

conducted on details of flooding and disasters caused in the area, in cooperation with BCGS, to detect interrelation between flood damages and landform or ground elevation.

(4) Data collection

Other than data to be provided by BCGS, collection of data necessary for land condition mapping was made.

(5) Survey on organizations and public facilities (organizations & facilities related to disaster prevention and land development) was carried out based on the contoured map. Those shall be shown on the land condition map.

8-6 Technical Meeting with BCGS

At the time of the field completion (October '86) of the Second Year, preliminary discussion had been made on land condition mapping and both sides had agreed categorization and definition of landform classification (draft). Following this, both sides made further detailed discussions and generally agreed in respect of specifications for landform classification, organization and facilities, etc. as follows:

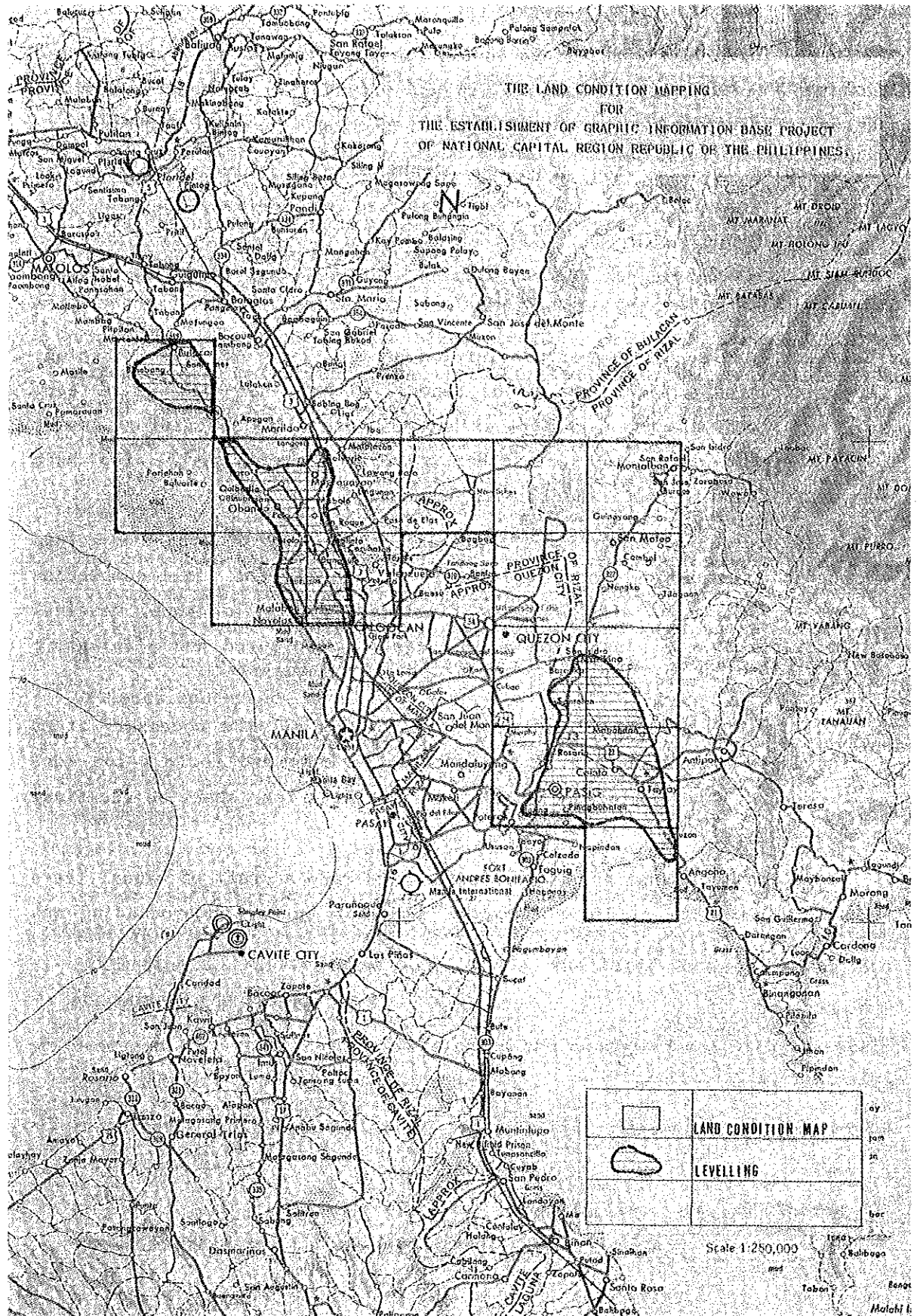
- (1) Definition, purposes and mapping process of land condition map were confirmed.
- (2) Draft specification for landform classification including application and minimum area were confirmed.
- (3) Organization and public facilities to be shown on the land condition map were also confirmed in respect of type, size, expression, etc.
- (4) Color scheme, marginal information, etc. were decided to be confirmed at the time of the field completion in the Third Year. However, temporal symbols for the field identification and the compilation manuscripts to be prepared were discussed and confirmed.
- (5) Regarding the land condition mapping, minutes of discussions, specifications for landform classification including categorization, definition, application, minimum area, classification & application of organization & facilities, etc. are shown in the Appendix 5-1.

8-7 Succeeding Work in Japan

After the completion of the field work, checking and analysis were conducted in Japan as follows:

- (1) Detailed survey for landform classification and data collection:
 - 1) Incorporation of the survey results of landform classification on 3.2-time enlarged aerial photos
 - 2) Arrangement of the outcrop survey and auger boring data
 - 3) Arrangement of reference papers, figures, data, etc. collected in the field survey
 - 4) Arrangement of the local investigation data
 - 5) Analysis of each unit of the land classification in respect to characteristics of geology and landform, disasters, problems of development, etc.
- (2) Minor order leveling:
 - 1) Checking of the field notes and calculation records
 - 2) Pricking of the leveling points and spot heights on the aerial photos
 - 3) Preparation of the leveling route map
 - 4) In-office inspection and preparation of the accuracy control table
- (3) Selection of organization & facilities related to disaster prevention and land development
- (4) Study on data related to land condition and others of sea bottom of shallow sea area

Fig.-1 Areas selected for Minor Order Leveling



9. View on Third Year Work

In the Third Year work, field completion for the land use and land condition maps as well as the compilation and preparation of sample maps are expected to be carried out in Metro Manila Region and Japan respectively.

- (1) Regarding land use map, land use classification including definition, application and minimum area was discussed and confirmed between both sides in the Second Year. Therefore, color scheme, etc. of the land use map is considered necessary to be discussed and finalized between both sides in the Third Year.
- (2) As for land condition map, definition of map, landform classification, organization & facilities to be shown, criteria for expression, etc. were already discussed in general between both sides. Therefore, color scheme for expression and other related matters shall also have necessity to be confirmed through discussion with BCGS.
- (3) It is desirable, therefore, to prepare sample maps of land use & land condition maps, and carry these maps at the time of field completion survey to discuss with BCGS for finalization of color tone, marginal information, etc. just same as the case of contoured and planimetric maps.
- (4) It is quite important to discuss and confirm all the necessary items including specifications of these thematic maps and their color tone with BCGS, as the field completion in the Third Year shall be the final field survey.
- (5) It is considered as necessary, further, to make a draft of manual (as a part of report) of these thematic maps for better understanding and effective utilization.

10. Review of Second Year Work

- (1) The Second Year work has, although its work was rather tightly scheduled, been successfully completed. This is considered to be attributable to the fact that after the 1986 Revolution of the Philippines, preliminary technical meeting was able, prior to commencement of the Second Year field work, to be held at BCGS, where both sides discussed and confirmed many items related to the suspended matters, map specifications and BCGS undertaking.
- (2) Suspended matters of the First Year such as expression of plantation classification, road surface classification, etc. were accepted by the Japanese side on the condition that BCGS would provide necessary survey data. BCGS closely cooperated in providing not only such additional data but other related data and materials for the mapping. As matter of fact, the contoured and planimetric maps were considered to have been completed by the joint work of the Philippines and Japan.
- (3) The contoured and planimetric maps have been completed as 1:10,000 maps incorporating abundant information, responding requests of the Philippine side. Therefore, these maps are expected to be widely and effectively used for redevelopment of the Region, planning of various projects concerned, etc.
- (4) Even in sea area of the map, also responding request of the Philippine side, many information such as depth curve, mud, reef, wreck, etc. are expressed. Therefore, the contoured map is also considered to be very useful for map users in respect to information of the coastal area.
- (5) As for landform classification of land condition map, much efforts has, although outline of which is shown in the Appendix of I/A, been made on collection and analysis of data during the field survey taking into account of the following:
 - 1) Base map for land condition mapping is the contoured map with the scale of 1:10,000.
 - 2) Topographic characteristics of Metro Manila Region is needed to be expressed.
 - 3) Effective use for prevention of natural disasters, selection of suitable areas for future development, etc.

APPENDICES

1-1 Outline of Survey Schedule

- (1) Preliminary Meeting (General Aspect)
- (2) Field Completion (Contoured Map)
- (3) Field Identification (Land Condition Map)

2-1 Minutes for Preliminary Meeting (Jun. '86)

3-1 Plan of Operation for Field Completion

3-2 Minutes for Field Completion (Oct. '86)

3-3 Appendices

- (1) Specifications (1986 Edition) of the contoured map symbols and application
- (2) Specification of the planimetric map
- (3) Specifications and symbol for the planimetric map
- (4) Criteria for expression of the land use map
- (5) Definition & application for the land use map
- (6) Schedule of the 2nd year work
- (7) List of data to be provided for the land condition mapping
- (8) List of data provided for the land condition mapping
- (9) Specifications of letter style & letter size for the contoured map
- (10) Sample sheet for marginal information (under separate cover)
- (11) Definition for the land condition map (Draft)

4-1 Minutes of meeting at the time of checking by BCGS chief counterpart

4-2 Letter of approval of BCGS chief counterpart for printing (Dec. '86)

5-1 Minutes of meeting at the time of the field identification for the land condition map (Mar. '87)

5-2 Appendices

- (1) Plan of Operation of the Land Condition Mapping
- (2) Specifications for Landform Classification (Draft)
- (3) Memorandum
- (4) Approval for Printing by BCGS
- (5) List of Data
- (6) Classification and Application of Organization & Facilities and Others (Draft)

1-1 Outline of Survey Schedule

(1) Preliminary Meeting (General Aspects)

Period: June 16 - 25, '86

<u>Date</u>	<u>Description</u>
June	
16 Mon	Arrival of JICA Advisors, Team Leader Takasaki and 3 other members in Manila; Courtesy call on JICA Office
17 Tue	Courtesy call on BCGS and preliminary meeting and checking of data provided by BCGS
18 Wed	Technical meeting at BCGS
19 Thu	"
20 Fri	"
21 Sat	Field reconnaissance of the survey area for land condition mapping
22 Sun	Team's meeting and drafting of Minutes of Discussion
23 Mon	Discussion and signing on the Minutes at BCGS
24 Tue	Receipt of BCGS survey data; reporting at JICA Office
25 Wed	Departure from Manila to Tokyo

(2) Field Completion (Contoured Map)

Period: August 18 - October 7, '86

<u>Date</u>	<u>Description</u>
August	
16 Mon	Arrival of Deputy Leader Motojima and 3 other members in Manila; Courtesy call on Japanese Embassy and JICA Office
19 Tue	Courtesy call on BCGS and preliminary meeting
20 Wed	Technical meeting at BCGS; Arrival of Kamakura and 8 other members and courtesy call on JICA Office
21 Thu	Team's meeting and preparatory work
22 Fri	"

- 23 Sat Preparation of data; Field completion work (hereinafter to be referred to as "field work")
- 24 Sun Team's meeting
- 25 Mon Technical meeting at BCGS; Field work
- 26 Tue Visit to JICA Office; Field work
- 27 Wed Team's meeting; Field work
- 28 Thu Technical meeting at BCGS; Field work
- 29 Fri Team's meeting; Field work
- 30 Sat Preparation of data; Field work
- 31 Sun Team's meeting

September

- 1 Mon Team's meeting on map specifications; Field work
- 2 Tue (Typhoon Midy hit Manila region)
Data arrangement
- 3 Wed Submission of work report at JICA Office; Field work
- 4 Thu Technical meeting at BCGS; Field work
- 5 Fri Survey of the flooded area; Field work; Transfer of changes after aerial photography (hereinafter to be referred to as "transfer of changes")
- 6 Sat Checking of supplementary survey results; Field work; Transfer of changes
- 7 Sun Team's meeting
- 8 Mon Technical meeting at BCGS; Data collection; Field work; Transfer of changes
- 9 Tue Technical meeting at BCGS; Checking of BCGS survey data; Field work; Transfer of changes
- 10 Wed " "
- 11 Thu Attendance at BCGS Turn-Over Ceremonies (New Director: Comm. Ananias A. Batilaran, Jr.)
- 12 Fri Technical meeting at BCGS; Field work; Transfer of changes
- 13 Sat Team's meeting; Field work; Transfer of changes
- 14 Sun Checking and arrangement of data
- 15 Mon Checking of field work; Data collection; Field work; Transfer of changes
- 16 Tue Technical meeting at BCGS; Supplementary surveying; Field work; In-door work

- 17 Wed Field check; Supplementary surveying; Field work; In-door work
- 18 Thu Preparation of technical papers for meeting; Field work; In-door work
- 19 Fri Technical meeting at BCGS; Supplementary surveying; Field work; In-door work
- 20 Sat Team's meeting
- 21 Sun Data arrangements
- 22 Mon Technical meeting at BCGS; Field work; In-door work
- 23 Tue " "
- 24 Wed " "
- 25 Thr Team's meeting; Field work; In-door work
- 26 Fri Technical meeting at BCGS; In-door work
- 27 Sat Data arrangements; In door work
- 28 Sun Arrival of Team Leader Takasaki and Nakano in Manila; Team's meeting
- 29 Mon Team's meeting; Arrival of JICA Advisors in Manila; Courtesy call on Japanese Embassy and JICA Office
- 30 Tue Technical meeting at BCGS

October

- 1 Wed Field reconnaissance of the survey area for land condition map; Packing of survey equipment
- 2 Thu Technical meeting at BCGS; Drafting of Minutes of Discussion; Packing of survey equipment
- 3 Fri Signing of the Minutes; Reporting at JICA Office; Departure of Kamakura and 8 other members from Manila to Tokyo
- 4 Sat Data arrangements; Departure of JICA advisors and Nakano from Manila to Tokyo
- 5 Sun Data arrangements
- 6 Mon "
- 7 Tue Departure of Team Leader Takasaki and 4 members (HQ) from Manila to Tokyo

(3) Field Identification (Land Condition Map)

Period: January 11 - March 14, '87

<u>Data</u>	<u>Description</u>
January	
11 Sun	Arrival of Deputy Leader Motojima and 3 other members in Manila
12 Mon	Courtesy call on Japanese Embassy, JICA Office and BCGS
13 Tue	Preliminary meeting at BCGS; Preparatory work
14 Wed	Meeting with BCGS Director; Preparatory work
15 Thu	Arrival of Kamakura and 6 other members in Manila
16 Fri	Visit to JICA Office and BCGS
17 Sat	Reconnaissance of the survey area
18 Sun	Team's meeting
19 Mon	Technical meeting at BCGS (hereinafter to be referred to as "technical meeting"); Arrangements of data including aerial photos
20 Tue	Technical meeting; Field identification work (hereinafter to be referred to as "field ID"); Minor order leveling (hereinafter to be referred to as "leveling")
21 Wed	Technical meeting; Field ID; Leveling
22 Thu	" " "
23 Fri	" " "
24 Sat	" " "
25 Sun	Team's meeting
26 Mon	Technical meeting; Field ID; Leveling
27 Tue	" " "
28 Wed	" " "
29 Thu	" " "
30 Fri	" " "
31 Sat	Data arrangement

February

1 Sun Team's meeting
2 Mon (National Holiday: Plebiscite for ratification of draft constitution of the Philippines); Data arrangement
3 Tue Technical meeting; Field ID; Leveling
4 Wed Data collection; " "
5 Thu Data arrangement; " "
6 Fri Data collection; " "
7 Sat Data arrangement; " "
8 Sun Team's meeting
9 Mon Technical meeting; Field ID; Leveling
10 Tue " " "
11 Wed " " "
12 Thu " " "
13 Fri Team's meeting; " "
14 Sat " " "
15 Sun Team's meeting; Data arrangement
16 Mon Technical meeting; Field ID; Leveling
17 Tue " " "
18 Wed " " "
19 Thu Team's meeting; " "
20 Fri Technical meeting; "
21 Sat Data arrangement; "
22 Sun Team's meeting; "
23 Mon Technical meeting; "
24 Tue " " "
25 Wed Field check; "
26 Thu In-office check; "
27 Fri Technical meeting; "
28 Sat Data arrangement and analysis

March

1 Sun Team's meeting
2 Mon Arrival of JICA Advisors (Nagaoka and Yamada) in Manila; Courtesy call on JICA Office & Japanese Embassy; Technical meeting; Field ID

- 3 Tue Courtesy call on BCGS; Field ID; Team's meeting
- 4 Wed Field reconnaissance (Advisors); Field ID
- 5 Thu " ("); Arrival of Team Leader Takasaki
in Manila; Team's meeting
- 6 Fri Technical meeting; Meeting at JICA Office; Data arrangement
- 7 Sat Team's meeting; Data arrangement; Departure of JICA Advisor
Yamada from Manila
- 8 Sun Team's meeting; Departure of Kamakura and 6 other members from
Manila;
- 9 Mon Technical meeting (regarding organization & facilities related to
disaster prevention and land development)
- 10 Tue Technical meeting (regarding organization & facilities related to
disaster prevention and land development); Departure of JICA
Advisor Nagaoka from Manila
- 11 Wed Technical meeting (regarding organization & facilities related to
disaster prevention and land development)
- 12 Thu Technical meeting (regarding ground elevation); Field
reconnaissance
- 13 Fri Signing of Minutes; Reporting at JICA Office; Checking of the
aerial photographs
- 14 Sat Departure of Team Leader Takasaki and 4 other members (Motojima,
Kimura, Yoshida and Toyooka) from Manila


2-1 Minutes for Preliminary Meeting (Jun. '86)

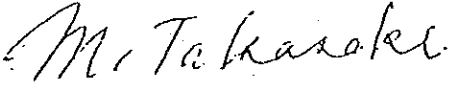
MINUTES OF DISCUSSIONS
ON
THE ESTABLISHMENT OF GRAPHIC INFORMATION BASE PROJECT
FOR THE NATIONAL CAPITAL REGION
BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE BUREAU OF COAST AND GEODETIC SURVEY

Dated June 23rd 1986
in Manila, Philippines

FOR THE BUREAU OF COAST
AND GEODETIC SURVEY

FOR THE JAPAN INTERNATIONAL
COOPERATION AGENCY


Commodore ANTONIO P. VENTURA
Director of BCGS


Mr. MASAYOSHI TAKASAKI
Leader of JICA Survey Team

For smooth and effective implementation of the 2nd year work, the meeting was held from June 17 to 24'86 at BCGS, both sides discussed and agreed on the following items:

I. Outline and results of the 1st year work

Carried out by both sides after the completion of the field survey in October 1985.

By JICA Team

- 1) Aerial Triangulation - 123 models
- 2) Stereo Plotting - 1,500 km², 57 sheets
- 3) Sample Maps - contoured map
- Planimetric map

By BCGS

Field Identification work for the following itmes:

1. Administrative boundary
2. Administrative name
3. Geographical name
4. Name of subdivision
5. Name of road
6. Name of street
7. Road No.
8. Name of railway
9. Name of railway station
10. Name of river

11. Name of bridge
12. CL of pedestrian overpass
 - CL of LRT
 - CL of overpass
13. Rock awash, reef
14. Wreck
15. Lighthouse
16. Sewerage outfall
17. Depth curve

II. Outline of the 2nd year work (Tentative)

JICA Team explained the outline of the 2nd year work. (See Appendix-1)

Compilation	- 1,500 km ²	- 57 sheets	- June - August '86
Field Completion	- 1,500 km ²	- 57 sheets	- Aug. - Oct '86
Preparation of			
Original manuscript	- 1,500 km ²	- 57 sheets	- Oct. - Nov. '86
Drafting (scribe)	- 1,500 km ²	- 57 sheets	- Oct. '86 - Jan '87
Printing:			
Contoured map		- 57 sheets	- Jan - March '87
Planimetric map		- 57 sheets	- Jan. - March '87
Field Identification (for Land Condition Map)	- 430 km ²	- 16 sheets	- Jan. - March '87
Leveling	- 150 km		- Jan - March '87

III. Technical Discussion

1. All the results of the field implementation made by BCGS except data of plantation classification were received by JICA Team.
2. Changes to be incorporated on the maps shall be limited to major changes.
3. Map specifications were confirmed on the sample sheets.

IV. Others

1. BCGS requested to express the surface classification of main roads on the planimetric maps. JICA team promised to make further studies within the limits of using 2 colors only.
2. BCGS promised to acquire one set of new aerial photography (1986) by early August '86.
3. BCGS will try to provide the following data by mid-September '86
 - 3-1 Results of the plantation classification. In case data can not be made available, plantation shall be classified by stereo interpretation.
 - 3-2 Magnetic, true and grid north values for every map sheet.
 - 3-3 New road numbers



4. BCGS promised to provide necessary counterparts for the field survey work as follows: ^{c/p}
- For Field Completion - 10 persons mid-August-early Oct.'86
- For Field Identification - 6 persons mid-Jan.-early March'87

Handwritten initials

Schedule of the 2nd Year Work
for
Establishment of Graphic Information Base Project

Survey Items	F. Y. 1966											
	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Compilation (Contoured Map)												
Field Completion (Contoured Map)		6/16 *	6/18 *									
Drafting (Contoured Map)		6/25 *	10/7									
Printing (Contoured Map & Planimetric Map)										1/11		
Field Identification (Land Contour Map)												3/14

* : Technical discussion on the 2nd Year Work

▨ : Field work

▩ : In-door work

LIST OF ATTENDANTS

BUREAU OF COAST AND GEODETIC SURVEY

1. Commodore Antonio P. Ventura
Director
2. Captain Renato B. Feir
Chief, Operations Division
3. Mr. Ponciano Ciceron
Chief, Coastal Mapping and Special
Projects Division
4. Ms. Feliza M. Nepomuceno
Acting Chief, Chart and Map
Production Division

JICA SURVEY COMMITTEE

1. Mr. Tadao Dohi
Technical Advisor
2. Mr. Yoshikazu Yamada
Advisor

JICA SURVEY TEAM

1. Mr. Masayoshi Takasaki
Leader
2. Mr. Kenzo Motojima
Deputy Leader
3. Mr. Hiroshi Kimura
Coordinator
4. Mr. Isao Furukawa
Chief Surveyor



3-1 Plan of Operation for Field Completion

Plan of Operation
of the 2nd Year Work for the Establishment of Graphic
Information Base Project of NCR, the Philippines

1. Outline of the 2nd Year Work

In the 2nd year work, the contoured & planimetric maps shall be completed. As for the land condition map, field identification and minor order leveling shall be conducted in the project area. The 2nd year work is summarized as follows:

(see Appendix - 1)

Kind of Map	Item of Work	Coverage of Work
Contoured Map	Compilation	1,500 km ² (57 sheets)
	Field completion	" "
	Preparation of Original manuscript	" "
	Drafting (scribing)	" "
	Printing	57 sheets x 1,000 copies
Planimetric Map	Printing	57 sheets x 1,000 copies
Land Condition Map	Field identification	429 km ² (16 sheets)
	Minor order leveling	150 km

2. Field Completion

2-1 Outline

Compilation manuscripts (blue prints) prepared by JICA team shall be checked and confirmed as follows:

- (1) Items which have been uncertain during the course of the stereo-plotting or compilation work, shall be checked and confirmed.
- (2) Expression of major changes shall be corrected based upon newly acquired photos (1986).

If necessary, supplementary survey will be conducted using transit and plain table.

(3) Survey data to be provided by BCGS shall be incorporated in the compilation manuscripts.

2-2 Formation of Survey Team

(1) Formation of JICA Team

Name of Team Member	August '86	September	October
(Headquarters) Masayoshi Takasaki, Leader Kenzo Motojima, Deputy Leader Hiroshi Kimura, Coordinator	18	28	7
(Field Survey) Isao Furukawa, Chief Surveyor Tomotaka Kamakura, Surveyor Nasumi Ikuno, Surveyor Yasuo Furukawa, " Tatsujiro Kubo, " Shozo Shimoda, " Masanobu Ishii, " Masataka Miyazaki, " Mitsuo Hasegawa, " Shingo Niijima, " Atsushi Okuizumi, "	20		3
(Specs. on Printing) Tomoyuki Nakano, "	18	28	4

(2) Group Formation of JICA & BCGS

Items of Work	JICA	BCGS	Period
Technical discussion & Confirmation of data	Headquarters 3	Staff 3	Aug. 18-Oct. 7 '86
Field work	Chief Surveyor 1 Surveyors 10	Counterparts 8 (including security)	Aug. 20-Oct. 3 '86
Specs. on Printing	Surveyor 1*	Staff 3	Sep. 28-Oct. 4 '86

* To be assisted by the Chief Surveyor

2-3 Data and Specifications to be confirmed during the Field Completion

2-3-1 Data to be prepared by BCGS:

- (1) Controlled mosaic photo map of NCR (1/10,000): by mid-August
- (2) Field identification photos (3 & 2 times): "
- (3) Other data: by mid-September
 - a. Classified data of plantation (6 items)
If no data provided, classification shall be made based on photo-interpretation.
 - b. Magnetic north, true north, grid north for every sheet
 - c. Road No., road name, if necessary, and origin & destination of major roads

2-3-2 Data prepared by JICA team

- (1) Annotation data sheet for contoured map: to be signed by BCGS
- (2) " for planimetric map: "
- (3) " of road destination: "
- (4) Sample planimetric map expressing major road classification
- (5) Sample land use map prepared in color pencil

2-3-3 Specifications to be finalized by the end of the field completion

- (1) Specifications on printing & marginal information of the contoured and planimetric maps
- (2) Specifications of land use map
- (3) Specifications (draft) of land condition map

2-4 Succeeding Work to be conducted in Japan

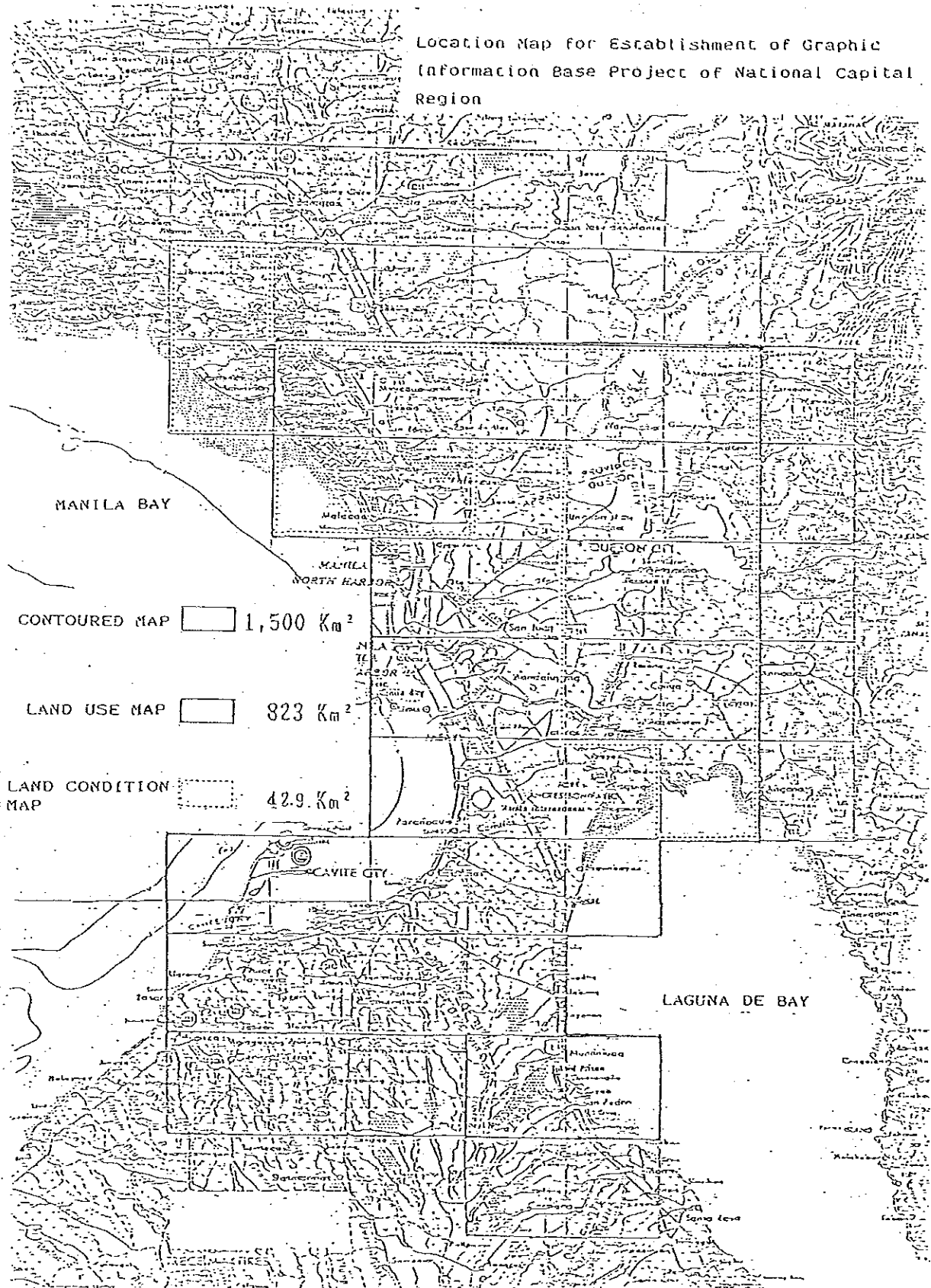
Original manuscript of the contoured map shall be made by incorporating the field completion data into the compilation manuscripts.

After conducting drafting (scribing) based on the original manuscript, printing of the contoured map (5 colors) and planimetric map (2 colors) shall be made using the scribed sheets.

2-5 Surveys for Land Condition Map

As for the land condition map, field reconnaissance in the project area and preliminary discussions on a draft specifications shall be conducted during the present field completion work.

In the next year, field identification and leveling for the land condition map shall be carried out for about 2 months from January 11 to March 14, 1987.



Schedule of the 2nd Year Work
for
Establishment of Graphic Information Base Project

F. Y. 1986

Survey Items	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Compilation (Contoured Map)												
Field Completion (Contoured Map)			6/16		8/18							
Drafting (Contoured Map)			5/25			3/07						
Printing (Contoured Map & Planimetric Map)												
Field Identification (Land Contour Map)										1/11		3/14

* : Technical discussion on the 2nd Year work
 : Field work
 : In-door work

MINUTES OF DISCUSSIONS
ON
THE ESTABLISHMENT OF GRAPHIC INFORMATION BASE PROJECT
FOR THE NATIONAL CAPITAL REGION
BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE BUREAU OF COAST AND GEODETIC SURVEY

Dated: October 3rd 1986
in Manila, Philippines

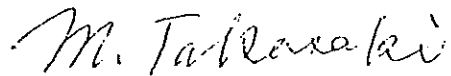
FOR THE BUREAU OF COAST
AND GEODETIC SURVEY

FOR THE JAPAN INTERNATIONAL
COOPERATION AGENCY



Commo. ANANIAS A. BATILARAN, Jr.

Director of BCGS



Mr. MASAYOSHI TAKASAKI

Team Leader of JICA Survey

Team



Upon completion of the 2nd year field completion work, which has been carried out in joint work of Survey Teams of JICA and BCGS since mid-August 1986, Mr. Masayoshi Takasaki, JICA Team Leader, reported results of survey work and expressed his sincere gratitude to BCGS for its close cooperation.

Both sides discussed about results of the field completion and the succeeding work to be conducted in the 2nd year, and agreed as follows:

I. Results of the Field Completion

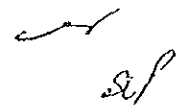
The following work has been completed by both sides:

By JICA Team

1. All the items (features) to be expressed on the contoured map have been checked and confirmed within the whole project area.
2. Expression of major changes have been supplemented and incorporated based on the new aerial photos and supplementary survey using transit and plain table.
3. Specifications of the contoured, planimetric and land use maps have been discussed and finalized.

By BCGS

1. Check, selection and confirmation of the following data have been completed:
 - (1) Annotation data sheets for the contoured and planimetric map
 - (2) Annotation data sheets of road and railway destination
2. Magnetic north, true north, grid north values for every sheet have been computed.
3. Classification data for plantation (6 items) have been completed.
4. Administrative boundaries have been supplemented and confirmed.
5. Acquisition of new aerial photographs (1986) has been done.



II. Technical Discussions

Following specifications and other items have been discussed in detail and agreed by both side:

1. Specifications (1986 Edition) of the contoured map symbols and their application (see Appendix -1).
2. Specifications of planimetric map (see Appendix -2).
3. Definition and application of specifications (except colour scheme) for the land use map (see Appendix -3).
4. Draft specifications of marginal information including letter size and style. (see Appendix 6 & 7)
5. Route number shall be expressed with the existing number.
6. Road surface classification shall be expressed for all roads of 4m or more in width on the contoured and planimetric map.
7. Destination of railway or expressway shall be shown with the name of next station or interchange respectively.
8. Name of map sheet No. 31 "Antipolo" shall be replaced with "Cogeo Village".
9. Printing of the contoured map shall be made in five (5) colours (black, blue, brown, green and blackish blue) as specified in the above specifications of the contoured map symbols and their application.
10. Printing of the planimetric map shall be made in two (2) basic colours (blue and black) as specified in the above specifications of the planimetric map.

III. Succeeding Work of the 2nd Year (see Appendix 4)

By JICA Team

1. The contoured map and planimetric map shall be completed after drafting (scribing) and printing work as follows:
Contoured map: 57 sheets x 1,000 copies (5 colours)
Planimetric map: 57 sheets x 1,000 copies (2 colours)

2. For land condition map, following work shall be conducted:

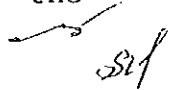
- (1) Preliminary photo-interpretation (429 km², 16 sheets)
- (2) Field identification (429 km², 16 sheets) and minor order leveling (4th order, about 150 km) in the flat area of Metro Manila.

By BCGS

1. BCGS shall provide data necessary for the land condition survey by mid-January '87 which is the commencement of the field identification work. (see Appendix -5)

IV Others

1. On land condition mapping, the preliminary discussions on categorization and definition of the landform and field reconnaissance have been conducted. This shall be for the succeeding preliminary photo-interpretation. (see Appendix 8)
2. BCGS and JICA officials seals shall be shown at the margin.



List of Attendants

BUREAU OF COAST AND GEODETIC SURVEY

1. Captain Renato B. Feir
Chief Counterpart, BCGS-
JICA NCR Project/Staff
Officer for Planning/Chief
Operations Division
2. Captain Manuel M. Calibo
Staff Officer for Chart & Map
Production Division/Chief
Operations Division
3. Mr. Ponciano C. Ciceron
Chief, Coastal Mapping and
Special Projects Division
4. Mr. Gavino C. Angeles, Jr.
Chief, Chart & Map Production
Division
5. Engr. Felisa M. Nepomuceno
Chief, Planning Division

JICA SURVEY COMMITTEE

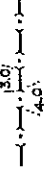
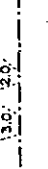

1. Mr. Tadao Dohi
Technical Adviser
2. Yoshikazu Yamada
Adviser

JICA SURVEY TEAM





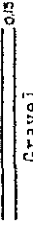
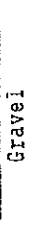




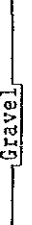

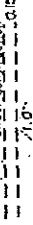

1. Mr. Masayoshi Takasaki
Leader
2. Mr. Kenzo Motojima
Deputy Leader
3. Mr. Hiroshi Kimura
Coordinator
4. Mr. Isao Furukawa
Chief Surveyor

(1) Specifications (1986 Edition) of the contoured map symbols and application

SPECIFICATIONS AND SYMBOL FOR METRO MANILA CONTOURED MAP 1:10,000
(1986 Edition)

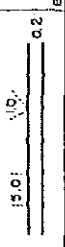


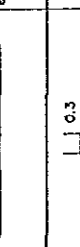
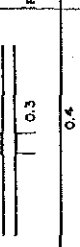
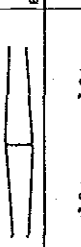
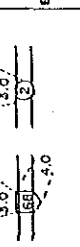
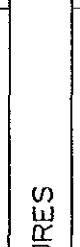
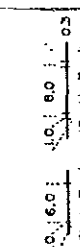
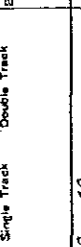
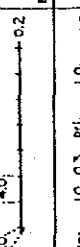
NO.	NAME	SYMBOL	COLOUR	APPLICATION
CONTROL POINTS				
1	Horizontal Control Station	0.5 A123.4 /20\	E04-24 80 Black	2nd order or higher grade triangulation points and newly established control points monumented in this survey shall be symbolized except points confirmed lost.
2	Vertical Control Station (Identifiable)	0.5 0.356.13 /1.5\	E04-24 80 Black	2nd order or higher grade leveling points pricked in this survey shall be symbolized.
3	Spot Height	.659	E08-23 80 Black	Elevation points measured by stereoplotter shall be symbolized.
4	Direct Leveling Point	.917.4	E29-24 80 Black	Elevation of points measured by 3rd or lower order leveling survey shall be symbolized.
BOUNDARIES				
5	Regional Boundary		Black	Regional boundary shall be shown within the neatline without annotation. Annotation shall be indicated below the boundary diagram.
6	Provincial Boundary		Black	Provincial boundary shall be shown within the neatline without annotation. Annotation shall be indicated below the boundary diagram. Where the provincial boundary coincides with regional boundary, symbol shall be that of the latter.
7	City or Municipal Boundary		Black	City or Municipal boundary shall be shown within the neatline without annotation.



NO.	NAME	SYMBOL	COLOUR	APPLICATION
ROADS				
8	Divided Highway/Expressway		D33-75 40% Blackish Blue	(1) Highway or expressway shall express those with separate zones. Separate zone of 3m or more in width shall be drawn to scale. If width is less than 3m the separate zone shall be shown as a single line. (2) Destination of the divided highway/expressway shall be expressed with the name of next interchange.
9	National/Provincial Road		D33-75 40% Blackish Blue	(1) National Highway/Provincial Road shall be expressed with the route number.
10		Concrete 	D33-75 10% Blackish Blue	(2) Roads of 4m or more in width shall be drawn to scale.
		Asphalt 		(3) Roads whose width are between 2-4m shall be shown in 0.4mm double line.
		Gravel 	Blackish Blue	(4) Roads whose width are between 1-2m shall be shown in 0.25mm single line.
11			Blackish Blue	(5) Expression of roads whose length are less than 50m can be deleted.
12	City/Municipal Road		D33-75 40% Blackish Blue	(6) Double line roads shall be expressed with the road surface classification specified for concrete, asphalt and gravel.
13		Concrete 	D33-75 40% Blackish Blue	(7) Roads which are more than 300m in length and 15m in width shall be annotated
		Asphalt 	D33-75 10% Blackish Blue	(8) Road destination shall be expressed on the following roads: 1) Expressways, 2) National Highways, 3) Provincial roads, and 4) Other important roads.
14		Gravel 	Blackish Blue	
15	Trail/Alley		Blackish Blue	Trail/Alley whose width is less than 1m and which crosses residential areas and fields shall be expressed on the map if photo-identifiable and of importance.
16	Road Under Construction		Blackish Blue	Alley shall be expressed in 0.4mm double line, while trail shall be expressed in 0.25mm broken line.
17	Sidewalk		Blackish Blue	Road under construction whose width is more than 4m and shape is already clear shall be expressed as completed.
			Blackish Blue	Sidewalk for pedestrians or bicycles whose width is 3m or more shall be expressed. Sidewalks located under overhang of buildings shall be symbolized.

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NO.	NAME	SYMBOL	COLOUR	APPLICATION
18	Grade Separation		Blackish Blue	Roads with grade separation shall be differentiated from the level roads. Road, canal, etc. under overhead shall not be shown.
19	Crossing		Blackish Blue	The symbol specification at the left portion shows overpass and that at the right shows level crossing.
20	Pedestrian Overpass		Blackish Blue	Overpass through which pedestrians, bicycles, etc. cross road or railway shall be shown to scale. In case the width is less than 3m, the overpass shall be symbolized with 3mm width on the map. Clearance shall be indicated.
21	Pedestrian Underpass		Blackish Blue	Underpass used by pedestrians shall be shown. Section which is underground shall not be shown.
22	Toll Gate		Blackish Blue	Gate collecting toll shall be symbolized.
23	Route Marker National/Provincial		Blue	If National Highway/Provincial Road crosses the map neatline, the route number shall be shown close to the neatline, and the road line must not be cut to accommodate the route marker.
RAILWAY FEATURES				
24	National Railway		Black	(1) Government owned railway shall be symbolized. The left side of the symbols shows a single track and the right shows double tracks. Abandoned railway shall be annotated.
25	Private Railway		Black	(2) Railway destination shall be expressed with the name of next station.
26	Under Construction		Black	Railways owned by private enterprise shall be symbolized.
27	Level Crossing		Black	Railway under construction shall be shown. Railway nearing completion shall be symbolized as completed railways.
28	Overpass		Black	Crossing where railway passes level road or another railway shall be shown.
				Crossing where railway passes over a road shall be shown.

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NO.	NAME	SYMBOL	COLOUR	APPLICATION
29	Underpass		Black	Crossing where railway passes under a road (under ground) shall be shown.
30	Railway Station		Black	Railway station for passengers and freight car including platform, overbridge, etc., shall be shown.
31	Light Rail Crossing		Black	Elevated railway of the Light Rail Transit shall be shown together with the stations. Railway clearance above main road intersection shall be shown.
32	Turntable		Black	Revolving circular platform used for turning locomotive, etc., around shall be symbolized.
BUILDINGS				
33	Prominent Building		Brown 0.25	Important and/or at least 4 storey buildings, shall be shown.
34	Independent Buildings & House		Brown 0.1	Isolated buildings whose short side is more than 1.0mm on the map (including warehouses) are to be shown.
35	Congested Housing Area Slum		More Than 70% Built Coverage D/33-45-20% Brown	Congested housing and slum area surrounded by street whose actual coverage of buildings is more than 70% of the area shall be shown. If there is any prominent building in the area, this shall be symbolized accordingly. Congested area not surrounded by streets shall be shown with actual outline.
36	Ruins		Brown 0.15	Dilapidated buildings, ruins of historical buildings, houses, etc., whose short side is more than 2mm on the map shall be shown.
37	Temporary Housing Areas		Lt 20% 42.5 lines 45° Brown 0.1	Congested areas with temporary houses mostly one storey, including those on water and canal shall be shown.
38	Building Minimum		Brown 0.1	Building where its short side is less than 5m shall be shown with the size of 0.5mm x 0.5mm on the map.
PUBLIC BUILDING (Symbol)				
39	Government Building		Brown 0.15	Photo & field identifiable main offices, branch office of National/City/Municipal administrative organization shall in principle be shown with annotation or abbreviation.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
40	Police Station	2.0 ⊙	Blue	Photo & field identifiable main and branch offices shall be shown and annotated if space permits.
41	Fire Station	2.0 ⊙	Blue	Photo & field identifiable Fire Station shall be shown. Annotation shall be made if space permits.
42	Post Office	2.0 ⊙	Blue	Photo & field identifiable main and branch offices shall be shown and annotated if space permits.
43	Water Supply & Sewerage	0.5 ⊙	Blue	Water treatment plant and pumping stations shall be shown with annotation.
44	School	2.0 ⊙	Blue	University, College/Institution, Vocational/Trade, High School, Elementary and Preparatory school shall be shown with symbols. Universities, down to the High Schools shall be shown with annotation or abbreviation depending on the space.
45	Hospital	2.0 ⊙	Blue	Hospital, large clinic and medical center shall be shown.
46	Church/Mission	2.0 ⊙	Blue	Church, Mission and Chapel shall be shown. Annotation shall be made if necessary.
47	Mosque	2.0 ⊙	Blue	Mosque shall be shown and annotated if space permits.
48	Embassy	0.5 Name	Blue	Embassy/Legation/Consulate shall be shown and annotated at the indicated point.
49	Health Center	2.0 ⊙	Blue	Health centers shall be shown with annotation, if space permits.
50	Temple	1.8 ⊙	Blue	Photo & field identifiable temples shall be shown.
51	Power Plant and Sub - Station	3.0 ⊙	Blue	Power plants and sub-stations shall be shown. Annotation shall be made if space permits.
52	Bank	2.0 ⊙	Blue	Large banks and credit unions that have their own separate buildings shall be shown and annotated.
53	Hotel/Motel	2.0 ⊙	MORE THAN THREE STAR ANNOTATION Blue	Hotel classified as three(3) or more stars shall be shown with annotation. Hotel/Motel classified as two(2) stars or less with ground area of 1cm x 1cm on the map shall be shown with "H" if space permits.

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












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NO.	NAME	SYMBOL	COLOUR	APPLICATION
54	Market & Prominent Store	2.0 ⊙	Blue	Public market with building, large supermarket & department stores shall be shown and annotated if space permits.
55	Factory	2.0 ⊙	Blue	Factory and small scale industries shall be shown with annotation if space permits
56	Helipad	2.0 ⊙	Blue	Helipad which are photo & field identifiable and are permanent shall be shown
57	Theater and Cinema (Prominent)	2.0 ⊙	Annotation Blue	Large & prominent theater, cinema and amusement/recreational places shall be shown with annotation if space permits.
58	Airport/Airfield	0.1 □	Annotation Blackish Blue	All airports and airfields shall be drawn to scale and annotated. Airport facilities shall be drawn as isolated buildings.
59	Sports Center	2.0 ⊙	Blue	Centers like gymnasiums, stadiums, etc., shall be annotated if space permits.

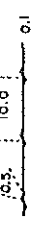



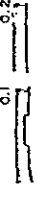


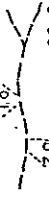

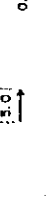

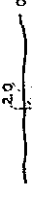

MISCELLANEOUS LANDMARK FEATURES

60	Storage Tank	0.01 0.2	Blue	Oil tanks that can not be drawn to scale shall be symbolized and annotated. In case dimension of more than 1mm on the map they will be drawn to scale and annotated.
61	Tower, Radio Tower, TV, Stack/Flagpole, Telephone	0 Radio 0.2	Blue	Tower, Radio/TV Tower, Stack/Chimney, Flagpole, etc., shall be shown and annotated if these can be used as landmarks. Abbreviations can be adopted if necessary.
62	Power Transmission Line	1.0, 0.2 10.0 0.1	Blackish Blue	Power transmission lines with high towers shall be expressed. Those that have base dimensions of more than 1mm on the map shall be shown to scale. Those with less than 1mm on the map will be symbolized. The part of the lines crossing roads & railways shall be cut 0.2mm from the features.
63	Lighthouse	1.5, 0.5 0.15	Brown	The symbol will be applied for fixed lighthouse.
64	Cave	1.0, 0.5 0.15	Blue	The symbol will be applied for caves formed naturally.

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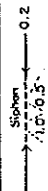
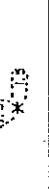
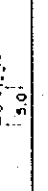
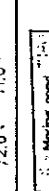
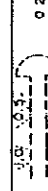
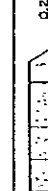

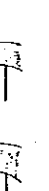
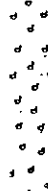
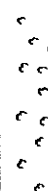
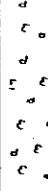
NO.	NAME	SYMBOL	COLOUR	APPLICATION
65	Mine		Blue	Symbol will be applied for mine. The site and kind of mine shall be annotated.
66	Water Tank/Stand Pipe		Blue	The symbol shall be applied for water tanks and standpipes which are large and prominent. Large water tanks more than 1mm on the map shall be drawn to scale.
67	Monument		Blue	Monuments which are big and used as landmarks shall be shown.
68	Wall/Fence		Blackish Blue	The symbol shall be applied for walls which are photo & field identifiable and made of stone, bricks, concrete or steel mesh.
69	Antiquity		Annotation Black	The coverage shall be delineated and annotated.
70	Park		0.20 45° Rural park-20% Green Black	The coverage shall be delineated and annotated.
71	Windpump		Blue	The symbol shall be applied for facilities which pump up ground water by means of wind force.
72	Gas Station		Blue	Prominent gasoline stations used as transport terminal, specially those situated at crossings shall be symbolized.
73	Bus Terminal		Blue	Terminal of buses connecting city and provinces (including large motor pool) shall be symbolized and annotated if space permits.
74	Aero Beacon		Blue	Beacon that send out signals for the guidance of aircrafts shall be symbolized.
75	Slipway		Black	Inclined platform with rails leading down to water, on which ships are built or repaired shall be symbolized.
76	Memorial Park, Cemetery		0.20, 45 20% Green Black	On the symbol specifications, the left side represents memorial park and the right side cemetery. Limits of memorial park will be delineated and annotated. Cemeteries shall be symbolized if photo & field identifiable.
77	Fort		Black	Famous historic spots, noted places, etc. shall be annotated if space permits. Line width shall be 0.4 & 0.2mm on the map for the inside and outside lines respectively.




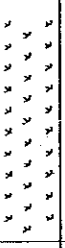
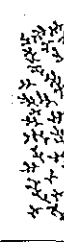
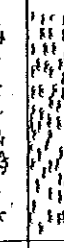
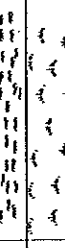
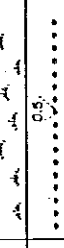
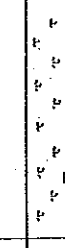
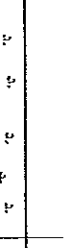
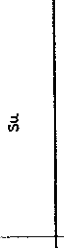
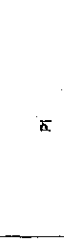
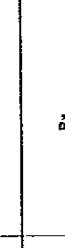
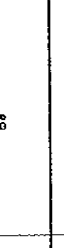
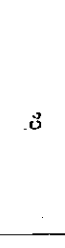
NO.	NAME	SYMBOL	COLOUR	APPLICATION
78	Rope Way		Black	Facilities for transporting aggregates from quarry by overhead wire rope shall be symbolized.
79	Military		0/20 45° 20% Background GR/EN Blackish Blue	Area where facilities of the Armed Forces of the Philippines exist. Roads, spot heights and contour lines shall be shown.
WATER and ASSOCIATED FEATURES				
80	Pier - Jetty		Black	Pier or jetty made of iron, concrete, wood, including floating bridge shall be shown to scale or symbolized.
81	Breakwater		Black	Breakwater, groin, etc., shall be drawn to scale.
82	Wharf/Rivetment		Black	Photo & field identifiable wharf which has mooring facilities shall be symbolized. Revetment which are made of concrete or filled-up solid stones that have a height of more than 2m and length of 100m shall be symbolized.
83	River/Stream Single Line		Blue	Stream which is more than 100m in length and less than 4m in width shall be expressed as single line.
84	Double Line		0/20 45° 20% Blue	River which is more than 100m in length and more than 4m in width shall be shown as double line. Shoreline of rivers/creeks/canals in congested areas shall be shown as much as possible.
85	Intermittent		Blue	River in which no water flow at the time of an ordinary water level for other rivers shall be symbolized.
86	Indefinite		Blue	Waterway whose banks or course can not exactly be determined because of forest cover or other obstruction shall be symbolized.
87	Flow Arrow		Blue	The symbol shall be applied where the flow is certain and for wide and double line rivers.
88	Falls Double Line		Blue	Waterfalls whose height is more than 3m shall be symbolized.
89	Single Line		Blue	Waterfalls whose height is less than 3m shall be symbolized.
90	Well		Blue	Well which is large and prominent shall be symbolized.

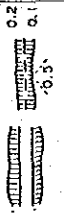
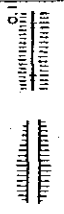

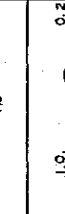

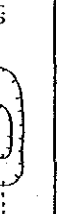
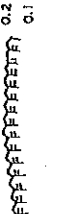


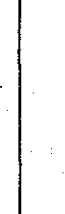
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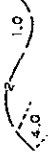

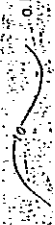
NO.	NAME	SYMBOL	COLOUR	APPLICATION
91	Spring/Hot Spring		Annotation Blue	Spring or hot spring shall be symbolized and annotated if space permits.
92	Channel/Causeway Double Line with Reversment		Blue	Channel or canal(esteros), which is more than 10m in width and 100m in length shall be shown.
93	Flood Gate		Black	Artificial structure for control of water volume for the prevention of adverse flow shall be symbolized, and annotated if space permits.
94	Dam		Black	Dams which are photo & field identifiable shall be drawn to scale, and annotated if space permits.
95	Weir		Black	Artificial structure to control water flow shall be symbolized. Those with length of more than 10m shall be drawn to scale.
96	Lake/Pond Shoreline		D120 45' 20 1/4 Blue	Lake or pond whose approximate dimensions are more than 20m x 20m shall be shown and annotated if space permits. Shoreline at the time of aerial photography shall be shown
97	Ditch		Blue	Ditch whose dimensions are more than 10m in width and 100m in length shall be shown. Those with smaller dimensions shall also be shown if necessary and space permits.
98	Swamp/Marsh		P 15 D130-75 20 1/4 Symbol Green Water Blue	Marshy area which is always wet and store water during rainy season with area of more than 50m x 50m shall be symbolized.
99	Tidal Flat		LT 88 Blue	Water areas where sand or earth is exposed at low water and covers at high water with area of more than 50m x 50m shall be symbolized.
100	Reef/Coral		P 4 Blue	Coral reef with area of 50m x 50m or more shall be symbolized.
101	Mud		E16-25 80 LT 934 Blue	Tidal flat covered by muddy soil, whose dimensions are more than 50mm x 50mm on the map shall be symbolized.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
102	Pipeline/Water Pipeline		E04-24 80 Black	Pipeline used for transporting water, oil, gas, etc., which are photo & field identifiable shall be symbolized. Underground section shall not be expressed.
103	Siphon		E04-24 80 Blue	Siphon which is photo & field identifiable shall be symbolized and annotated "Siphon"
104	Rock Awash		Black	Rock awash which is dangerous to surface navigation shall be symbolized.
105	Wreck		Black	Wrecks showing any portion of hull or always partially submerged shall be symbolized.
106	Sewerage Outfall		E06-25 80 Blue	Sewerage outfall shall be symbolized and annotated in italic.
107	Marine Pond		E04-24 80 Line - Black Water - Blue D20 45% 0.2	Photo & field identifiable pond for raising marine species shall be drawn to scale and annotated if space permits.
108	Fishpen		Blue	Drift-net used for fishpen which is located at sea, lake or river shall be drawn to scale if photo & field identifiable.
109	Salt Bed		Line - Blue Water Screen 020 45% 0.2	Salt beds shall be drawn to scale.
110	Ferry/Ford		E16-25 80 Blackish Blue	In case of a regular service, ferry shall be annotated as "Ferry" in italic and symbolized. The landing places on both banks of the river shall be linked with broken line. In case of fording, it shall be annotated as "Ford" in italic.
Screen 0120 45% 10%				
VEGETATION				
111	Broadleaf		P 5 Green Background 10% Green	Areas where broadleaf tree grows more than 3m high and with more than 5mm x 5mm on the map shall be symbolized.
112	Bushes/Scrub		P 7 Green Background 10% Green	Area where trees of less than 3m high and with less than 5mm x 5mm on the map shall be symbolized.
113	Mixed Scrub & Broadleaf		P 8 Background 10% Green	Areas of mixed scrub and broadleaf trees shall be symbolized.

2

NO.	NAME	SYMBOL	COLOUR	APPLICATION
114	Rice Fields		P 14 Vegetation Green Background 10% Blue	Areas for rice cultivation whose dimension is more than 50m x 50m shall be symbolized.
115	Cropland Agricultural Land		P 15 Vegetation Green Background 10% Green	Cultivated areas for upland rice or vegetables, whose dimensions are more than 50m x 50m shall be symbolized.
116	Mangrove		Vegetation Green Background 10% Blue	Mangroves which grow densely along river banks/mouths and coastal areas and whose dimensions are more than 50m x 50m shall be symbolized.
117	Nipa		P 10 Vegetation Green Background 10% Blue	Nipa which grows in water edge and whose dimensions are more than 50m x 50m shall be symbolized.
118	Tropical Grass		P 11 Vegetation Green Background 10%	Areas with dense tropical grass and whose dimensions are more than 50m x 50m shall be symbolized.
119	Tree Lined Road		Vegetation Green	Roads where trees are planted in a row and are prominent landmarks shall be symbolized.
120	Bamboo		Vegetation Green Background Green 10%	Areas where bamboo tree grows densely of not less than 50m x 50m shall be symbolized.
121	Sugarcane		Vegetation Green Background Green 10%	Plantation for sugarcane shall be symbolized.
122	Pineapple		Vegetation Green Background Green 10%	Plantation for pineapple shall be symbolized.
123	Banana		Vegetation Green Background Green 10%	Plantation for banana shall be symbolized.
124	Coconut		Vegetation Green Background Green 10%	Plantation for coconut trees shall be symbolized.
125	Mango		Vegetation Green Background Green 10%	Plantation for mango trees shall be symbolized.
126	Other Plantation		P 17 Vegetation Green Background Green 10%	Plantation for other fruit trees shall be symbolized.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
RELIEF and ASSOCIATED FEATURES				
127	Cutting		Black	Man-made cutting whose dimensions are more than 2m in height and 100m in length and if photo & field identifiable shall be symbolized.
128	Embankment		Black	Man-made embankment whose dimensions are more than 2m in height and 100m in length which are photo & field identifiable shall be symbolized.
129	Slope		Black	Slopes caused by land slide whose dimensions are more than 2m in height and 30m in length which are photo & field identifiable shall be symbolized.
130	Quarry		Black	Quarry for construction materials which is extensive shall be drawn to scale. Small ones shall be symbolized.
131	Depression		Black	Areas where the ground is depressed partly shall be symbolized.
132	Cliff		Black	Steep hilly areas where rock surface is exposed and whose dimensions are more than 2m in height and 50m in length shall be symbolized.
133	Rock outcrop Area		L1 735 Black	Areas whose surface is rocky, or areas where huge rocks are scattered and which are photo & field identifiable shall be symbolized.
134	Sand/Dunes		L1 88 Black	Natural sand areas with little or no vegetation, which are photo & field identifiable, shall be symbolized.
CONTOURS				
135	Index Contour		Black	Index contour interval shall be 20m.
136	Intermediate Contour		Black	Contour interval shall be 4m.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
137	Supplementary Contour		Black	Two (2) meter contour line shall be drawn on flat areas. On mountainous areas, it shall be shown if possible to depict land condition.
138	Contour Values		E08-25 80 Black	Contour values shall be shown if necessary.
DEPTH CURVES				
139	Depth Curve		E08-25 80 Blue	Depth curves for 1, 5, 10, 20, 50 and 100m depths shall be shown.

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PLANIMETRIC MAP

Specifications of Planimetric Map

I. Basic Concept


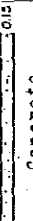

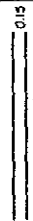


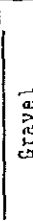
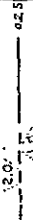
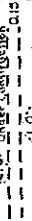
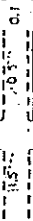


1. Planimetric map shall be made showing selected features based on the contoured map.
2. Planimetric map shall be printed only by combination of colour separation plates which are produced in the process of colour separation drafting of the contoured map except road annotation plate.
3. Printing of the planimetric map shall be made in two basic colours, blue and black.

II. Definition

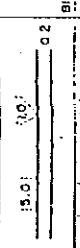

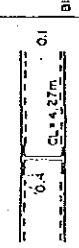
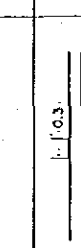
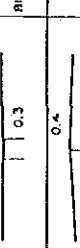
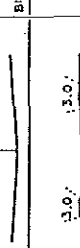
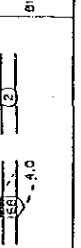

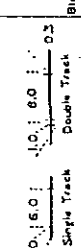
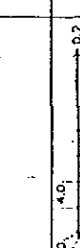
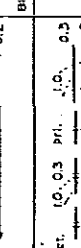
Planimetric map shall be a base map showing selected features of the contoured map, except contours, depth curves, spot heights, relief and associated features.

III. Detailed Specifications

1. Limits, annotations and function symbols of water features shall be shown in blue and others in black.
2. Roads whose dimensions are more than 4 m in width and 200 m in length shall be annotated.
3. The Universal Transverse Mercator Projection shall be used, with central meridian at Long. $123^{\circ} 00' 00''$ E. Projection interval shall be 30". Spaces between parallels of latitude shall be identified by letters A, B, C, etc., while spaces between meridians of longitude shall have numbers 1, 2, 3, etc... Letters and numbers shall start from the intersection of Lat. $14^{\circ} 18' 00''$ N and Long. $120^{\circ} 51' 00''$ E.
4. Expression of the road surface classification shall be the same as the contoured map.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
ROADS				
7	Divided Highway/Expressway		033-75 40% Black	(1) Highway or expressway shall express those with separate zones. Separate zone of 3m or more in width shall be drawn to scale. If width is less than 3m the separate zone shall be shown as a single line. (2) Destination of the divided highway/expressway shall be expressed with the name of next interchange.
8	National/Provincial Road		033-75 40% Black	(1) National Highway/Provincial Road shall be expressed with the route number.
9				(2) Roads of 4m or more in width shall be drawn to scale.
10			033-75 10% Black	(3) Roads whose width are between 2-4m shall be shown in 0.4mm double line.
11	City/Municipal Road		033-75 40% Black	(4) Roads whose width are between 1-2m shall be shown in 0.25mm single line.
12				(5) Expression of roads whose length are less than 50m can be deleted.
13			033-75 10% Black	(6) Double line roads shall be expressed with the road surface classification specified for concrete, asphalt and gravel.
14	Trail/Alley			(7) Roads which are more than 200m in length and 4m in width shall be annotated
15	Road Under Construction		033-75 10% Black	(8) Road destination shall be expressed on the following roads: 1) Expressways, 2) National Highways, 3) Provincial roads, and 4) Other important roads.
16	Sidewalk			Trail/Alley whose width is less than 1m and which crosses residential areas and fields shall be expressed on the map if photo-identifiable and of importance. Alley shall be expressed in 0.4mm double line, while trail shall be expressed in 0.25mm broken line.
			Black	Road under construction whose width is more than 4m and shape is already clear shall be expressed as completed.
			Black	Sidewalk for pedestrians or bicycles whose width is 3m or more shall be expressed. Sidewalks located under overhang of buildings shall be symbolized.

Handwritten mark

NO.	NAME	SYMBOL	COLOUR	APPLICATION
17	Grade Separation		Black	Roads with grade separation shall be differentiated from the level roads. Road, canal, etc. under overhead shall not be shown.
18	Crossing		Blackish Blue	The symbol specification at the left portion shows overpass and that at the right shows level crossing.
19	Pedestrian Overpass		Black	Overpass through which pedestrians, bicycles, etc. cross road or railway shall be shown to scale. In case the width is less than 3m, the overpass shall be symbolized with 3mm width on the map. Clearance shall be indicated.
20	Pedestrian Underpass		Black	Underpass used by pedestrians shall be shown. Section which is underground shall not be shown.
21	Toll Gate		Black	Gate collecting toll shall be symbolized.
22	Route Marker National/Provincial		Blue	If National Highway/Provincial Road crosses the map neatline, the route number shall be shown close to the neatline, and the road line must not be cut to accommodate the route marker.
RAILWAY FEATURES				
23	National Railway		Black	(1) Government owned railway shall be symbolized. The left side of the symbols shows a single track and the right shows double tracks. Abandoned railway shall be annotated. (2) Railway destination shall be expressed with the name of next station.
24	Private Railway		Black	Railways owned by private enterprise shall be symbolized.
25	Under Construction		Black	Railway under construction shall be shown. Railway nearing completion shall be symbolized as completed railways.
26	Level Crossing		Black	Crossing where railway passes level road or another railway shall be shown.
27	Overpass		Black	Crossing where railway passes over a road shall be shown.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
28	Underpass		Black	Crossing where railway passes under a road (under ground) shall be shown.
29	Railway Station		Black	Railway station for passengers and freight car including platform, overbridge, etc., shall be shown.
30	Light Rail Transit Crossing		Black	Elevated railway of the Light Rail Transit shall be shown together with the stations. Railway clearance above main road intersection shall be shown.
31	Turnplate		Black	Revolving circular platform used for turning locomotive, etc., around shall be symbolized.
BUILDINGS				
32	Prominent Building		Black	Important and/or at least 4 storey buildings, shall be shown.
33	Independent Buildings B. House		Black	Isolated buildings whose short side is more than 1.0mm on the map (including warehouses) are to be shown.
34	Congested Housing Area Slum		Black	Congested housing and slum area surrounded by street whose actual coverage of buildings is more than 70% of the area shall be shown. If there is any prominent building in the area, this shall be symbolized accordingly. Congested area not surrounded by streets shall be shown with actual outline.
35	Ruins		Black	Dilapidated buildings, ruins of historical buildings, houses, etc., whose short side is more than 2mm on the map shall be shown.
36	Temporary Housing Areas		Black	Congested areas with temporary houses mostly one storey, including those on water and canal shall be shown.
37	Building Minimum		Black	Building where its short side is less than 5m shall be shown with the size of 0.5mm x 0.5mm on the map.
PUBLIC BUILDING (Symbol)				
38	Government Building		Blue	Photo & field identifiable main offices, branch office of National/City/Municipal administrative organization shall in principle be shown with annotation or abbreviation.














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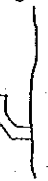
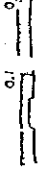


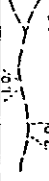
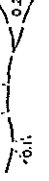
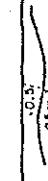
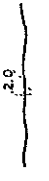


NO.	NAME	SYMBOL	COLOUR	APPLICATION
39	Police Station	2.0 ⊙	Blue	Photo & field identifiable main and branch offices shall be shown and annotated if space permits.
40	Fire Station	2.0 ⊙	Blue	Photo & field identifiable Fire Station shall be shown. Annotation shall be made if space permits.
41	Post Office	2.0 ⊙	Blue	Photo & field identifiable main and branch offices shall be shown and annotated if space permits.
42	Water Supply & Sewerage	0.5 ⊙	Blue	Water treatment plant and pumping stations shall be shown with annotation.
43	School	2.0 ⊙	Blue	University, College/Institution, Vocational/Trade, High School, Elementary and Preparatory school shall be shown with symbols. Universities, down to the High Schools shall be shown with annotation or abbreviation depending on the space.
44	Hospital	2.0 ⊙	Blue	Hospital, large clinic and medical center shall be shown.
45	Church/Mission	2.0 ⊙	Blue	Church, Mission and Chapel shall be shown. Annotation shall be made if necessary.
46	Mosque	2.0 ⊙	Blue	Mosque shall be shown and annotated if space permits.
47	Embassy	0.5 ⊙	Blue	Embassy/Legation/Consulate shall be shown and annotated at the indicated point.
48	Health Center	2.0 ⊙	Blue	Health centers shall be shown with annotation, if space permits.
49	Temple	1.0 ⊙	Blue	Photo & field identifiable temples shall be shown.
50	Power Plant and Sub - Station	0.5 ⊙	Blue	Power plants and sub-stations shall be shown. Annotation shall be made if space permits.
51	Bank	2.0 ⊙	Blue	Large banks and credit unions that have their own separate buildings shall be shown and annotated.
52	Hotel/Motel	2.0 ⊙	More Than three stars Annotation Blue	Hotel classified as three(3) or more stars shall be shown with annotation. Hotel/Motel classified as two(2) stars or less with ground area of 1cm x 1cm on the map shall be shown with "H" if space permits.

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NO.	NAME	SYMBOL	COLOUR	APPLICATION
53	Market & Prominent Store	2.0 ⊙	Blue	Public market with building, large supermarket & department stores shall be shown and annotated if space permits.
54	Factory	2.0 ⊙	Blue	Factory and small scale industries shall be shown with annotation if space permits
55	Helipad	2.0 ⊙	Blue	Helipad which are photo & field identifiable and are permanent shall be shown
56	Theater and Cinema (Prominent)	2.0 ⊙	Annotation Blue	Large & prominent theater, cinema and amusement/recreational places shall be shown with annotation if space permits.
57	Airport/Airfield	0.1 []	Annotation Black	All airports and airfields shall be drawn to scale and annotated. Airport facilities shall be drawn as isolated buildings.
58	Sports Center	2.0 ⊙	Blue	Centers like gymnasiums, stadiums, etc., shall be annotated if space permits.
MISCELLANEOUS LANDMARK FEATURES				
59	Storage Tank	0.2 ⊙	Blue	Oil tanks that can not be drawn to scale shall be symbolized and annotated. In case dimension of more than 1mm on the map they will be drawn to scale and annotated.
60	Tower, Radio Tower, TV, Stack/Chimney, Telephone	0.2 ⊙	Blue	Tower, Radio/TV Tower, Stack/Chimney, Flagpole, etc., shall be shown and annotated if these can be used as landmarks. Abbreviations can be adopted if necessary.
61	Power Transmission Line	0.1 []	Black	Power transmission lines with high towers shall be expressed. Those that have base dimensions of more than 1mm on the map shall be shown to scale. Those with less than 1mm on the map will be symbolized. The part of the lines crossing roads & railways shall be cut 0.2mm from the features.
62	Lighthouse	0.10 []	Black	The symbol will be applied for fixed lighthouse.
63	Cave	0.15 []	Blue	The symbol will be applied for caves formed naturally.


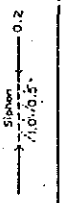

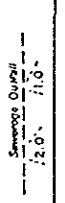
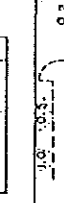

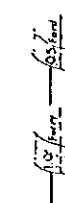

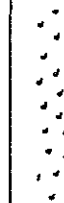
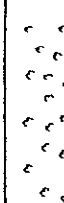
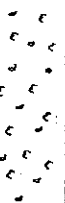

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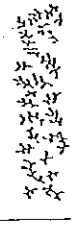

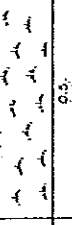
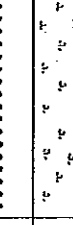
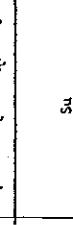

NO.	NAME	SYMBOL	COLOUR	APPLICATION
64	Mine		Blue	Symbol will be applied for mine. The site and kind of mine shall be annotated.
65	Water Tank/ Stand Pipe		Blue	The symbol shall be applied for water tanks and standpipes which are large and prominent. Large water tanks more than 1mm on the map shall be drawn to scale.
66	Monument		Blue	Monuments which are big and used as landmarks shall be shown.
67	Wall/Fence		Black	The symbol shall be applied for walls which are photo & field identifiable and made of stone, bricks, concrete or steel mesh.
68	Antiquity		Annotation Black	The coverage shall be delineated and annotated.
69	Park		Black	The coverage shall be delineated and annotated.
70	Windpump		Blue	The symbol shall be applied for facilities which pump up ground water by means of wind force.
71	Gas Station		Blue	Prominent gasoline stations used as transport terminal, specially those situated at crossings shall be symbolized.
72	Bus Terminal		Blue	Terminal of buses connecting city and provinces (including large motor pool) shall be symbolized and annotated if space permits.
73	Aero Beacon		Blue	Beacon that send out signals for the guidance of aircrafts shall be symbolized.
74	Slipway		Black	Inclined platform with rails leading down to water, on which ships are built or repaired shall be symbolized.
75	Memorial Park, Cemetery		Black	On the symbol specifications, the left side represents memorial park and the right side cemetery. Limits of memorial park will be delineated and annotated. Cemeteries shall be symbolized if photo & field identifiable.
76	Fort		Black	Famous historic spots, noted places, etc. shall be annotated if space permits. Line width shall be 0.4 & 0.2mm on the map for the inside and outside lines respectively.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
77	Rope Way		Black	Facilities for transporting aggregates from quarry by overhead wire rope shall be symbolized.
78	Military			Area where facilities of the Armed Forces of the Philippines exist. Roads, spot heights and contour lines shall be shown.
WATER and ASSOCIATED FEATURES				
79	Pier - Jetty		Black	Pier, or jetty made of iron, concrete, wood, including floating bridge shall be shown to scale or symbolized.
80	Breakwater		Black	Breakwater, groin, etc., shall be drawn to scale.
81	Wharf/Revetment		Black	Photo & field identifiable wharf which has mooring facilities shall be symbolized. Revetment which are made of concrete or filled-up solid stones that have a height of more than 2m and length of 100m shall be symbolized.
82	River/Stream Single Line		Blue	Stream which is more than 100m in length and less than 4m in width shall be expressed as single line.
83	Double Line		Blue	River which is more than 100m in length and more than 4m in width shall be shown as double line. Shoreline of rivers/creeks/canals in congested areas shall be shown as much as possible.
84	Intermittent		Blue	River in which no water flow at the time of an ordinary water level for other rivers shall be symbolized.
85	Indefinite		Blue	Waterway whose banks or course can not exactly be determined because of forest cover or other obstruction shall be symbolized.
86	Flow Arrow		Blue	The symbol shall be applied where the flow is certain and for wide and double line rivers.
87	Falls Double Line		Blue	Waterfalls whose height is more than 3m shall be symbolized.
88	Single Line		Blue	Waterfalls whose height is less than 3m shall be symbolized.
89	Well		Blue	Well which is large and prominent shall be symbolized.



NO.	NAME	SYMBOL	COLOUR	APPLICATION
90	Spring/Hot Spring		Annotation Blue	Spring or hot spring shall be symbolized and annotated if space permits.
91	Channel/Causeway Double Line with Retainment		Blue	Channel or canal(esteros), which is more than 10m in width and 100m in length shall be shown.
92	Flood Gate		Black	Artificial structure for control of water volume for the prevention of adverse flow shall be symbolized, and annotated if space permits.
93	Dam		Black	Dams which are photo & field identifiable shall be drawn to scale, and annotated if space permits.
94	Weir		Black	Artificial structure to control water flow shall be symbolized. Those with length of more than 10m shall be drawn to scale.
95	Lake/Pond Shoreline		Blue	Lake or pond whose approximate dimensions are more than 20m x 20m shall be shown and annotated if space permits. Shoreline at the time of aerial photography shall be shown
96	Ditch		Blue	Ditch whose dimensions are more than 10m in width and 100m in length shall be shown. Those with smaller dimensions shall also be shown if necessary and space permits.
97	Swamp/Marsh		P 15 Symbol Water Blue	Marshy area which is always wet and store water during rainy season with area of more than 50m x 50m shall be symbolized.
98	Tidal Flat		L 108 Blue	Water areas where sand or earth is exposed at low water and covers at high water with area of more than 50m x 50m shall be symbolized.
99	Reef/Coral		P 4 Blue	Coral reef with area of 50m x 50m or more shall be symbolized.
100	Mud		516-23 80 L 1 234 Blue	Tidal flat covered by muddy soil, whose dimensions are more than 50mm x 50mm on the map shall be symbolized.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
101	Pipeline/Water Pipeline		E04-24 80 Black	Pipeline used for transporting water, oil, gas, etc., which are photo & field identifiable shall be symbolized. Underground section shall not be expressed.
102	Siphon		E04-24 80 Blue	Siphon which is photo & field identifiable shall be symbolized and annotated "Siphon"
103	Rock Awash		Black	Rock awash which is dangerous to surface navigation shall be symbolized.
104	Wreck		Black	Wrecks showing any portion of hull or always partially submerged shall be symbolized.
105	Sewerage Outfall		Black E08-25 80 Blue	Sewerage outfall shall be symbolized and annotated in italic.
106	Marine Pond		E04-24 80 Line - Black	Photo & field identifiable pond for raising marine species shall be drawn to scale and annotated if space permits.
107	Fishpen		Blue	Drift-net used for fishpen which is located at sea, lake or river shall be drawn to scale if photo & field identifiable.
108	Salt Bed		Line - Blue	Salt beds shall be drawn to scale.
109	Ferry/Ford		E18-25 80 Black	In case of a regular service, ferry shall be annotated as "Ferry" in italic and symbolized. The landing places on both banks of the river shall be linked with broken line. In case of fording, it shall be annotated as "Ford" in italic.
VEGETATION				
110	Broadleaf		P 5 Black	Areas where broadleaf tree grows more than 3m high and with more than 5mm x 5mm on the map shall be symbolized.
111	Bushes/Scrub		P 7 Black	Area where trees of less than 3m high and with less than 5mm x 5mm on the map shall be symbolized.
112	Mixed Scrub & Broadleaf		P 8 Black	Areas of mixed scrub and broadleaf trees shall be symbolized.

NO.	NAME	SYMBOL	COLOUR	APPLICATION
113	Rice Fields		P 14 Vegetation Black	Areas for rice cultivation whose dimension is more than 50m x 50m shall be symbolized.
114	Cropland Agricultural Land		P 15 Vegetation Black	Cultivated areas for upland rice or vegetables, whose dimensions are more than 50m x 50m shall be symbolized.
115	Mangrove		Vegetation Black	Mangroves which grow densely along river banks/mouths and coastal areas and whose dimensions are more than 50m x 50m shall be symbolized.
116	Nipa		P 10 Vegetation Black	Nipa which grows in water edge and whose dimensions are more than 50m x 50m shall be symbolized.
117	Tropical Grass		P 11 Vegetation Black	Areas with dense tropical grass and whose dimensions are more than 50m x 50m shall be symbolized.
118	Tree Lined Road		Black	Roads where trees are planted in a row and are prominent landmarks shall be symbolized.
119	Bamboo		Vegetation Black	Areas where bamboo tree grows densely of not less than 50m x 50m shall be symbolized.
120	Sugarcane	Su	Vegetation Black	Plantation for sugarcane shall be symbolized.
121	Pineapple	Pi	Vegetation Black	Plantation for pineapple shall be symbolized.
122	Banana	Ba	Vegetation Black	Plantation for banana shall be symbolized.
123	Coconut	Co	Vegetation Black	Plantation for coconut trees shall be symbolized.
124	Mango	Man	Vegetation Black	Plantation for mango trees shall be symbolized.
125	Other Plantation		P 17 Vegetation Black	Plantation for other fruit trees shall be symbolized.

LAND USE MAP

Criteria for Expression

Classification and generalization of features to be expressed on land use map shall be made in accordance with the following criteria:

1. In Urban area, where buildings and their facilities occupy more than 50% of the site in terms of minimum area, land use classification shall be expressed by the general usage of the area.
2. Two(2) storey buildings, where usage by floor is divided for residential and other category , classification shall be under the latter.
3. Area where land use is mixed and classification can not be made properly, as in three(3) or more storey tenanted buildings where usage in each floor is different from others, classification shall be mixed category.

Classification shall be the following 3 categories:

- (1) Mixed commercial-residential
- (2) Mixed industrial-residential
- (3) Mixed business-commercial

4. In commercial or mixed area, building which faces the street and is less than 15m in width, shall be expressed in 1.5mm strip on the map.

(5) Definition & application for the land use map

Definition & Application for Land Use Map (1:10,000)

CLASSIFICATION	DEFINITION	APPLICATION	MINIMUM AREA
URBAN AREA			
Residential District			
1	Multi-storey Housing	Four(4) or more storey housing in a compound	3 x 3
2	Residential	One(1) to three(3) storey housing area	3 x 3
3	Temporal Housing Area	Congested area where mainly one(1) storey temporal housing exist.	3 x 3
Commercial/Business District			
4	Business	Area. Where enterprises conduct their trade and office work.	3 x 3
5	Commercial	Area which is considered as a general shopping district including those for shops, stores.	3 x 3 (1.5)
6	Mixed Commercial-Residential Area	Three(3) or more storey tenanted buildings which have shops or stores on the first floor and upper floors are for residential, and their classification cannot be made properly.	3 x 3 (1.5)

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CLASSIFICATION	DEFINITION	APPLICATION	MINIMUM AREA
7	Mixed Business-Commercial Three (3) or more storey mixed business/commercial buildings which can not be classified properly.		3 x 3 (1.5)
Industrial District			
8	Large Scale Industry Area where large scale industries mainly exist.	Such industry occupy an area of at least 5mm x 5mm on the map. The area includes its own office, parking lot, sports ground, etc. Manufacturing industries like textile industry and chemical industry, shipyard, bottling company, quarry with classifying facilities, etc.	5 x 5
9	Small Scale Industry Area where small factories mainly exist.	Such industry occupies an area of less than 5mm x 5mm on the map. Cinema studio, furniture factory, auto repair shop, etc.	3 x 3
10	Mixed Industrial-Residential Three (3) or more storey buildings with mixed industrial/residential usage which can not be classified properly.		3 x 3 (1.5)
Public & Official District			
11	Governmental/Quasi-Public Area Area where buildings of National, Regional, Local Government organizations or corporations, etc., mainly exist for carrying on their business.	National or public buildings, police stations, fire stations, embassy or legation, consulate, trade/cooperative union buildings, quasi-public buildings, prison, etc.	3 x 3
12	Education-Culture Area where educational, research and cultural facilities mainly exist.	School, research laboratories, public hall, library, exhibition hall, museum, research institute, astronomical observatory, historical buildings, etc.	3 x 3

URBAN AREA

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CLASSIFICATION		DEFINITION	APPLICATION	MINIMUM AREA
13	Health & Welfare	Area where health and welfare facilities mainly exist.	Hospital, sanitarium, medical health center, large clinics, rehabilitation center, etc.	3 x 3
14	Park & Recreational Area	Area where public and recreational facilities mainly exist.	Park, garden, zoological & botanical gardens, picnic ground, theater, cinema, cockpit, casino, horse racing track, resort & beaches, etc.	3 x 3
15	Religious & Cemetery	Area where religious facilities and cemetery exist.	Church, temple, mosque, memorial park, cemetery, seminary, monastery, photo-identifiable grotto, etc.	3 x 3
Facilities				
16	Transportation	Area where transportation and bulk fuel facilities exist.	Railway station and terminal including car shed, marshalling yard, airport, bus terminal, parking lot, pier, port facilities, fuel oil & LPG terminal, cargo shed of the above facilities., etc.	3 x 3
17	Service	Area where supply and treatment facilities for City & Municipal management exist.	Power station & substation, water treatment & filtering plant, sewerage, crematory, dumping area, etc.	3 x 3
18	Sports & Athletic	Area where sports facilities exist.	Sports plaza, stadium, shooting range, gymnasium, golf courses, tennis & basketball courts, bowling hall, billiard hall, etc.	3 x 3
19	Military	Area where military facilities exist	Military camp, depot and establishment	5 x 5

URBAN AREA

CLASSIFICATION	DEFINITION	APPLICATION	MINIMUM AREA
Agricultural Land			
20	Rice Field Area where irrigated paddies exist.	Rice paddy	5x5
21	Crop Land Area where crops are cultivated.	Corn, upland rice, vegetables, etc.	5x5
22	Plantation Area where plantation exists.	Banana, coconut, mango, sugar cane, pineapple, calamansi and other fruit bearing trees	5x5
23	Agro-Industrial Area where agriculture-related industrial facilities exist.	Rice mill, warehouse for agricultural products, tractor shed, processing factory, sugar factory, animal food factory, stock house, etc.	10x10
Forest & Farm Area			
Forest			
24	Forest Area covered by trees.	Broadleaf, bushes/scrub, mixed scrub & broadleaf, bamboo	5x5
25	Grass Land Area covered by grass.	Pasture, ranch and other area where tropical grass densely grows	5x5
26	Bare Land Area where little or no vegetation grow.	Rock-outcropped area, barren area and steep slope such as cliff, sand and/or gravel area of river bed and sand dunes	5x5

FE

CLASSIFICATION	DEFINITION	APPLICATION	MINIMUM AREA
Water Sphere			
27	Natural bodies of water	Sea, lake, river, creek/stream, bay, tidal flat and mud	5x5 (2x2)
28	Marine Pond	Fish pond, culturing pond or shelf for raising crab, oyster, shell, etc.	5x5
29	Water related vegetation	Vegetation that grows on water.	5x5
30	Salt Bed	Field where salt is collected.	5x5
Under-Construction			
31	Open Space	Area where artificial land development is in progress.	2x2
OTHERS			

(6) Schedule of the 2nd year work

Schedule of the 2nd Year Work
for
Establishment of Graphic Information Base Project

Appendix-4

Survey Items	F. Y. 1986											
	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Compilation (Contoured Map)												
Field Completion (Contoured Map)			6/16*		8/18							
Drafting (Contoured Map)			6/25									
Printing (Contoured Map & Planimetric Map)												
Field Identification (Land Con- dition Map)										1/11		3/14

* : Preliminary discussion on the 2nd Year Work

■ : Field Work

□ : In-door Work

(7) List of data to be provided for the land condition mapping

1

Appendix 5

List of Data to be provided for the
Land Condition Mapping

1. Technical Report on Geological Survey by Boring:
 - Boring Columnar Sectioning and Location Map
 - Geological ProfilingThese are supposed to have been collected in relation to construction of roads, ports, bridges, buildings, etc...
 - Boring Data of Low Land (Area of North Manila and Marikina River)
2. Data on Flood Damage Areas and Related Information
 - Data of Principal Flood Damage (Affected persons, Casualty)
 - Data of Principal Flood Peak Discharge (Date, Peak stage, Discharge)
 - Sept. 2, 1986 Flooded Area and Water Level at Peak stage, Submerged period.
3. Survey Report on Earthquake Disaster:
 - Data on Locations of Destroyed Buildings by Earthquakes
4. Survey Report on Ground Subsidence:
 - Subsidence Area Map
 - Data on Amount of Subsidence
5. Data on Ground Water:
 - Manila City
 - Quezon City
 - North Manila (Bulacan-Meycawayan-Obando-Malabon)
 - Marikina River (Montalban-San Mateo-Pasig-Taytay)
6. Basic Data on Land Reclamation and Large Scale Development of Residential Area
7. Institutional Report on Land Forming Process, Geohistory, Volcano-history of the Philippines.
8. Old Aerial Photo of Metro Manila Region before 1963.

(8) List of data provided for the land condition mapping

2

List of Data Provided for the
Land Condition Mapping

1. Boring Data ----- Boring Data of Table Land of Metro Manila
Boring Data of Low Land (along Manila Bay)
2. Flooded Area ---- 1985 Flooded Areas of Metro Manila
1985 Flooded Areas of Quezon City (partial
area)
3. Soil ----- Soil and Land Resources Evaluation Project
of Metro Manila and Maps (Report, 1/125,000)
4. Geological Map - Manila and Quezon City Quadrangle (1/50,000)
Montalban Quadrangle (1/50,000)
Cavite Quadrangle (1/50,000)
5. Geology ----- Geological Map of the Philippines (1/4000,000)
6. Geology ----- Geology and Mineral Resources of Philippines
(Report)
7. Earthquake ----- Luzon Earthquake of 1 August 1968 (Report)
Luzon Earthquake of 2 August 1968 (Report)
1966 - 1985 Lists of Earthquake events.

(9) Specifications of letter style & letter size for the contoured map
Appendix-6

Draft Specifications of Letter Style & Letter Size for Contoured Map

Items	Application	Letter Style	Letter Size (mm)						Colour	Remarks
			3.5	3.0	2.5	2.0	1.8	1.5		
Administrative Areas	Town & City/ Municipal District	E08-24 C	0						Black	
	Barangay & Village/ Subdivision	E08-24 C			0				"	
Buildings & Bridges	Public buildings, Schools, Hospitals, Churches, Factories Bridges, etc.	E08-24 C/L				0			"	
		E08-24 C/L					0		"	
Land Mark Features	Tower, Monument, Cave	E08-24 C/L						0	"	
		E05-14 C/L				0			"	more than 8x8 cm. on the map
		E04-14 C/L						0	"	less than 5x5 cm. on the map
Roads, Railway	National highways, Provincial Roads, Streets Railways, Railway stations, passes	E08-25 C					0	0	"	
		E08-25 C						0	"	
Destination	Expressway, National highways Provincial roads, Railways and other important roads.	E16-25 C						0	"	
Agricultural Land	Large farm land	E05-14 C/L					0		"	
		E16-25 C					0		"	
Mountainous Area	Mountains Hills	E16-25 C					0		"	
		E16-25 C					0		"	

Items	Application	Letter Style	Letter Size (mm)							Colours	Remarks
			3.5	3.0	2.5	2.0	1.8	1.5	1.2		
River	Large	E01-25 C		0						Blue	more than 8mm width on the map
	Medium	E01-25 C			0					"	
	Small	E01-25 C					0			"	less than 4 mm width on the map
Bay, Lake, Pond	Lake, Marine Ponds, Saltbed										
		Large	E15-25 C		0					"	more than 10x10 cm. on the map
		Medium	E15-25 C			0				"	
	Small	E15-25 C						0		"	less than 4x4 cm. on the map
	Bay	E01-25 C		0						"	
Shoreline Features	Points	E16-24 C			0					Black	
	Sand & Rocky Beach	E16-24 C					0			"	
	Islands	E19-24 C					0			"	

(10) Sample sheet for marginal information (under separate cover)

9 Q	1.5mm	E08-42	ABCDEFGHIJKLMN OP QRSTUVWXYZ abcdefghijklmno pq rstuvwxyz
20 Q	3.5mm	E08-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ Abcdef Ghijklm Nopqrs Tuvwxyz
16 Q	3.0mm	E08-24	ABbcdef Ghijklmo Nopqrstuv Tuvwxyz
14 Q	2.5mm	E08-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ Abcdef Ghijklm Nopqrs Tuvwxyz
9 Q	1.5mm	E08-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ Abcdefghij Ghijklm Nopqrs TUvwxyz
7 Q	1.2mm	E08-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ Abcdef Ghijklm Nopqrs Tuvwxyz
9 Q	1.5mm	E05-14	ABCDEFGHIJKLMN OP QRSTUVWXYZ
8 Q	1.2mm	E05-14	Abcdef Ghijklm Nopqrs Tuvwxyz
7 Q	1.2mm	E08-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
8 Q	1.5mm	E08-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
18 Q	3.0mm	E16-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
16 Q	2.5mm	E16-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
16 Q	3.0mm	E01-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
15 Q	2.8mm	E01-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
13 Q	2.5mm	E01-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
8 Q	1.5mm	E01-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
10 Q	2.0mm	E01-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
15 Q	2.5mm	E16-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ
13 Q	2.00mm	E16-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ
10 Q	1.5mm	E16-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ
16 Q	3.0mm	E19-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ
14 Q	2.5mm	E19-24	ABCDEFGHIJKLMN OP QRSTUVWXYZ
18 Q	3.0mm	E42-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
16 Q	2.5mm	E42-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
13 Q	2.0mm	E42-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ
10 Q	1.5mm	E42-25	ABCDEFGHIJKLMN OP QRSTUVWXYZ

(11) Definition for the land condition map (Draft)
 Definition for Land Condition Map (Draft)

Appendix-8

Category I	Category II	Definition
Mountain slope	Gentle	Slope surfaces of mountains are classified into three grades according to their gradient. The gradient of gentle is less than about 15 degrees, but not accurate because the classification is made by stereoscopic observation.
	Steep	Gradient is more than 15 and less than 35 degrees.
	Very steep	Gradient is more than about 35 degrees.
Hill & Table land	Flat	Slope surfaces of hill and table land margins are classified into four grades according to their gradient. Gradient is less than about 5 degrees and surfaces are dissected gently and undulately.
	Gentle	Gradient is less than about 15 degrees.
	Steep	Gradient is more than 15 and less than 35 degrees.
Unstable slopes	Very steep	Gradient is more than about 35 degrees.
	Cliff	Natural or artificial cliff more than 2 m in height and 50 m in length.
	Collapse	Collapse are mostly located on the nick lines dividing upper gentle slopes and lower steep slopes, and clearly recognizable on the latest aerial photos.
Baldness & Bare rock		Rocky slopes, river beds and coasts which are not covered by soil and vegetation.
	Landslide	Landslides being creeping at present or having records of occurrence in the past. Those can be recognized stereoscopically.

Handwritten mark

Category I	Category II	Definition
Terrace	Higher	Surfaces were formed in the oldest period in the area and have been normally dissected well.
	Middle	Surfaces are lower than the above category and normally maintain original flat surfaces in the vast area.
	Lower	Surfaces were formed in the latest period, being not so dissected well.
Piedmont aggraded	Colluvium-like piedmont slope	Relatively gentle slopes, less than about 15 degrees, consisting of debris and soil which are crept down by gravity or transported by overland flow from mountain slopes.
	Talus	Relatively steep slopes, more than about 15 degrees, consisting of bigger grains of debris and soil transported from the upper slope by rockfalls.
	Debris avalanche	Landforms built by debris flows on the valley floors or in the foot of mountain slopes, with tongue-like shapes at their terminals.
Low land, relatively higher & well-drained	Alluvial fan	A fan-shaped body of alluvium built at the base of steep slopes. The alluvium is composed of sand and gravel. The gradient is 2 - 3 to 15 degrees. It was formed by aggradation of sand and gravel transported by flood from the mountain behind.
	Natural levee	Low ridges of fine alluvium distributed along the existing stream channel. Those are usually 0.5 m to 1.0 m higher than the surrounding surfaces and relatively safe from inundations. Those are composed of sand and silt deposited by water spreading out of the channel during floods.

Category I	Category II	Definition
	Sand dune	Ridges of sand deposited by the wind. Sand dunes are distributed along coasts and the downstream of large rivers. Those are usually 3.0 to 4.0 m higher than the general surfaces of the lowland.
	Sand bar	Low and elongated ridges of sand and gravel, distributed in parallel with coasts, a few meters higher than the surrounding lowland. Those were originally built offshore by waves and currents.
Erosional forms of Table land, Terrace, etc.	Dent or shallow valley	Located on terraces, alluvial fans and natural levees. Those were formed by the process of running water and ground water. Elevations are a half to few meters lower than surrounding land surfaces.
Low land, general surfaces	Valley plain & Flood plain	Those are alluvial plains formed by the floods. The geological condition of alluvial plain consists of various composites from gravel to clay which are transported from surrounding terrace and mountain by flood. The flood plain is an open plain surface, very gentle and flat, and consists of fine sand and silt.
	Coastal plain & Delta	Coastal plain is former sea-bottoms, emerged by the recent fall of sea level. The area is very low and flat. The deposit consists of sand and silt. Delta is very low and flat land formed in the mouth of river. The geological condition consists of unconsolidated silt and clay which were transported by river and deposited very recently.
	Back marsh	The land which used to be a swamp and has not yet been completely filled with alluvium. Therefore, it is low compared with the surrounding area and poorly drained. Back marsh consists of soft clay, muck and peat with much moisture.

Category I	Category II	Definition
	Former river bed	Abandoned stream channels in valley plain or flood plain or delta, 0.5 m to 1.0 m lower than the general surface and 1 m to 2 m lower than natural levees.
Submersible land surface	High water river bed	Land which is submerged in the river course only at high water level.
	Low water river bed	Land which is submerged in the river course at ordinary water levels.
	Tidal flat	Flat land along coast, submerged during high tide and bares during low tide.
Water sphere	River & Shoreline	The part where water flow usually exists is regarded as river. Boundary between water sphere and land is regarded as shoreline. The surfaces of river, lake, sea, pond, etc. are regarded as water surface.
Artificially deformed land	Cut and rolled surface	Flat or gentle areas artificially made on mountain slopes or terrace margins by cutting and rolling the ground, such as newly reclaimed residential areas and golf courses.
	Banked up surface	More than 0.5 m higher than the original surface.
	Filled up surface	Lands reclaimed by filling marshes, lakes or river beds up to level of the surrounding surface.
	Drainage	Cultivated lands, salt fields and others which were developed by draining tidal flats or shallow lakes.
Boundary line	Under construction area	Land under reclamation in the seaside area, or the areas where artificial land deformation are being made at mountains, hills and terrace by cutting and rolling the ground for business, industrial, commercial, residential areas, quarries, and so forth.
	Indistinct boundary	Boundary which is not clear on landform classification.
	Landform line	Separation boundary and landform classification.

4-1 Minutes of meeting at the time of checking by BCGS chief counterpart

MINUTES OF MEETING

Meeting on the Establishment of Graphic Information Base Project for the NCR in the Philippines was held by Mr. Masayoshi Takasaki, Leader of JICA Survey Team on December 18, 1986 at IECA with the attendance of Capt. Renato B. Feir and Cmdr. Rodrigo R. Pascua who have visited Japan as BCGS Counterparts for the Project. (see Appendix-1)

As a result of discussions, both sides agreed as follows:

1. Capt. Renato B. Feir, BCGS Counterpart, stated that 10 proof prints and 7 surprints of the contoured map as well as 3 proof prints of the planimetric map had been completely checked, and that printing of these 20 sheets of map would be approved.

As for the remaining sheets of map (contoured map: 40 sheets, planimetric map: 54 sheets), both sides agreed that the checking and approval of printing would be conducted at BCGS, Manila starting at the end of January, 1987.

2. In order to attain clear differentiation of marine pond from river in terms of color balance, Mr. Masayoshi Takasaki, JICA team Leader, proposed to change the screen density of marine pond to 10%, and Capt. Renato B. Feir expressed his full agreement with the proposal.

3. Presentation of "GOLF COURSE" was inadvertently missed by both sides, it was then agreed that these shall be presented with "GREEN" background and annotated.

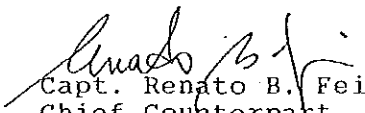
4. It was also agreed by both sides to change the sheet name (Sheet No. 53) "BALUCTOT" to "PAG-ASA" as Baluctot is a very small barangay without houses.


5. Both sides further agreed that quality of the printing paper should conform to the specifications shown in the Appendix-2.

December 18, 1986
Tokyo, Japan

For the Bureau of Coast
and Geodetic Survey

For Japan International
Cooperation Agency


Capt. Renato B. Feir
Chief Counterpart
for the Project


Mr. Masayoshi Takasaki
Team Leader of JICA
Survey Team

(1)

(67)

List of Attendants

BCGS

1. Captain Renato B. Feir
Chief Counterpart
the Establishment of
Graphic Information Base
Project for the NCR
2. Commander Rodrigo R. Pascua
Counterpart for the Project

JICA Survey Committee

1. Mr. Yoshikazu Yamada
Advisor

JICA Survey Team

1. Mr. Masayoshi Takasaki
Leader
2. Mr. Kenzo Motojima
Deputy Leader
3. Mr. Hiroshi Kimura
Coordinator
4. Mr. Isao Furukawa
Chief Surveyor

IECA

1. Mr. Sho Saito
Managing Director

Appendix-2

Physical and chemical characteristics
of printing paper

Item		Average	Maximum	Minimum	
Folding endurance (time)	Machine direction	2,400	3,200	1,900	
Tension/1 kg (MIT type tester)	Cross direction	3,100	4,000	2,600	
Bursting strength (kgf/cm ²)	Dry	5.53	5.85	5.10	
	Wet	2.81	3.50	2.45	
Tensile breaking strength (kgf)	Dry	Machine direction	11.6	12.1	11.1
		Cross direction	8.93	9.30	8.45
	Wet	Machine direction	3.59	3.80	3.30
		Cross direction	3.31	3.50	3.15
Tearing strength (gf)	Machine direction	92.0	94.0	90.0	
	Cross direction	87.7	90.0	86.0	
Smoothness (sec)	Surface	120	140	100	
	Back	100	120	90	
Expansion (%) (RH 60~80)	Machine direction	0.05	-	-	
	Cross direction	0.10	-	-	
Opacity (%)		90.7	91.0	90.4	
Brightness (%)		89.2	89.3	89.1	
Size condition (sec)		71	77	60	
Thickness (mm)		0.101	0.104	0.099	
Surface strength (A)	Surface	26	26	26	
Weight (g/m ²)			90.9		
Water content (%)			7.9		
PH			6.3		

Paper material	Unbreached pulp
Flow of fibres	Good
Curling and other defects	None
Texture	Good
Difference in quality between surface and back	Little

NOTE: Wet means the condition in which the specimen has been immersed in water of 20°C and is soaked with superfluous water.

4-2 Letter of approval of BCGS chief counterpart for printing (Dec. '86)

Ministry of National Defense
BUREAU OF COAST & GEODETIC SURVEY
Manila, Philippines

Mr. Masayoshi Takasaki
Team Leader
JICA Survey Team

December 18, 1986

Subject: Establishment of Graphic Information Base Project
for the NCR

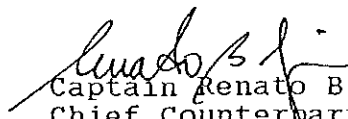
Sir;

The color proofs(20 sheets as per attached Appendix) of the contoured and planimetric maps of the establishment of graphic information base project, prepared under the technical cooperation of the Japanese Government to the Government of the Republic of the Philippines, has been fully checked by me with the assistance of my colleague.

The maps have been found to be completed and conformed to our agreed specifications in respect of the plotting, cartography, color and overall presentation. These maps have also been found to be of high quality and to meet international standards. With these findings, I hereby approve, on behalf of the Philippine Government, the printing of the contoured and planimetric maps.

May I now take this opportunity to express our sincere appreciation to the Japanese Government and Japan International Cooperation Agency for the effective technical cooperation to our Government. Those maps will surely help enhance not only the socio-economic development of the National Capital Region of the Philippines but also establishment of further close relationship between both countries.

Respectfully yours, .


Captain Renato B. Feir
Chief Counterpart for
Establishment of Graphic
Information Base Project
for the NCR,
BCGS

Appendix

1. Contoured Map

Proof Prints: Nos. 1, 2, 9, 14, 21, 24, 26, 38, 51 and 52
(10 sheets)

Surprints: Nos. 4, 13, 32, 37, 43, 53 and 54
(7 sheets)

2. Planimetric Map

Proof Prints: Nos. 2, 21 and 51
(3 sheets)

(20 sheets in total)