Table 7-8-15 Socio-Environmental Impact Matrix (During Construction Phase, 1/2)

Item	Socio-Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
1	**Human Use Values**					
1.1	Land Use					
	- Current land use such as paddy field, forestry, local people's residential area will be converted to the new land use such as hi-tech industrial area, business area, new town area, etc.	√			- Compensation and resettlement should be conducted for land, properties, crops, inhabitants currently living in the area in compliance with relevant laws and regulations.	
	- Owing to a relatively large number of worker's families, effects on land use in both rural and urban areas would be considerable.		√		- Workers communities should be established and development should be controlled so that it is strictly within the land use development framework and regulations of local authorities concerned.	
1.2	Agriculture					
	- Fugitive dust created from construction activities may cause low impacts on crops.		√		- Control the fugitive dust emission by spraying water.	
	- Disposal of soil excavated from the construction site may affect agricultural land.		√		- Use idle land as soil disposal site.	
1.3	Transportation					
	- Heavier volume of traffic may cause damages to the roads resulting in inconvenience to residents.		√		- The access road must be well maintained. Pavement of the access road must be considered.	
	- Sharp increase in traffic volume would give rise to more potential of accidents		√		- Warning signs and stop signs must be put up to warn drivers and motorists at every junction. - Truck drivers must be instructed to drive within speed limit.	

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

Table 7-8-16 Socio-Environmental Impact Matrix (During Construction Phase, 2/2)

Item	Socio-Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
2	**Quality of Life Values**					
2.1	Socio-Economics					
	- There will be a lot of people who move to live and work in the area. A large number of people living together may cause the following problems: 1. Crowded and disorderly living space. 2. Disputes and crimes. 3. Overuse of existing infrastructure. 4. Abuse of child and woman labor.		√		- Housing unit must be properly planned to avoid slum problems. - Proper sanitary systems including water supply, waste treatment and health care must be provided to prevent poor quality life. - Improve the access roads, schools, hospitals, health centers and some public infrastructures.	
2.2	Public Health					
	- Construction activities will create mostly dust which will settle on floor, roof, things or even food. Some respiratory related and gastrointestinal diseases may spread.		√		- Provision of medical services at the site should be implemented for primary care to give prompt treatment and to minimize sick leave.	
2.3	Archeaology and Historical Values					
	- There will be more laborers migrating into the area. The migrators may introduce some new culture into the area.			√	- No ancient places and objects near the site therefore no mitigative measure is required.	
2.4	Aesthetics and Tourism					
	- Some water areas may be dirty or damaged due to invasion of construction workers. This will affect local tourism.		√		- An access to the lakeshore must be provided for local tourists with a proper safety measure.	

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

Table 7-8-17 Socio-Environmental Impact Matrix (During Operation Phase , 1/2)

Item	Socio-Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
1	**Human Use Values**					
1.1	Land Use					
	- Land use and housing development attributed construction workers will slow down. Some portions of the growth will remain to serve the personnel at the factory.			√		
1.2	Agriculture					
	- Gaseous and fly ash emission of the hi-tech industry will affect economic crops since some of them may be toxic to plant biological activity.	√			- Inspection of the suspected factories and strict application of regulation and standards should be practiced.	- Quality and quantity of pollutants such as heavy metals in trees and soil adjecent to the plant should be monitored.
1.3	Transportation					
	- Traffic on the access road leading to the site will be delayed due to more congestion particularly during the peak hours.			√		
	- Traffic accidents will be increased.			√	- Installation of adequate lighting system and warning light is recommended.	
2	**Quality of Life Values**					
2.1	Socio-Economics.					
	- The hi-tech park will benefit the residents in two aspects i.e. increase of land price and more employment opportunities.		√		- Priority for employment in the factory/office must be given to local people.	
	- A lot of people migrating to settle in the area may cause many problems i.e. crimes, disputes, crowded areas, abuse of child and woman, etc.		√		- Public relation programs must be set up to inform local people of HHTP activities. - Co-ordinate with the community committee.	

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

Table 7-8-18 Socio-Environmental Impact Matrix (During Operation Phase , 2/2)

Item	Socio-Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
2.2	Public Health					
	- Air emissions from the hi-tech industry are mainly SO_2 , NO_x TSP and other gaseous substances. Prolonged and chronic exposure to these air pollutants may be harmful to human respiratory system.	√			- Inspection of the suspected factories and strict application of regulation and standards should be practiced. - A medical center must be set up in the area to provide primary medical care and basic nursing care services. - Blood level of certain heavy metals must be assessed for those who work in the areas of excessive exposure.	
2.3	Archaeology and Historical Values.					
	- Rural society will change to more consumer and materialistic urban society.			√		
	- The way of living will change from the accustomed simple and peaceful rural society to more complicated, rushing, noisy and crowded conditions.			√		
2.4	Aesthetics and Tourism					
	- More tourists will be expected and this will result in many types of extended local industries for local people.			√	- An access road must be improved and maintained in good conditions. Signs must be provided to indicate restricted areas.	
	- There will be more entertaining places to serve plant's staff.			√	- Some donation to communities should be made by the HHTP.	

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

Table 7-8-19 Environmental Problems in High-Tech Industry

Hi-Tech Industrial Category	Environmental Problem	Major Possible Pollutants
Information Technology	• Organic solvents are used for degreasing and cleaning of electronic parts and electrical equipment.	1.1.1-trichloroethane, trichloroethylene, etc.
Electronics	• Many kinds of hazardous and toxic chemical substances are used in IC industry. • Special material gases for formation of thin film and organic solvent for etching and cleaning are used.	1.1.1-trichloroethane, trichloroethylene, tetrachloroethylene, carbon tetrachloride, acetone, xylene, CFCs, arsine, phosphine, monosilane, diborane, etc.
Mechatronics	• Organic solvents are used for degreasing and cleaning of electronic parts and electrical equipment.	1.1.1-trichloroethane, trichloroethylene, xylene, fleon-113, etc.
New materials	• Alloys of various kinds Not so different from conventional alloy industry in general except for the partial use of organic solvents in degreasing process • Fineceramics Fine powder, solvents and special material gases are used in the process of manufacturings, formation and synthesis. Part of organo-chloric solvents vaporize in the process of drying and sintering. • Photosensitivity polymer Many kinds of organic solvents are used. • Composite material There are no significant environmental problems in manufacturing process. However attention should be paid in the process of incineration and crushing of waste.	tetrachloroethylene, benzene, silicon carbide(powder), hydrogen selenide, 1.4-dioxane, acrylic amide, acrylonitrile, etc.
New Energy	• Energy conversion Large amounts of new materials such as silicon are used for the manufacturing of solar battery. • Energy storage Heavy metals such as Cadmium, Nickel, etc. are used for the manufacturing of fuel cell and advanced storage battery. Rare earth metals are used for the manufacturing of hydrogen absorbing alloys.	silicon, sealing compounds, binding agents, rare earth metals, Cd, Ni, etc.
Biotechnology	• Many kinds of chemicals are used for disinfection and sterilization of biological materials and equipment. Organic solvents are used for separation and refining of useful materials.	formaldehyde, benzene, 1,1,1-trichloroethane, acetonitrile, chloroform, etc.

Remark: Above table summarizes general environmental problems and noteworthy chemicals used in Hi-tech industry processes.

Table 7-8-20 Comparison of Environment Related Issues between Traditional Industry and High-Tech Industry

Item	Traditional Industry	Hi-Tech Industry
Business Conditions/Location	Uniform and mass production/Coastal zone concentrated	Wide variety and small quantity production
Discharge Substances	Regulated substances and/or substances those data and information on the environmental impacts are widely known, e.g. heavy metals, SOx, NOx, organic pollutants, etc.	Wide variety and small quantity unregulated substances. New and small quantity substances. Substances for which data and information on the environmental impacts are unknown or lacking (inclusive of organism).
Production Conditions	Products and production processes are nearly fixed.	Products and production processes change rapidly.
Information on Used materials	Rules to grasp the actual conditions of discharge of pollutants are established.	Considerable part of manufacturing processes applied or wastes generated are not to be made public generally.
Wastes	Can cope with waste disposal using existing treatment methods.	There is a possibility to generate toxic containing substance, fire-resistant substance, substance which is difficult to crush and/or incinerate, etc.
Characteristics of Environmental Conservation Measures	In principle, to prevent recurrence of the environmental pollution by applying regulations and other measures taking into account the past experience.	In principle, to evaluate the possibility of pollution taking into account the scientific information and to adopt the preventive measures in accordance with the characteristics of hi-tech industry.

Table 7-8-21 Environmental Impact Matrix (During Construction Phase)

Item	Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
1	**Physical Resource**					
1.1	Air Quality					
	- The major construction activity will naturally generate fugitive dust which affect local air quality.		√		- Control of fugitive dust emission by spraying with water.	- Check ambient air quality.
	- Traffic around the site is another source of fugitive dust, especially traffic on unpaved roads around the site.		√		- Vehicle speed limit and water spraying on roads is required.	
1.2	Surface Water Quality					
	- Sediments and soil erosion from construction activities will be the major pollutants which will increase turbidity in lake water.		√		- Proper construction techniques must be employed to prevent sediment or soil erosion into surface water.	- Check surface water quality.
	- Domestic wastewater from construction workers and staff, if not properly treated , will contaminate ground water or surface water.		√		- A conventional wastewater treatment system must be constructed to handle all wastewater from construction activities.	
1.3	Groundwater Hydrology and Quality					
	- Effluent from cesspools of construction workers camps, when seeping into the ground, would bacterial contaminate the aquifer and groundwater locally. This can be serious if the cesspool is near the domestic water wells.		√		- Cesspools and solid waste collection areas must be located for apart from groundwater sources to prevent contamination of leachate.	
1.4	Soils					
	- A large amount of soil will be excavated from the site during the site preparation for construction.		√		- Cut and fill operation is recommended.	
2	**Biological Resource**					
2.1	Aquatic Ecology and Fisheries					
	- The input of sediments and untreated effluent into the lake will stimulate the growth of certain aquatic species. This situation may lead to the increasing of the eutrophication in the aquatic environment.		√		- The mitigative measures specified for surface water quality must be taken into consideration since any effects on water quality will also affect aquatic life.	

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

Table 7-8-22 Environmental Impact Matrix (During Operation Phase, 1/2)

Item	Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
1	**Physical Resource**					
1.1	Air Quality					
	- Stack emission gas from the hi-tech industry, and other equipment are the main source of particulate and gaseous emissions and expected to have impact to ambient air quality. The impact of air quality on human health and environment are caused preliminary by air pollutants, namely vaporized toxic substances, SO_2, NO_x and TSP. - VOCs contribute to air pollution directly or through chemical or photochemical reactions to produce secondary air pollutants if they are emitted into the air as untreated.		√		- The adverse effects can be minimized by using relatively clean fuels, good engineering practices, proper stack height and state-of-the-art pollution control systems such as Electrostatic Precipitator (EP), Flue Gas Desulfurization (FGD), Low NOx Burner, etc.	- Emission and ambient air quality monitoring programs must be established to ensure efficiency of the control system.
1.2	Surface Water Quality					
	- Wastewaters from device and equipment cleaning, cooling, dust collecting, and other process from the hi-tech industry are expected to contain several pollutants such as organic solvents, heavy metals, acidic & alkaline waste, oily discharge, and suspended solids. It can adversely affect quality of receiving water stream.	√			- Each factory should pre-treat the wastewater before discharging to the central facility. Then, the pre-treated wastewater should be treated in the central treatment facility. - Minimizing a generation of wastewater by adopting water saving technique such as recycling and reuse of wastewater.	- Treated effluent from central treatment facility should be monitored to check the compositions before discharging to receiving water system.
1.3	Groundwater Hydrology and Quality					
	- The impacts on groundwater quality are from contamination by leachate from chemical storage, oil spills, process wastewater, and ash dumping. This leachate may contain toxic organic solvents, heavy metals and high suspended solids which might contaminate the shallow aquifer.	√			- The wastewater treatment plant units, ash dumping areas, etc. with possible seepage and leakage to contaminate groundwater sources, must be lined with cement or other proper lining materials.	- The observation wells should be constructed to monitor the effects.

[1] *Level of Impact : MA = Major impact, ME = Medium impact, NP = Minor impact*

Table 7-8-23 Environmental Impact Matrix (During Operation Phase, 2/2)

Item	Environmental Impact	Level of Impact [1]			Preventive Measures	Monitoring Plan
		MA	ME	MI		
1.4	Soils					
	- Gaseous emission and fly ash from the hi-tech equipment, if present in considerable amount, may fall on the ground and can change soil property and quality.	√			- Adequate air pollution control systems such as scrubber, EP, FGD, Low NOx burner, etc. should be adopted at each source.	
	- Soil may receive acid rain attributed by SO_2 and NO_2, if present with considerable amount, released from the hi-tech equipment and other industrial plants.	√			- Adequate air pollution control systems such as scrubber, EP, FGD, Low NOx burner, etc. should be adopted at each source.	
	- The leakage and seepage containing organic solvents, heavy metals and other toxic substances from the wastewater treatment plant, waste storage area, may pollute groundwater aquifer	√			- Covering the floor of wastewater treatment plant, chemical storage tank, coal storage yard with cement or other lining materials is recommended.	
2	**Biological Resources**					
2.1	Aquatic Ecology.					
	- The leakage of chemicals, oil and suspended matter from hi-tech industry may cause visual pollution to the lake. The leakage of toxic substances may cause serious effects to lake organisms and also nearby environment. - Impacts of water pollution may cause some problems to fishes and economic species.	√			- The wastewater treatment facility for toxic/hazardous substance should be provided at each source.	- Monitoring of water quality should be executed with regard to both the effluent water and the receiving environment.

[1] *Level of Impact : MA = Major impact, ME = Medium impact, MI = Minor impact*

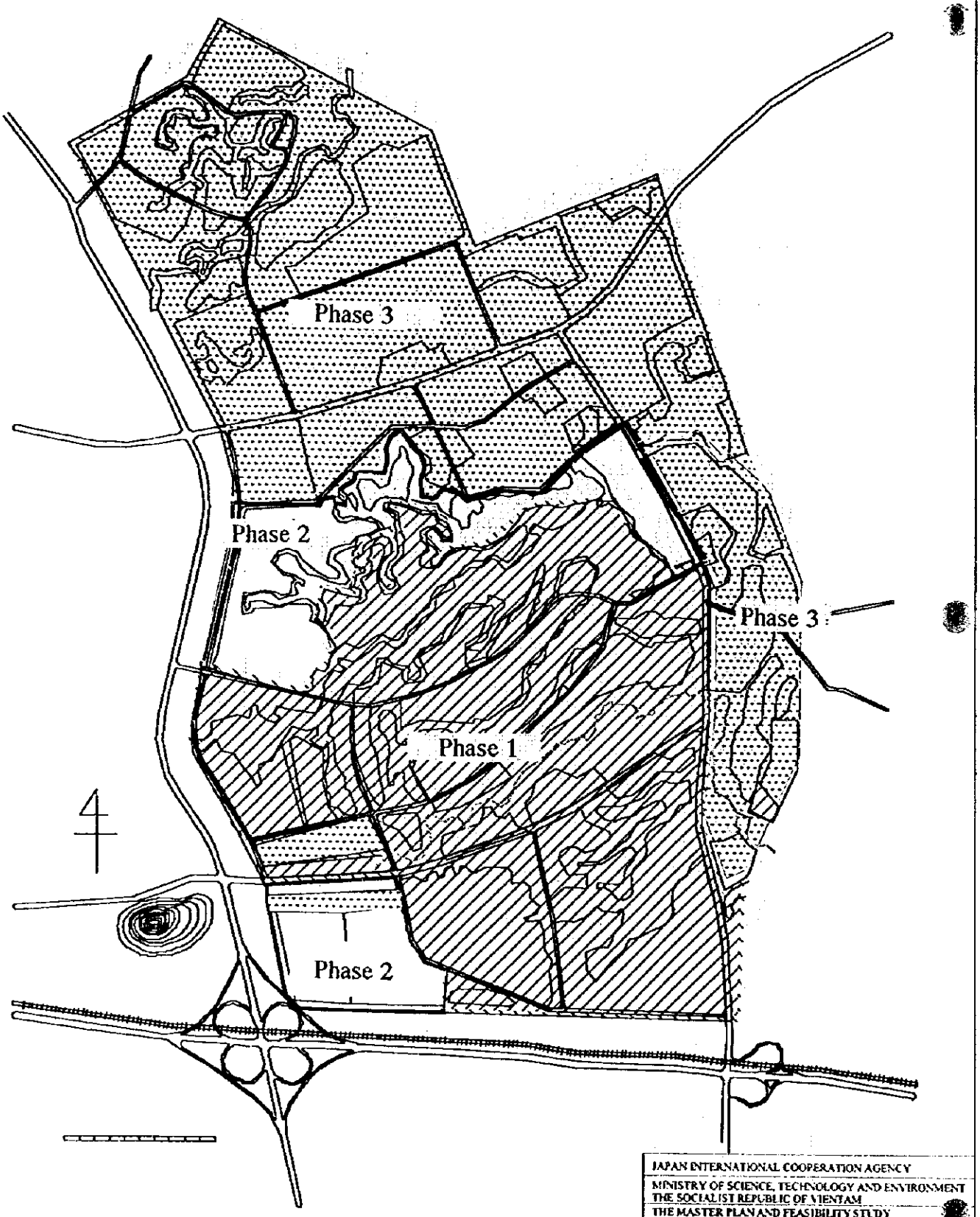

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Figure 7-1-1 Development Phasing of HHTP

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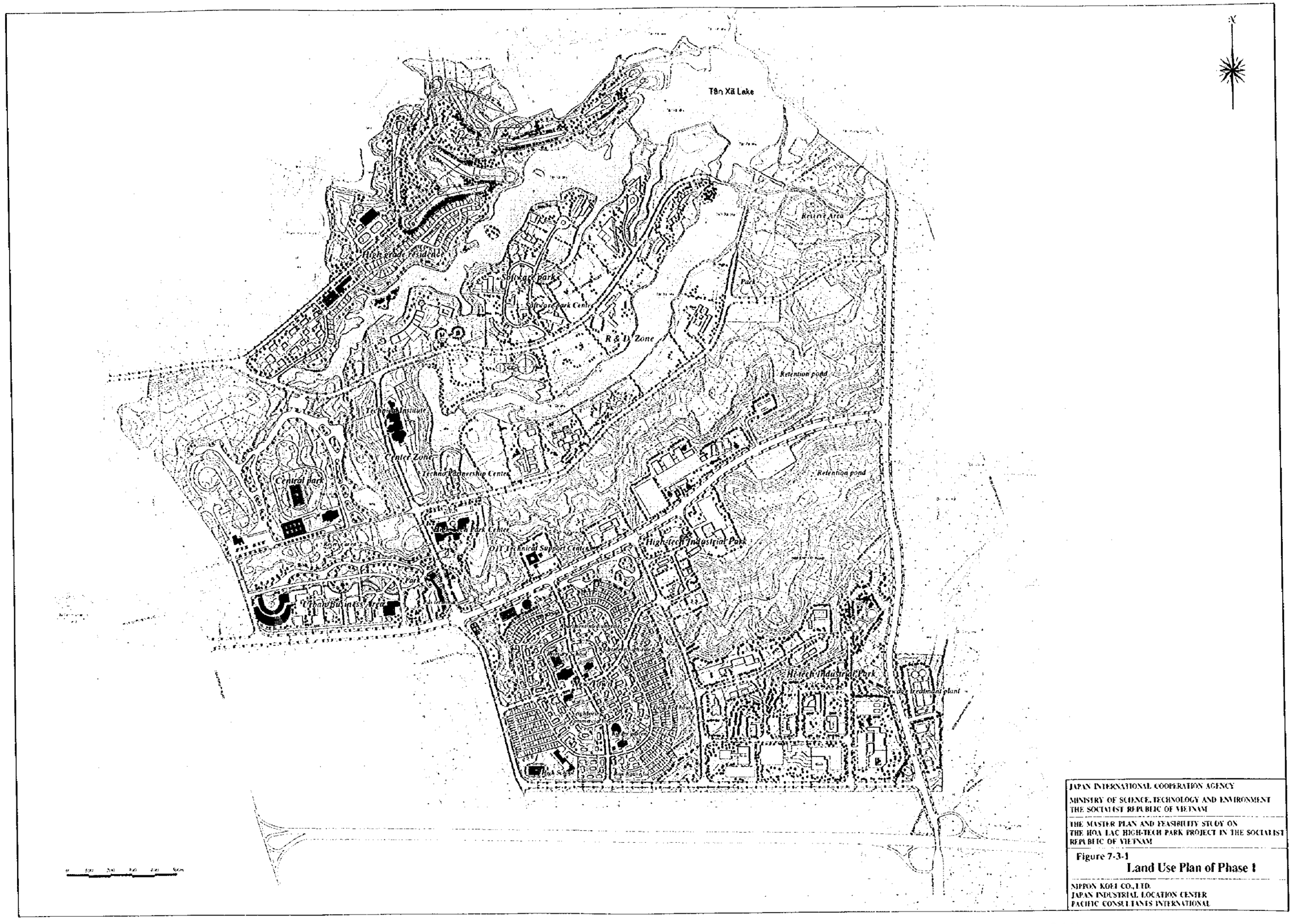

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Figure 7-3-1
Land Use Plan of Phase I

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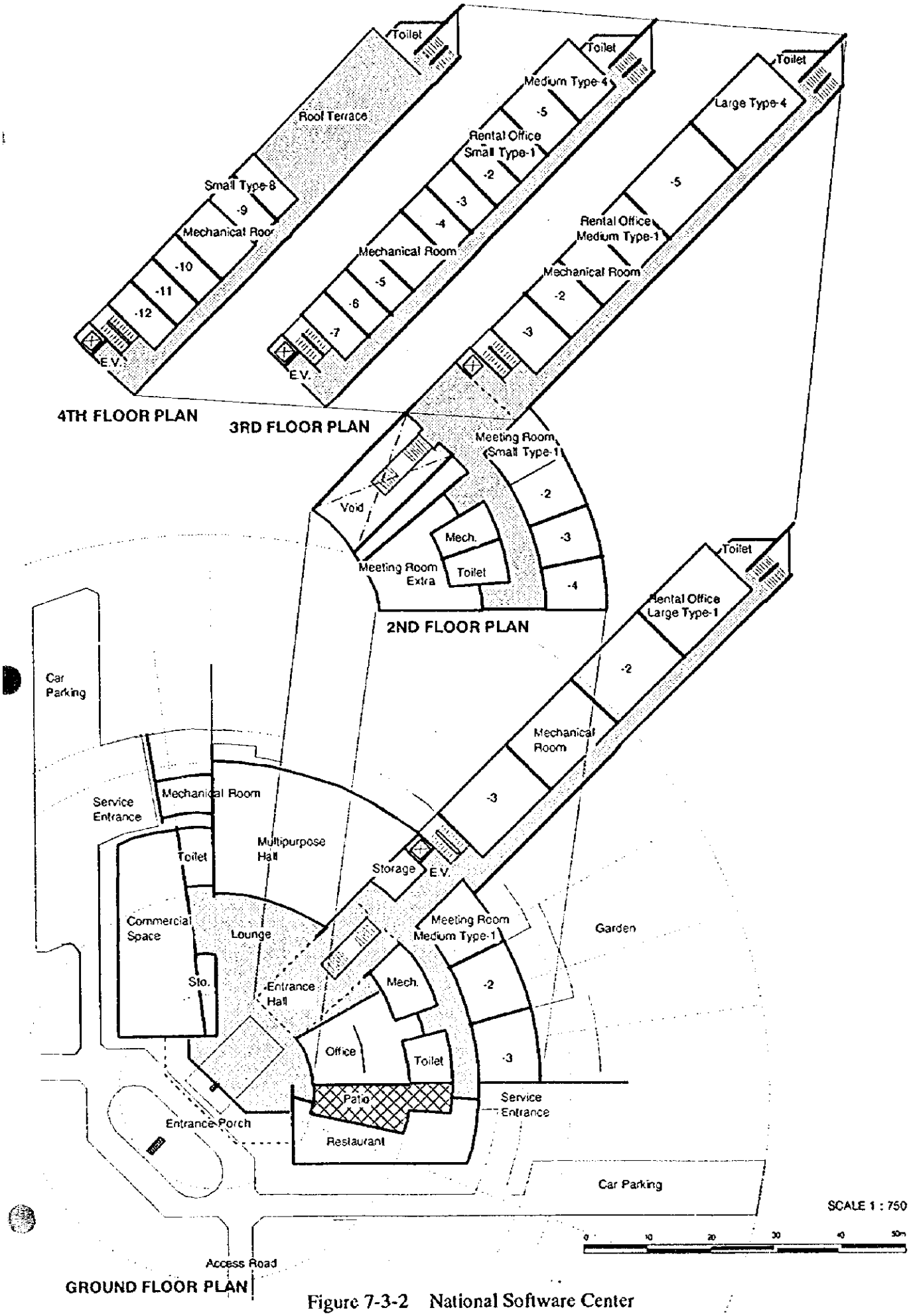

Figure 7-3-2 National Software Center

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Figure 7-3-3 **Bus Service Plan**

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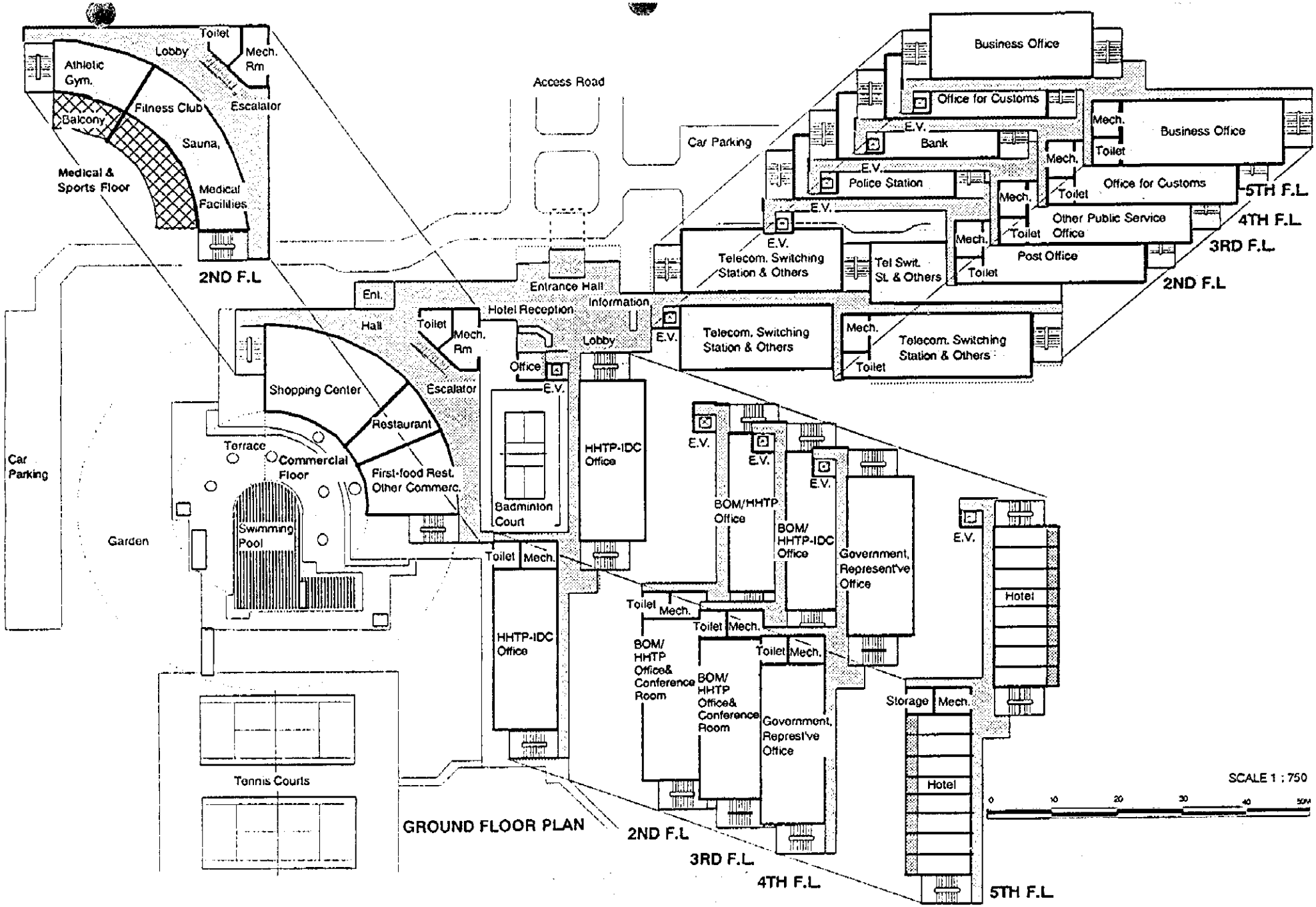

Figure 7-4-1 High-Tech Park Center

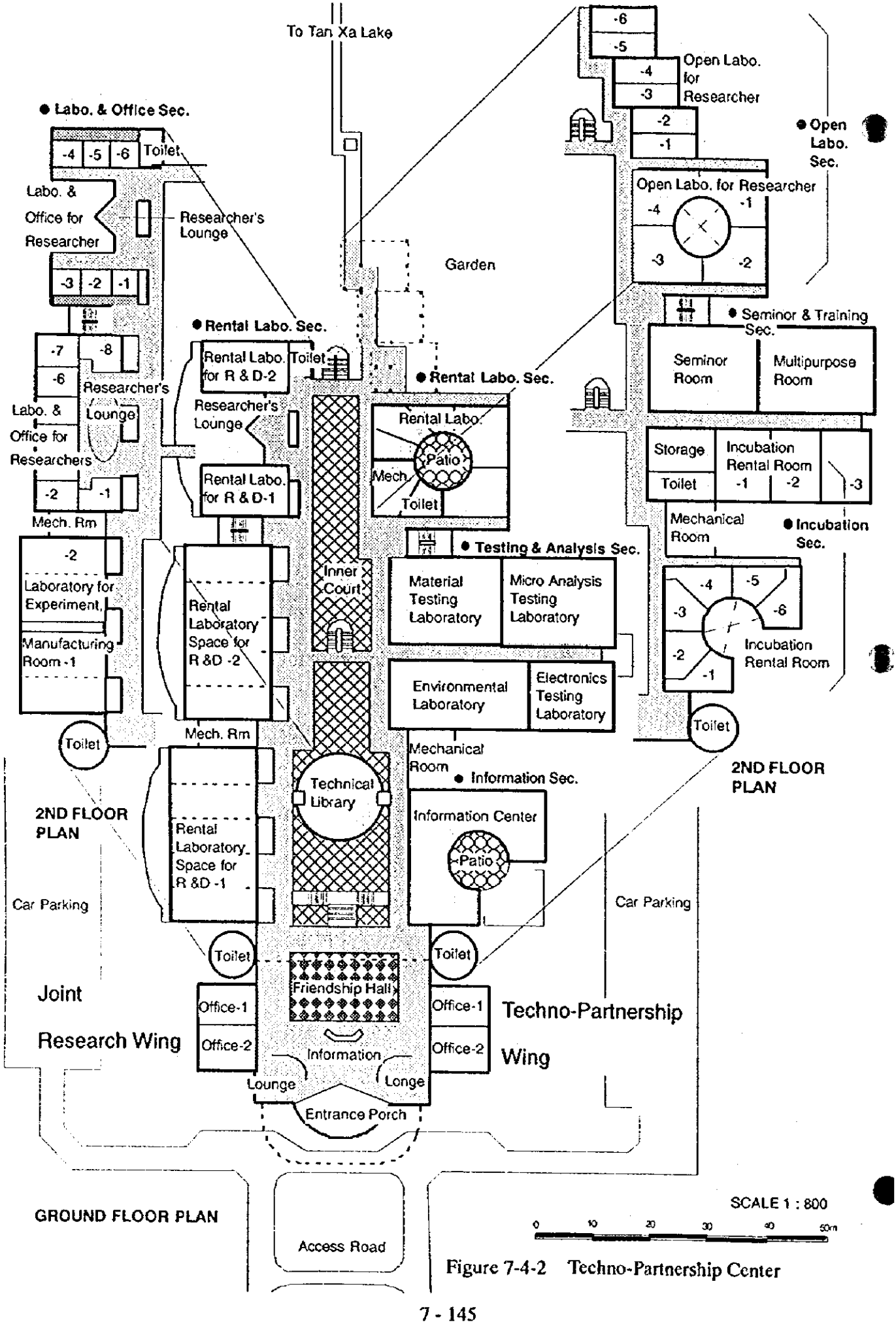

Figure 7-4-2 Techno-Partnership Center

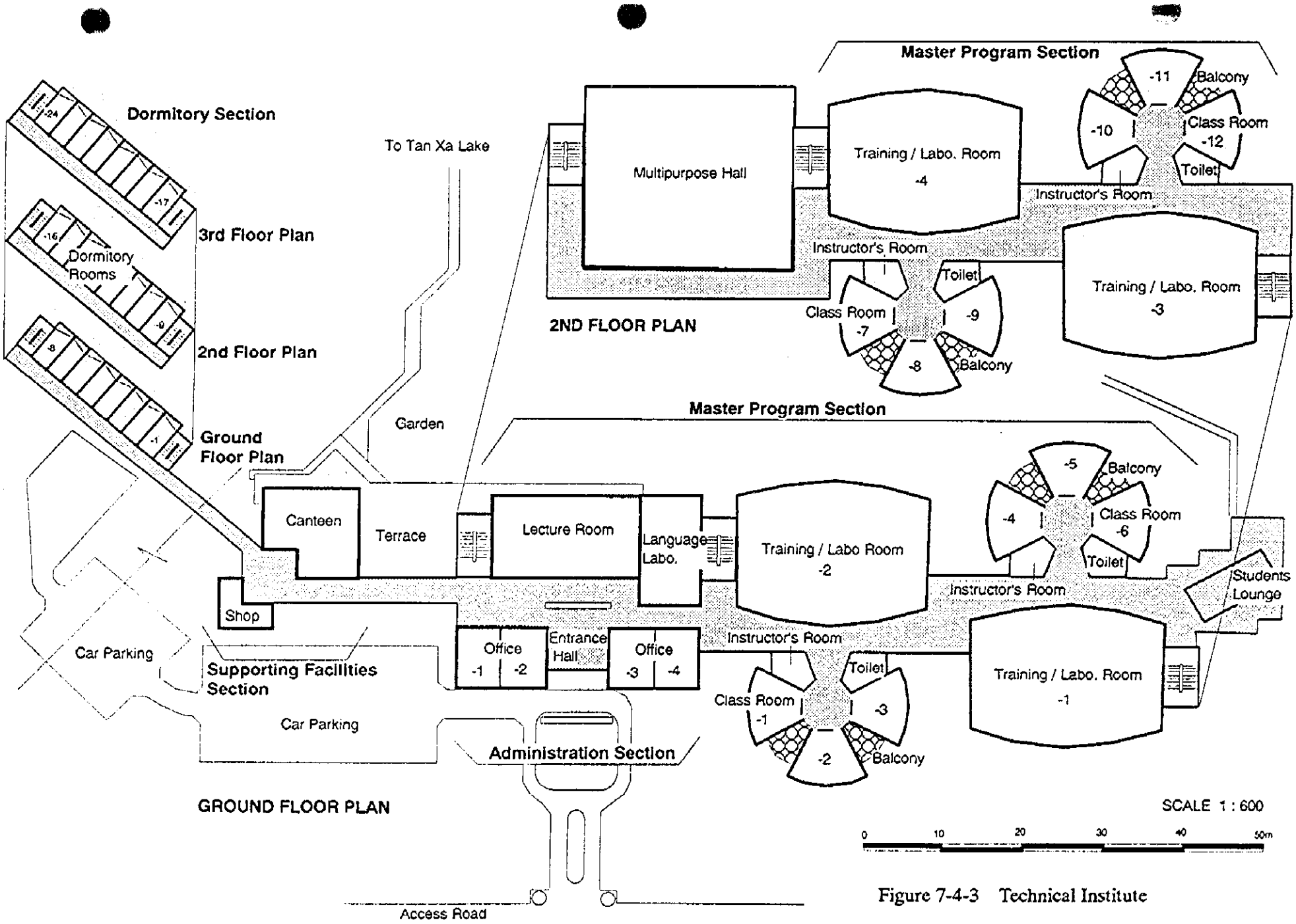

Figure 7-4-3 Technical Institute

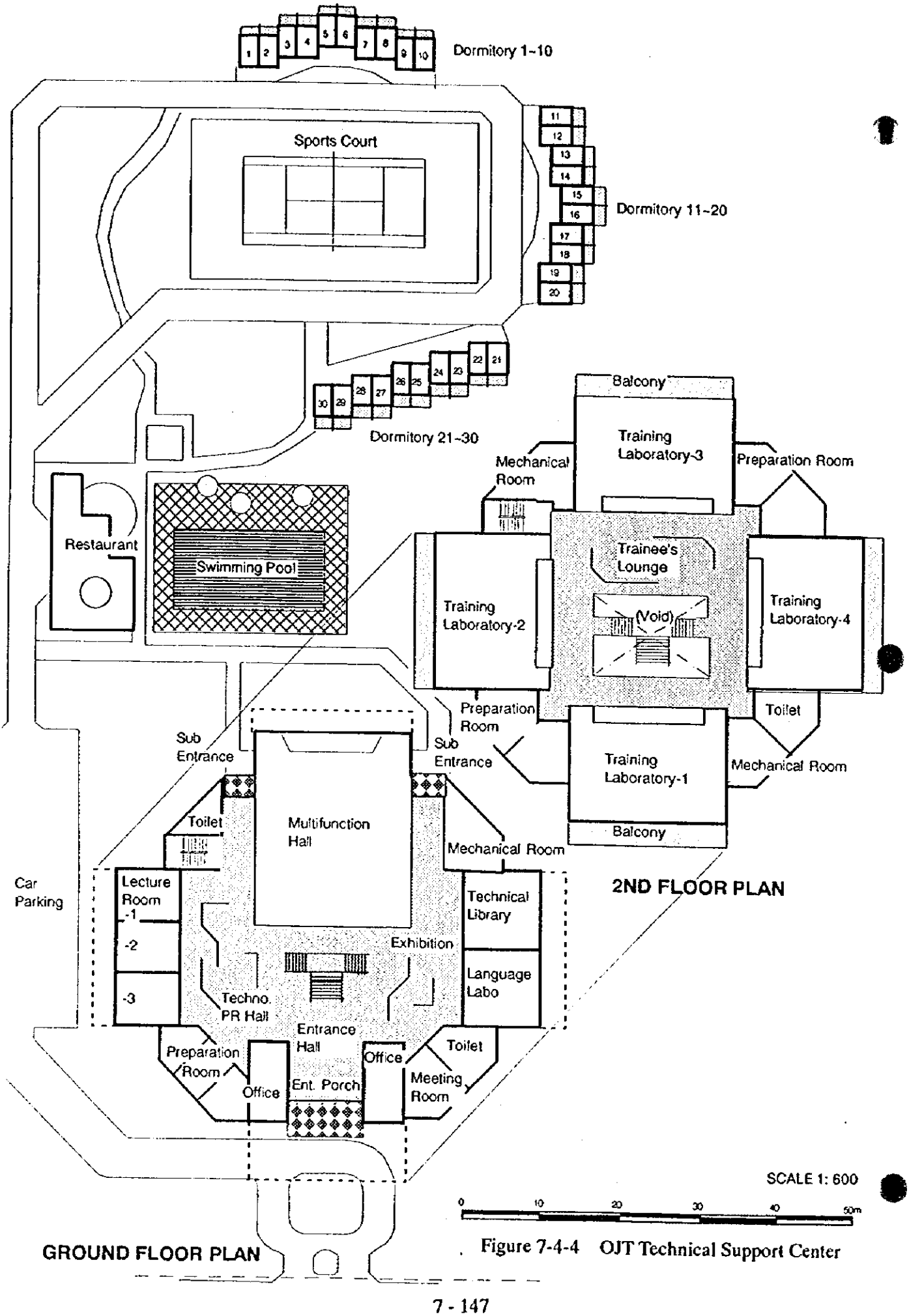

Figure 7-4-4 OJT Technical Support Center

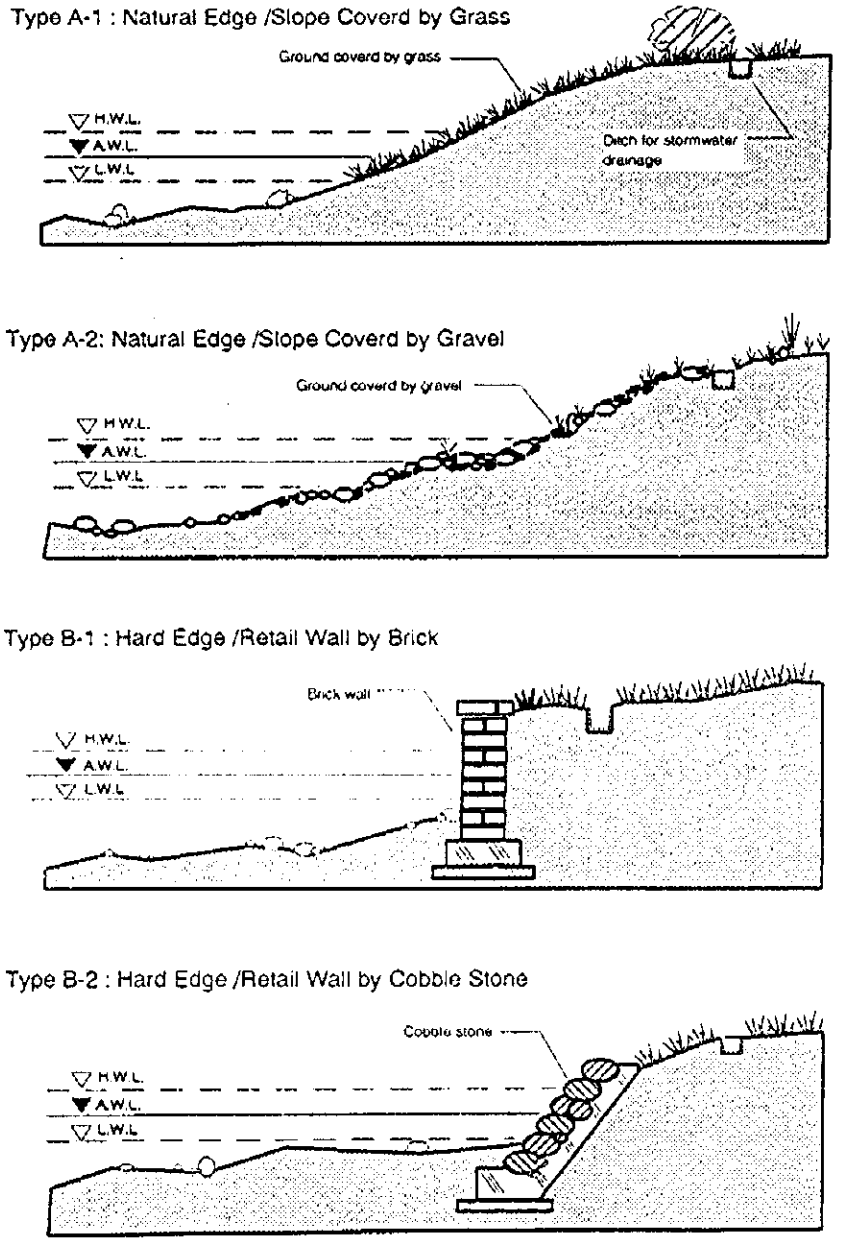

Figure 7-5-1 Types of Bank Protection

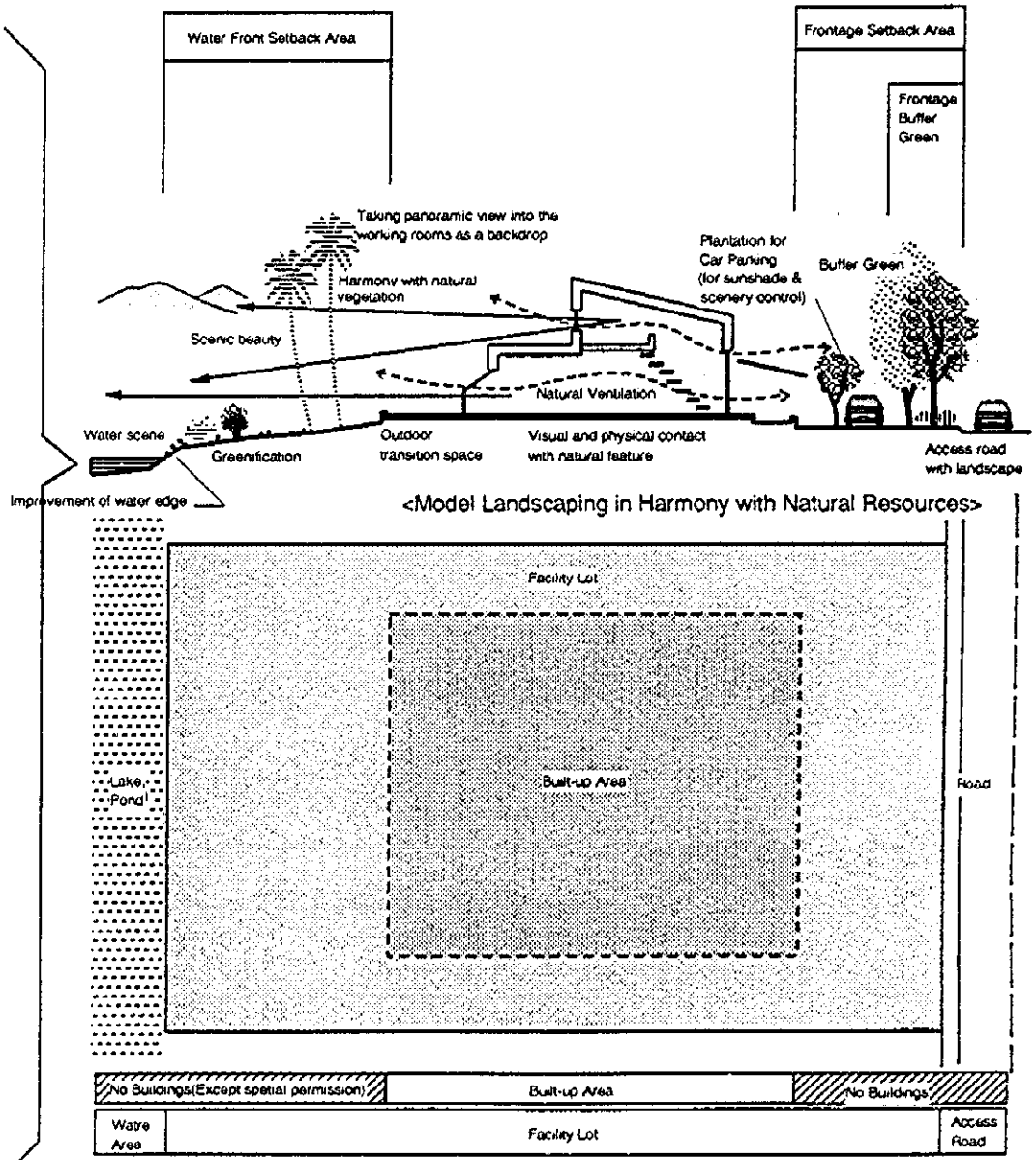

Figure 7-5-2 Relationship of Landscape and Environmental Control


Ha Bong commune
1245
WIDE EARTHEN ROAD
Ha Bong commune
Thach Hoa commune
1029
WIDE EARTHEN ROAD
lake
Go Giang lake
RIVER SURFACE ROAD
WIDE EARTHEN ROAD
WIDE EARTHEN ROAD
WIDE EARTHEN ROAD
N
0 10 20 30 40 50m
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Figure 7-6-1
Land Groding Plan of Phase 1
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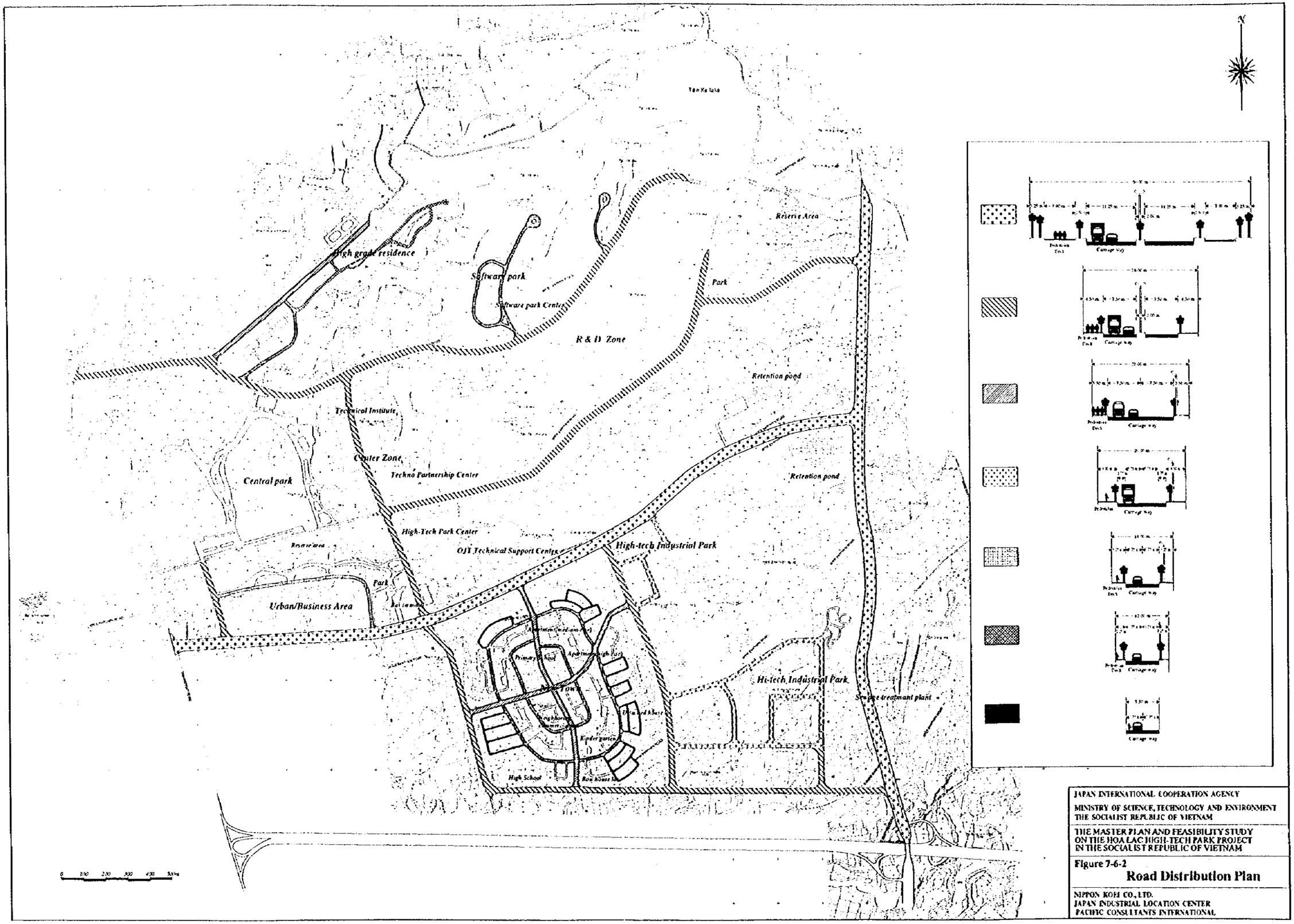

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Figure 7-6-2
Road Distribution Plan

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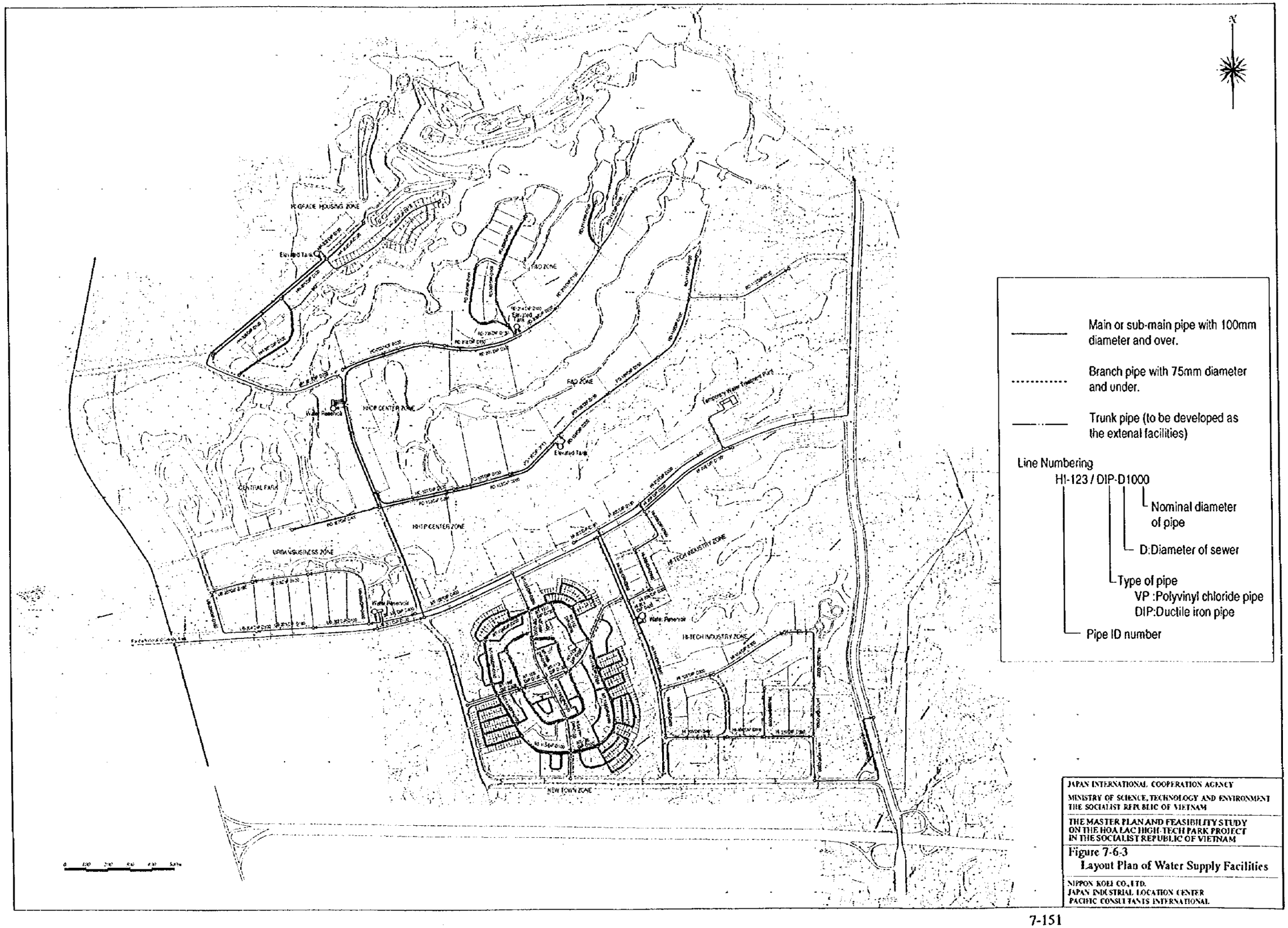

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Figure 7-6-3
Layout Plan of Water Supply Facilities

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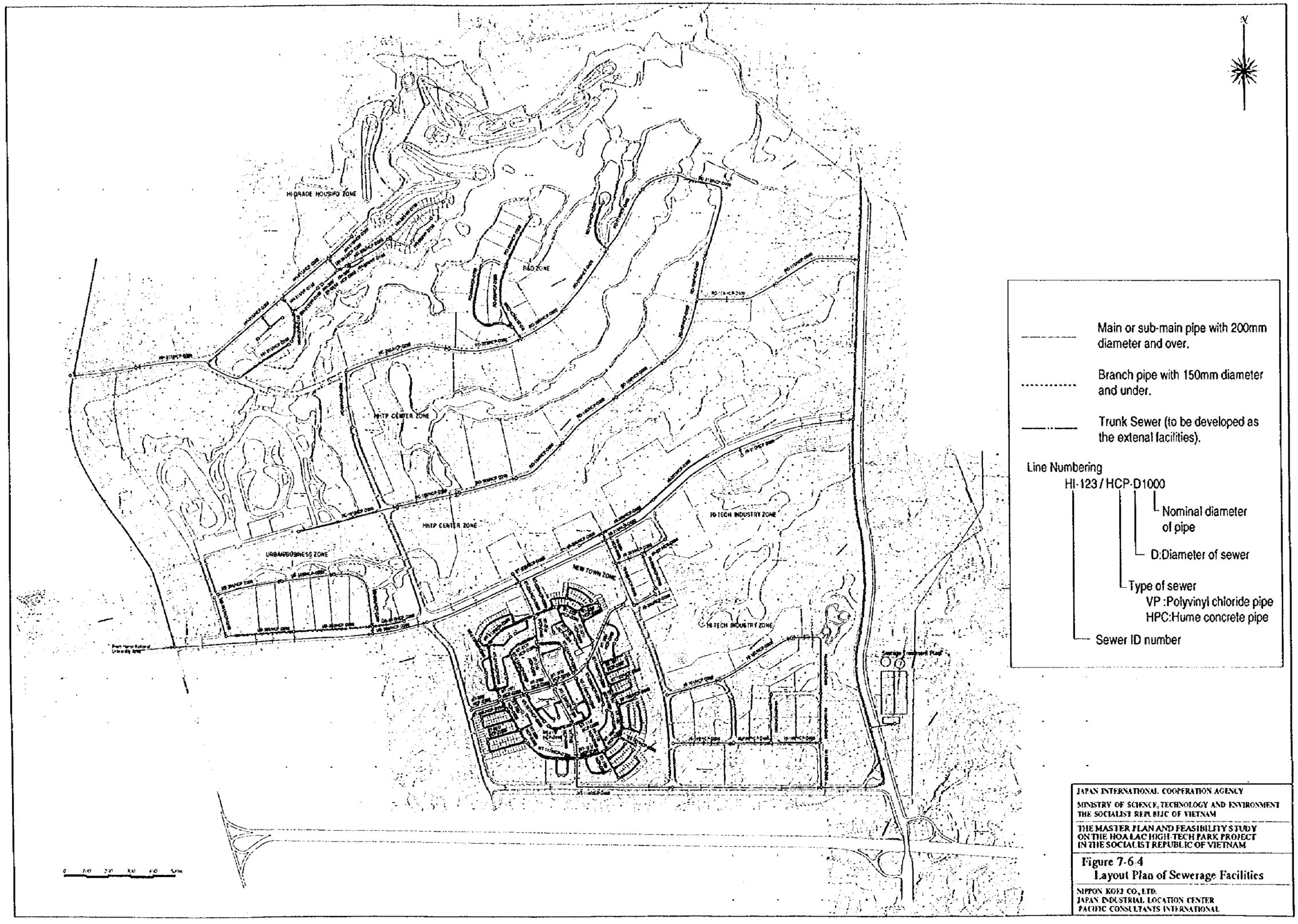

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Figure 7-6-4
Layout Plan of Sewerage Facilities

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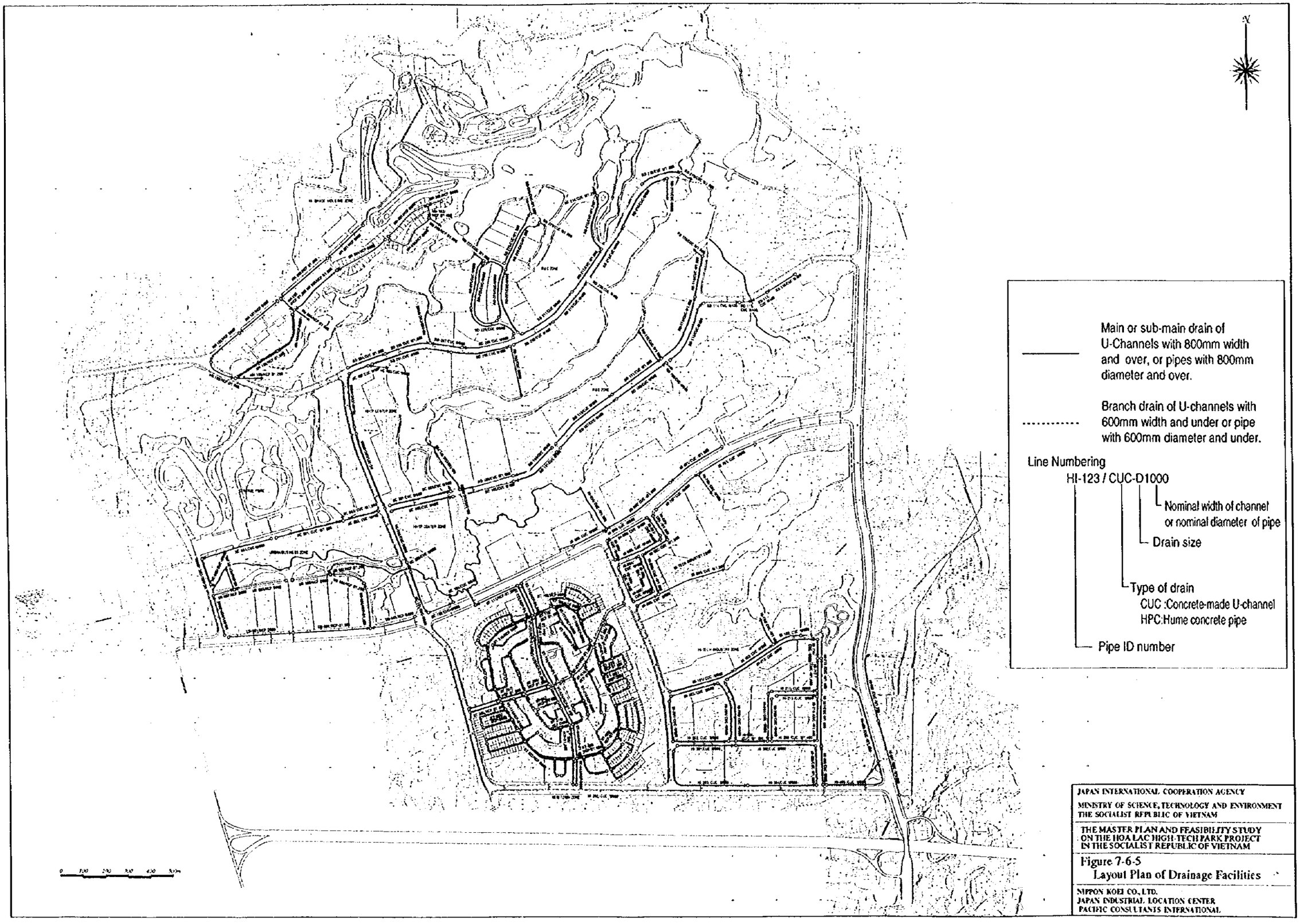

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Figure 7-6-5
Layout Plan of Drainage Facilities

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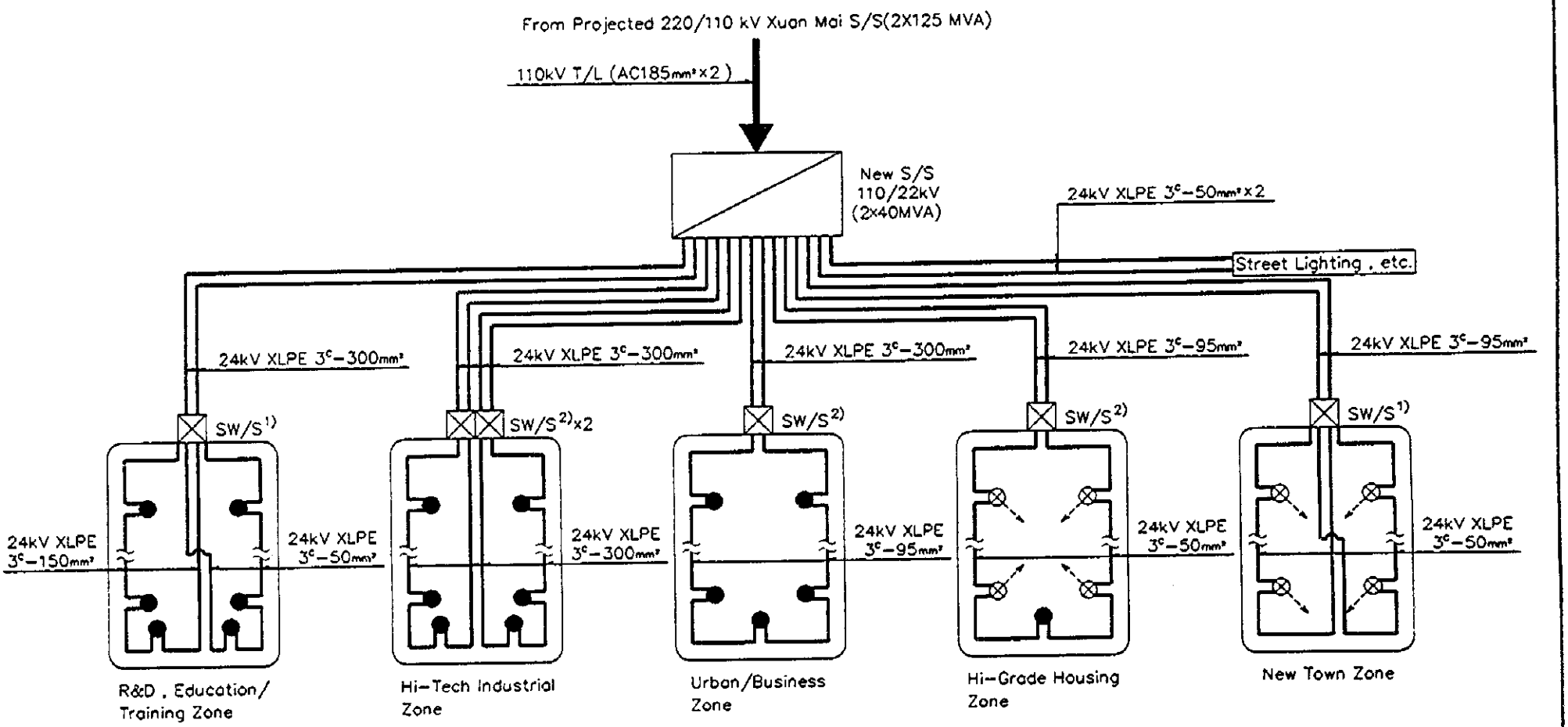

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Figure 7-6-6 Schematic Diagram of Power Supply System

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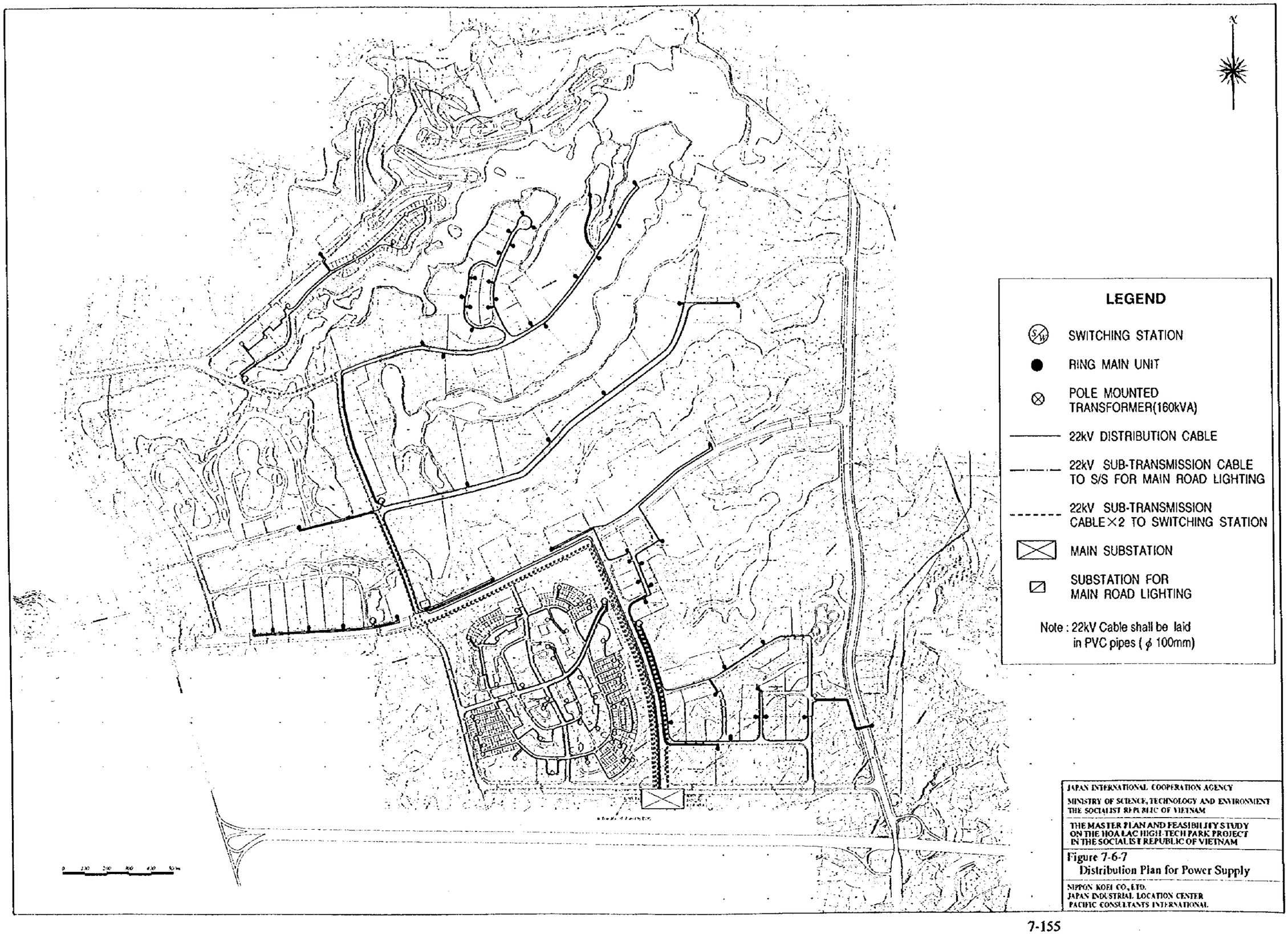

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Figure 7-6-7
Distribution Plan for Power Supply

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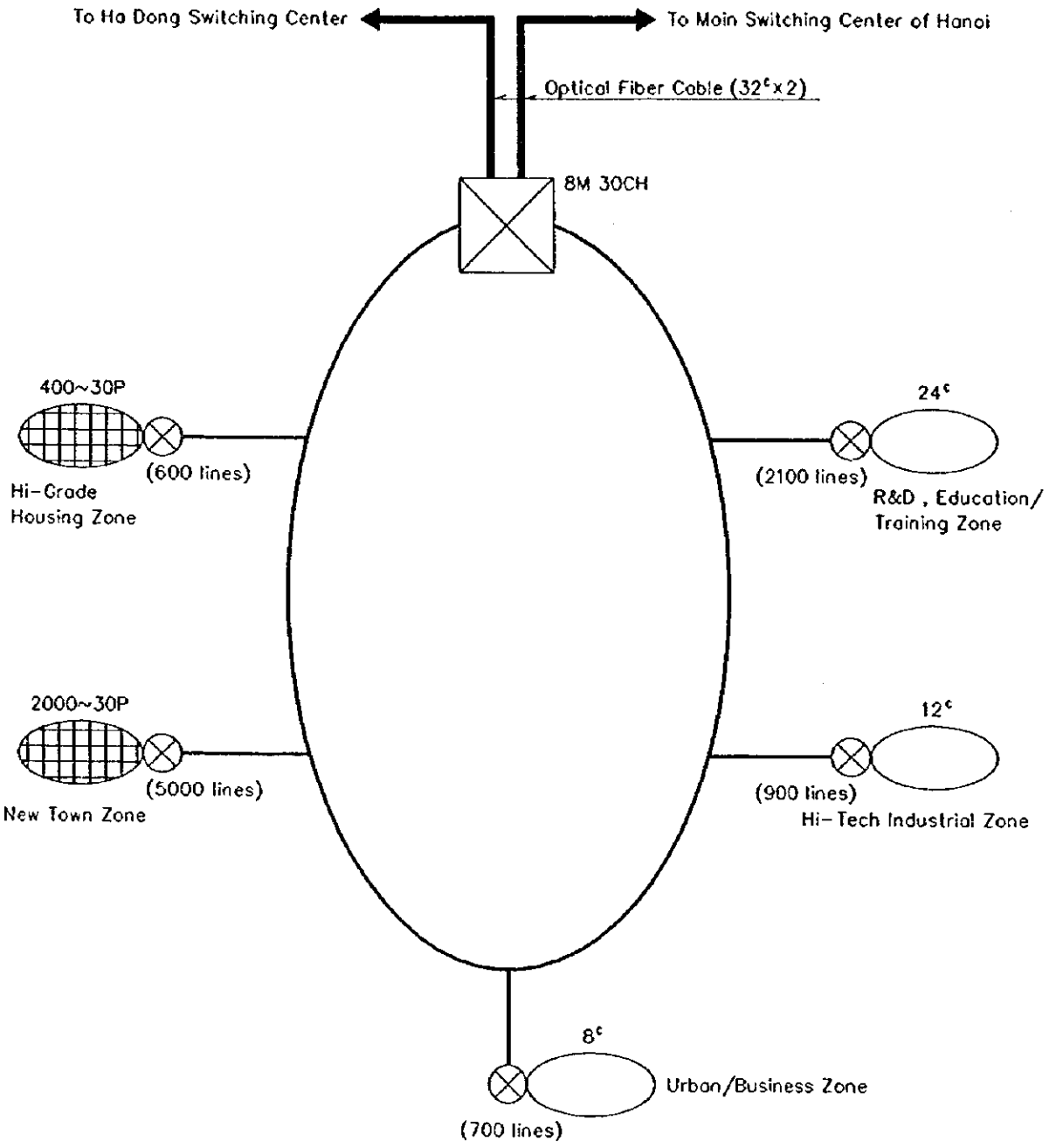

Legend

- ⊠ : HHTP Switching Center
- ⊗ : Remote Terminal
- ⬭ : Optical Fiber Distribution Network
- ▭ : Copper Cable Distribution Network
- — : Local Loop Network of Optical Fiber Cable(12^c)

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Figure 7-6-8 Schematic Diagram of Telecommunication System
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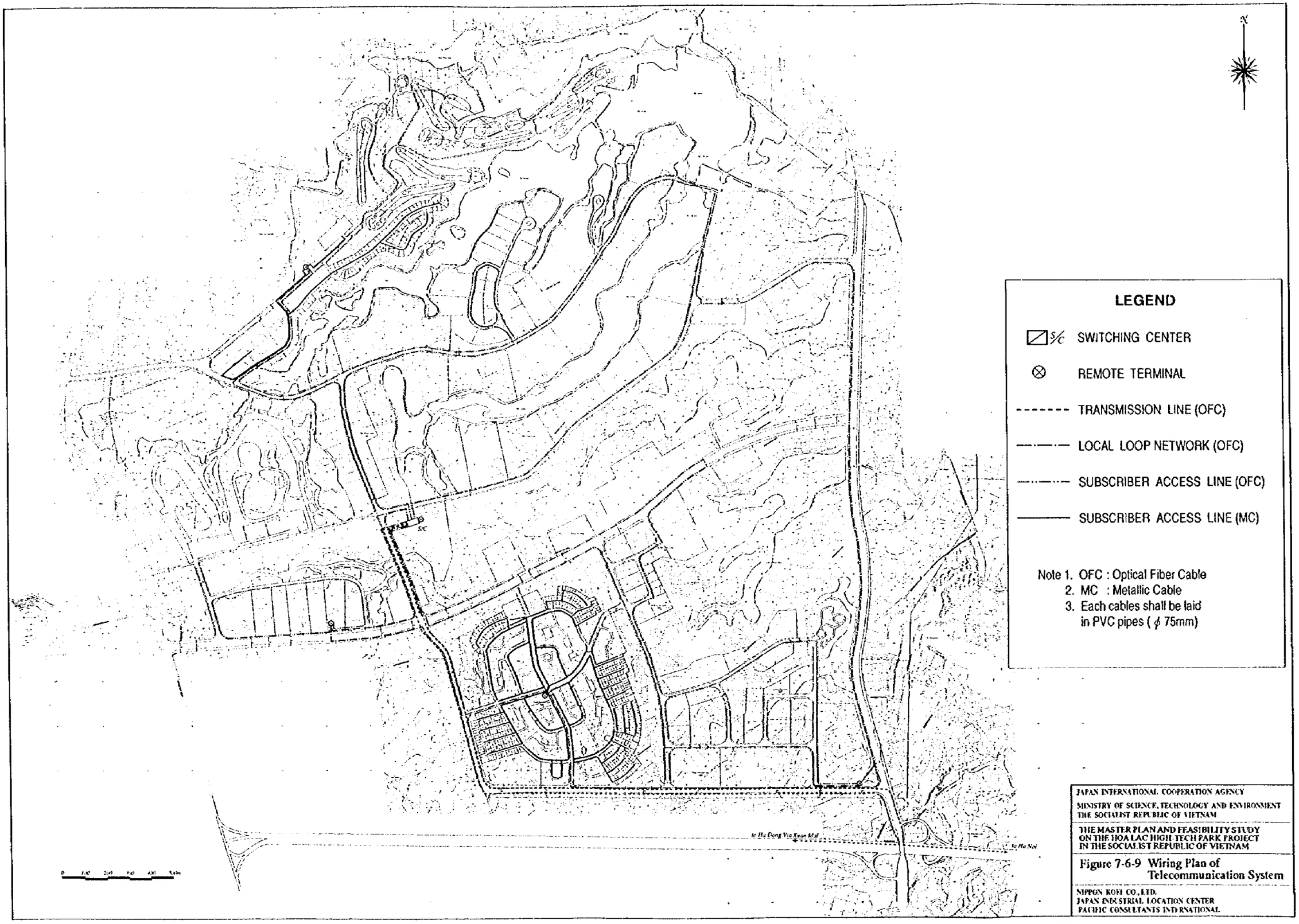
N
LEGEND
SWITCHING CENTER
REMOTE TERMINAL
TRANSMISSION LINE (OFC)
LOCAL LOOP NETWORK (OFC)
SUBSCRIBER ACCESS LINE (OFC)
SUBSCRIBER ACCESS LINE (MC)
Note 1. OFC : Optical Fiber Cable
2. MC : Metallic Cable
3. Each cables shall be laid in PVC pipes (ϕ 75mm)
to Ha Dong Via Xuan Mai
to Ha Noi
JAPAN INTERNATIONAL COOPERATION AGENCY
MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT THE SOCIALIST REPUBLIC OF VIETNAM
THE MASTER PLAN AND FEASIBILITY STUDY ON THE HOA LAC HIGH-TECH PARK PROJECT IN THE SOCIALIST REPUBLIC OF VIETNAM
Figure 7-6-9 Wiring Plan of Telecommunication System
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER
PACIFIC CONSULTANTS INTERNATIONAL

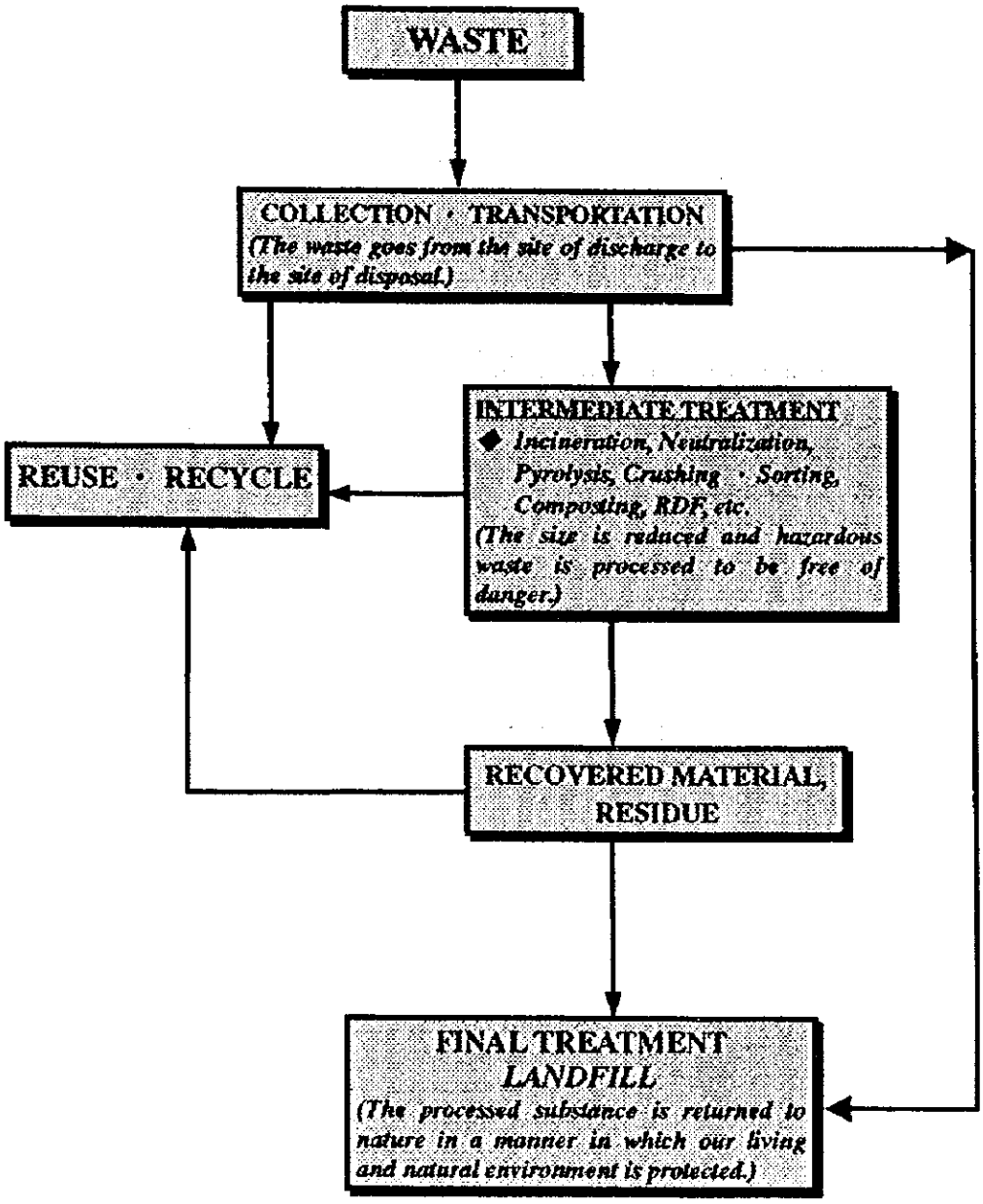

Figure 7-6-10 Overall Waste Treatment Flow

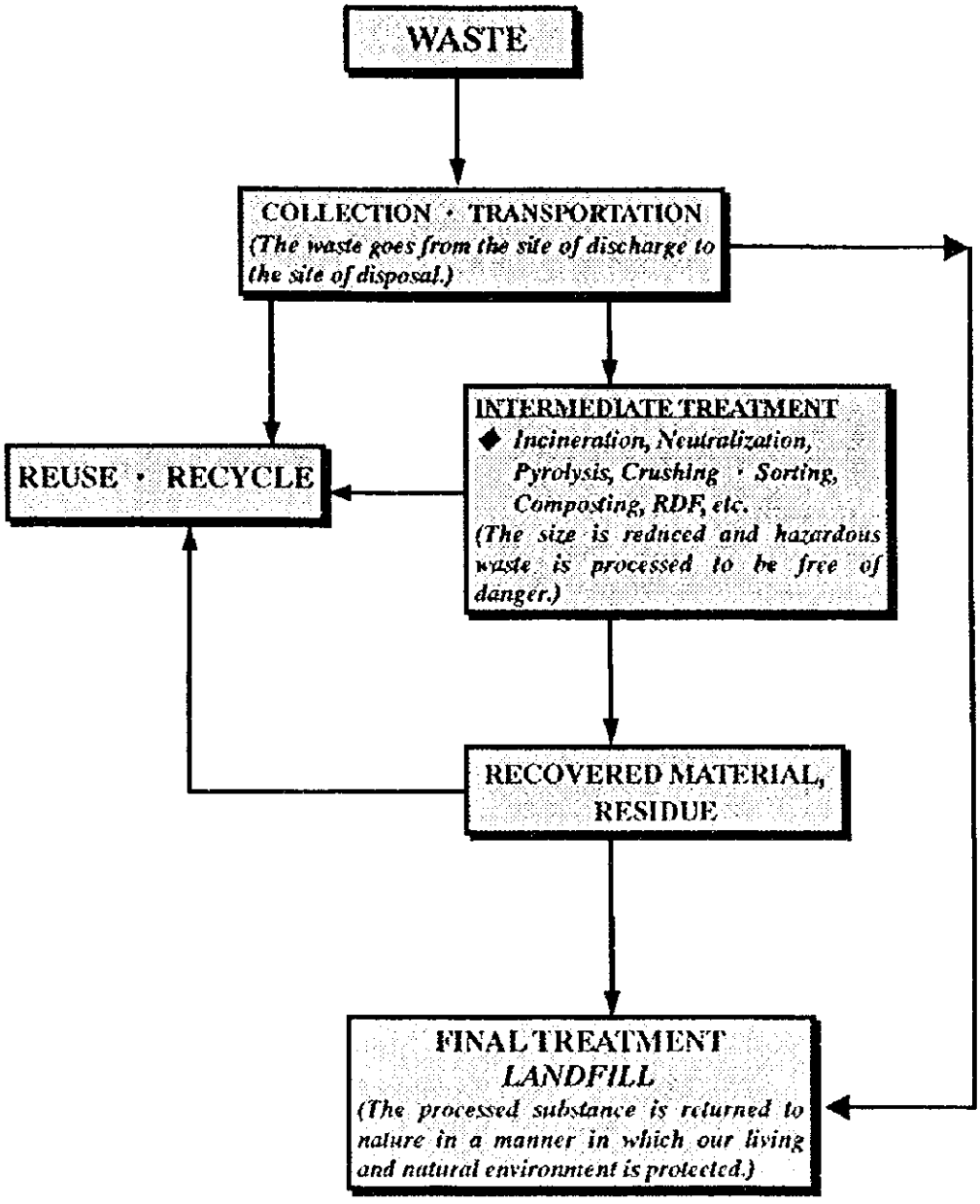

Figure 7-6-10 Overall Waste Treatment Flow

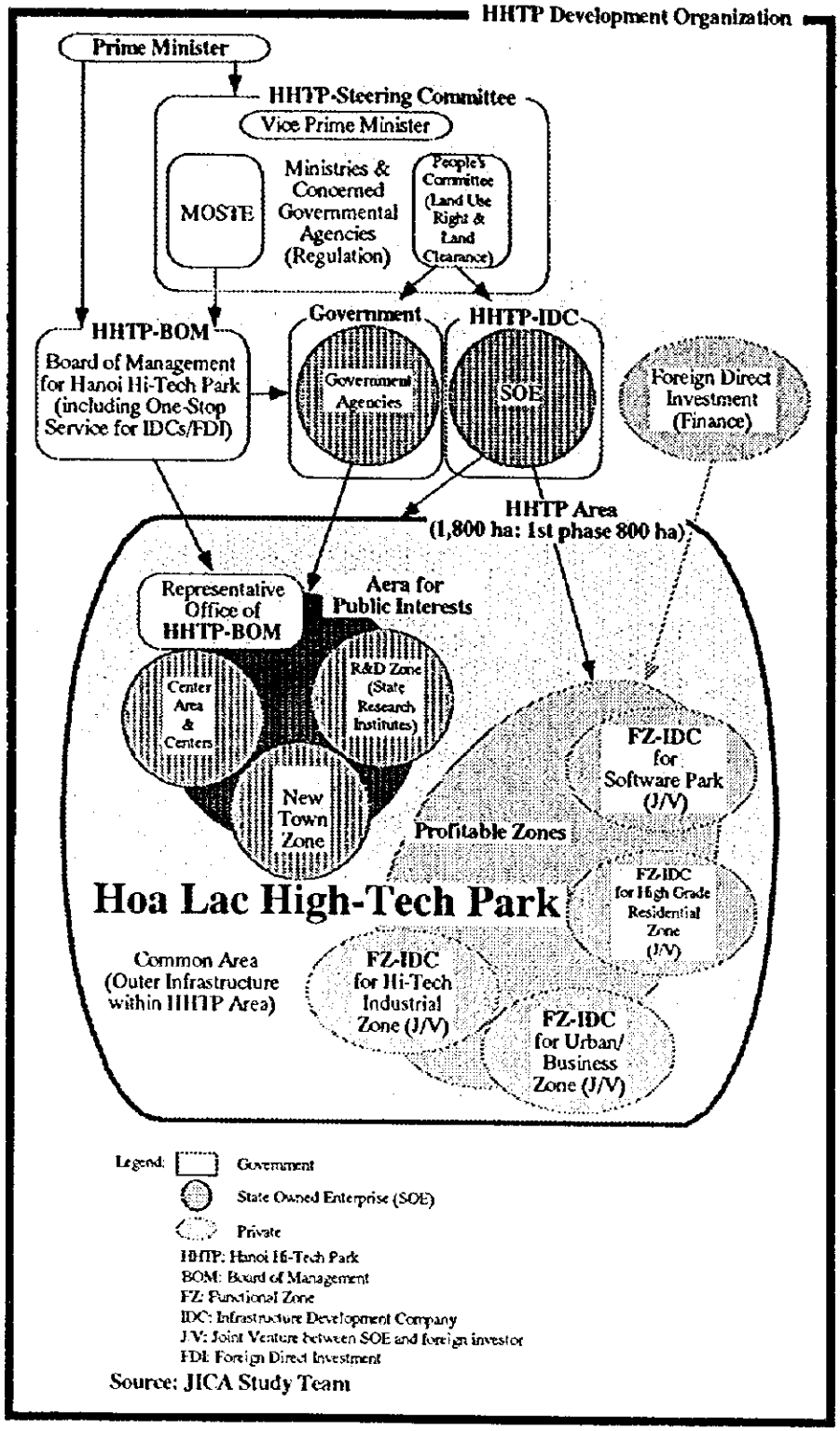

Figure 7-7-1 Hoa Lac High-Tech Park Development Organization

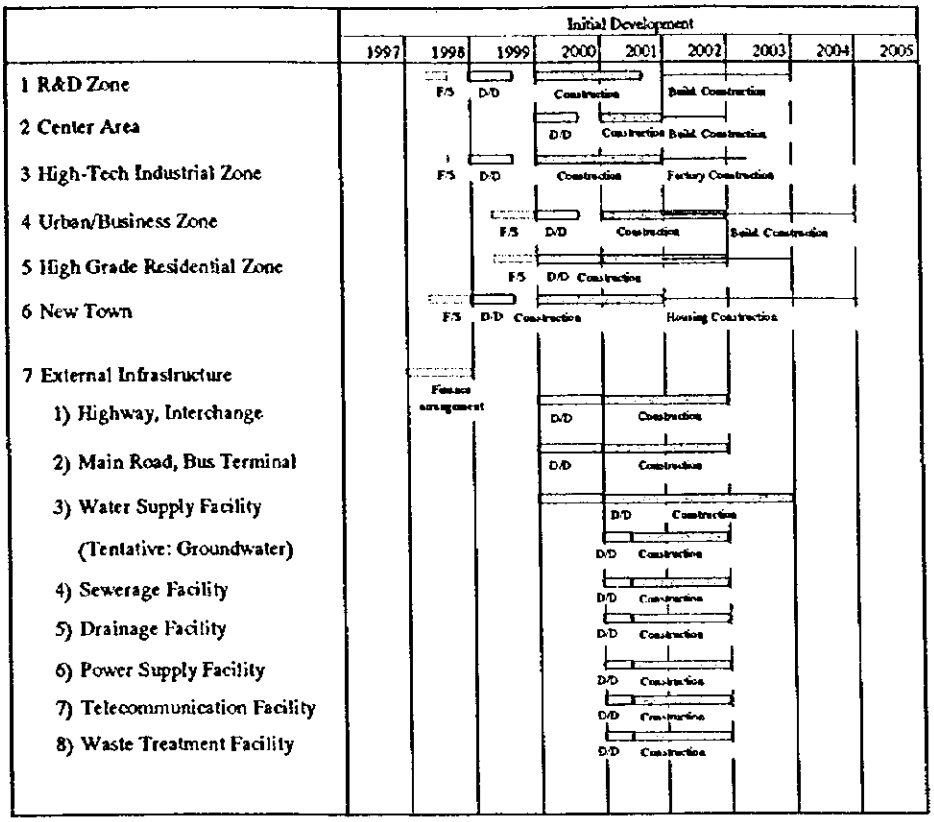

Figure 7-7-2 Development Schedule of Phase 1 of HHTP

VIII. RECOMMENDATIONS TOWARD THE MATERIALIZATION OF THE HOA LAC HIGH-TECH PARK

HHTP is a project of national importance. If materialized, it would bring huge benefits to the national economy and social welfare of the people. Of course, it would require vigorous efforts of all the sectors and parties concerned of Vietnam which has just entered the era of industrialization. To reach the most advanced stage of industrialization, i.e. high-tech industrialization, there are numerous hurdles on the road. The success of HHTP is the key to clearing these hurdles.

Various legal, institutional as well as structural measures should be taken. Above all, the following recommendations should be considered seriously for the success of HHTP.

8.1 Determination and Recognition of the Government as a National Project

The HHTP Project should be recognized as a project of national importance, which would bring about multiple benefits of promotion of high-tech industries, regional economy of the Ha Tay province, and alleviation of the over-concentration in the capital city of Hanoi. In other words, it should be considered as a springboard to the growth of the Vietnamese economy for catching up the forerunners in the 21st century.

Bearing these in mind, it is recommended that the HHTP Project be strongly announced by the Government as a national project to all the parties concerned, including governmental bodies and enterprises as well as international societies. The HHTP Project should be given priority in the allocation of financial resources for its construction. A strong supporting system should be set up within the government organization, involving minister level officials.

8.2 Prior Investment for Infrastructure

The project site is located about 30 km to the west of Hanoi in the countryside of the Ha Tay province where agriculture is the mainstay and the principal infrastructure is yet to be developed. It is recommended that prior investment be made for the basic infrastructure including roads, electricity, telecommunications, water supply in order to upgrade the environment for investors. In particular, construction of a road which connects the project site with the capital city of Hanoi, drastically shortening the travelling time to about 30 minutes, should be placed at the top priority. If completed,

the accumulated urban functions of Hanoi would be utilized, including administration, information, industrial and commercial funcitons, for the scheduled development of the HHTP Project. The new road connection would renew the rural image of the project site for the investors, in particular foreign ones.

It is, therefore, strongly recommended that an expressway allowing high-speed passage of vehicles with an adequate transport capacity be constructed at the initial stage of the HHTP development. It should be noted that the road would promote not only the development of HHTP but also the formation and growth of the new satellite city of Hoa Lac.

8.3 Establishment and Relocation of State Research Institutes

The development of high-tech industries necessitates the highest input of R&D activities among all the industries. Namely, its success depends on the development of new advanced technologies and their commercialization. Close location of R&D institutes and laboratories, therefore, would create a good locational condition for the high-tech industries.

It is recommended that the location of state research institutes in HHTP be deeply considered, either in the form of new establishment or relocation of the existing ones.

Location of NCST or state research institutes under ministries would promote the introduction of high-technologies into HHTP in the short term and the development of improved and innovative ones in the long term. These institutes would assume the role of linking the basic research activities and achievements of VNUH and AIT to be located next to HHTP with commercialization of products by the high-tech enterprises in HHTP through their principal function of applied research. The location of state research institutes in HHTP at the initiative of the Government would be a clear signal of the firm determination of the Government toward the materialization of HHTP to the concerned parties and entities, both domestic and overseas.

8.4 Provision of Good Access to High-Technologies and Promotion of Cooperation among the Participants

As the nucleus of HHTP development, a "Techno Partnership Center" is recommended to be set up in HHTP. The Center should provide easy access to the high-tech information as well as act as a catalyst for the cooperation and division-of-works among the participants. Firstly, it should provide the basic supporting services of measurement, certification of industrial standards and others. Secondly, it should be a center for collecting, accumulating and disseminating the high-tech-related

information in various forms including the industrial property rights and licenses. Thirdly, it should be an organizer and supporter for the interaction and cooperation among the key players for high-tech R&D and production. As an integral part of these functions, it should also extend support to small and venture businesses in administration, marketing, etc. To serve these objectives, it is also recommended that the offices of the Government agencies, either headquarters or branches in charge of industrial standards and standardization, technology transfer, industrial property right and other relevant intellectual property right shall be located and the Government should be considered.

8.5 Provision of Human Resources Training Centers

Efficient production control and strict quality control are required in the production of high-tech products. R&D for high technologies also needs capable researchers and assistants. To meet the requirements, adequate supply of capable technicians and skilled labor which are insufficient in Vietnam, is urgently required.

It is recommended to set up a Technical Institute in HHTP for providing technical education to high school graduates through on-the-job training for a period of 2 years and a half in order to bring up technicians, and an OJT Technical Support Center for providing 3-year technical education to junior high school graduates and training of small and medium sized enterprises for bringing up skilled labor for high-tech industries. At the initial stage of the development of high-tech industries, high quality labor will be the strongest advantage of HHTP and of the country as a whole. These projects should, therefore, be given priority.

8.6 Establishment of a National Software Center

Judged from the high assessment by the foreign investors located in Vietnam and the high marks of the Vietnamese participants in international mathematics competition and considering the relatively small requirement of initial investment, computer software is evaluated the most promising field in the high-tech industries in Vietnam.

Since HHTP is the first high-tech park in the country, it is recommended that a national software center be established in the proposed software park of the R&D Zone, at the Government initiative. Several tens of software enterprises will be housed in the center, receiving basic business and secretarial services from the center. Computer facilities will be installed for the common use by the housed enterprises. Training opportunities will also be provided to the software manpower. Easy access will be made available to the high-tech information as well as to the needs for software

development by the industrial and public sectors. Among the housed enterprises, cooperation and division-of-works are also expectable.

8.7 Realization of an Environment and Society-Friendly Park

The creation of an environment-friendly and society-friendly park should be envisaged in the implementation of HHTP. Villages with a relatively large population should be left as they are in order to minimize the social impact as well as to create a society-friendly town in harmony with the existing society and culture. Within the development area, the existing topography and landscape including the lakes and rivers will be left untouched as much as possible to minimize the environmental impact including the change of vegetation and earthworks, and to preserve peaceful environment for the researchers and other employees. In the production site, cleaner industries should be located. Wastes of all kinds and forms should properly treated and recycle should be practiced wherever possible.

8.8 Implementation and Management Structure for the HHTP Project

The overall structure of implementation and management of HHTP should be decided considering the following aspects.

(a) Basic policy of the Government on HHTP development should be guaranteed.

(b) Smooth implementation of the projects for basic infrastructure, state research institute zone, center area, and new town in HHTP by the public sector should be guaranteed.

(c) Private sector investment including foreign investment for profitable projects should be promoted.

In this context, the following framework for implementation and management of HHTP is advisable.

(a) The Board of Management for HHTP should be established according to the Decree 36 CP

(b) A State-owned enterprise (SOE) should be the body in charge of the implementation and management of HHTP (HHTP-IDC)

(c) Key infrastructure to serve the region development including Hoa Lac city should be implemented and maintained by the agencies in charge.

(d) The area located outside the functional zones including the central park may be managed by the Ha Tay People's Committee.

(e) The zones of public interest comprising the R&D Zone (Institute Sub-Zone), Center Area and New Town should be implemented by ministries or state agencies. Options may be MOSTE for the Center Area, MOC for the New Town and the proposed National High-Tech R&D Center for the R&D Zone (Institute Sub-Zone). HHTP-IDC may be the alternative for the Center Area.

(f) SOE/foreign joint venture(s) should be invited for the development of the profitable zones of the High Tech Industrial Zone, R&D Zone (Software Park), High Grade Residential Zone, and Urban/Business Zone. SOE to form the joint venture(s) could be a subsidiary company of HHTP-IDC.

(g) Centers to be established within HHTP should be managed by the ministries or SOEs under the ministries. Options may be MOSTE for the High-Tech Park Center, Techno Partnership Center and National Software Center and MOET for the Technical Institute and OJT Technical Support Center. Alternatively, HHTP-IDC is for High-Tech Park Center and MOI for OJT Technical Support Center. Depending on the profitability of the centers, SOEs under the ministries may be the managing bodies.

8.9 Enactment of the High-Tech Park Law

Law should be enacted for extending the legal support for efficient and coordinated implementation of high-tech parks projects in Vietnam including HHTP. Firstly, law on the establishment and management of high-tech parks as a whole should be enacted. Secondly, separate law for HHTP should be enacted. Alternatively, a special chapter or articles on HHTP may be included in the law applicable to high-tech parks. The law should stipulate legal control over the land use in the demarcated areas of high-tech parks. It should also stipulate the power and responsibilities of the Board of Management and other ministries, agencies and local government bodies responsible for the development and management of the parks as well as the special incentives to be provided to the investors and enterprises to be located in the parks.

8.10 Application of Lower Land Rent and Exemption of Custom Duties

In order to invite the foreign investors as developers for the functional zones including the High-Tech Industrial Zone, it is recommended that land rent for the investors should be set at lower rate than US$ 0.5625/m^2/year which might be applicable to HHTP under the current regulation. Considering the national importance of HHTP project and land rents applied for the industrial zone projects in the country, Land rent for HHTP should, more preferrably, be US$ 0.10/m^2/year or lower. Custom

duties and other indirect taxes should also be exempted for the equipment and facility to be used and installed for the implementation of HHTP. These measures would enhance the feasibility of the functional zone development which in turn make it possible to offer lower lot lease rates of internationally competitive level.

8.11 Keeping Close Coordination with Relevant Projects and Agencies/Organizations

Coordination and cooperation with the VNUH relocation project is of the vital importance for the development of high technologies and their commercialization in production. The enterprises to be located in the planned industrial zone of Phu Cat to be located next to HHTP can assume the role of supporting industries for the high-tech industries in HHTP. The Don Xuan residential area would accommodate a part of incremental population to be induced by the HHTP Project. All these comprise the project of Hoa Lac new satellite city. Some infrastructure facilities should be planned to serve the common benefit of all these components of the new city.

Thus, close coordination among the roles and functions of these components and required infrastructure are key to the efficiency of each component as well as of the city as a whole. The agencies and bodies concerned should establish coordination committee(s) for this purpose. Considering the special importance of the cooperation between HHTP and the University, it is recommended to set up a standing committee for the coordination and cooperation between the two.

8.12 Seeking for International Cooperation

At present, the level of high technology and high-tech industry in Vietnam remains low and the experience and know-how of planning, construction and management of high-tech parks are yet to be accumulated.

The Project requires a sizable amount of investment but financial resource of the country is quite limited. It is advisable that international cooperation in both technical and financial aspects, including official development aid be sought for the planning and implementation as well as management of HHTP including the proposed centers. Various financial facilities including BOT, BLT, BCC seem worth consideration.

8.13 Prompt Actions Subsequent to the Completion of this Master Plan

Among the ASEAN members, Vietnam is lagging behind in the development of high-tech industries. With the limited time allowance until the agreed deadline for lowering custom duties on industrial products, it is desirable that actions be taken for the implementation of HHTP immediately after the completion of this master plan, i.e., approval of this master plan by the Prime Minister as the official acknowledgment of

the HHTP Project as a national project, preparation of detailed plans for the center projects, and feasibility study for each functional zone.