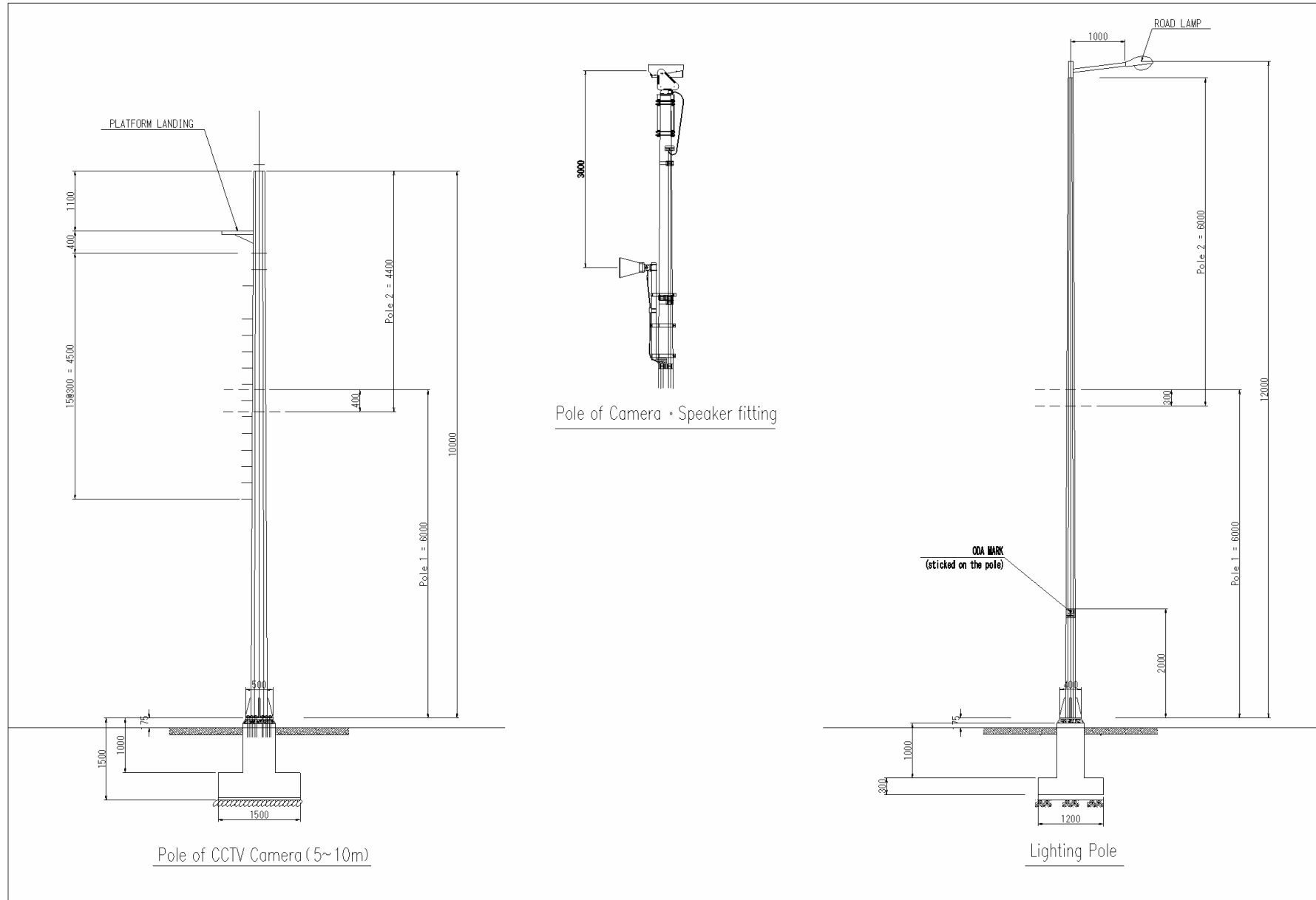
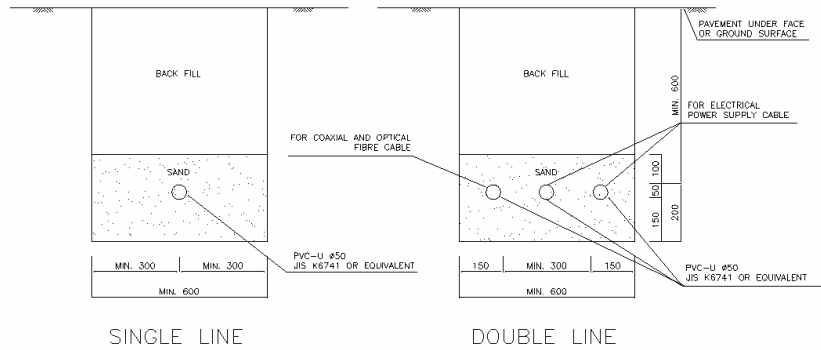


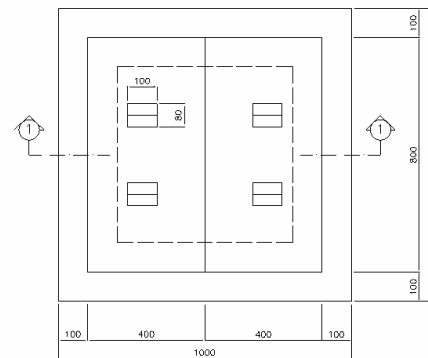
Figure 2-2-3-29 General Construction Plan of Pole



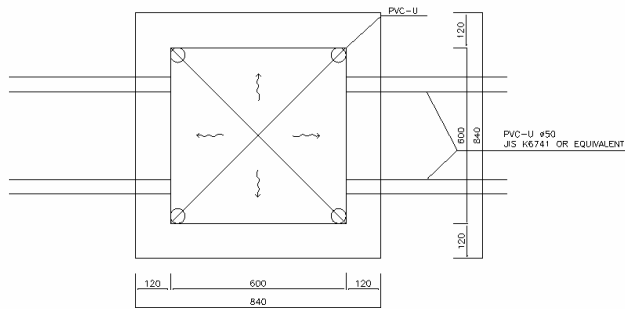
SINGLE LINE

DOUBLE LINE

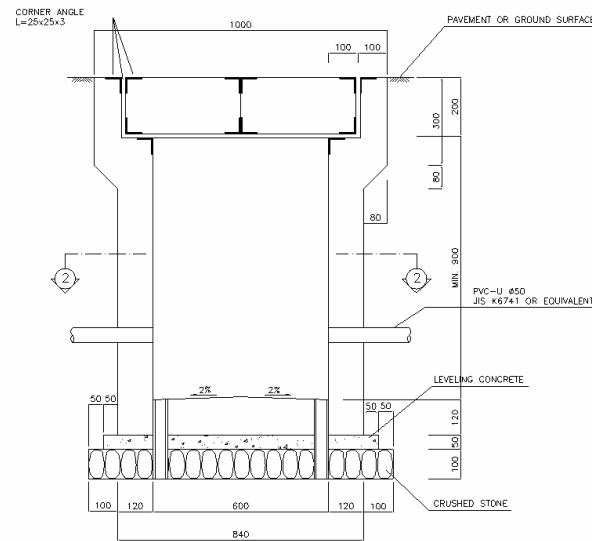
TYPICAL SECTION FOR CABLE Laying



PLAN



SECTION 2-2



SECTION 1-1

CABLE LAYING AND HAND HOLE

Figure 2-2-3-30 General Plan of Cable Laying and Hole Dimensions

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

Basic conditions for procurement policies are as follow;

- The equipment procured by this project shall be basically made in Japan. However procurement from third countries is possible for X-ray inspection system and walk-through type metal detector. Security lights can be easily procured in Indonesia.
- The ease of spare parts procurement and establishment of after-sales service system is considered.
- Construction materials are able to be obtained in Indonesia.
- Cost of transporting equipment from the port to site is covered by the grant aid project.

2-2-4-2 Implementation Conditions

The Project will be carried out in accordance with the scheme of Japan's Grant Aid Guideline. Therefore the Project will be implemented after the approval of the Japanese Cabinet and the signing of Exchange of Notes (E/N) by the two governments concerned.

Implementation conditions are as follows.

(1) Parties responsible for the implementation of the Project

The equipment procured by the Project shall be transferred from DGST to PELINDO I to IV. The overall relationship of the parties concerned is shown in figure 2-2-4-1.

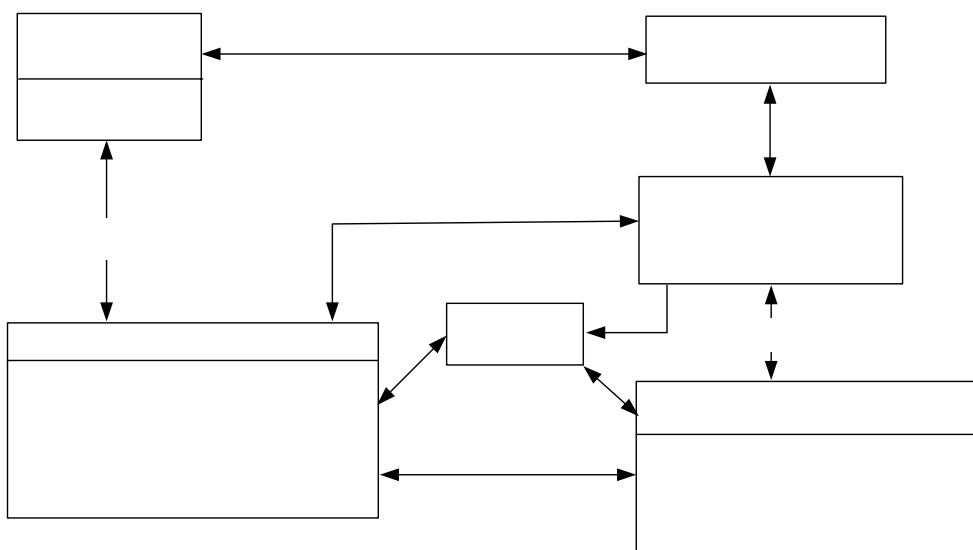


Fig. 2-2-4-1 Relationships and roles of the concerned parties

(2) Consultant

After the signing of E/N, DGST shall conclude a consultation agreement with a Japanese consulting firm. The work shall include a detailed design of the Project, preparation of tender documents and assistance of tendering, supervision and so on. The consultant shall take responsibility until the turn over of the equipment and the terms of warranty expires.

(3) Supplier

The supplier for the Project is limited to Japanese national suppliers. The supplier who satisfied the quality and the specifications required and is awarded the contract shall make a contract with DGST.

The equipment shall be turned over to DGST after it is delivered/ installed at site, a trial operation is conducted and initial operation guidance of the equipment is confirmed.

(4) Transfer of the equipment

After all the equipment shall have been turned over, DGST shall promptly entrust the equipment to PELINDO I to IV who operate and manage the equipment.

2-2-4-3 Scope of Works

Procurement of equipment will be done by the superintendent government office, that is, DGST. On the other hand, equipment will be installed at the branch offices of each PELINDO. In addition, some units of the CCTV camera monitoring system will be installed in the ADPEL office, local organization of DGST. Accordingly, Procurement should be lumped together for smooth implementation and it is necessary for an agreement to be concluded between DGST and each PELINDO regarding the following items before installation to ensure that works proceed smoothly.

- a) Securing budget for the undertakings to be borne by Indonesian side
- b) Securing monitoring room for CCTV camera monitoring system, and preparation of additional new distribution panel or remodeling of existing power supply panel for the equipment
- c) Preparation of storage space for the equipment and construction materials and machines during the installation work
- d) Issuance of certificate of completion of equipment installation work by PELINDO and ADPEL which are in charge of operation and maintenance

2-2-4-4 Consultant Supervision

Procurement control plan by consultant are as follows:

(1) Detailed Design

a) Final confirmation of contents of plan (in Indonesia)

For the 8 target ports, the relevant items mentioned on the tender documents such as placement of equipments, situation of power supply, conditions of using terminals, site office for a contractor and material storage space, should be confirmed.

b) Review on specifications of equipment and preparation of tender documents (in Japan)

c) Approval of tender documents (in Indonesia) : Receiving of approval of tender documents from the authorized organization in Indonesia.

d) Invitation for bids and delivery of tender documents (in Japan) : Invitation will be made public through advertising in a newspaper.

e) Bid and evaluation of tender documents(in Indonesia) : After receiving of tender documents, evaluation should be carried out sequentially.

(2) Service for supervising the procurement

a) Attendance and check at inspection of product

b) Attendance and check at inspection before delivery

c) Inspection for checking the kind and quantity of the equipment before shipping

d) Supervision of the installation of the equipment on site and collating and delivery duties

2-2-4-5 Quality Control Plan

a) Inspection of product : Inspection of product should be done on the basis of system outline drawings (CCTV camera monitoring system, PA system), specifications and catalogs, but factory inspection will not be carried out.

b) Inspection before delivery : Equipment will be mostly general-purpose products indicated in catalogue, and confirmation of specifications and performance of equipment should be examined on the basis of certificate of conformance and numbers of equipment.

c) Inspection for checking the equipment before shipping: The inspection should be performed by a specialized inspection organization of shipping freights in the presence of consultant.

d) Supervision of the installation of the equipment on site and collating and delivery duties : Supervisor of procurement in residence on site has responsibility until completion of installation, initial operation guidance and collating / delivery duties of equipment by the contractor.

2-2-4-6 Procurement Plan

Presented below is the procurement plan of the respective equipment that is assumed in preparation of cost estimation.

(1) CCTV Camera Monitoring System and Lighting Equipment and PA system

As CCTV camera monitoring system is to be provided in eight (8) ports scattered in Indonesia, the equipment works are planned to be carried out in parallel at two (2) different groups shown below, from the viewpoint of efficiency and economy with due consideration to the civil works volume at the ports.

- Group A : Benoa Port, Belawan Port, Dumai Port and Palembang Port
- Group B : Teluk Bayur Port, Makassar Port, Pontianak Port and Tanjung Pinang Port

No.	Year	2009									
		Month	4	5	6	7	8	9	10	11	12
Group A											
1	Benoa				(Incidental Civil Works)						
2	Belawan										
3	Dumai										
4	Palembang										
Group B											
5	Teluk Bayur										
6	Makassar										
7	Pontianak										
8	Tanjung Pinang										

Figure 2-2-4-2 Procurement Schedule of CCTV Camera Monitoring System and Related Facilities

Installation, adjustment and trial operation of the equipment will be executed by the manufacturer’s engineer(s) at each port respectively, to accord with the expected completion date of civil works. The equipment installation and trial operation for the said (2) groups should be completed not later than six (6) months after commencement of the civil works.

The equipment works for lighting equipment and PA system are planned to be commenced and completed in the same schedule as the equipment works for CCTV camera monitoring system. Acceptance tests will be conducted after completion of trial operation and / or adjustments of the equipment installed at each port. After initial operation guidance is conducted, the equipment will be taken over by the supplier.

(2) X-ray Inspection System and Walk-through Type Metal Detector

Procurement plan of X-ray inspection system and walk-through type metal detector will be as follows :

- Approval of design and work drawings : Within one (1) month after the contract;
- Manufacture, factory inspection and shipment : Within five (5) months after the contract;
- Adjustment and trial operation will be conducted after installation of the equipment.

(3) Uninterruptible Power Supply System (UPS) and Emergency Power Generator

As UPS and emergency power generator are operated with CCTV camera monitoring system, installation, adjustment and trial operation will be carried out to accord with the installation progress of CCTV camera monitoring system.

2-2-4-7 Operational Guidance Plan

Initial operating guidance shall be done by each equipment maker under the supervision of consultant soon after the installation, adjustment and trial operation at each project site respectively. The necessary period of the guidance is assumed as follows.

Table 2-2-4-1 Period of Initial Operational Guidance at Every Project Site

	Equipment	Period
1.	CCTV Camera Monitoring System	3 days
2.	PS System	1 day
3.	X-ray Inspection System	1 days
4.	Walk-through Type Metal Detector	1 day

2-2-4-8 Soft Component (Technical Assistance) Plan

The technical cooperation program on enhancing port security management is now in progress. The equipment to be installed by the project should be utilized as a part of the program. There is no soft component plan in the project.

2-2-4-9 Implementation Schedule

The total period from consulting services for the equipment procurement to taking-over of the equipment is expected to be sixteen (16) months. The consulting services will require about four and a half (4.5) months after conclusion of the consultancy contract, covering preparation of bidding documents, public announcement of bidding, and selection of contractor. The equipment procurement will be completed within eleven and a half (11.5) months (Refer to

Figure 2-2-4-3).

As the installation works of the equipment are to be executed at eight (8) different ports, the acceptance and taking-over of the equipment will be sequentially executed at respective ports upon completion of installation works and initial operation guidance.

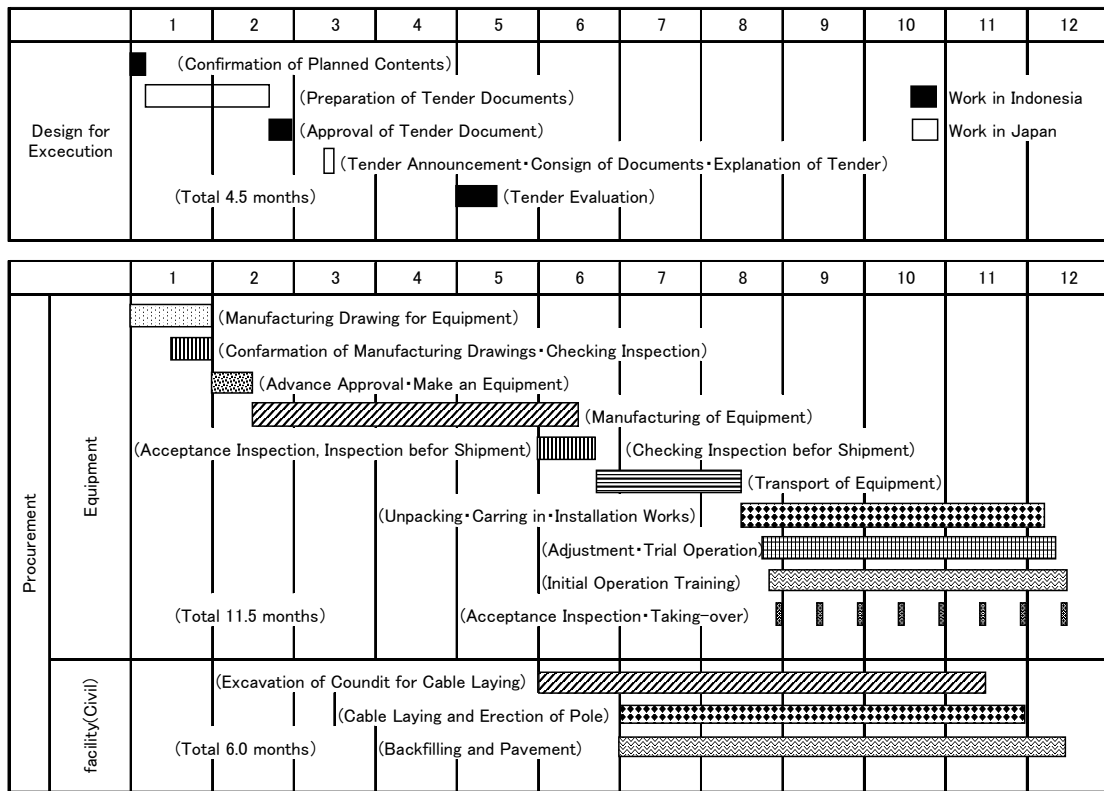


Figure 2-2-4-3 Implementation Schedule

2-3 Obligations of Recipient Country

(1) Procedural Matters

The GOI is required to carry out the necessary obligations shown below based on the Grant Aid scheme.

- **Tax exemption**
GOI should take such budgetary procedure as are necessary to be able to clear the customs for relevant import equipment without customs duty before the equipment arrives in Indonesia. As soon as the equipment arrives, DGST should pay the same amount of money as the tariff on behalf of the Japanese contractors.
- **Provision of undertakings**
GOI should take necessary measures to ensure materials and equipment which will be procured in Indonesia are tax free and to ensure that Japanese persons who are engaged in the project are not liable for income tax.
- **Banking Arrangement (B/A)**
GOI should open a bank account under the name of GOI or authorized organization at a bank in Japan in order to accept Japanese grant aid and remunerate the Japanese consultant and Japanese contractor. And GOI should make a contract of Banking Arrangement with the bank which will be a proxy for GOI.
- **Issuance of Authorization to Pay (A/P)**
GOI should issue the Authorization to Pay for the bank in Japan which has made the contract of Banking Arrangement soon after making a contract with a Japanese consultant and Japanese contractor. The bank should notice the issuance to the Japanese consultant and the Japanese contractor.

(2) Securing Power Supply and Location for Installation of Facilities

Power supply for equipment should be supplied from the existing power supply panel or distribution panel. If there are usable spare distribution circuits with molded-case circuit breakers (trip current 50A and more), it is necessary to confirm possibility of using of those circuit breakers with inner-wiring to terminal board for outer wirings to facilities.

If there are no usable spare circuit breakers in existing panels, it is necessary to remodel existing panels and add necessary parts for distribution circuit for additional new facilities.

In addition, at the port of Tanjung Pinang it is necessary to prepare additional circuit breaker (trip current 150A and more) and inner wiring for distribution circuit for additional new equipment, that is Emergency Power Supply.

It is necessary to secure space of around 10m² together with power supply and air conditioning unit for the monitoring room of the CCTV camera monitoring system.

(3) Storage Area and Site Office Space during Period of Equipment Works

Storage area will be required in the port to safely store the materials and equipment delivered to the site. Site office space will be required for the contractor to execute the civil works for cable laying and the equipment installation works. Another site office space will be required for the consultant to supervise the said works. Each of the port authorities is liable to provide, at its own expense, the storage area in the port and the office space in the authority's office building during the equipment work.

(4) Restrictions on Usage of Port Terminal during Equipment Works

Usage of the port terminal may be partly restricted during the equipment works due to the cable laying works and equipment installation works at the port terminal. Prior to submission of the work schedule by the contractor, close coordination between the port authority and contractor will be required to minimize the adverse effects on the normal terminal operation activities by the terminal usage restrictions.

(5) Appointment of chief administrator

The chief administrator prepares an inventory book for all transactions involving appurtenance and keeps them in a locker with a key.

(6) Installation of fence and gate

It was confirmed at the Minutes of Discussions held on 2 November, 2007 between JICA and DGST that installation and repair of fence and gate shall be borne by Indonesian side.

The following terminals are required to construct or repair fence and/or gate.

- Belawan Port : installation of outrigger and barbed wire on a part of fence
(Container Terminal) installation of new fence due to modification of the restricted area
- Dumai Port : installation of new fence due to modification of the restricted area
(General Cargo Wharf)
- Palembang Port : installation of new fence at the corner of quay
- Pontianak Port: installation of new gate at the boundary with domestic trade wharf
- Makassar Port : installation of outrigger and barbed wire on a part of fence
(Container Terminal) installation of new fence due to modification of the restricted area

During the site survey, PELINDO of Belawan Port and Makassar Port explained that they had plans to change their restricted area and construct new fences. The length of those fences are about 150m at Belawan Port and 970m at Makassar Port.

Table2-3-1 Undertakings done by the GOI

Name of Port	Items confirmed in the Minutes of Discussions dated Nov. 2nd, 2007		Items explained to have plan to construct by PELINDO
	Fence(m)	New Gate(m)	New Fence(m)
Belawan	30	-	150
Dumai	275	12	-
Tanjung Pinang	-	-	-
Teluk Bayur	-	-	-
Palembang	130	-	-
Pontianak	-	15	-
Benoa	-	-	-
Makassar	-	-	970
Total	435	27	1,120

2-4 Project Operation Plan

The equipment to be installed by the project will be managed by PELINDO branch office and ADPEL office. Port facility security officers and their subordinate staff are allocated in those offices. In addition, the “Guard and Rescue Division”, which is in charge of port security matters, is established in the ADPEL office. The equipment will be managed as a part of their duty.

The monitors of CCTV camera monitoring system at Tanjung Priok Port which were procured by Japanese grant aid project in 2004 were installed and managed at the terminal operation room. And the monitors of Tanjung Perak Port were installed and managed at the exclusive room which is portioned off in a corner of the marketing division. The monitoring is now conducted for 24 hours by turns by PELINDO’s staff. X-ray inspection system and walk-through type metal detector are utilized to check baggage and personal belongings at the time of departure of passenger boats or ferries by 3 persons of PELINDO’s staff and security guards. To date no significant problem has emerged. Therefore the equipment should be installed at an exclusive room and managed by PELINDO’s staff and security guards.

The maintenance of equipment is mentioned as follows.

1. Monthly routine work of cleaning of the body, checking appearances of outdoor facilities and supplying oil and grease.
2. Overhauling and adjusting precision machines and instruments each year
3. Periodical replacement of parts

At Tanjung Priok Port, monthly routine work was carried out to check, clean and supply oil and grease for 56 CCTV cameras, monitoring facilities and cables. This kind of routine work is certainly useful to prevent trouble from occurring and discover trouble in its early stage. It is necessary to do monthly routine work in order to effectively manage CCTV camera monitoring system, lighting equipment and paging address system which are installed outdoors.

Furthermore CCTV camera monitoring system and X-ray inspection system are precision electronic machines. It is necessary that engineers of relevant makers or their agents maintain and check the movement of machines and the fine tune pictures. Periodical replacement of the spare parts for other equipment is also necessary. Normal maintenance work and the frequency of replacement of parts are shown in table 2-4-1.

Pan/tilt unit parts, liquid crystal monitor of CCTV camera monitoring system and X-ray generator of X-ray inspection system should be overhauled and replaced every 4~5 years.

Table 2-4-1 Maintenance, Checkup & Overhauling Plan

Items of Maintenance/Checkup & Overhauling		1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year	Remarks
CCTV Camera Monitoring System	Yearly Maintenance	Cleaning of body, Checking operation of the system										
	Replacing of Hard Disk & Recorder etc.											every 3-4 years
	Replacing of pan/tilt unit parts of camera & liquid crystal monitor											every 5 years
PA System	Replacing of fuses											every 2 years
Lighting Equipment	Replacing of lamp											every year
X-ray Inspection Apparatus	Yearly Maintenance	Lead curtain, X-ray sensor, air-cool fan, fuse etc.										
	Replacing of X-ray generator											every 4-5 years
	Replacing of conveyor belt and roller											every 4 years
Walk Through Type Metal Detector												not necessary
UPS	Replacing of battery and air-cool fan				○							every 4 years
Emergency Power Generator	Replacing of air-element and oil filter etc.											every 2 years, refilling of lubricant oil & replacing of oil filter should be done every year.

2-5 Project Cost Estimation Plan

2-5-1 Initial Cost Estimation

(1) The amount to be borne by the GOI

The cost of the construction of new gates and new fences which will be undertaken by Indonesian side is about Rp.2242 million.

GOI should prepare electric power boxes in advance of the installation of the equipment. If the capacity of the existing electric power panels is not sufficient for necessary electric power of the equipment, it will be necessary to alter the existing panels or to install additional power boxes. In case of new additional installation of power panels, cost is estimated as Rp.78 million for Belawan Port (2 project sites) and Rp.39 million for other ports. It may also be necessary for ADPELs to provide electric power boxes and the cost is estimated as Rp.15.6 million per site or Rp.125 million (8 sites x Rp.15.6million) totally. If the existing electric power boxes can be used, those costs are not necessary.

There is no charge for opening a bank account based on Banking Arrangement (B/A). However it is necessary for GOI to pay a commission for notifying contractors at the issuance of Authorization to Pay (A/P) and commission for paying based on A/P to a bank. The total cost for the bank is roughly estimated as Rp.55 million.

The amount to be borne by the Indonesian side is roughly Rp.2773 million in all.

Furthermore DGST should prepare the budget equivalent to customs duty by the time of the equipment arriving at Tanjung Priok Port to enable the Japanese contractor to clear the customs procedure without customs tariff.

Table 2-5-1-2 Estimated Cost to be borne by the Indonesian side

(unit: Mil Rp)

Responsibility to bear the cost		Newly construction of fences and gates	Newly installation of electric power box	Commission for notifying B/A and paying based on A/P	Sub Total	Total
PELINDO I	Belawan	242	78	-	320	828
	Dumai	430	39	-	469	
	Tanjung Pinang	0	39	-	39	
PELINDO	Teluk Bayur	0	39	-	39	367
	Palembang	172	39	-	211	
	Pontianak	78	39	-	117	
PELINDO	Benoa	0	39	-	39	39
PELINDO	Makassar	1,320	39	-	1,359	1,359
DGST		0	125	55	180	180
Total		2,242	476	55	2,773	2,773

(2) Conditions of Cost Estimation

The main conditions of the cost estimation are as follows.

1. Date of estimation March 2008
2. Exchange rate
US\$ 1 = 118.27 Japanese Yen
1 Indonesian Rupia = 0.0128 Japanese Yen
3. Execution term of work: The period of the project is one fiscal year. The schedule of bidding and procurement is shown on the execution schedule.

2-5-2 Operation and Maintenance Cost

Operation and maintenance cost is based on the management maintenance plan. Those are (1) monthly routine maintenance work, (2) annual overhauling and adjusting work by engineers of maker side and (3) periodical replacement of parts of machines.

Monthly routine maintenance work can be done by local companies. With reference to the example of Tanjung Priok Port, annual maintenance cost is estimated as about 1% of the entity of the machines. The equipment which must be checked by maker's engineers is CCTV camera monitoring system and X-ray inspection system. Those costs are estimated as Rp.37-59 million a year including engineering fee (Table2-5-2-1).

Table2-5-2-1 Routine maintenance cost

(Unit: Mil Rp.)

Name of Port	Monthly Maintenance Cost	Maintenance Cost Once Every Year by Maker's Engineers		Annual Maintenance Cost (+)
		CCTV Camera Monitoring System	X-ray Inspection System	
Belawan (Container Terminal)	34	22		56
Belawan (Passenger Terminal)	15	22		37
Dumai	16	22	16	54
Tanjung Pinang	14	22		36
Teluk Bayur	23	22		45
Palembang	26	22		48
Pontianak	20	22		42
Benoa	21	22	16	59
Makassar	31	22		53
Total	200	198	32	430

Parts such as batteries, fuses and rollers must be periodically replaced for all equipment. Especially sealing materials of CCTV cameras should be replaced every 4 years (Rp.8 million/site) and parts of cameras and rotating mounts should be checked and replaced every 5 years (Rp.39 million/site). Conveyor roller of X-ray inspection system should be replaced every 4 years (Rp.23 million/unit) and x-ray generator should also be replaced every 5 years (Rp.55 million/unit). Extra budget must be prepared for this purpose. (The cost of replacing parts depends on equipment which a maker produces.)

Operational personnel is necessary for the operation of the monitoring room for CCTV camera monitoring system and the inspection work for X-ray inspection system and walk-through type metal detector on site. The former will be done 24 hours a day in turns by PELINDO and ADPEL staff. The required personnel can be obtained through rearrangement of work assignments and realignment of staff and security guards. The latter inspection works will be done by 3 persons consisting of staff and security guards. This inspection work is only conducted when passenger ships enter and depart. Required personnel can also be secured through the rearrangement of work assignments. Therefore the personnel assignment cost is not calculated here.

2-6 Other Relevant Issues

The project must be carried out based on PFSPs. Each port has already PFSP which was approved by DGST and registered with IMO. After the implementation of the project, the monitoring system will change from patrol and guard by security persons to the surveillance by CCTV camera. So the PFSPs must be modified smoothly as soon as possible after the installation of equipment.

Construction of new gates and fences should be completed before the installation work of the equipment will start.

Table 2-6-1 Appraisal Date of PFSP of Port

Name of Port	Appraisal Date of PFSP
Belawan	1 st Jan., 2005
Dumai	30 th May, 2005
Tanjung Pinang	30 th June, 2005
Teluk Bayur	30 th Nov., 2004
Palembang	12 th Nov., 2004
Pontianak	1 st Nov., 2004
Benoa	18 th July, 2007
Makassar	30 th May, 2005

Chapter 3 Project Evaluation and Recommendations

Chapter3 Project Evaluation and Recommendations

3-1 Project Effect

The performance of the project will bring the improvement of the monitoring system and the inspection way which are deemed to be insufficient in the current situation. Specifically, the surveillance of unauthorized intruders will be conducted a whole day by using CCTV camera. And all baggage and personal possessions will be checked by X-ray inspection system and walk-through type metal detector at passenger terminal buildings.

This improvement will bring the stable growth of the international trade and personal exchange through ports in Indonesia, as there will become no fear and anxiety that the foreign ships try to avoid to call at 8 target ports due to the fear of terrorism attacks.

Table 3-1-1 Effect by the Project

Current situation and problems	Countermeasures of the project	Direct effect	Indirect effect
1. Round patrol every 2-3 hours by patrol cars and motorcycles. It is insufficient to keep watch on suspicious intruders.	Installation of CCTV camera monitoring system	Constant monitoring a whole day at monitoring room	Stable growth of economic activity in the hinterland of each port
2. A few baggage and personal possessions are checked selectively by security guard. It is insufficient to inspect passengers' belongings.	Installation of X-ray inspection system and walk-through type metal detector	Inspection of all baggage and personal possessions by the equipment	Shortening of inspection time

3-2 Recommendations

In order to utilize the equipment effectively, the equipment should be entrusted promptly to PELINDO I to IV and the new security system should be established smoothly. Necessary number of staff should be assigned and the training for the security staff should be also done continuously. Furthermore the maintenance budget should be secured every year to keep the equipment in a good condition. These actions will lead to the enhancement of the security system.

As for staff training, it is necessary to establish the system about how to inform to relevant institutions and how to take the first action in an emergency. Port Security Management Strengthen Project is presently in progress by Japanese technical cooperation. So it is expected that the equipment procured by the project will be used for the training program of the technical cooperation. And ASEAN countries sometimes carry out the joint training program and seminar related to the enhancement of port security system. It is also expected to utilize the equipment in close coordination with ASEAN countries.