Figures

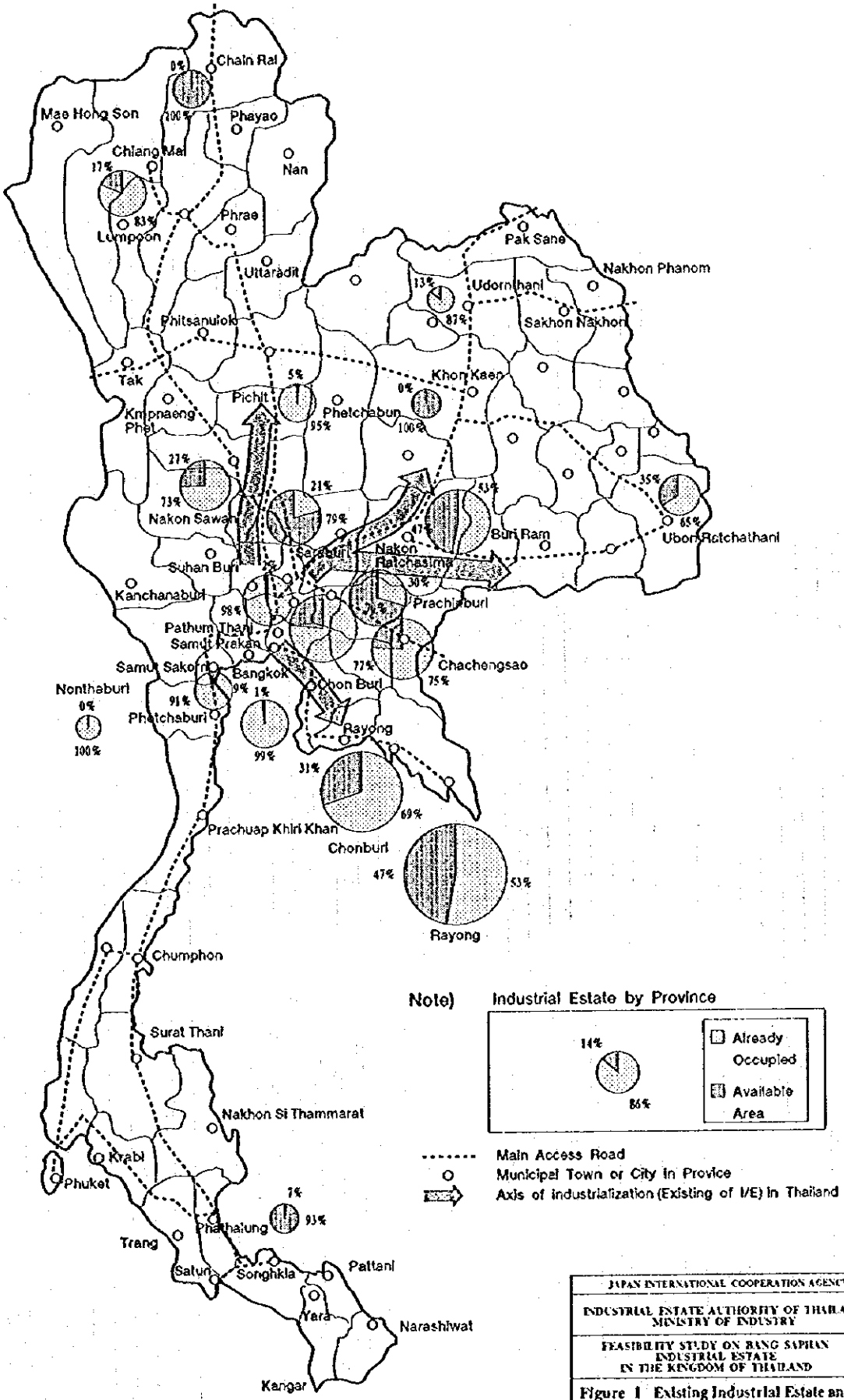

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Figure 1 Existing Industrial Estate and Industrialization Axis in Thailand

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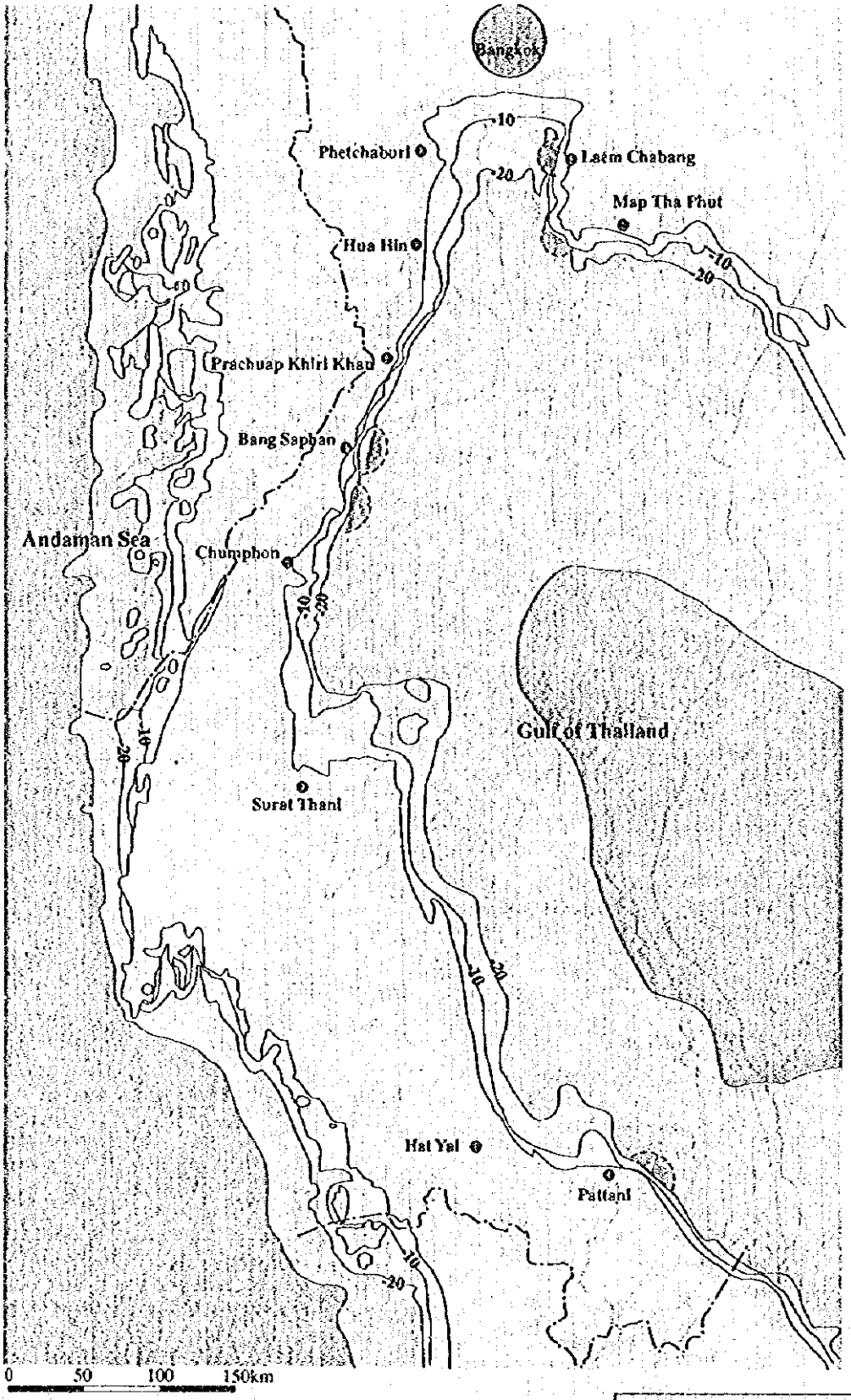

-10 – minus 10m from Mean Sea Level

-20 – minus 20m from Mean Sea Level

most suitable for Deep Sea Port

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Figure 2 Submarine Topography Suitable for Deep Sea Port in Gulf of Thailand

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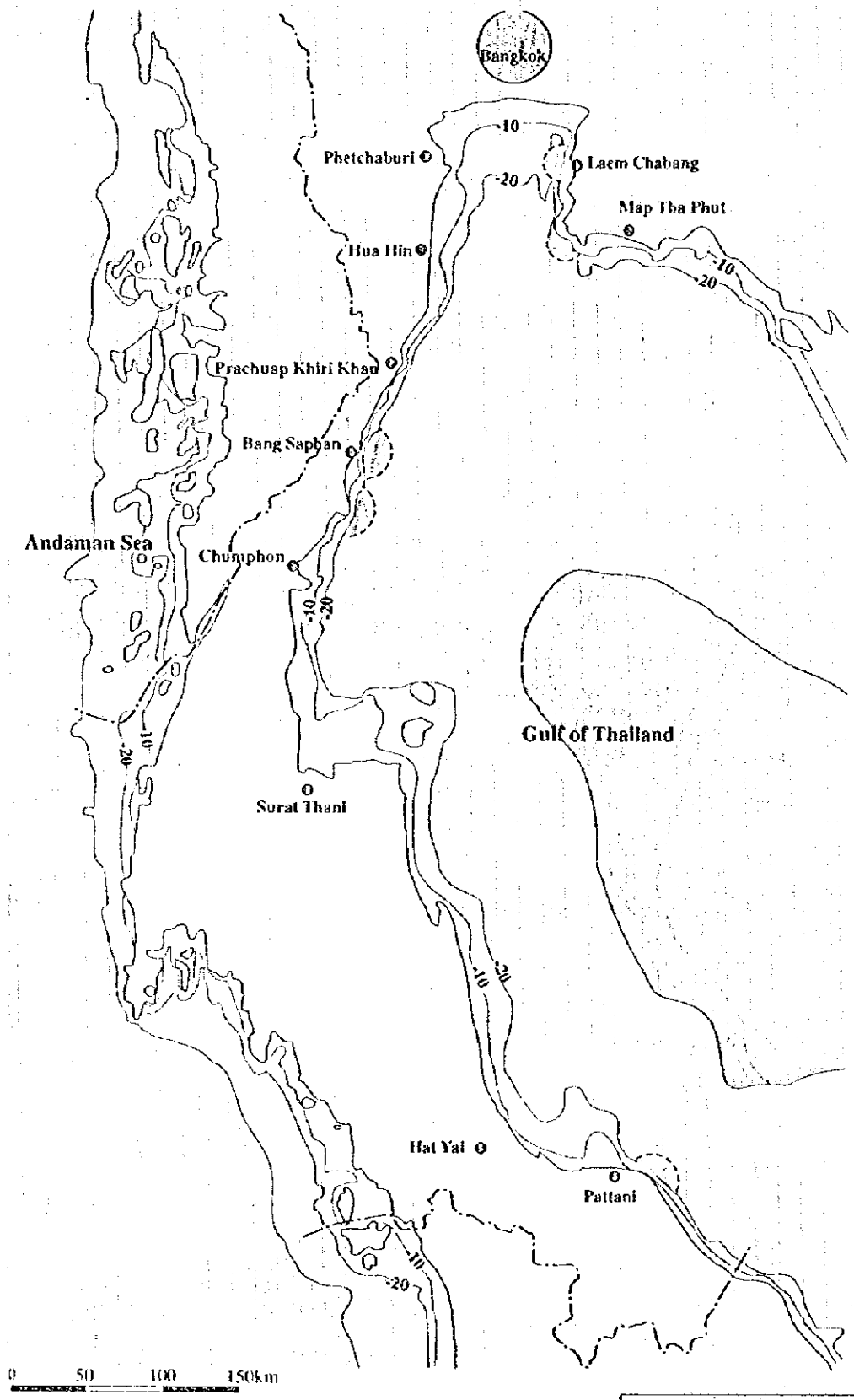

-10 minus 10m from Mean Sea Level
-20 minus 20m from Mean Sea Level
most suitable for Deep Sea Port

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NIPPON KOEI CO., LTD
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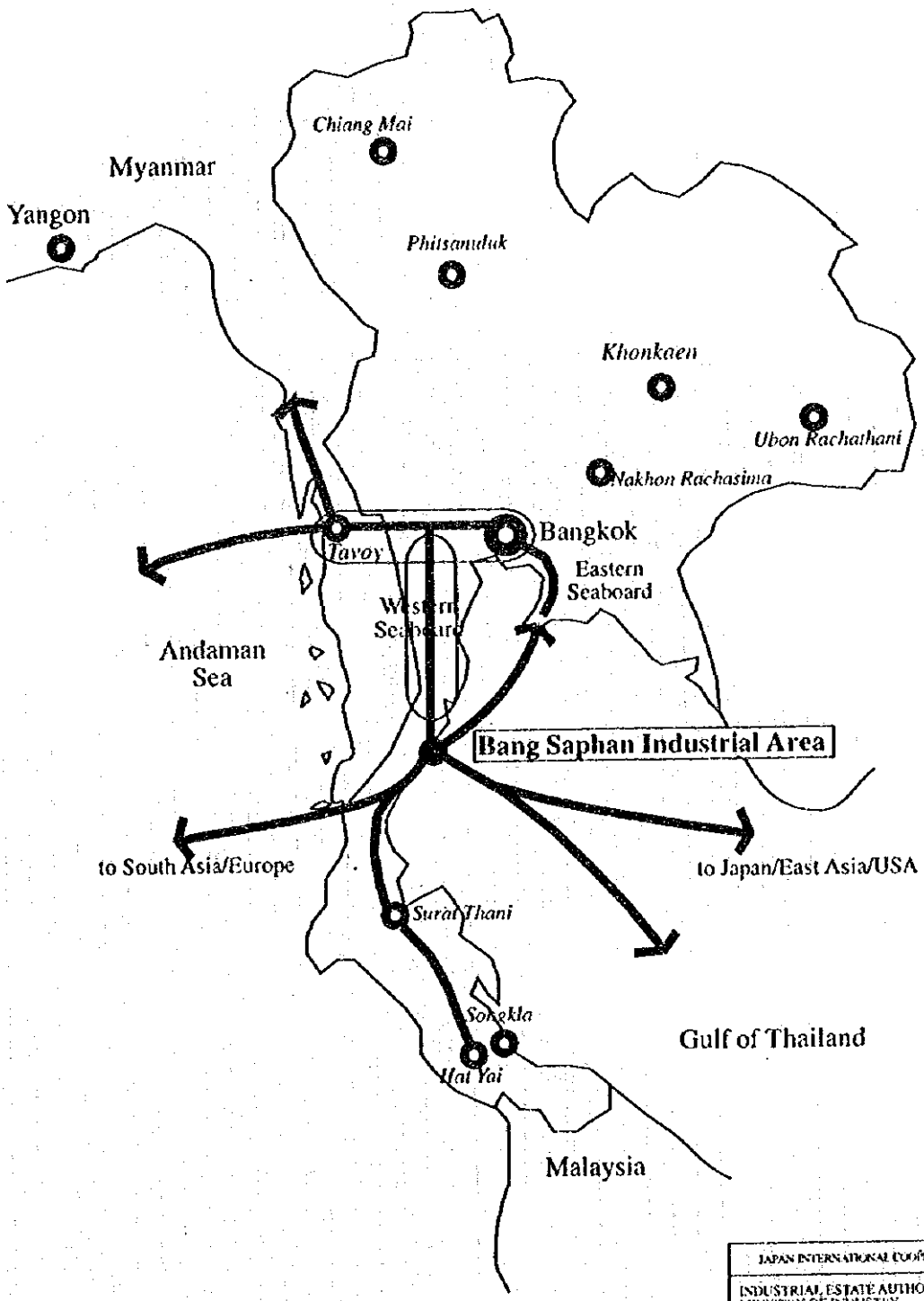

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IN THE KINGDOM OF THAILAND

Figure 3
Prospective Linkage from Bang Saphan to BKK, ESB and Foreign Countries

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Legend
Manufacturing Industrial Area
New Business / Commercial Area
Existing Business / Commercial Area
New Residential Area (New Town Area)
Commercial / Residential Area (High Density)
Residential Area (Low Density)
Social Facility Area
Tourism Area
Institute / Education Area
Park / Recreation Area
Major Road
Railroad
Sahaviriya Iron / Steel Factory
Power Plant (IPP)
Coal / Iron Ore Deposit / Ash Disposal Site
Green / Forest / Agriculture Area
① Hot Strip Mill
② EGL
③ Cold Strip Mill
④ Bar Mill
⑤ Direct Reduced Iron , Electric Arc Furnace & Continuous Coaster
⑥ Electric Arc Furnace , Thin Slab Process
⑦ Direct Reduced Iron
⑧ Continuous Galvanizing Line
⑨ Direct Reduced Iron , Electric Arc Furnace & Continuous Coaste
⑩ Section Mill
⑪ Wire Rod Mill
⑫ Ash Disposal site
⑬ Power Plant (IPP)
N
General Industrial Estate
Prachuap Port
Wind Rose
0 05 10 15 20km
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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
Figure 4
Land Use Concept of Bang Saphan Area in 2011 (Scenario 1)
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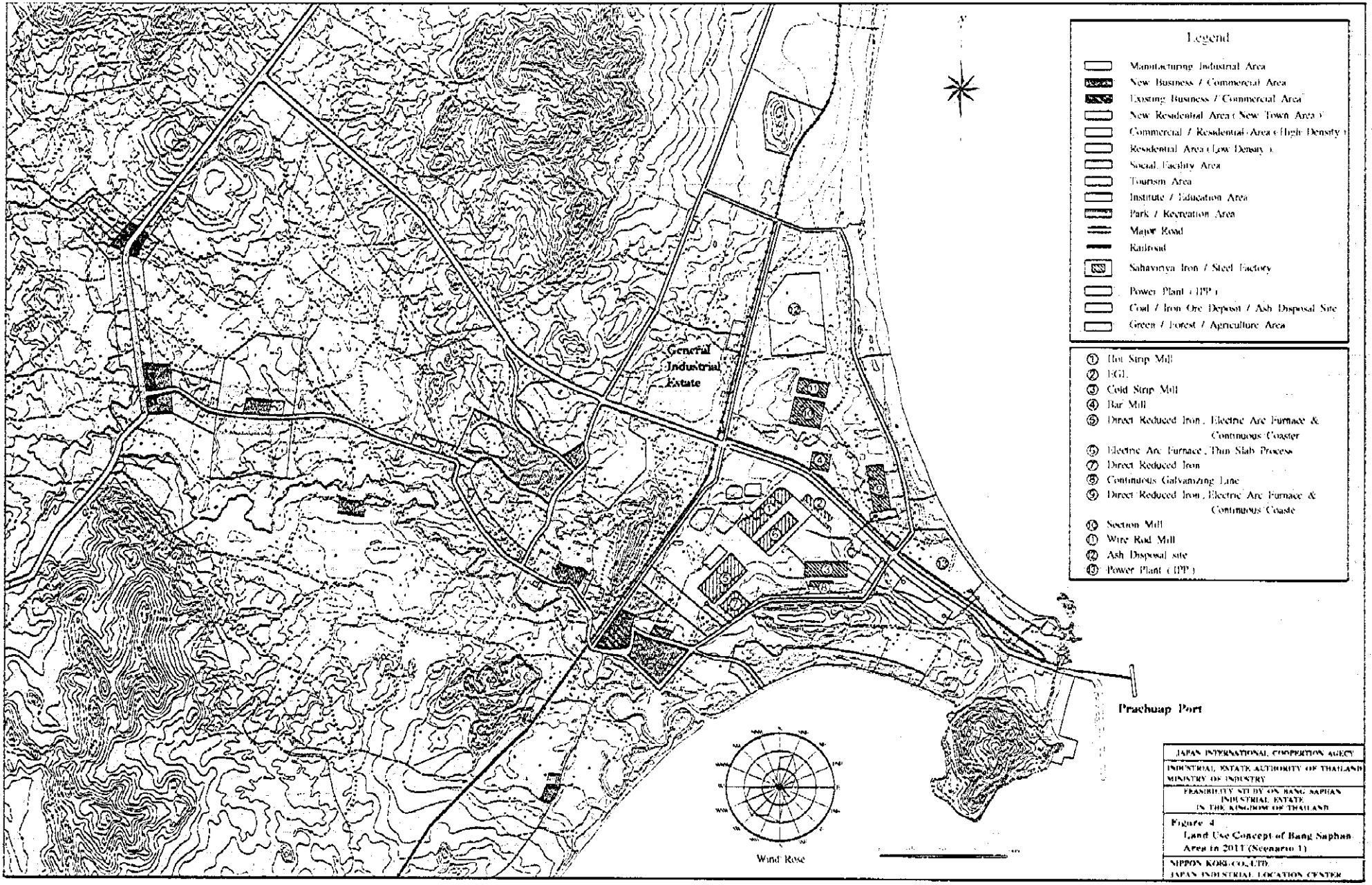
Legend
Manufacturing Industrial Area
New Business / Commercial Area
Existing Business / Commercial Area
New Residential Area (New Town Area)
Commercial / Residential Area (High Density)
Residential Area (Low Density)
Social Facility Area
Tourism Area
Institute / Education Area
Park / Recreation Area
Major Road
Railroad
Sahaviriya Iron / Steel Factory
Power Plant (IPP)
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① Hot Strip Mill
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③ Cold Strip Mill
④ Bar Mill
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⑥ Electric Arc Furnace , Thin Slab Process
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General Industrial Estate
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Wind Rose
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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
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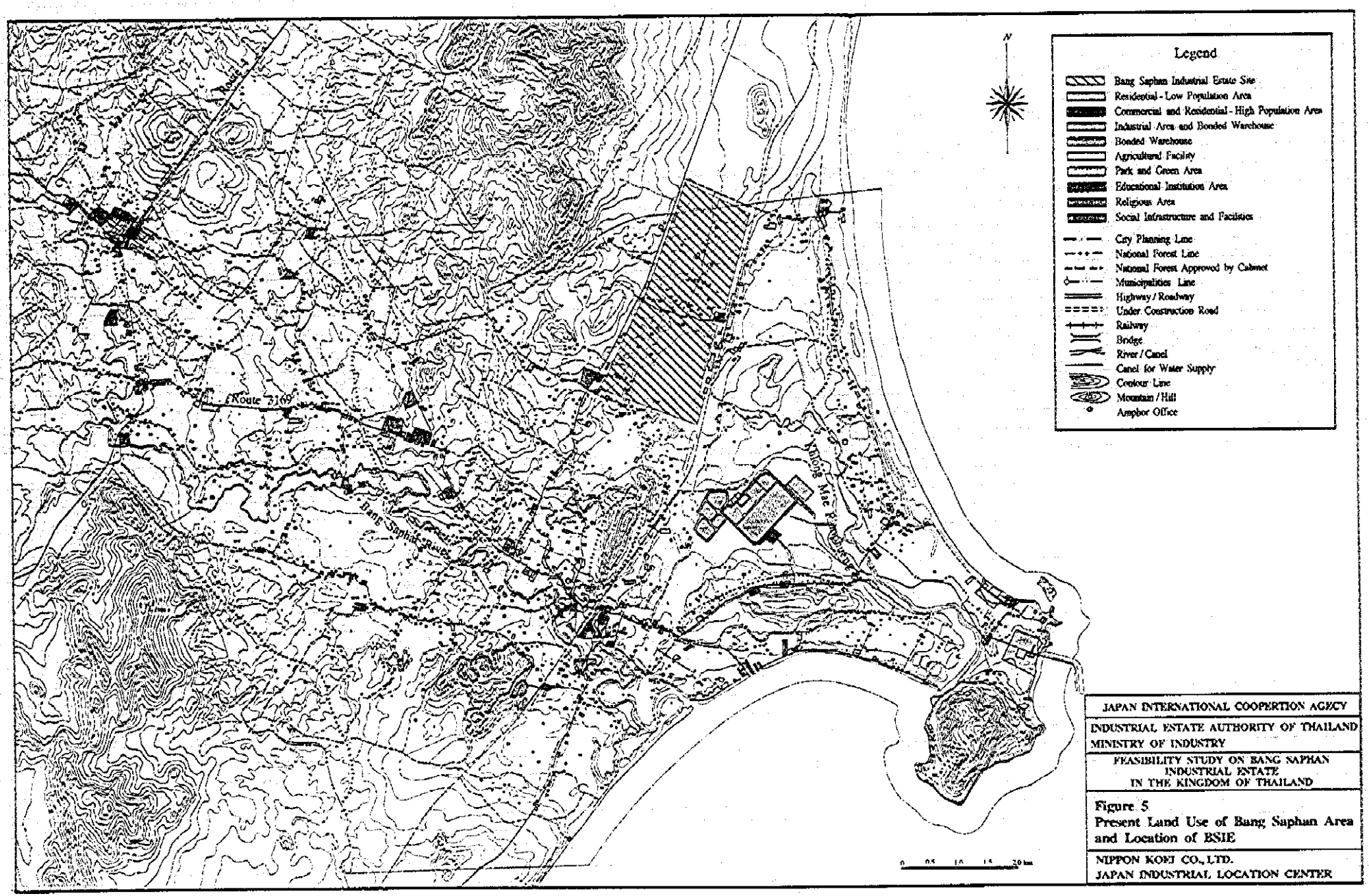

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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

Figure 5
Present Land Use of Bang Saphan Area and Location of BSIE

NIPPON KOEI CO., LTD.
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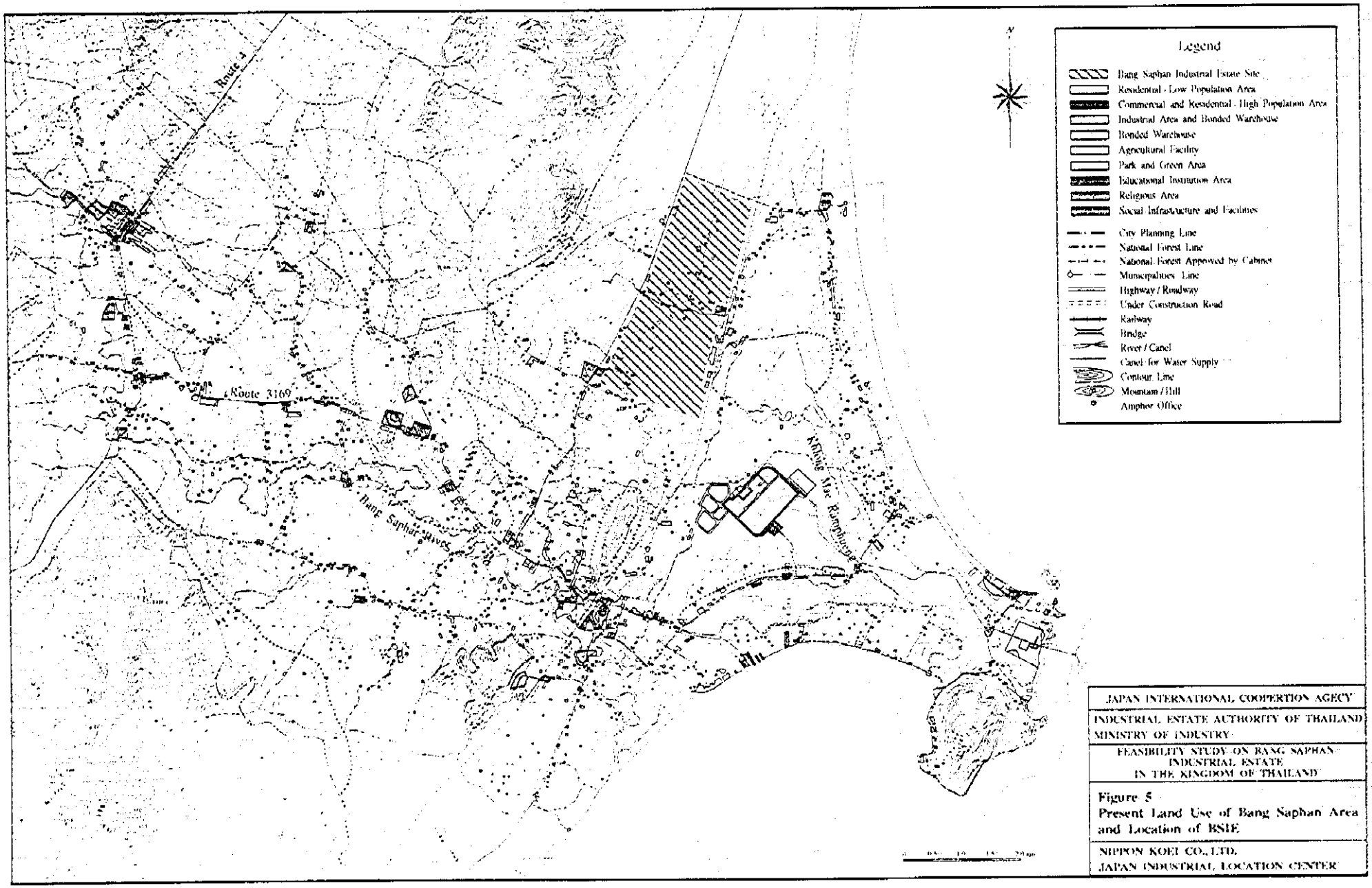

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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

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NIPPON KOEI CO., LTD.
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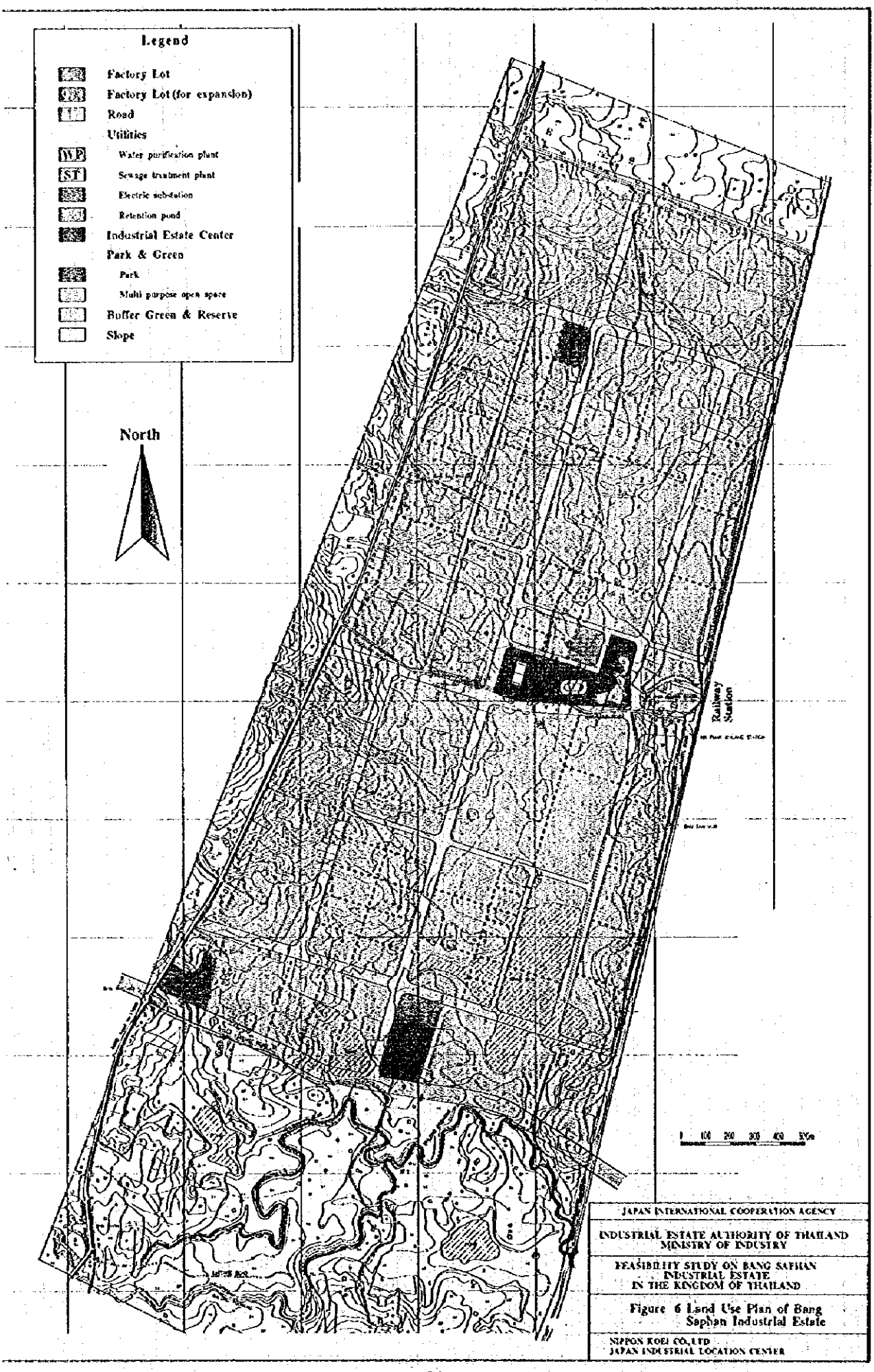
Legend
Factory Lot
Factory Lot (for expansion)
Road
Utilities
WP
Water purification plant
ST
Sewage treatment plant
Electric sub-station
Retention pond
Industrial Estate Center
Park & Green
Park
Multi purpose open space
Buffer Green & Reserve
Slope
North
Railway Station
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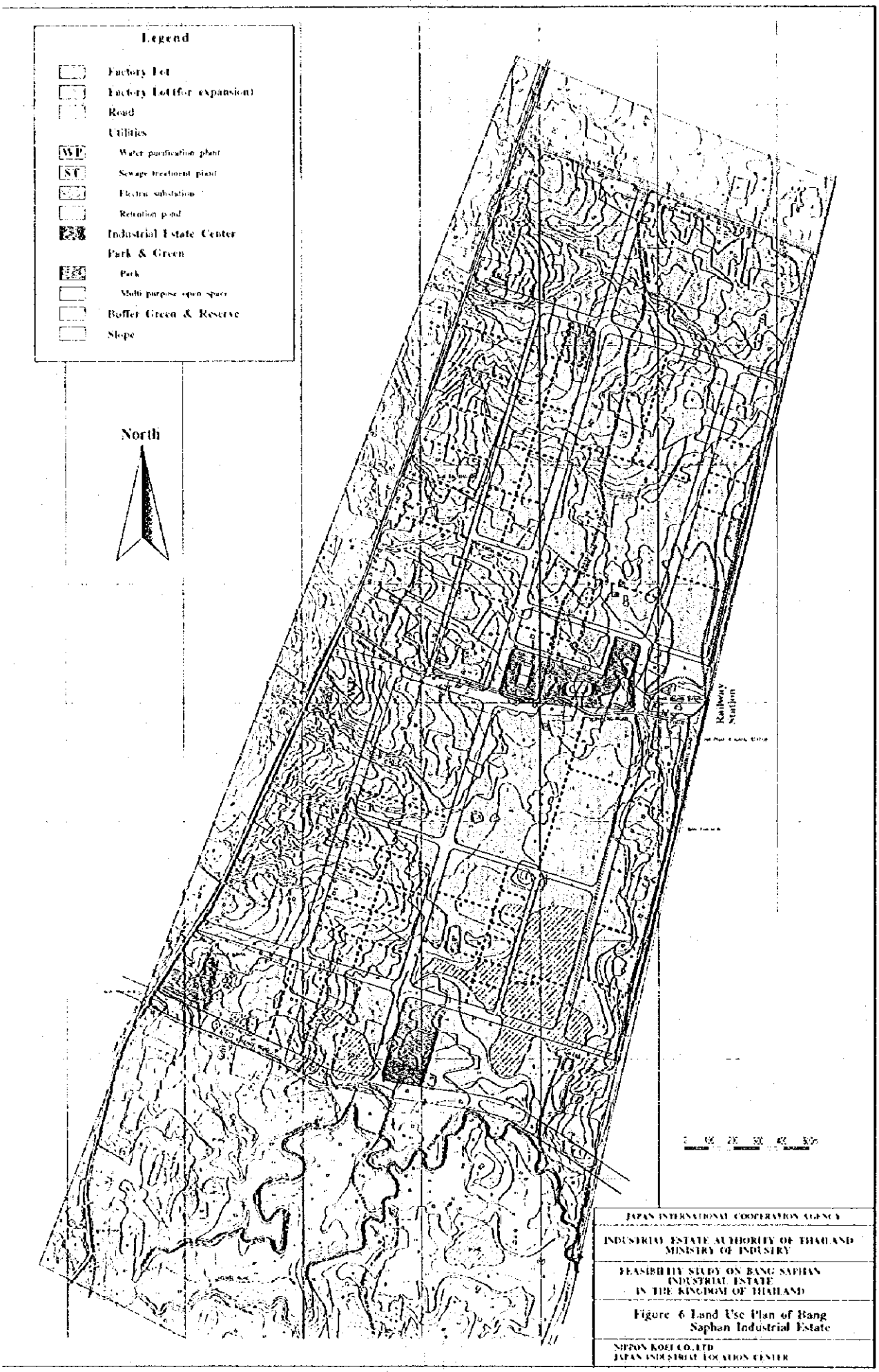
Figure 6 Land Use Plan of Bang Saphan Industrial Estate
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER


Legend
Factory Lot
Factory Lot(for expansion)
Road
Utilities
WP
Water purification plant
SC
Sewage treatment plant
Electric substation
Retention pond
Industrial Estate Center
Park & Green
Park
Multi purpose open space
Buffer Green & Reserve
Slope
North
Railway Station
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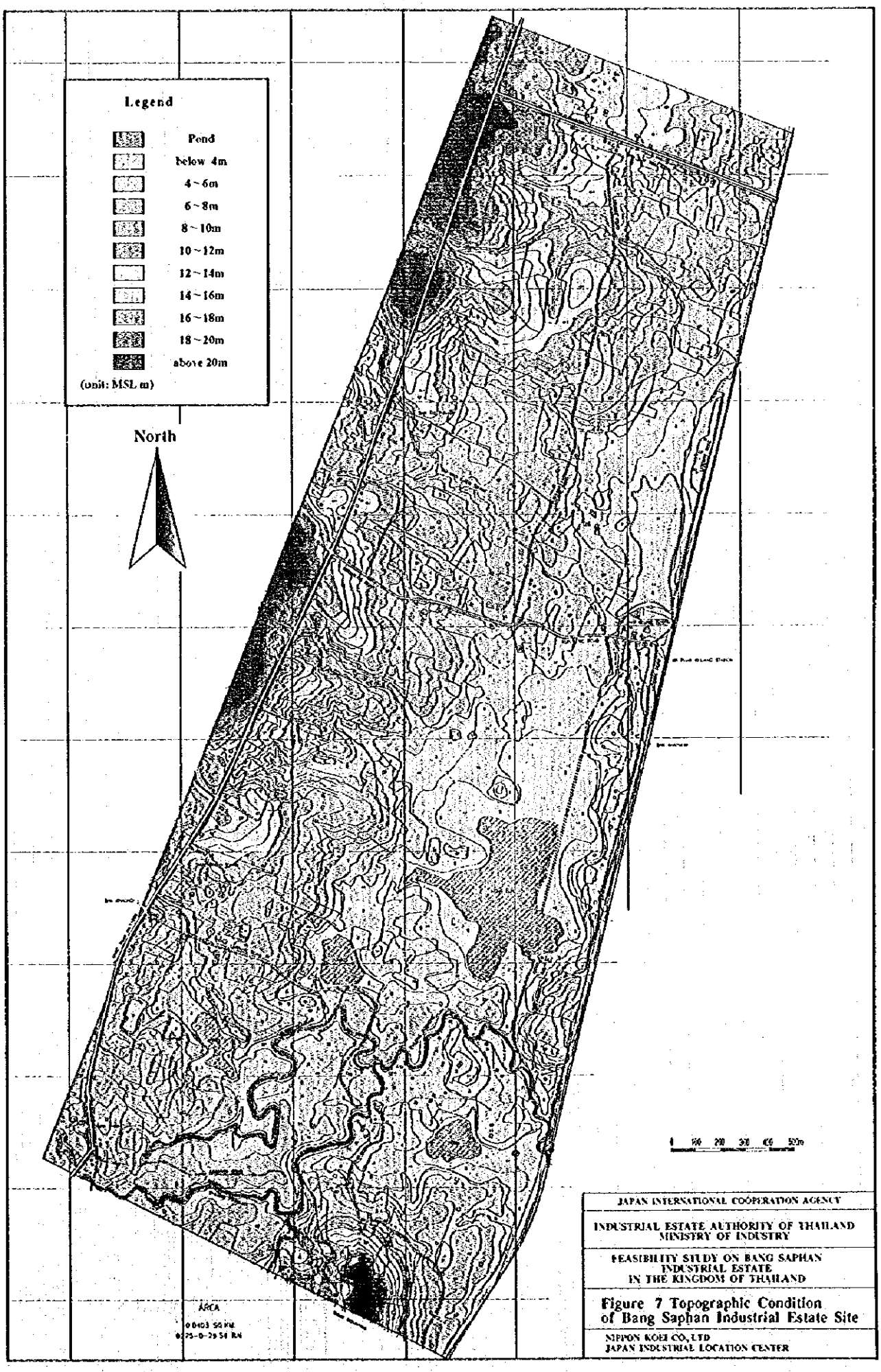
Legend
Pond
below 4m
4 ~ 6m
6 ~ 8m
8 ~ 10m
10 ~ 12m
12 ~ 14m
14 ~ 16m
16 ~ 18m
18 ~ 20m
above 20m
(unit: MSL m)
North
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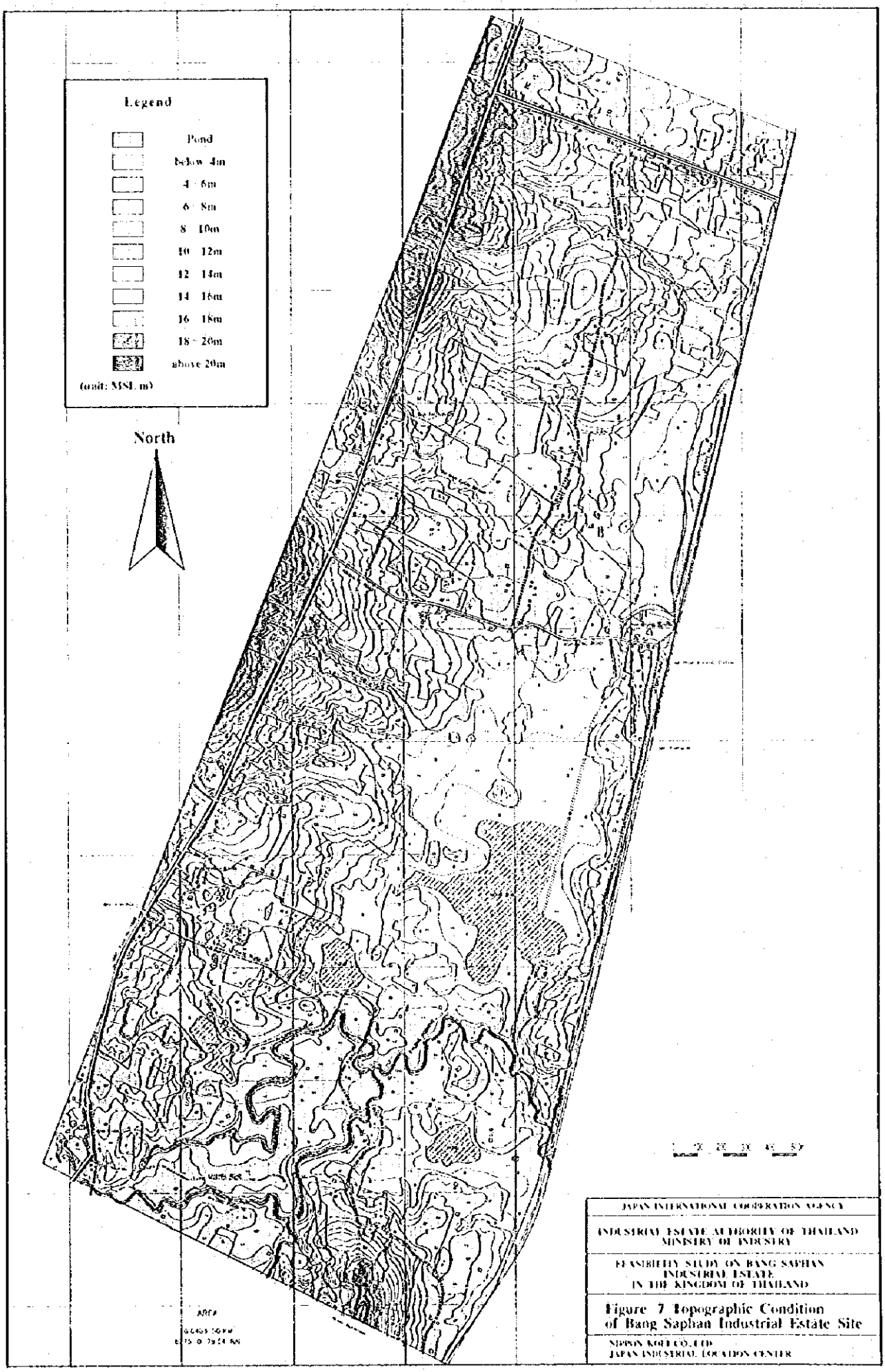
Figure 7 Topographic Condition
of Bang Saphan Industrial Estate Site
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER


Legend
Pond
below 4m
4 - 6m
6 - 8m
8 - 10m
10 - 12m
12 - 14m
14 - 16m
16 - 18m
18 - 20m
above 20m
(unit: MSL m)
North
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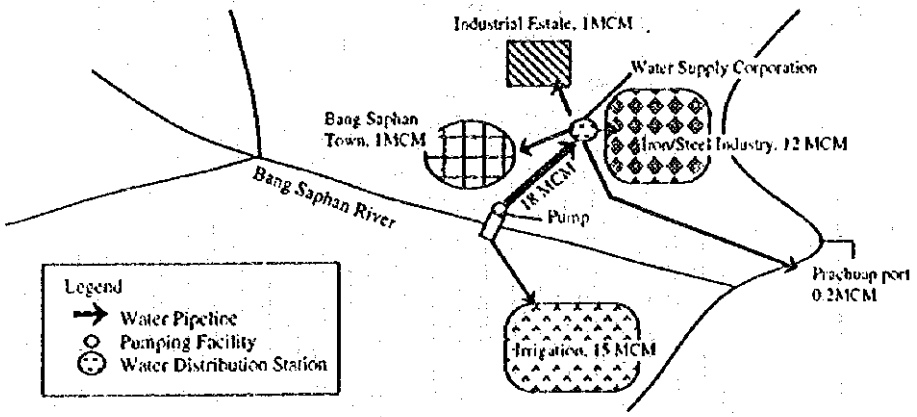
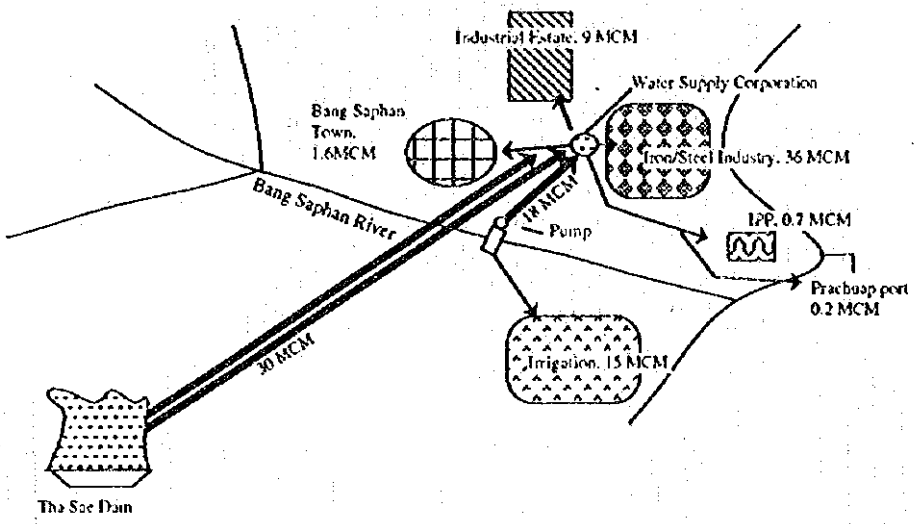


in 2001

From Bang Saphan River : 33 MCM
Pump 18 MCM
Irrigation 15 MCM

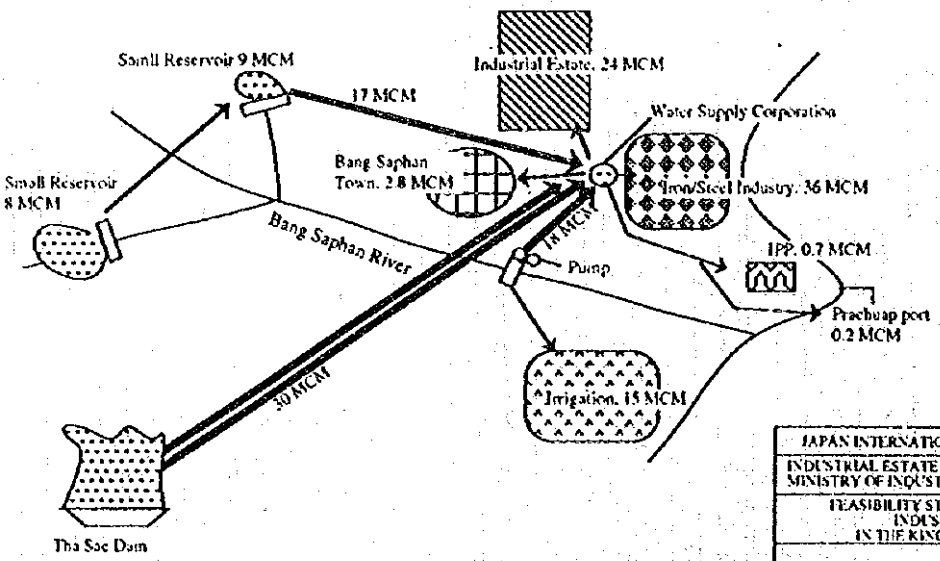
Demand : 30 MCM
Iron industry : 12 MCM
IE : 1 MCM
Domestic use : 1 MCM
Irrigation : 15 MCM
Others : 0.2 MCM
Total : 30 MCM



in 2006

From Bang Saphan River : 33 MCM
Pump 18 MCM
Irrigation 15 MCM
From Tha Sae Dam : 30 MCM
Total : 63 MCM

Demand : 63 MCM
Iron industry : 36 MCM
IE : 9 MCM
Domestic use : 2 MCM
Irrigation : 15 MCM
Others : 1 MCM
Total : 63 MCM



in 2011

From Bang Saphan River : 50 MCM
Pump 18 MCM
Dam 17 MCM
Irrigation 15 MCM
From Tha Sae Dam : 30 MCM
Total : 80 MCM

Demand : 77 MCM
Iron industry : 36 MCM
IE : 22 MCM
Domestic use : 3 MCM
Irrigation : 15 MCM
Others : 1 MCM
Total : 77 MCM

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Figure 8 Plan of Water Supply System in Bang Saphan (External Facility)

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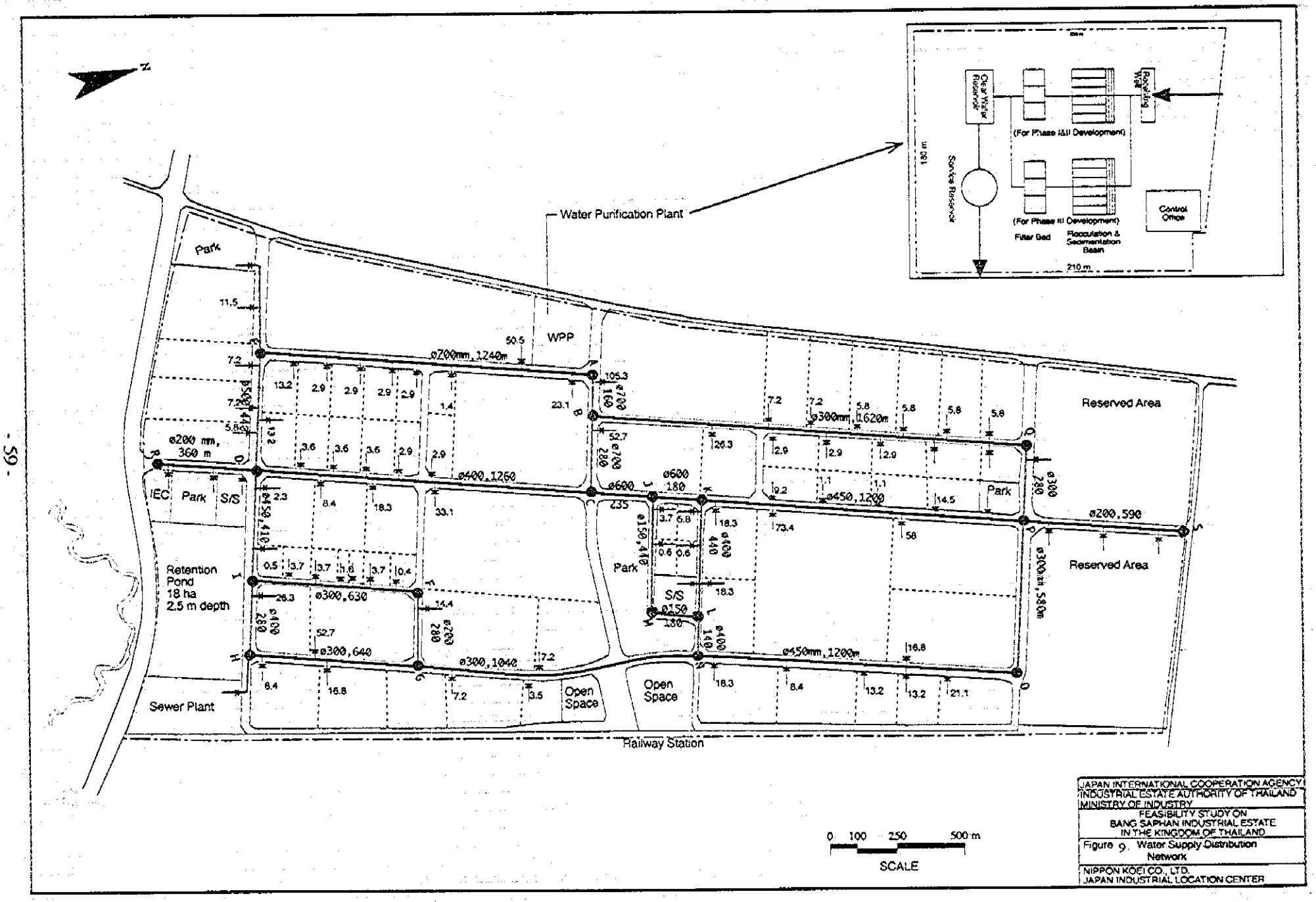

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Figure 9. Water Supply Distribution Network

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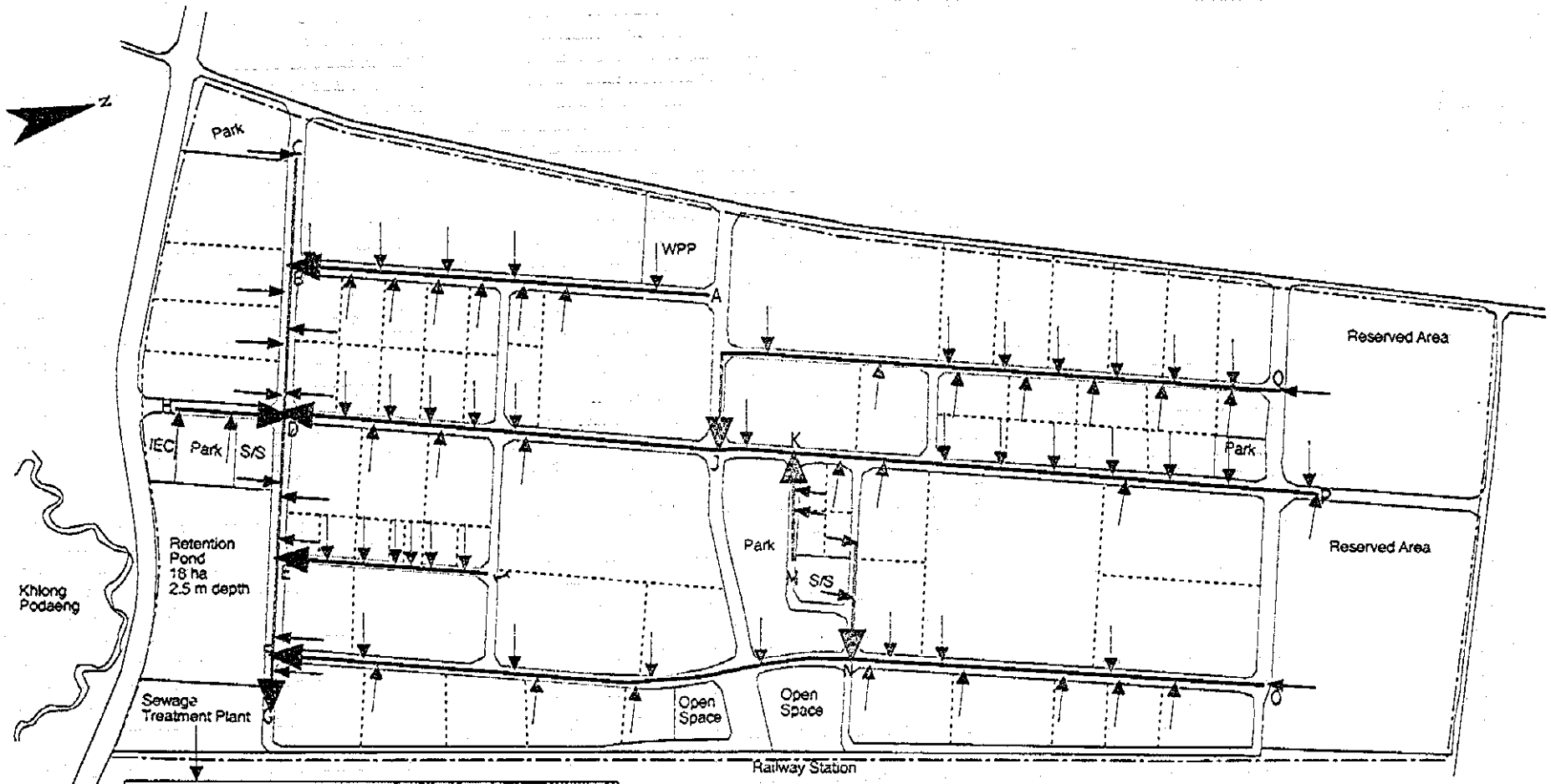

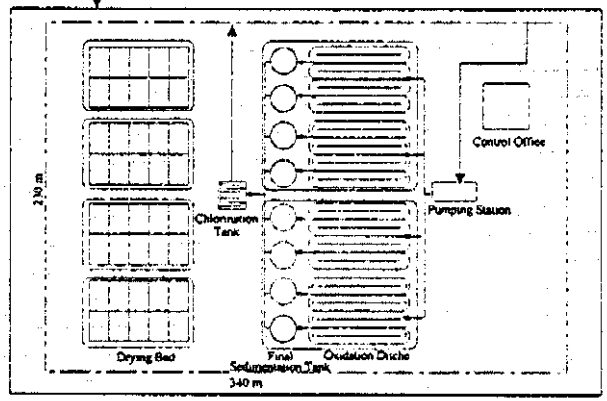

Pipe No.	Length (m)	Diameter (mm)
A-B	1,240	300
C-B	250	300
B-D	440	300
D-E	450	600
E-F	280	600
F-G	100	800
H-D	360	300
O-J	1,900	300
P-J	1,650	300
J-D	1,260	600
O-N	1,200	300
N-F	1,680	500
I-E	630	300
L-N	350	300
M-K	300	300

0 100 250 500 m

SCALE

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Figure 10 Sewer Collection System Plan

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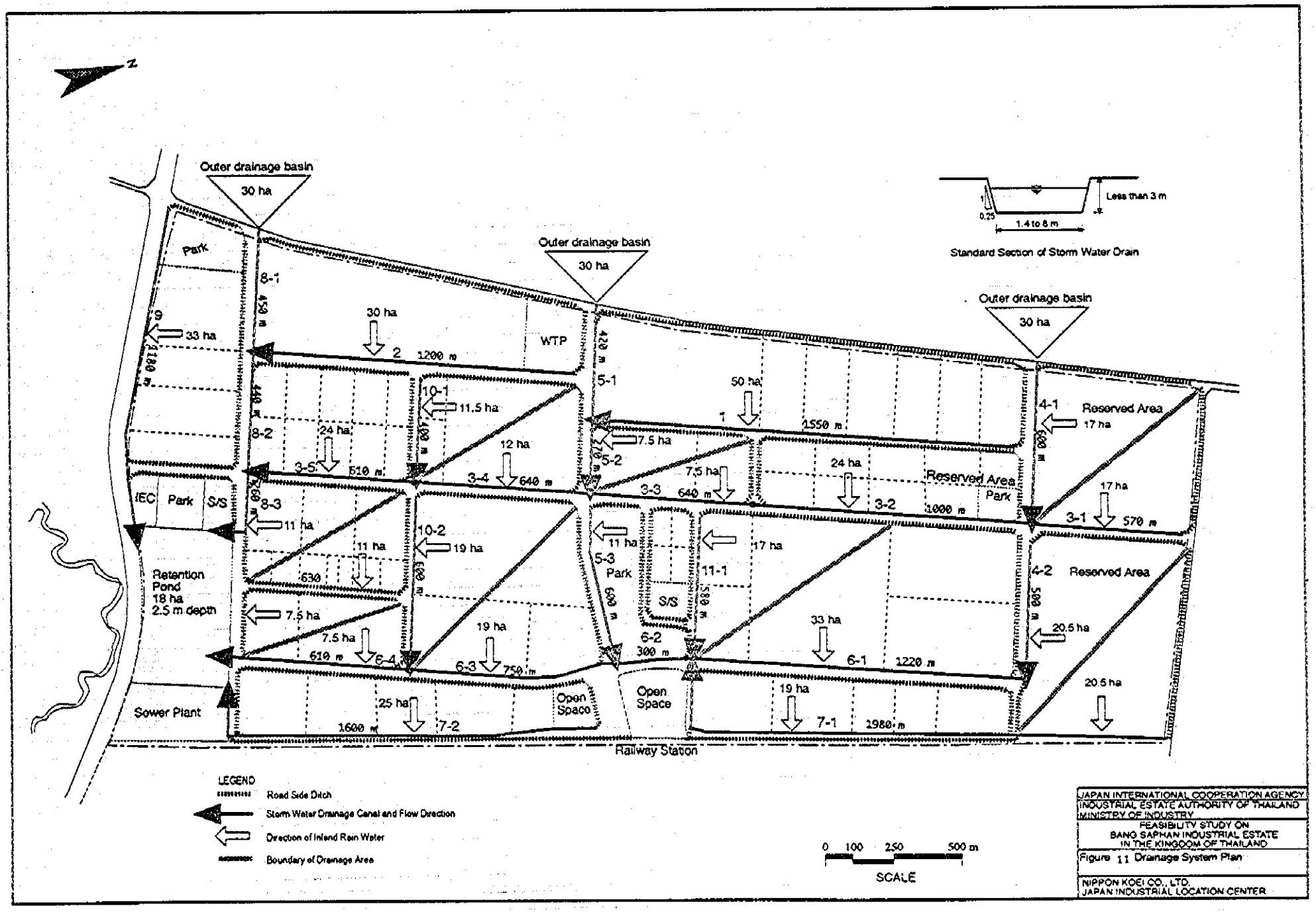
Outer drainage basin
30 ha
Outer drainage basin
30 ha
Outer drainage basin
30 ha
Less than 3 m
1.4 to 8 m
Standard Section of Storm Water Drain
Park
IEC
Park
S/S
Retention Pond
18 ha
2.5 m depth
Sewer Plant
WTP
Reserved Area
Reserved Area
Reserved Area
Park
Park
S/S
Open Space
Open Space
Railway Station
33 ha
30 ha
50 ha
24 ha
12 ha
11.5 ha
7.5 ha
24 ha
7.5 ha
17 ha
11 ha
11 ha
19 ha
11 ha
17 ha
7.5 ha
7.5 ha
19 ha
33 ha
20.5 ha
25 ha
19 ha
20.5 ha
LEGEND
Road Side Ditch
Storm Water Drainage Canal and Flow Direction
Direction of Inland Rain Water
Boundary of Drainage Area
0 100 250 500 m
SCALE
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Figure 11 Drainage System Plan
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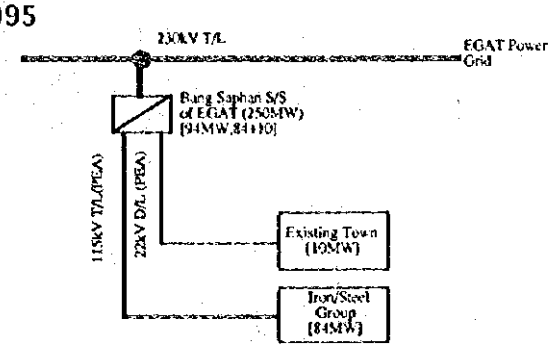
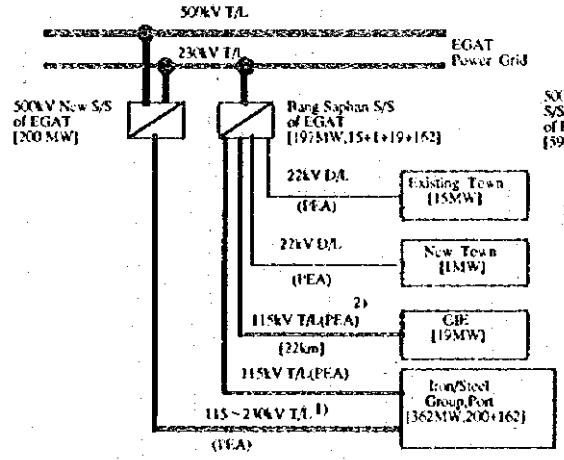
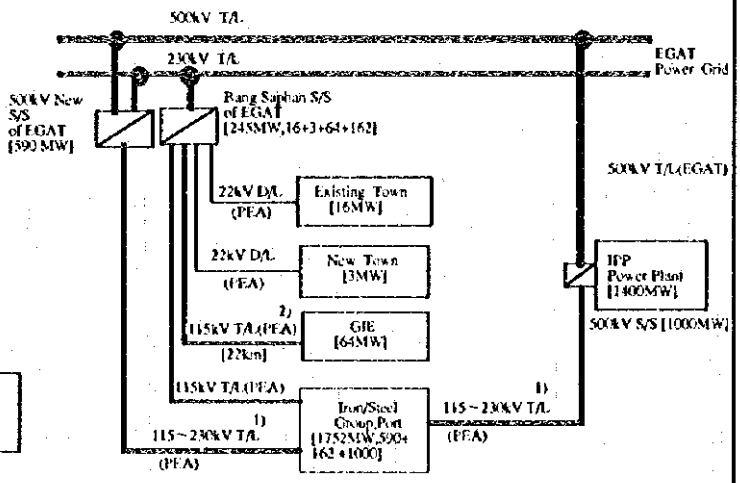
in 1995



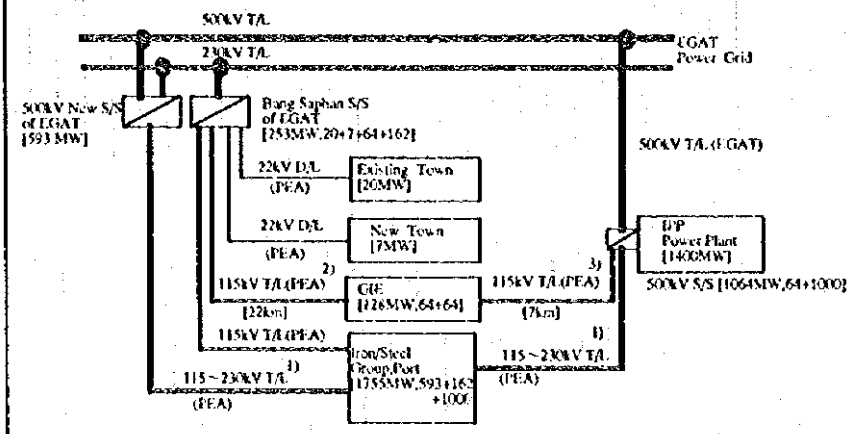
End of 2001



in 2006



in 2011



Remarks 1) : Transmission voltage will depend on electricity demand of each consumer.

2) : To be constructed by the end of 2000.

3) : To be constructed by the end of 2007.

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Figure 12 Schematic Diagram of Power Supply System in 1995, 2001, 2006 & 2011
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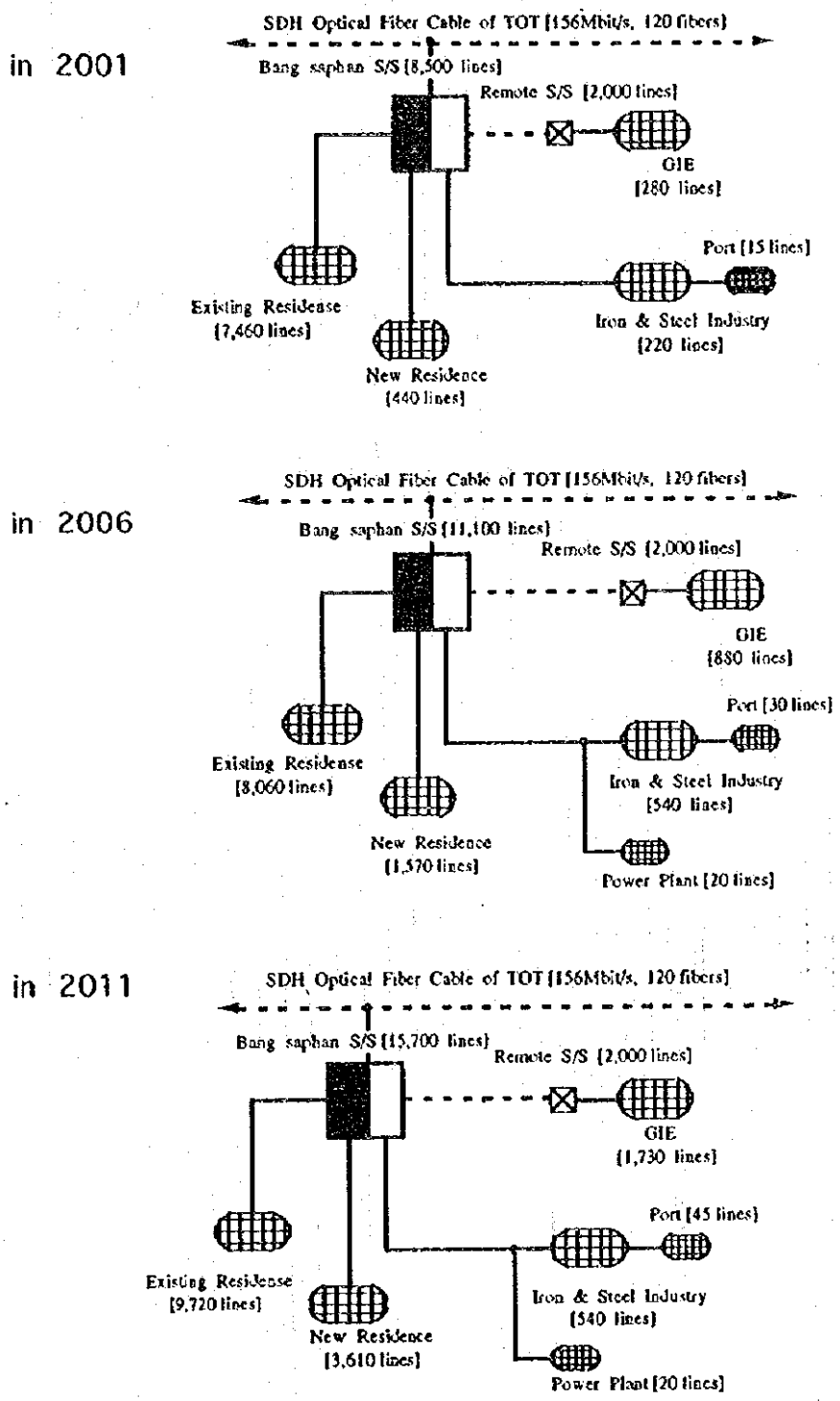

Legend

- Switching station to be expanded
- Remote Switching station to be constructed
- Distribution line to be constructed and/or to be expanded
- Optical fiber cable
- Distribution grid line to be constructed and/or to be expanded

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Figure 13 Schematic Diagram of Telecommunication System in 2001, 2006 and 2011

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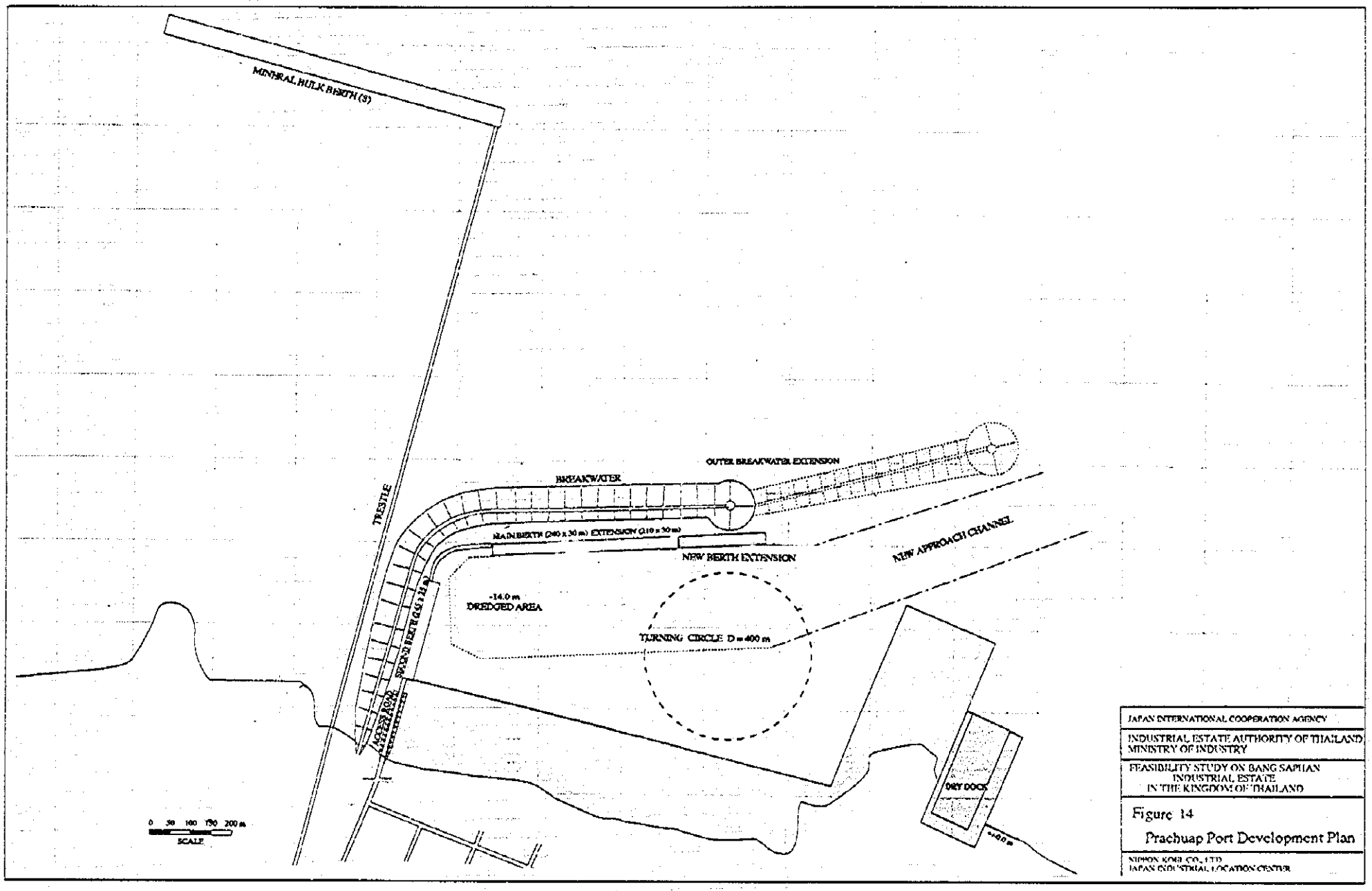
MINERAL BULK BERTH (3)
TRESTLE
BREAKWATER
OUTER BREAKWATER EXTENSION
MAIN BERTH (240 x 30 m) EXTENSION (210 x 30 m)
NEW BERTH EXTENSION
NEW APPROACH CHANNEL
-14.0 m
DREDGED AREA
TURNING CIRCLE D = 400 m
SECOND BERTH (0.5 x 1.1 m)
ACCESSION
DRY DOCK
0 50 100 150 200 m
SCALE
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Figure 14
Prachuap Port Development Plan
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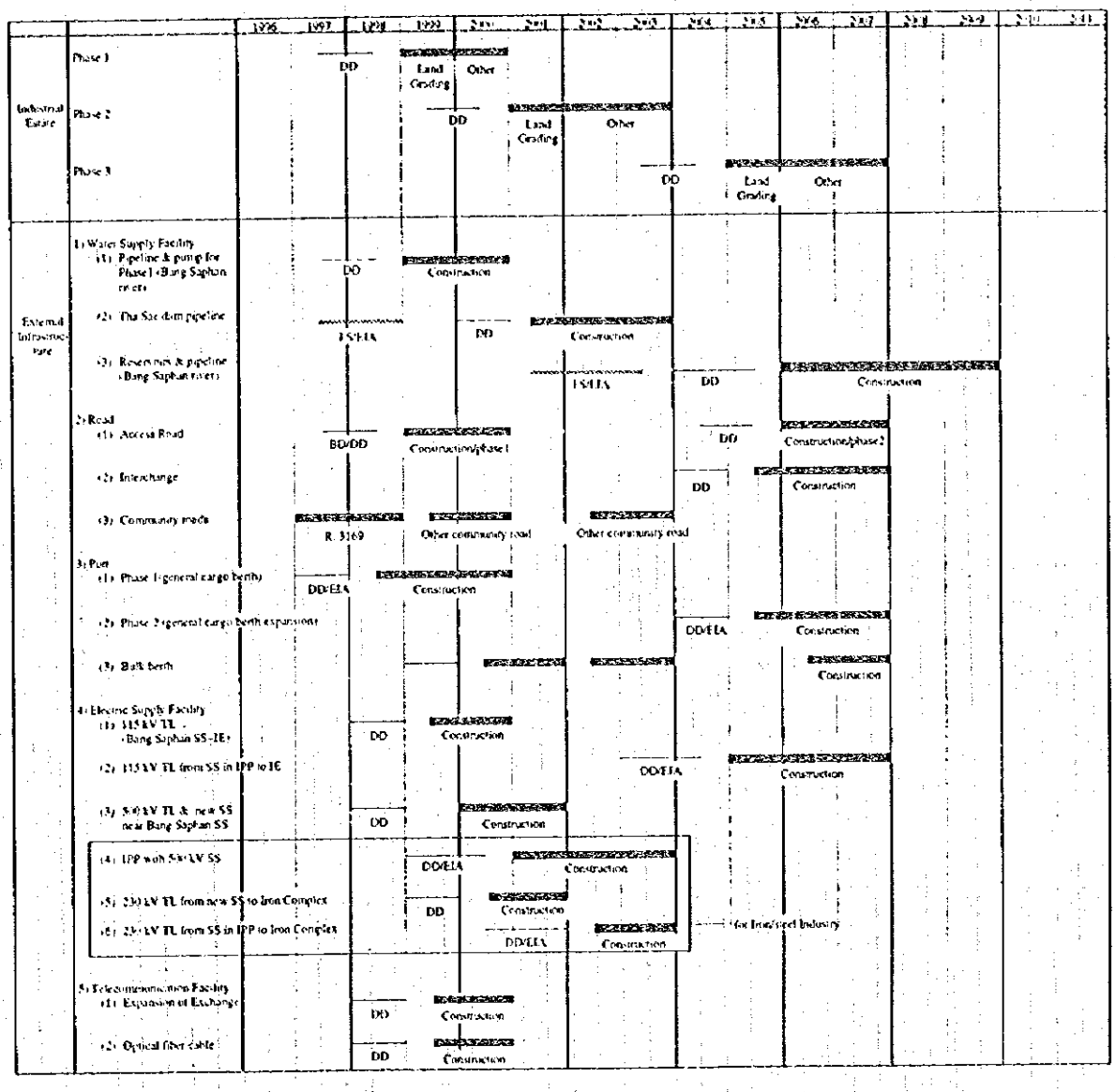

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Figure 15 Development Schedule
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