

Plan of Operation

of the 3rd Year Work for the Establishment of Graphic Information Base Project of National Capital Region, the Philippines

1. Outline of the 3rd Year Work

In the 3rd year work, compilation for the land use map and land condition map has already started from July 1987 in Japan, and field completion for both maps is expected to be carried out in the project area from early October for about two months.

Based on results of the field completion, original manuscripts of the land use and land condition maps shall be prepared in Japan.

The 3rd year work is summarized as follows: (see Fig.-1)

Kind of Map	Item of Work	Coverage
Land Use Map	<ul style="list-style-type: none"> • Compilation • Field Completion • Preparation of Original Manuscript 	823 sq km(33 sheets)
Land Condition Map	<ul style="list-style-type: none"> • Compilation • Field Completion • Preparation of Original Manuscript 	429 sq km(16 sheets)

2. Compilation

2-1 Outline

Based on the result of field identification obtained at the 1st and 2nd year work, the compilation shall be done in Japan.

2-2 Base Map

As for the base map to be used for the compilation, information of the 1/10,000 topographic map shall be reproduced on the polyester sheet.

2-3 Land Use Map

Survey result and related information obtained in the 1st year field identification shall be compiled on the base map in accordance with specifications.

2-4 Land Condition Map

Survey result and related information obtained in the 2nd year field identification shall be compiled on the base map in accordance with specifications.

3. Field Completion

3-1 Outline

(1) Land Use Map

Items which have been uncertain during the course of compilation shall be checked and confirmed.

Changes given on the original specifications, which were discussed and agreed between JICA and BCGS at the 2nd year work, shall be checked and confirmed.

(2) Land Condition Map

Items which have been uncertain during the course of compilation shall be confirmed.

Data on the organization and public facilities to be prepared by BCGS shall be checked and confirmed.

3-2 Work Schedule

Item of Work	1987						1988		
	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Technical Meeting									
Field Completion									
Finalization of Symbol Specifications									
Compilation									

3-3 Formation of Survey Team

(1) Formation of JICA Team

Name & Assignment		Oct	Nov	Dec '87
(Headquarters)				
Masayoshi TAKASAKI	Leader	5	25	4
Tokihiko KAMINISHI	Deputy Leader			
Hiroshi KIMURA	Coordinator			
(Field Completion)				
Keikichi YOSHIDA	Chief Surveyor	8		
Tomotaka KAMAKURA	Surveyor			
Toshiyuki HARADA	"		25	
Tsutomu MORIWA	"			
Masumi IKUNO	"			
Masataka MIYAZAKI	"			
Takeshi TOYOOKA	"	8		
Shingo NIIJIMA	"			
Naoya YUNOHARA	"			
(Specs. on Printing)				
Tomoyuki NAKANO	Cartographer		25	4

(2) Group Formation of JICA and BCGS

Item of Work	JICA	BCGS	Period
Technical Discussion & Data Confirmation	Headquarters 3	Staff 3	Oct.6 - Dec.3 '87
Field Completion	Chief Surveyor 1 Surveyors 8	Counterparts 8	Oct.9 - Nov.24 '87
Specs. on Printing	Cartographer 1	Staff 3	Nov.27 - Dec.3 '87

3-4 Data and Specifications to be confirmed during the Field Completion

(1) Data to be prepared by BCGS

- a) Field identification sheets (/10,000 topographic map) on which names and places of organizations & public facilities are plotted: to be prepared by early Oct. '87
- b) Other data: by early Nov. '87

(2) Data to be prepared by JICA Team

- a) Land use map
Sample map printed in color ink (including marginal information): to be signed by BCGS for confirmation.
- b) Land condition map
Sample map printed in color ink (including marginal information) and annotation data sheet: to be signed by BCGS for confirmation.

(3) Specifications to be finalized by the end of the field completion

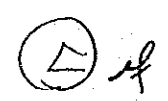
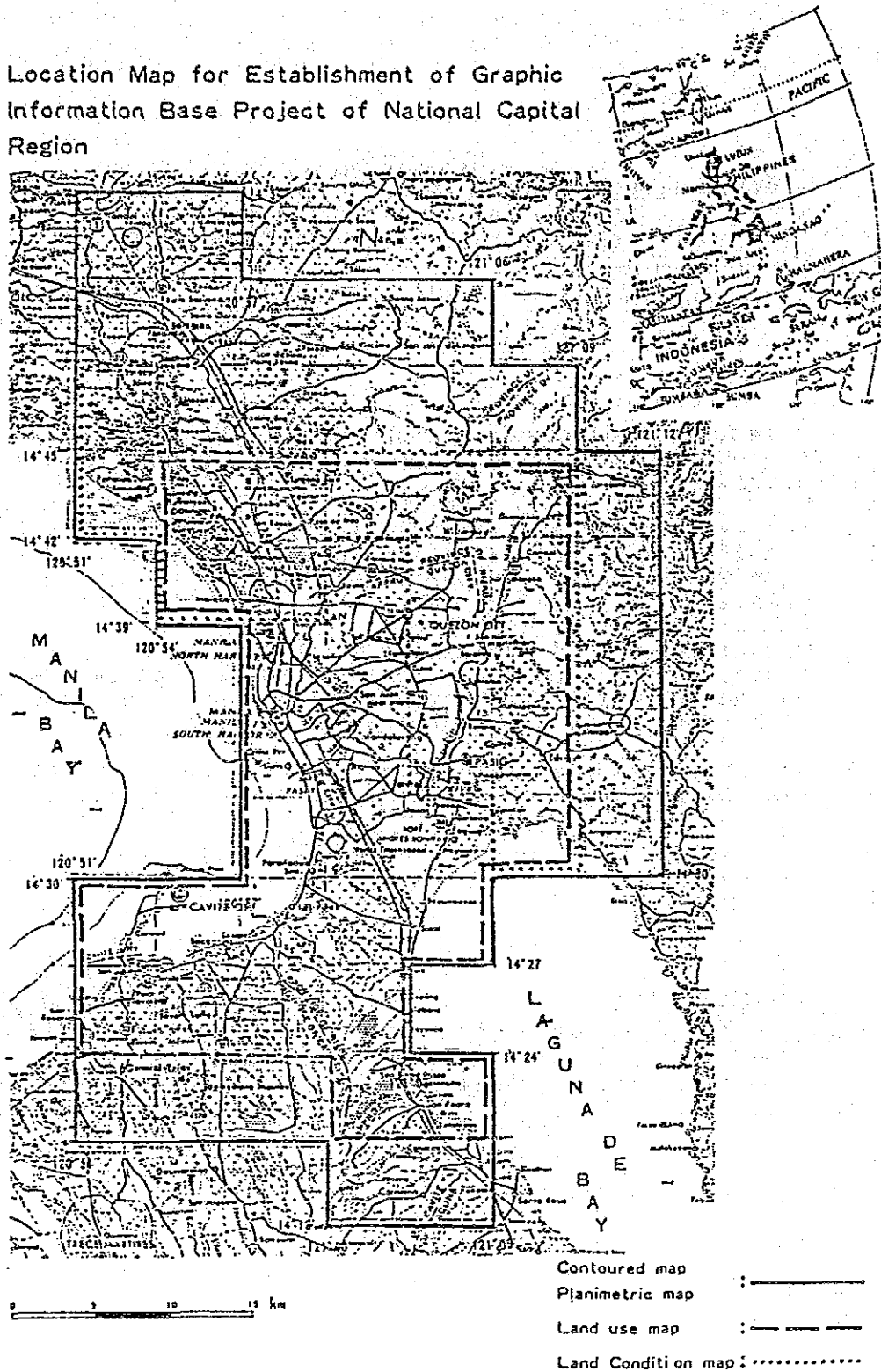
- a) Specifications for drafting and printing on the land use map.
- b) Specifications for drafting and printing on the land condition map.

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4. Undertakings by BCGS

- (1) To assign eight (8) counterparts:
 - 6 counterparts for the field completion
 - 2 counterparts for the security
- (2) To prepare necessary data for this survey including data afore-mentioned in the paragraph 3-4.

Location Map for Establishment of Graphic Information Base Project of National Capital Region

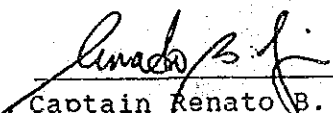


Memorandum on
"Establishment of Graphic Information Base Project
of the National Capital Region",
the Republic of the Philippines

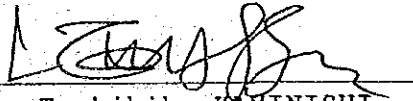
As a result of discussions made during the field completion, JICA survey team and BCGS jointly agreed on the following matters:

1. For symbols and specifications for land use and land condition maps, new addition, partial revision and deletion were made for proper classification as attached sheet.
2. Organizations and facilities which are necessary for the expression of land condition map and can not be identified on the new aerial photographs(1986), shall be presented with symbol only at its approximate position.
3. New information expressed on the land condition map shall also be presented on the land use map, if necessary.

November 18, 1987



Captain Renato B. FEIR
Staff Officer for Planning/
Staff Officer for External
Affairs, BCGS



Mr. Toshihiko KAMINISHI
Deputy Leader
JICA Survey Team

New Addition, Partial Revision and Deletion
of Symbols and Specifications of Land Use
and Land Condition Maps

1. Land Use Map

1-1 Addition of "Mixed Business-Residential" to Category III

1-2 Revision of Classification Name

Category No.	Former	New
I	Urban Area	Built-Up Area
II	Public and Official	Public and Government
III	Plantation	Plantation and Farm Land

1-3 Revision of Application

Application	Former	New
Slaughter house	Transportation	Service
TV/Radio/Telephone Station	Business	"
Newspaper establishment	"	"
Auto repair shop	Commercial	delete
Research laboratory	Education and Cultural	delete

1-4 Revision of Feature Name

Former	New
Sugar factory	Sugar mill

1-5 Deletion from Classification


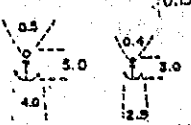

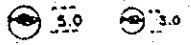
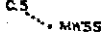

Name	Former Classification	to be placed at
Land Use Boundary	Others	Margin without No.

2. Land Condition Map

2-1 Revision of Classification Name









Former	New
Hill and Upland	Hill and Plateau
Ground Contour Line	Microrelief Line
Depth Curve	Bathymetric Line
Landform Unit Boundary	Landform Boundary
Church/Mission	Church
Breakwater/Jetty	Breakwater, Jetty and Causeway
Restricted Area for Urban Development	Restricted Area

2-2 Revision of Symbols







Classification	Former	New
Port and Harbor		
Fishing Port		
Water Treatment Plant		

THE ESTABLISHMENT OF
GRAPHIC INFORMATION BASE PROJECT
FOR THE NATIONAL CAPITAL REGION







SYMBOLS AND SPECIFICATIONS FOR
LAND USE MAP (1:10,000)

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	EXISTING AREA OR THE PLAN
1 Multi-storey Housing		D1330-45° 60% Red	Four(4) or more storey housing area in a compound	Condominium, etc.	3x3
2 Residential		D1330-45° 10% Red	One(1) to three(3) storey housing area	Residential area including rest house for group of various organizations, lodging for public servant, subdivision and village in suburb, that have existing road system but have sparse houses.	3x3 (2x2)
3 Temporal Housing		D1330-45° 10% Red Black LT 20% 42.5mm x 45°	Congested area where one(1) storey temporal housing mainly exist.	Temporal housing fixed on water or along creek and river, and that in slum or squatter area	3x3
4 Business		100% Orange	Area where enterprise conducts their trade and office work.	Office of private company, bank, hotel, etc.	3x3
5 Commercial		50°-0° +90° 50% Orange	Area which is considered as a general shopping district including those for shop, store and repair.	Retail store, restaurant, wholesale store, department store, market, auto sales shop, etc.	3x3 (1.5)
6 Mixed Commercial-Residential		D1330-45° 10% Red 75°-90° 25% Red	Three(3) or more storey building which has mixed commercial and residential functions.	Store and residential, market and residential, etc.	3x3 (1.5)
7 Mixed Business-Commercial		D1330-45° 30% Orange 50°-0° 25% Red	Three(3) or more storey building which has mixed business and commercial functions.	Bank and retail store, office and restaurant, etc.	3x3 (1.5)
8 Mixed Business-Residential		D1330-45° 10% Red 50°-90° 25% Orange	Three(3) or more storey building which has mixed business and residential functions.	Bank and residential, office and residential, etc.	3x3 (1.5)








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	CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER AREA OR PERCENT
9	Large-Scale Industry		D1330-45° 40% Red 50°-0° 50% Blue	Area where large scale industry mainly exists.	Such industry occupies an area of at least 5mm x 5mm on the map. The area includes its own office, parking lot, sport ground, etc. Manufacturing industry like textile industry, chemical industry, shipyard, bottling company, quarry with classifying facilities, etc.	5X5
10	Small-Scale Industry		D1330-45° 40% Red D1330-75° 40% Blue	Area where small factory mainly exists.	Such industry occupies an area of less than 5mm x 5mm on the map. Cinema studio, furniture factory, auto repair shop, etc. (Factories related to agriculture are included in "Agro-Industrial".)	3X3
11	Mixed Industrial-Residential		D1330-45° 20% Red 50°-0° 25% Blue	Three(3) or more storey buildings with mixed industrial and residential usage.	Various small scale factories and residential	3X3 (1.5)
12	Governmental and Quasi-Public		D1330-45° 70% Brown	Area where buildings of National, Regional, Local Government, organization or corporation, etc. mainly exist for carrying on their business.	National or public building, police station, fire station, embassy or legation, consulate, trade and cooperative union building, quasi-public building, prison, etc.	3X3
13	Education and Cultural		D1330-0° 20% Orange D1330-45° 40% Yellow	Area where educational, research and cultural facilities mainly exist.	School, public hall, library, exhibition hall, museum, research institute, astronomical observatory, historical building, etc.	3X3
14	Health and Welfare		75°-0° 25% Green	Area where health and welfare facilities mainly exist.	Hospital, sanitarium, medical health center, large clinics, rehabilitation center, etc.	3X3

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CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	HEIGHT OR AREA OF THE MAP
15		D133 0-45° 20% Yellow 120 0-90° 30% Green	Area where public and recreational facilities mainly exist.	Park, garden, zoological and botanical garden, picnic ground, theater, cinema, cockpit, casino, horse racing track, resort and beach, etc.	3x3
16		D133 0-45° 70% Green	Area where religious facilities and cemetery exist.	Church, temple, mosque, memorial park, cemetery, seminary, monastery, photo-identifiable grotto, etc.	3x3
17		120 0-0° 25% Brown	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 terminal, cargo shed of the above facilities, etc.	3x3
18		D133 0-45° 20% Orange D133 0-0° 20% Brown	Area where supply, treatment and communication facilities exist.	Power station and substation, water treatment and filtering plant, sewerage, crematory, dumping area, LPG terminal, slaughter house, TV/Radio/telephone station, newspaper establishment, etc.	3x3
19		D133 0-45° 20% Yellow D133 0-0° 20% Brown	Area where sports facilities exist.	Sport plaza, stadium, shooting range, gymnasium, golf course, tennis and basketball court, bowling hall, billiard hall, etc.	3x3
20		D133 0-45° 10% Orange D133 0-0° 20% Blue	Area where military facilities exist.	Military camp, depot and establishment	5x5

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21	CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER AREA ON THE MAP
	Rice Field		D1330-45° 20% Yellow	Area where irrigated paddies exist.	Rice paddy	5X5
	Crop Land		D1330-45° 10% Brown D1330-45° 20% Yellow	Area where crops are cultivated.	Corn, upland rice, vegetables, etc.	5X5
	Plantation and Farm Land		D1330-45° 10% Orange	Area where plantation and farm land exist.	Banana, coconut, mango, sugar cane, pineapple, calamansi and other fruit bearing trees	5X5
	Agro-Industrial		D1330-45° 20% Yellow 50°-0° 25% Red	Area where agriculture-related industrial facilities exist.	Rice mill, warehouse for agricultural products, tractor shed, food processing factory, sugar mill, animal food factory, stock house, etc.	5X5
	Forest		D1330-45° 20% Yellow D1330-0° 20% Blue	Area covered by trees.	Broadleaf, bushes or scrub, mixed scrub and broadleaf, bamboo, etc.	5X5
	Grass Land		D1330-45° 40% Yellow D1330-0° 20% Green	Area covered by grass.	Pasture, ranch and other area where tropical grass densely grows	5X5
	Bare Land		D1330-45° 10% Brown	Area where little or no vegetation grow.	Rock-outcropped area, barren area and steep slope such as cliff, Sand and/or gravel and coastal area.	5X5

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CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	MINIMUM AREA ON THE MAP
28		D1330-45° 20% Blue	Natural bodies of water.	Sea, lake, river, creek or stream, bay, tidal flat and mud	5x5 (2x2)
29		D1330-45° 10% Blue	Artificial facilities for raising fishes, shells, etc.	Fish pond, culturing pond or shelf for raising crab, oyster, shell, etc.	5x5
30		D1330-45° 20% Blue Vegetation Black	Vegetation that grows on spongy ground or shallow water.	Mangrove, nipa, marsh or swamp, etc.	5x5
31		D1330-45° 10% Blue Blue	Field where salt is collected.		5x5
32		D1330-45° 10% Black	Area where land is not utilized.	Cut, rolled and reclaimed land not yet utilized including abandoned mine or quarry.	2x2
33		D1330-45° 10% Black	Area where artificial land development is in progress.		
Boundary Line		Red	Boundary line of land use classification.	Land use boundary shall be shown in solid line. Indistinct land use boundary shall be shown in broken line.	

THE ESTABLISHMENT OF
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SYMBOLS AND SPECIFICATIONS FOR
LAND CONDITION MAP (1:10:000)

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	HEIGHT SCALE BY 100'
1 Top Flat and Ridge Flat		D1330-45° 30% Brown	Relatively flat surface at the top and ridge of mountain.	Flat surface on the top and ridge of mountain whose gradient is less than about 20°.	1X4
2 Gentle Slope		D1330-45° 60% Brown	Relatively gentle slope at mountain-side.	Gradient is less than about 20°.	1X4
3 Steep Slope		D1330-45° 30% Brown 750-0° 25% Violet	Relatively steep slope at mountain-side.	Gradient is more than about 20°.	1X4
4 Knick Line	 0.5	Green	The line passing points on the slope of mountain-side which divide upper gentle slope and lower steep slope.	Delineation shall be made by photo-interpretation and by analysis of contour line.	5
5 Talus		100% Yellow 200 20% Orange	Relatively steep depositional surface formed at lower part of mountain-slope by rain wash or land slide and consisted of bigger grains of debris.	Gradient is more than about 10°.	2X5
6 Colluvial Slope		100% Yellow 200 20% Green	Depositional landform with relatively gentle slope, formed by debris and weathered material transported and sedimented by effects of rain wash and soil creep.	Gradient is less than about 10°.	2X5
7 Small Alluvial Fan		100% Yellow 200 20% Brown	Small depositional landform with relatively gentle slope, expanding from all points before exit of valley to lowland and being formed by small rivers whose transporting force is diminishing.	Gradient is less than about 15° around the exit of valley.	2X5
8 Top Flat		D1330-45° 30% Orange	Relatively flat surface at the top of little undulated hill and plateau.	Gradient is less than about 5°.	2X5











CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	PROBABLE AREA OR VOL. PER. IN %
9		0130-45° 60% Orange	Relatively gentle surface at the slope of little undulated hill and plateau.	Gradient is less than about 5°.	2x5
10		0133 0-45° 30% Orange ----- 25 0-45° 20% Brown	General slope not classified in the afore-mentioned top flat or gentle slope.	Gradient is between about 5° and 20°.	2x5
11		0133 0-45° 30% Orange ----- 25 0-45° +115° 20% Brown	Relatively steep slope surface at hill and plateau.	Gradient is more than about 20°.	2x5
12		0133 0-45° 10% Orange ----- 50 0-0° 25% Green	Flat surface located along river tributaries, where bed rock is partially covered by shallow fluvial deposit.		1x10
13		25 0-0° 30% Orange	A group of terraces lying along river but at higher elevation, which exist from mountain to lowland.		2x5
14		50 0-30° 25% Orange	A group of terraces lying lower than the above.		2x5
15		50 0-90° 25% Green	Shallow depression on the surface of terrace.	Elevation of about 0.5 to 1.0m lower than the general surface.	1x10
16		20 0-45° 5% Brown ----- 120 0-0° 40% Yellow	Relatively gentle and flat surface covering wide area at the section before or on the exit of valley expanding to lowland. This was formed by river whose transporting force is diminishing. (including natural levee)	Gradient is less than 15° at the exit of valley.	2x5



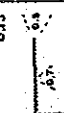




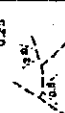
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CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER AREA IN BL. SHEET
17 Former River Bed		95°-0° 25% Blue	Former stream or river channel.	Surface is degraded about 0.5m to 1.0m below the general surface.	1X10
18 General Surface of Flood Plain and Valley Plain		D133°-45° 20% Yellow-green	Widely extended general surface resulting with dissecting mountain hill and plateau, and that of flood plain formed by alluviation of river.		2X5
19 Former River Bed		95°-0° 25% Blue	Former stream or river channel, which is located in the flood plain.		1X10
20 Natural Levee		D133°-45° 20% Yellow	Strip microrelief located along or around the river which is composed of sand and silt deposit made during floods.		1X10
21 Backmarsh		50°-0° +90° 20% Green	Low land relatively free from alluviation of rivers and poorly drained, because of being located behind natural levee.		2X5
22 Swamp and Marsh		LT 760 Blue D133°-45° 10% Green	Spongy ground, which is always wet and stores water during flood time.		2X5
23 Dry River Bed		30°-0° 10% Brown	River bed which is located close to water channel and inundates only during rainy season.	No vegetation and composed of outcropped rock or sand and gravel.	2X5






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CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	HEIGHT AREA IN Sq. Yds.
24 General Surface of Coastal Plain and Delta		0133 0-45° 10% Blue ----- 30 0-0° 10% Green	Former depositional surface in the shallow water where present flat plain was formed after regression of sea water. General surface of flat land formed in the mouth of river and consists of unconsolidated silt and clay transported by river.		2X5
25 Former River Bed		95 0-0° 25% Blue	Former stream and/or river channel, which is located in the coastal plain and delta.		1X10
26 Natural Levee		0133 0-45° 30% Yellow	Strip microrelief located along of around the river which is composed of sand and silt deposit made during floods.		1X10
27 Upper Sand Bar		0133 0-45° 30% Yellow Brown C C	Microrelief located along the former and present coast, being composed of sand and gravel, and formed by sedimentation and action of ocean wave and coastal current.		2X5
28 Lower Sand Bar		0133 0-45° 30% Yellow Brown + + + +	Microrelief slightly lower than the above-mentioned.		2X5
29 Backmarsh		50 0-0° +90° 20% Green	Low land slightly affected by alluviation of river and poorly drained, because of being located behind natural levee.		2X5
30 Cliff		Violet	Slope with vertical or very steep gradient.	More than 2m in height.	5
31 Landslide		Red	Vestige of radical falling of large mass of earth down a slope or cliff.	Area shall be shown from photo-interpretation as shown on the contoured map.	2




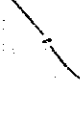
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CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	HEIGHT SCALE OR SCALE
32 Cut and Rolled Surface		15°-90° 10% Red	Land cut and rolled from slope of mountain, hill or plateau.	Area with more than 2m in height, of cut or rolled.	2X2
33 Banked Up Surface		25°-0° 10% Red	Area built up at level or higher than the surrounding.	Area whose elevation increased more than 1m including reclamation.	2X2
34 Cut Slope		Violet	Artificially deformed steep slope mainly in mountain, hill, terrace, etc.	Slope deformed more than 2m in height.	1X2
35 Banked Up Slope		Brown	Artificially built up slopes.	Slope built up more than 2m in height.	1X2
36 Filled Up Surface		113°-45° 20% Yellow-Green 30°-0° 10% Red	Artificial land formed by filling marsh, lake or river bed at level of the surrounding surface.	Area shall be delineated by photo-interpretation as compared to old photographs.	2X2
37 Under Construction Area		Violet	Area where land development is in progress.	Area shall be delineated by photo-interpretation and field survey if possible.	2X2
38 Main Watershed		Red	Main ridges of mountain and hill including several drainage basins which collect to a common basin.	Main river basin bounded by watershed lines of more than 5cm in length on the map.	50
39 Drainage		Blue	Stream line on the surface of slope of mountain, hill and plateau, made by rainwater.	Drainage line with length of more than 2 cm on the map.	20

57

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	UNITS SCALE OR SHEET
40	Water Surface 	D1330-45° 20% Blue	River, lake, sea, pond, etc.	Water surface as shown on the 1:10,000 Contoured Map shall be applied.	2X2
41	Landform Boundary 	Violet	Boundary of landform classification		2X2
42	Indistinct Landform Boundary 	Violet	Boundary which is not clear on landform classification	Area where landform classification is not clearly made by photo-interpretation and analysis of the 1:10,000 Contoured Map.	2X2
43	Bar 	LT 88 Silver-Gray D1330-45° 20% Blue	Depositional ridge of sand and mud, distributed along the coastal area.	Area which is indicated as "Sand" or "Dune" on the 1:10,000 Contoured Map.	2X2
44	Tidal Flat 	LT 904 Silver-Gray D1330-45° 20% Blue	Shallow water area whose bottom is mud.	Area which is indicated as "Mud" on the 1:10,000 Contoured Map.	2X2
Marine Area					

5

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	REMARKS DATE BY
45 Bench Mark	02 	Black	2nd order or higher grade leveling point identified in this survey.	Based on the 1:10,000 Contoured Map	
46 Ground Elevation Point	00 	Black E29-24 80	Minor order leveling point established in this survey	Value to be shown to one decimal place	
47 Microrelief Line		Brown E29-24 80	Line depicting detailed landform elevation in low land.	Based on the result of minor order leveling, line shall be drawn by stereo plotting at 2m interval.	
48 Bathymetric Line		Blue E29-24 80	Line connecting points at equal depth in the sea area.	Based on BCGS data. One(1) meter interval line shall be shown.	

5

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	REMARKS SCALE DATE
49 Regional Boundary	0.4 	Black		Based on the 1:10,000 Contoured Map	
50 Provincial Boundary	0.3 	Black		Based on the 1:10,000 Contoured Map	
51 City and Municipal Boundary	0.2 	Black		Based on the 1:10,000 Contoured Map	
52 Main Road	0.1 	Black	Expressway, National and Provincial road shall be shown. Main artery which is important for disaster prevention, relief rehabilitation and land development, and is more than 1km in length shall be shown.	Based on the 1:10,000 Contoured Map and verification survey.	
53 Railway	0.3 	Black		All railways including LRT and terminals as shown on the 1:10,000 Contoured Map.	
54 Bus Terminal	0.15 	Black		Based on the 1:10,000 Contoured Map and field survey.	
55 Government Building	0.15 	Black		Based on the 1:10,000 Contoured Map and BCGS new data.	
56 Police Station	0.15 	Black		Based on the 1:10,000 Contoured Map	

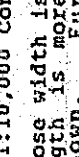

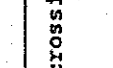





27

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER AS A OR BY MAP
57 Fire Station	0.15 	Black		Based on the 1:10,000 Contoured Map	
58 Hospital	0.15 	Black		- do -	
59 Health Center	0.15 	Black	Small medical establishment with limited facilities.	- do -	
60 Church	0.15 	Black		- do -	
61 School	0.15 	Black		- do -	
62 Rescue Center	0.15 	Black		Based on BCGS new data	
63 Manufacturing, storage and handling facilities of dangerous materials	0.15 	Black	Factory and facilities producing or handling dangerous materials (ammunition, petroleum, gas and chemicals)	Based on BCGS data and field confirmation	
64 Storage Tank	0.15 	Black	Oil and gas tanks	Based on the 1:10,000 Contoured Map	

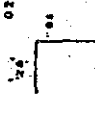

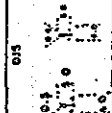
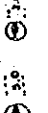
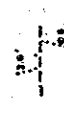



5

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER DATA OR BY 1967
55	Tidal Station 0.05 	Black	Observation station for measuring sea water level and tidal movement	Based on BCGS data and field confirmation	
66	Water Level Gauge Station 0.1 	Black	Observation station for measuring river and reservoir level	- do -	
67	Rain Gauge Station 0.1 	Black	Observation station for measuring rainfall	- do -	
68	Earthquake Observatory 0.15 	Black	Observation station of earthquake activities	- do -	
69	Power Plant and Sub-station 0.2 	Black	Power generating and sub-station facilities	Based on the 1:10,000 Contoured Map	
70	Water Treatment plant 0.30 	Black Annotation Black E08-24 90 C	Water treatment and supply facilities excluding water tank	Based on BCGS data and field confirmation	
71	River Pumping Station 0.05 	Black	Fixed pumping station utilizing river water	- do -	
77	Well 0.05 	Black Annotation Black E08-24 90 C/L	Large deep well for commercial and industrial use	- do -	




⑤

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	NUMBER NEAR SHEET
73 Embankment		Brown	Structure constructed for preventing effect of flood and unusual high tide, etc.	Based on the 1:10,000 Contoured Map. Embankment whose width is more than 7.5m and length is more than 50m shall be shown. Furthermore, those with more than 1.5m height shall also be shown.	
74 Dam		Red	Structure constructed for impounding water and flood control	Dam with more than 7.5m in width shall be shown.	
75 Weir		Red	Structure constructed crossing the river for irrigation	- do -	
76 Revetment		Red	Structure constructed for preventing erosion of embankment, etc.	Revetment with more than 50m in length shall be shown.	
77 Bridge		Red Annotation Black	Structure affording passage across river	Bridge with more than 7.5m in width and its clearance shall be shown.	
78 Breakwater, Jetty and Causeway		Red	Structure constructed out into the water for protecting port, harbor and coastal area and for approaching offshore facility.	- do -	
79 Flood Gate		Red	Structure constructed on the river for controlling water level and flow	Based on the 1:10,000 Contoured Map and field survey	
80 Drainage Station		Black	Fixed pumping station to drain inland-water	Based on field investigation	

5

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	UNCLASSIFIED AREA REF. MAP
81 Wharf and Pier	 02 Red	Red	Landing structure for ship constructed along the river bank and harbor	Based on the 1:10,000 Contoured Map and field confirmation	
82 Lighthouse	 06 Black	Black	Lighted structure used for safety navigation.	- do -	
83 Port and Harbor	 05 Black	Black		Based on BCGS data. Symbol size varies according to scale.	
84 Fishing Port	 03 Black	Black		- do -	
85 Pipe Line and Cable on Sea Bottom	 02 Black	Black	Pipe line for water and oil or cable for communication laid down on sea bottom.	Based on BCGS data.	
86 Fishpen	 02 Blue	Blue	Drift-net or bamboo pen used for catching fish located at sea, lake or river.	Based on the 1:10,000 Contoured Map	
87 Rock Awash or Reef	 07 Black	Black	Rock not totally submerged during high water.	- do -	
88 Wreck	 03 Black	Black	Sunken structure showing any portion of it at high water.	- do -	

5

CLASSIFICATION	SYMBOL	COLOR	DEFINITION	APPLICATION	SHEET NO. OF BL. 107
89 Marine Pond and Salt Bed		Blue	Enclosed area for raising marine species or salt making.	Based on the 1:10,000 Contoured Map	
90 Restricted Area		Red	Area covered under zoning law and regulation, restricted for urban development including military camp.	Based on HCGS data	
91 Dumping Area		Brown	Disposal area.	- do -	

54

Information and Usage of Land Use Map (Draft)

This land use map is a multi-color map showing detailed classification of the existing land use, presented on the 1:10,000 base map. This will be used as a basic information of survey and planning for upgrading and future development of land use in Metro Manila area.

1. Utilization of Land Use Map

This land use map is prepared using the contoured map as a base map on which the existing land use is emphasized in 7 colors.

Therefore, it is possible to recognize the existing land use from various features (roads, railways, urban areas, contour lines, coastal lines, annotations, etc.) which are shown on the base map.

Further, it is possible to project future expansion and upgrading from the state of land use in the environs of Metro Manila area. This will be based on interrelation between urban transportation, land cover, topography and existing land use.

It is expected that the land use map will be utilized as follows:

- 1-1 Administrative organizations shall use this map for city planning related to services such as transportation, water supply and drainage system, disaster prevention, housing development, etc..
- 1-2 Survey and research organizations (universities, research institutes, etc.) shall use this for academic research on social and political geography, education, etc..
- 1-3 Private enterprises shall use this for proper selection and development of sites for their activities.
- 1-4 Together with the land condition map, this will be used for verifying the suitability of present land use and planning as well as selecting proper land development.
- 1-5 This will be used to grasp the process of changes in land use, provided that series of revision be made.

2. Main Area Classification

Classification of land use fall under 3 major areas: Built-Up Area; Forest and Farm Area; and Others. These are subdivided into 33 land usages.

- 2-1 Built-Up area is mainly classified into Residential, Commercial and Business, Industrial, Public and Government, and Facilities based on the main usage of building or area.

2-2 Forest and Farm area is classified into Agricultural Land and Forest. Warehouse for agricultural products and food processing factory are classified as Agro-Industrial.

2-3 In the classification of Others, water-related features (such as Marine Pond and Salt Bed) and Open Space are included.

3. Criteria for Presentation of Land Use

Criteria for presentation of classification on the 1:10,000 land use map are as follows:

3-1 In built-up area, where buildings and their facilities occupy a common compound, land use classification is presented by the main business of the company or owner. In case the area is used for various purposes, each is shown separately.

3-2 Minimum area for presentation in the built-up area is generally 3mm x 3mm on the map.

In the classification for commercial and mixed area, however, consideration is given to feature whose minimum side is 1.5mm on the map.

An important feature for map user, whose short side is less than 1.5mm on the map is enlarged to 1.5mm for presentation.

Minimum area considered for presentation of large scale industry, military facilities, agricultural land, forest area, water sphere is generally 5mm x 5mm on the map.

Area not considered in the above criteria follows the other classification of the surrounding.

3-3 Two (2) storey building where usage is divided for residential and other category (commercial, industrial, etc), classification is of the latter.

3-4 In three (3) or more storey tenanted building, where usage in each floor is different from each other, classification is mixed category. The classification is the following 4 categories:

Commercial and Residential
Business and Commercial
Industrial and Residential
Business and Residential

3-5 Land use limit is presented in red colored line. In case this boundary line coincides with other topographic and planimetric features, the latter prevail.

3-6 Printing was done using 7 colors and their combinations to make land use features easily identifiable.

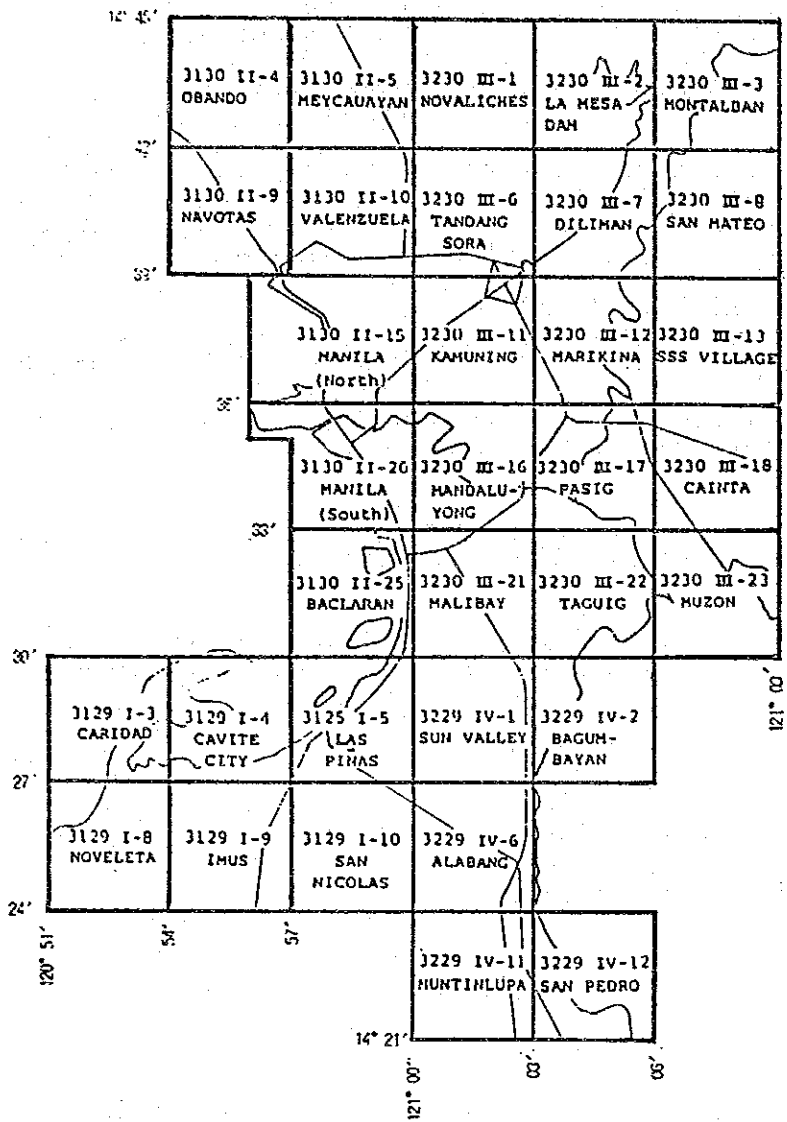
Red:	Residential
Orange:	Commercial and Business
Red-blue:	Industrial
Yellow:	Agricultural Land
Green:	Forest
Blue:	Water Sphere
Black:	Open Space and Base Map features

Features given separate color are as follows:

Brown:	Governmental and Quasi-Public; Transportation and Bare Land
--------	--

Color combination/ percentage of the above:	Public and Government; Facilities
---	--------------------------------------

Sheet Name and Number Index
of Land Use Map (1:10,000)



Information and Usage of Land Condition Map(Draft)

This land condition map is a multi-color map that classify and show on the 1:10,000 base map detailed information concerning landform classification and ground elevation as well as agencies, organizations and facilities that have to do with disaster prediction, control, relief and rehabilitation. Visual presentation of the basic condition of land is necessary for planning and development to control and minimize the effect of calamities.

1. Utilization of Land Condition Map

1-1 Effective usage of the map

The land condition map presents landform, formative process, ground elevation, coverage of filled up area and facilities. With proper knowledge of land condition, it is possible to predict location and what damage would take place with considerable accuracy at the time of floods, high tide and other disasters.

It is further possible, by reading the land condition map, to identify:

- the area where ground subsidence is likely to take place due to excessive pumping up of ground water;
- the housing development area in low or marshy land where flood or earthquake damages are expected;
- the artificially deformed and unstable land in mountainous, hilly and plateau areas where earthquake and land slide are expected;
- the location of suitable land for development together with adequate disaster prevention measures for the area; and
- the most appropriate type of land use for the area.

Therefore, the land condition map can be utilized as a basic information for planning not only for disaster prevention but also land development.

For planning regional or urban development, disaster prevention, site selection of large scale housing, etc., the existing land use and other thematic maps are needed in addition to the land condition map.

1-2 Matters to be considered

For effective use of the land condition map, attention is invited to the following:

- (1) Landform boundary line was delineated mainly based upon photo interpretation. It is advisable, therefore, to consider this line as approximate and of less accuracy than one plotted by photogrametric method.



- (2) Landform classification was not made based on soil engineering analysis but by morphological method. At the time of classification, however, surface material (down to 1.5m depth) was considered. This was made by auger boring.
- (3) The land condition map is very useful for preparation of master plan regarding disaster prevention and control, urban development, etc.. For planning and designing of construction projects, however, it is necessary to make additional field investigation and study on various other data according to the purpose and type of the project.

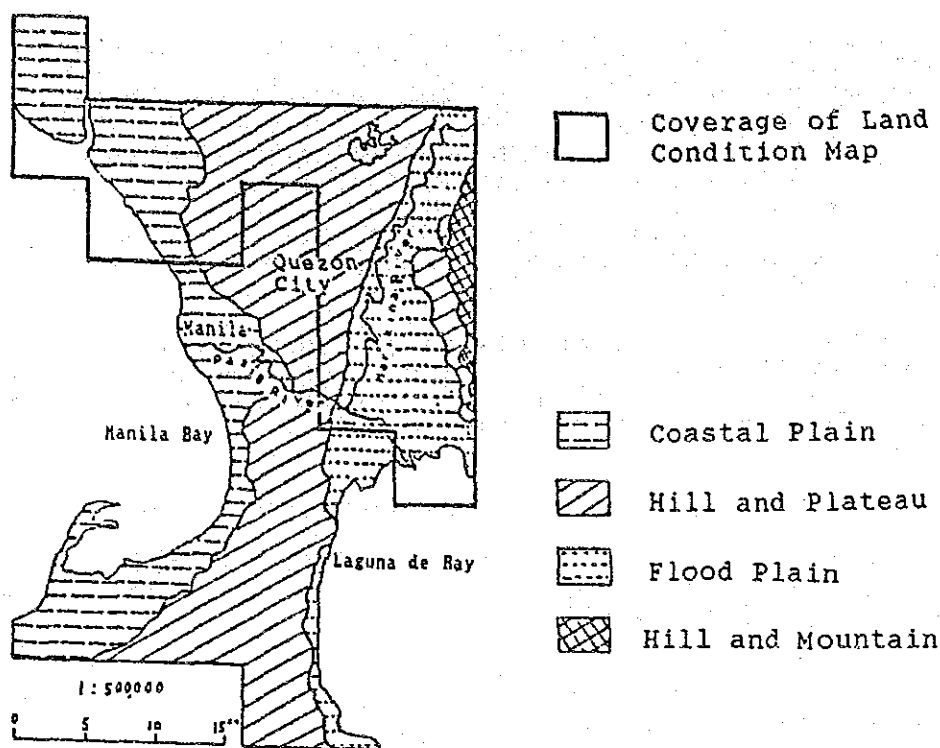
2. General description of Landform and Contents of Land Condition Map

2-1 General description of landform

Landform in the project area is generally classified as follows:

- (1) Coastal plain:
Narrow coastal low land extending north to south along Manila Bay.
- (2) Hill and plateau:
Hills and plateaus extending north to south in Manila and Quezon City areas.
Across the hill and plateau area, ground elevation is 20m to 30m around Pasig river and gradually increases northward from 80m to 100m.
South of the project area which is part of the foot of Taal volcano, elevation is gradually increasing southward from 40m to 80m.
- (3) Flood Plain
Land around the Marikina river basin and environs of Laguna de Bay are low lying flat areas with elevation of 1m to 20m.
- (4) Hill and mountain:
The mountain area in the eastern part has elevation of 200m to 300m. The western side of the mountain area which is hilly, of 50m to 100m elevation. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along river valleys.

Outline of Landform



2-2 Contents of the land condition map

The map presents the following 3 major items superimposed on a base map:

(1) Landform classification

Land is classified as to form, formative process and materials. The classification of land condition is differentiated by combination of colors and symbols on the map.

(2) Ground elevation

As for low land area susceptible to floods, ground elevation is presented in more detail. Ground elevation points observed by minor order leveling are presented and the points connected as microrelief line of 2m interval are delineated.

This information shall enable user to recognize ground elevation, slope gradient, relative height, etc. of land, and to make effective estimate of the extent of possible damage by floods, land subsidence and abnormal high tide.

(3) Organization and facilities

As for organization and facilities, the location and type such as:

- organizations related to disaster prevention and land development;
 - facilities for rescue and relief, dangerous materials, supply and processing, refugee, and those in coastal area;
 - observatories, river and coastal structures
- are presented with symbols and important features are annotated.

From the interrelation between the location of facilities and the landform condition, it is possible to grasp the existing state of and future regional planning for disaster prevention, refuge and relief.

3. Criteria for Expression of Land Condition

- 3-1 Landform classification provide information which has homogeneous component as to form, formative process and materials of the surface.

At the time of land assessment, it is important to grasp comprehensive characteristics of the area, together with individual landform unit. This is done by studying relative surrounding area with regard to height and location: e.g. upstream or downstream area, in-between mountains or in open plain, how far from river or sea coast, height from sea level.

- 3-2 Ground elevation

In order to determine ground elevation mainly in the low land area, minor order leveling was carried out in the north-western part of Manila and the down stream area of Marikina river. Values of ground elevation points are shown in black. Microrelief lines of 2m interval are shown for easier identification even in low lying flat land.

- 3-3 Organization and facilities

Emphasis is placed on organization and facilities closely related to disaster prevention and control, relief and land development.

These are presented based on the features shown on the 1:10,000 contoured map as well as data provided by BCGS and other agencies, together with results of verification in the field.

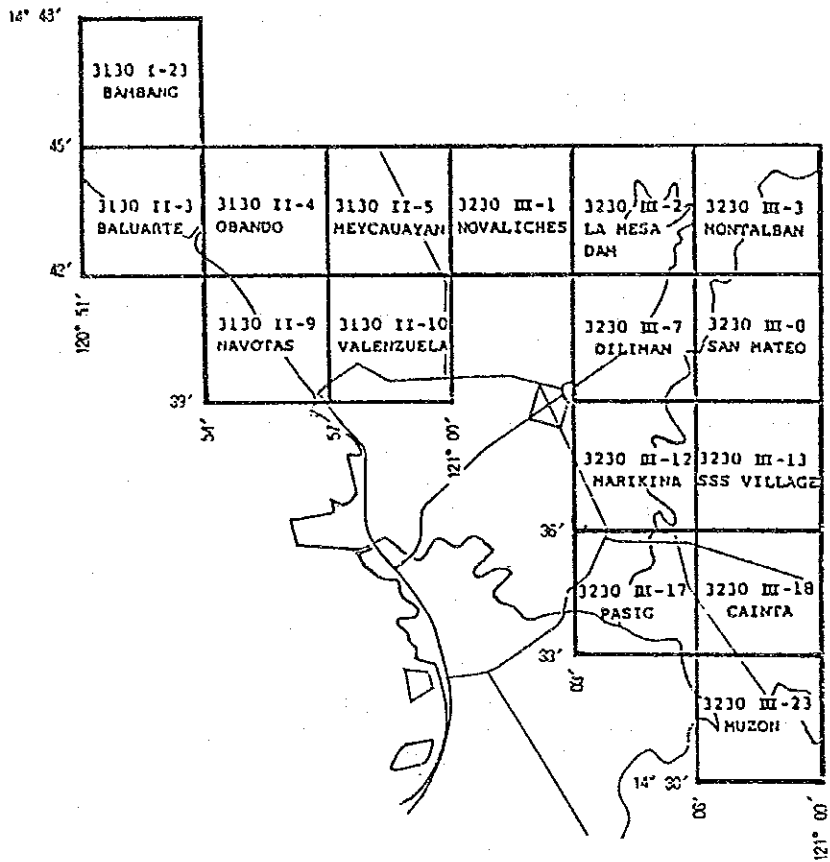
- 3-4 Marine area

Marine area, bar, tidal flat and bathymetric line are presented based on BCGS data.

3-5 .Color scheme

The land condition map is done using 6 basic colors and in multiple combination. Mountains are presented in dark color going lighter toward low land in the coastal area. (see Legend for different colors used for particular features.)

Sheet Name and Number Index of
Land Condition Map (1:10,000)



List of Data gathered for Land Condition Map

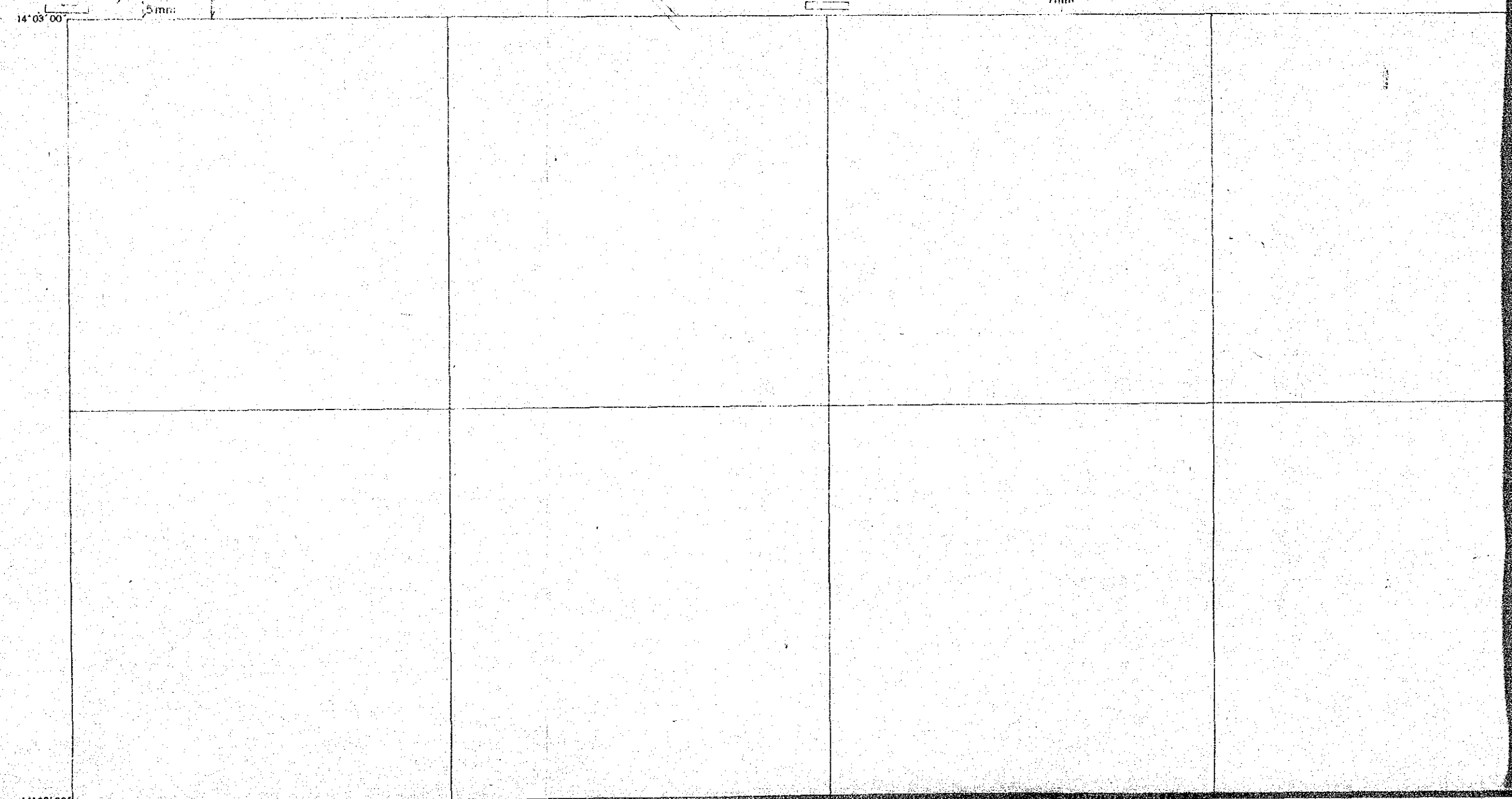
1. Boring data: Boring data of Table land of Metro Manila;
Boring data of low land(along Manila Bay);
Boring Data of Low Land(North Metro Manila)
2. Ground Water: Metropolitan Waterworks and Sewerage System,
Interim Report and Plates, Aug. 31 1981;
Ground Water Situation in Pasig and Marikina
3. Flooded area: 1985 Flooded Areas of Metro Manila;
1985 Flooded Areas of Quezon City(partial
area)
4. Soil: Soil and Land Resources Evaluation Project of
Metro Manila and Maps(Report, 1/125,000)
5. Geological map: Manila and Quezon City Quadrangle(1/50,000);
Montalban Quadrangle(1/50,000);
Cavite Quadrangle(1/50,000)
6. Geology: Geological Map of the Philippines(1/4,000,000);
Geology and Mineral Resources of Philippines
(Report);
Philippine Geochronology(Report);
Geologic Mapping of Active Faults for Land Use
Policy Generation(Report);
Annual Report 1984(Philippine Institute
of Volcanology and Seismology);
Geology and Facies of Part of Laguna Forma-
tion(Report);
Geologic Hazards and Preparedness System
7. Earthquake: Luzon Earthquake of 1 August 1968(Report);
Luzon Earthquake of 2 August 1968(Report);
1966-1985 Lists of Earthquake Events
8. Aerial Photos: Old Aerial Photos of Metro Manila Region
in 1966 - 68

3. 土地条件图整饰模範版

N.C.R. PROJECT (SBNS 17 6mm C)
1:10,000 (SBNS 17 4.5mm)

(SA 302.9mm C)

MANILA (NORTH)
7mm



MARGINAL INFORMATION

RTH)

SBNS 17 6mm C/L

Land Condition Map No.3130-II-15








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(SBNS 17 4mm C.L.) Edition 1 1988

5mm

(SB 60213.5mm C)

LEGEND

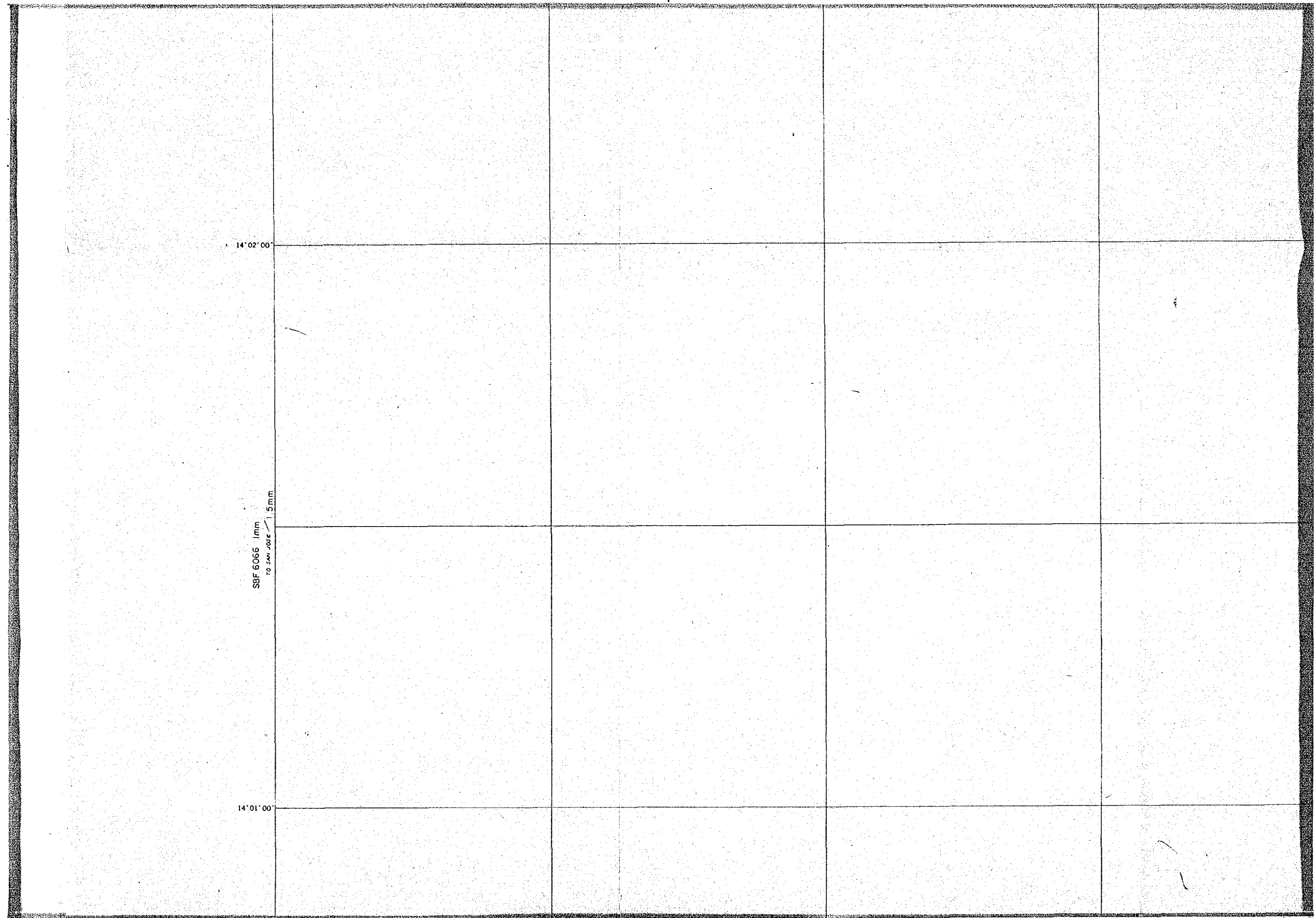
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	Steep Slope (More Than About 20°)	<input type="checkbox"/>		Natural Levee	<input type="checkbox"/>	
	Knick Line			Upper Sand Bar	<input type="checkbox"/>	
PIEDMONT LANDFORM	Talus	<input type="checkbox"/>	Lower Sand Bar	<input type="checkbox"/>		
	Colluvial Slope	<input type="checkbox"/>	Backmarsh	<input type="checkbox"/>		
	Small Alluvial Fan	<input type="checkbox"/>	UNSTABLE SLOPE	Cliff		
HILL AND PLATEAU	Top Flat	<input type="checkbox"/>		Landslide		
	Gentle Slope (Less Than About 5°)	<input type="checkbox"/>		ARTIFICIALLY DEFORMED LAND	Cut and Rolled Surface	<input type="checkbox"/>
	Moderate Slope (Between About 5° and 20°)	<input type="checkbox"/>			Banked Up Surface	<input type="checkbox"/>
	Steep Slope (More Than About 20°)	<input type="checkbox"/>	Cut Slope		<input type="checkbox"/>	
Valley Flat	<input type="checkbox"/>	Banked Up Slope	<input type="checkbox"/>			
TERRACE	Low Terrace	<input type="checkbox"/>	OTHERS	Filled Up Surface	<input type="checkbox"/>	
	Lower Terrace	<input type="checkbox"/>		Under Construction Area		
	Dent and Shallow Valley	<input type="checkbox"/>		MARINE AREA	Main Watershed	
ALLOUVIAL FAN	General Surface of Alluvial Fan	<input type="checkbox"/>	Drainage			
	Former River Bed	<input type="checkbox"/>	Water Surface			
FLOOD PLAIN AND VALLEY PLAIN	General Surface of Flood Plain and Valley Plain	<input type="checkbox"/>	Landform Boundary		<input type="checkbox"/>	
	Former River Bed	<input type="checkbox"/>	Indistinct Landform Boundary	<input type="checkbox"/>		
	Natural Levee	<input type="checkbox"/>	Bar	<input type="checkbox"/>		
	Backmarsh	<input type="checkbox"/>	Tidal Flat	<input type="checkbox"/>		
	Swamp and Marsh	<input type="checkbox"/>				
	Dry River Bed	<input type="checkbox"/>				

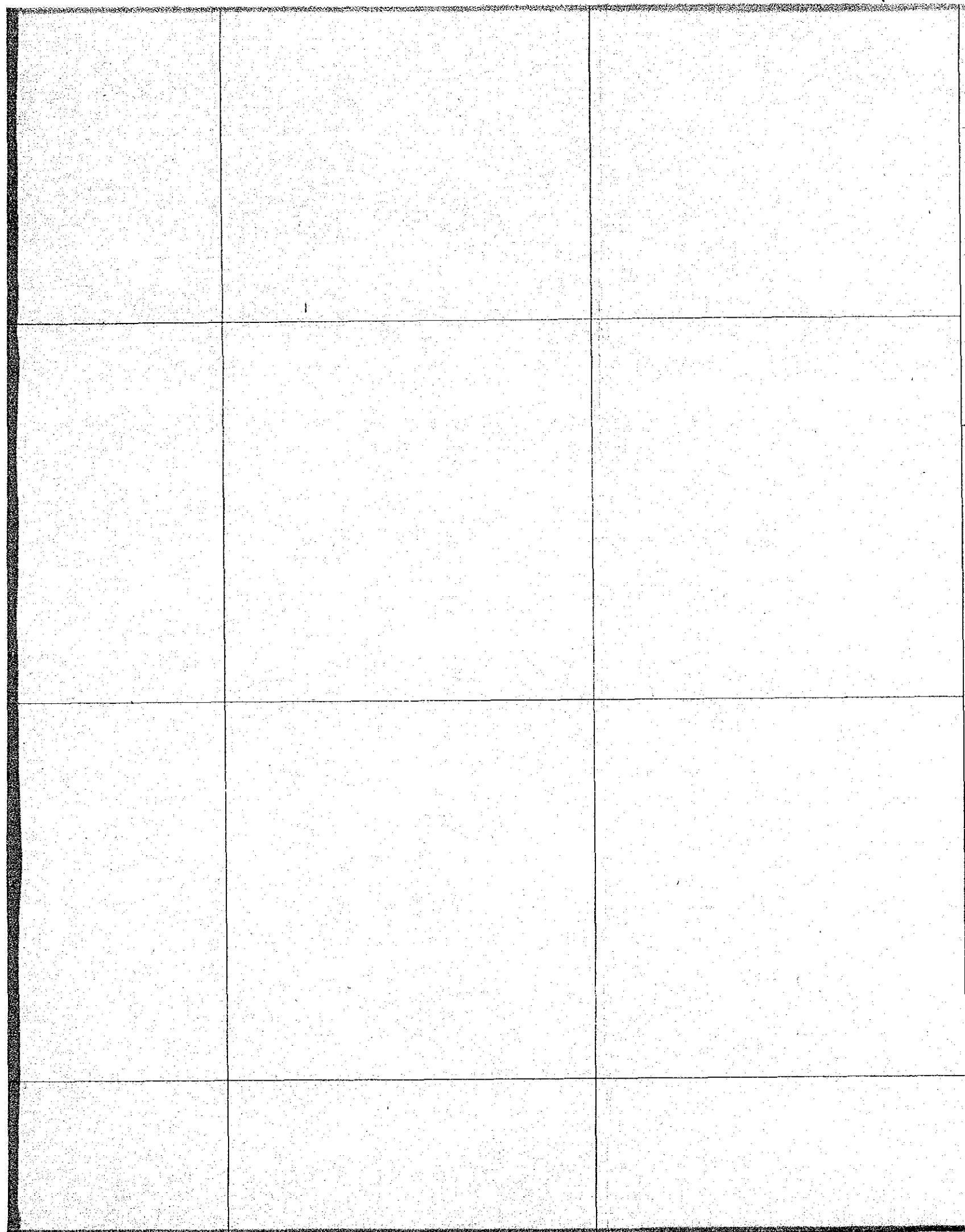
COASTAL PLAIN AND DELTA

14°02'00"

SSP 6066 1mm
TO 344 1012 1.5mm

14°01'00"





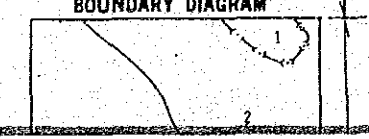
ALLUVIAL FAN	Deft and Shadow Valley	<input type="checkbox"/>	AB	Under Construction Area	
	General Surface of Alluvial Fan	<input type="checkbox"/>	OTHERS	Main Watershed	
	Former River Bed	<input type="checkbox"/>		Drainage	
FLOOD PLAIN AND VALLEY PLAIN	General Surface of Flood Plain and Valley Plain	<input type="checkbox"/>	MARINE AREA	Water Surface	
	Former River Bed	<input type="checkbox"/>		Landform Boundary	<input type="checkbox"/>
	Natural Levee	<input type="checkbox"/>		Indistinct Landform Boundary	<input type="checkbox"/>
	Backmarsh	<input type="checkbox"/>		Bar	<input type="checkbox"/>
	Swamp and Marsh	<input type="checkbox"/>		Tidal Flat	<input type="checkbox"/> Mud
	Dry River Bed	<input type="checkbox"/>			
2. GROUND SURFACE HEIGHT					
GROUND ELEVATION POINT	Bench Mark	⊙ 3.21	MICRORELIEF LINE AND BATHYMETRIC LINE	Microrelief Line	
	Ground Elevation Point	-1.2		Bathymetric Line	
3. ORGANIZATION AND PUBLIC FACILITIES					
ADMINISTRATIVE BOUNDARY	Regional Boundary	--- --	RIVER AND COASTAL STRUCTURE	Embankment	
	Provincial Boundary	--- · ·		Dam	
	City and Municipal Boundary	--- · · ·		Weir	
TRANSPORTATION	Main Road	====		Revetment	
	Railway	====		Bridge	
	Bus Terminal	◇		Breakwater Jetty and Causeway	
ORGANIZATION RELATED TO DISASTER AND LAND DEVELOPMENT	Government Building	⊠		Flood Gate	
	Police Station	⊙		Drainage Station	⊙
	Fire Station	⊙		Wharf and Pier	—
FACILITY FOR RESCUE AND RELIEF	Hospital	⊙		Lighthouse	◇
	Health Center	⊕	Port and Harbor		
	Church	⊕	Fishing Port		
	School	⊙	Pipe Line and Cable on Sea Bottom	---	
FACILITY FOR DANGEROUS MATERIAL	Rescue Center	⊙	Fishpen		
	Manufacturing Storage and Handling Facilities of Dangerous Materials	⊠	Rock Awash or Reef	*	
OBSERVATORY	Storage Tank	⊙ Oil ⊙ Gas	Wreck		
	Tidal Station	⊙	Marine Pond and Salt Bed		
	Water Level Gauge Station	⊠	Restricted Area		
FACILITY FOR SUPPLY AND PROCESSING	Rain Gauge Station	⊠	Dumping Area		
	Earthquake Observatory	⊙			
	Power Plant and Sub-Station	⊠			
	Water Treatment Plant	⊙			
	River Pumping Station	⊙			
	Well	· Well			

2.5
(SB 6021 2 mm C/L)

20mm

1.5mm

(SB 6021 2 mm C)
BOUNDARY DIAGRAM



14° 01' 00"

14° 00' 00"
120° 57' 00"

120° 58' 00"

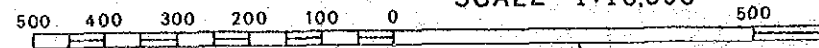
This map was produced under a cooperative undertaking between the Government of the Republic of the Philippines and the Government of Japan. (SB6021 2mm C/L)

Base Map: Contoured map 1987 (DGS, JICA)
 Aerial Photography: 1986-1988, 1982 & 1986
 Field surveys by DGS & JICA 1987
 Other sources of information: MGSB, BSWM, DPWH, OCD, NPCC, MWSS, PHIVOLCS, XWRB & IGS of DP

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45mm

4mm (SBNS 17 2.5mm C)
 SCALE 1:10,000

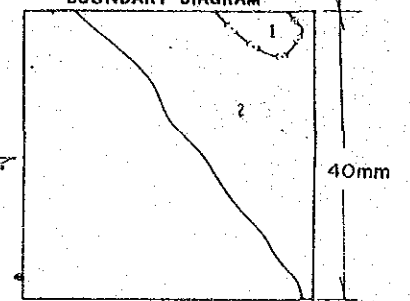


8mm (SB 6023 23mm C)

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
 ZONE 51 CLARKE SPHEROID 1866 LUZON DATUM
 VERTICAL DATUM: MSL FOR HEIGHTS MLLW FOR DEPTHS
 CONTOUR INTERVAL 4 METERS

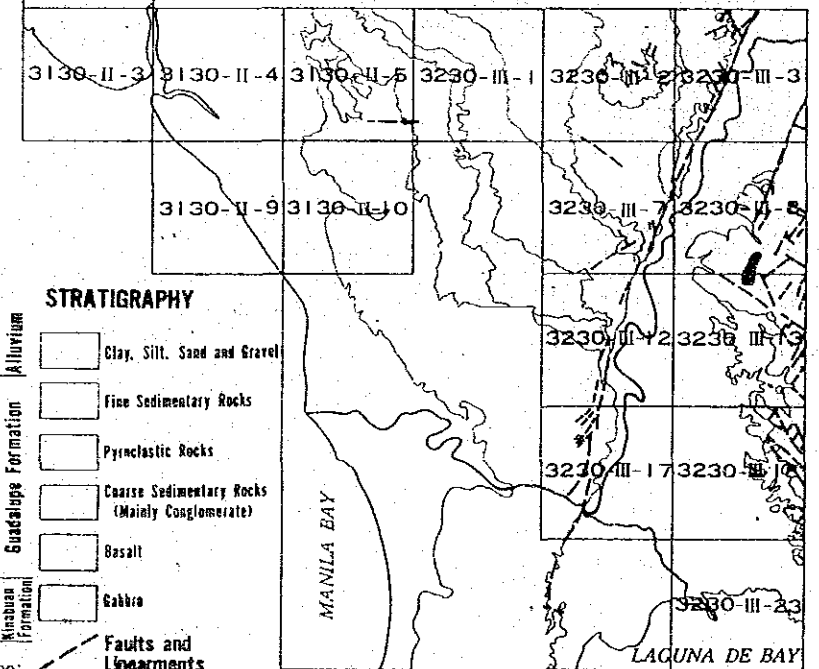
OBSERVATIONS	Water Level Gauge Station	⊙	OTHER	Dumping Area	(Dumong)
	Rain Gauge Station	⊙			
	Earthquake Observatory	⊙			
FACILITY FOR SUPPLY AND PROCESSING	Power Plant and Sub-Station	⊙			
	Water Treatment Plant	⊙			
	River Pumping Station	⊙			
	Well	• Well			

(SB 6021 2 mm C)
BOUNDARY DIAGRAM



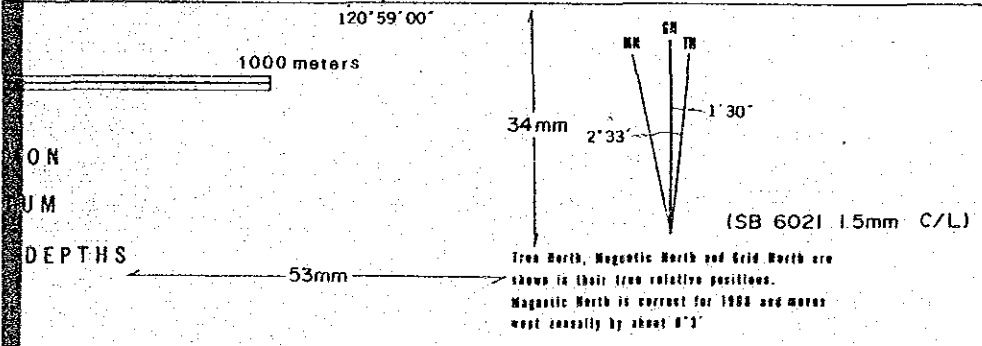
REGION III (SB 6023 1.8mm C)
1. Bulacan Province (SB 6023 1.8mm C/L)
REGION IV
2. Metro Manila

GENERAL SURFACE GEOLOGICAL MAP
(Index to Adjoining Sheets)



STRATIGRAPHY

Holocene	Alluvium	Clay, Silt, Sand and Gravel
		Fine Sedimentary Rocks
Pliocene	Guadalupe Formation	Pyroclastic Rocks
		Coarse Sedimentary Rocks (Mainly Conglomerate)
Cretaceous	Minabuan Formation	Basalt
		Gabbro
		Faults and Linearments



120°59'00" 14°00'00" 15mm 121°00'00"

(SA 6007 6mm C) (C/L)
MANILA (North)
Sheet No. 3130-II - 15
(SA 6007 4mm C/L)



3. 土地利用図整飾模範版

N.C.R. PROJECT (SBNS 17.6mm C.)

1:10,000 (SBNS 17.4.5mm)

(SA 302 9mm C.)

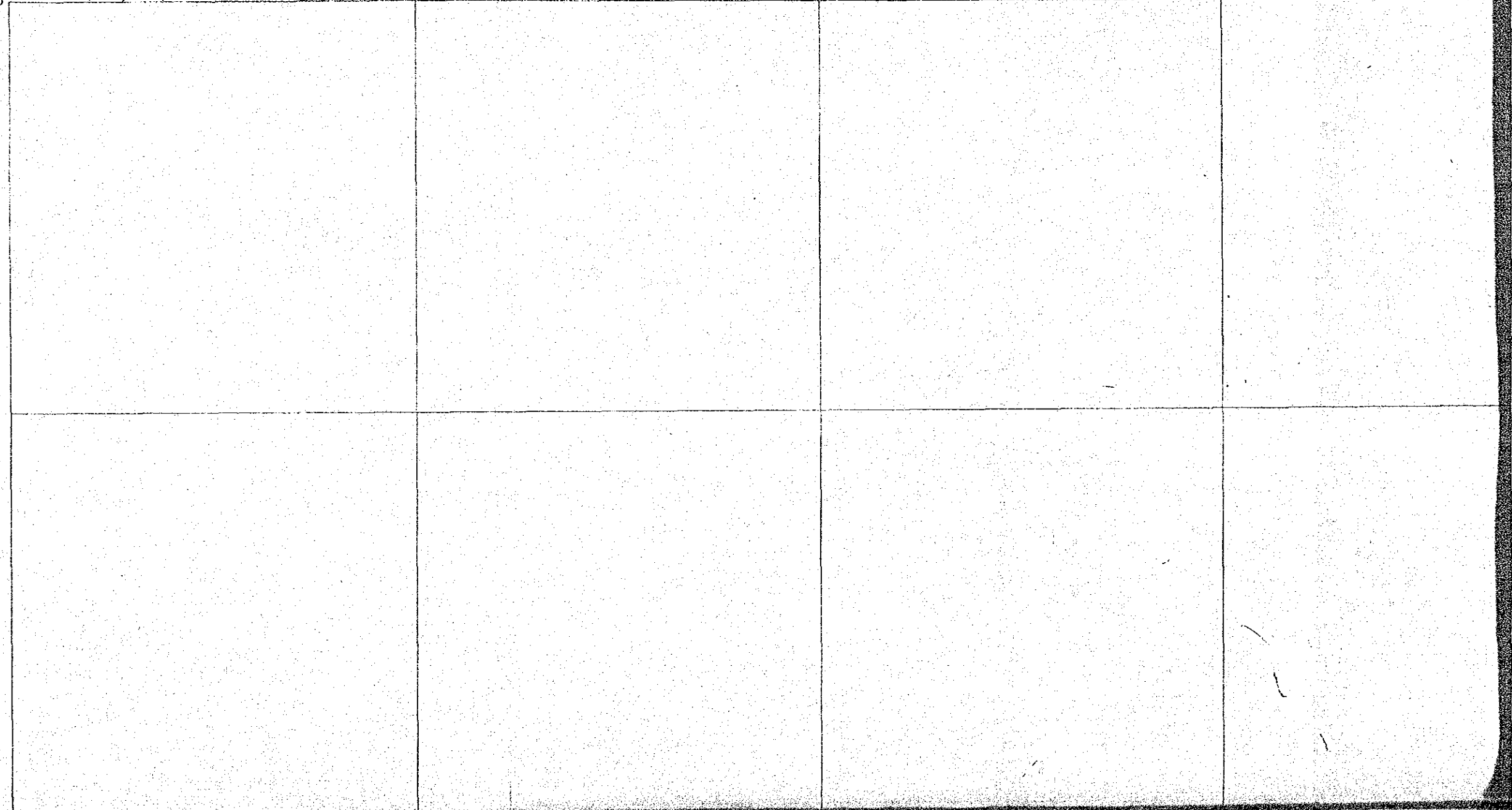
MANILA (NORTH)

14' 03" 00"

5mm

12mm

7mm



MARGINAL INFORMATION

(RTH)

(SBNS 17 6mm C/L) Land Use Map No.3130-II-15

12mm

(SBNS 17 4mm C/L) Edition 1 1988

5mm

(SB 6021 45mm C)

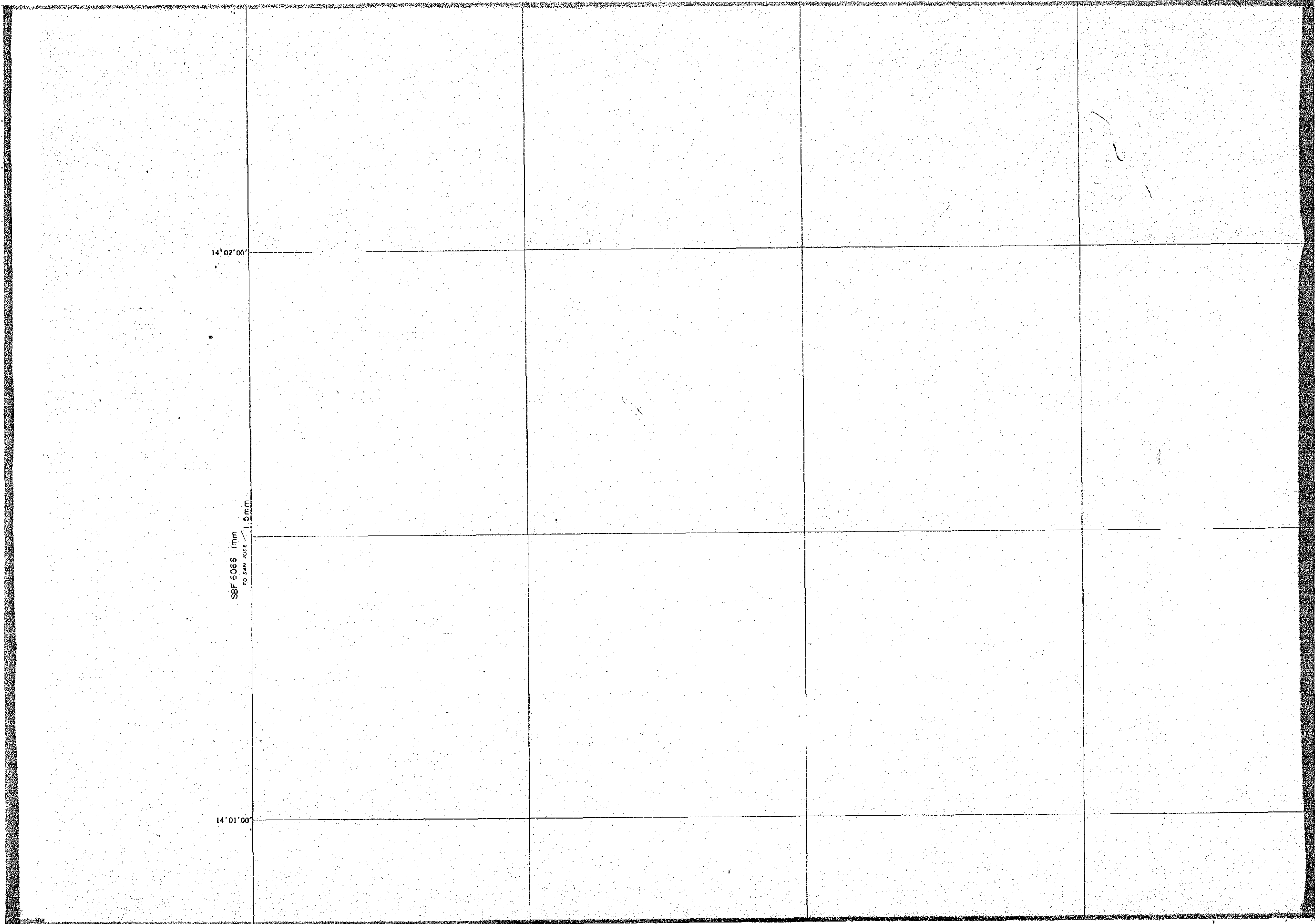
LEGEND

1. BUILT-UP AREA				
RESIDENTIAL	Multi-Storey Housing	<input type="checkbox"/>	Governmental and Quasi-Public	<input type="checkbox"/>
	Residential	<input type="checkbox"/>	Education and Cultural	<input type="checkbox"/>
	Temporary Housing	<input type="checkbox"/>	Health and Welfare	<input type="checkbox"/>
COMMERCIAL AND BUSINESS	Business	<input type="checkbox"/>	Park and Recreational	<input type="checkbox"/>
	Commercial	<input type="checkbox"/>	Religious and Cemetery	<input type="checkbox"/>
	Mixed Commercial-Residential	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
	Mixed Business-Commercial	<input type="checkbox"/>	Service	<input type="checkbox"/>
INDUSTRIAL	Large-Scale Industry	<input type="checkbox"/>	Sport and Athletics	<input type="checkbox"/>
	Small-Scale Industry	<input type="checkbox"/>	Military	<input type="checkbox"/>
	Mixed Industrial-Residential	<input type="checkbox"/>		
2. FOREST and FARM AREA				
AGRICULTURAL LAND	Rice Field	<input type="checkbox"/>	Forest	<input type="checkbox"/>
	Crop Land	<input type="checkbox"/>	Barren / Bush	<input type="checkbox"/>
	Plantation and Farm Land	<input type="checkbox"/>	Mixed Forest and Barren/Bush	<input type="checkbox"/>
	Barren	<input type="checkbox"/>	Barren	<input type="checkbox"/>
	Sugar cane	<input type="checkbox"/>	Grass Land	<input type="checkbox"/>
	Pepper	<input type="checkbox"/>	Bare Land	<input type="checkbox"/>
	Others	<input type="checkbox"/>	Land, Soil Erosion	<input type="checkbox"/>
	Agro Industrial	<input type="checkbox"/>		
3. OTHERS				
WATER SPHERE	Water Surface	<input type="checkbox"/>	Water Related Vegetation	<input type="checkbox"/>
	Lake / Pond	<input type="checkbox"/>	Wetland	<input type="checkbox"/>
	Tidal Flat Mud	<input type="checkbox"/>	Swamp / Marsh	<input type="checkbox"/>
	Tidal Flat Sand	<input type="checkbox"/>		

14° 02' 00"

SBF 6066 1mm
70 244 2022 1.5mm

14° 01' 00"



AGRICULTURAL LAND	Wheat		FOREST	Bamboo	
	Barley			Grass Land	
	Sugar cane			Bare Land	
	Pineapple			Sand, Sand Dunes	
	Cocconut				
	Others				
	Agro Industrial				
3. OTHERS					
WATER SPHERE	Water Surface	Lake / Pond		Water Related Vegetation	Mac
	Tidal Flat	Mac		Mangrove	
	Tidal Flat	Sand		Swamp / Marsh	
	Reef - Coral			Salt Bed	
	Machine Pond			Open Space	
				Under Construction	
	LAND USE BOUNDARY				
4. TOPOGRAPHIC FEATURES					
Slipway		Fishon		Wrack	
Rock Awash		Breakwater			
Pier-Jetty		Intermittent			
Wharf, Revetment		Indefinite			
River / Stream		Channel, Cutaway			
Flow Arrow		Flood Gate, Weir			
Dam, Falls (Single Line)					
Falls (Double Line)					
Regional Boundary		Provincial Boundary			
City and Municipal Boundary		Wall / Fence			
Fort		Antiquity			
Prominent Building		Independent Building			
Ruins		Building Remnant			
Divided Highway		Route Marker			
Expressway		National / Provincial			
National / Provincial Road		City / Municipal Road			
Alley		Grade Separation			
Trail		Pedestrian Overpass			
Skinwalk		Toll Gate			
Crossing		Trees Lined Road			
Pedestrian Underpass		Power Transmission Line			
Road Way		Pipeline / Water Pipeline			
Ditch		Pipeline			
Siphon		Sewerage Outfall			
Ferry / Ford		Private Railway			
National Railway		Level Crossing			
Light Rail Crossing		Underpass			
Tramway		Tunnel			
Railway Station					
Government Building		Police Station		Gas Station	
Post Office		Water Supply		Fire Station	
Hospital		Sewerage		School	
Spring / Hot Spring		Embassy		Mosque	
Power Plant		Church / Mosque		Temple	
Sub-Station		Health Center		Hotel / Motel	
Market		Bank		Relief	
Provision Store		Factory		Storage Tank	
Theater, Cinema (Prominent)		Sports Center		Cave	
Radio Tower, TV Tower		Lighthouse		Monument	
Stack, Flagpole, Telephone		Water Tank		Well	
Windmill		Stand Pipe		Bus Terminal	
Windmill		Well			

(SB 6021 1.6mm C/L)

20 mm

1.5 mm

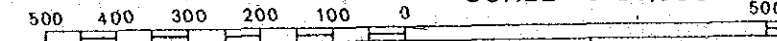
14°01'00"

14°00'00"
120°57'00"

120°58'00"
1.2mm

9mm (SB 6021 2.0mm C/L)

4mm (SBNS 17 2.5mm C)
SCALE 1:10,000



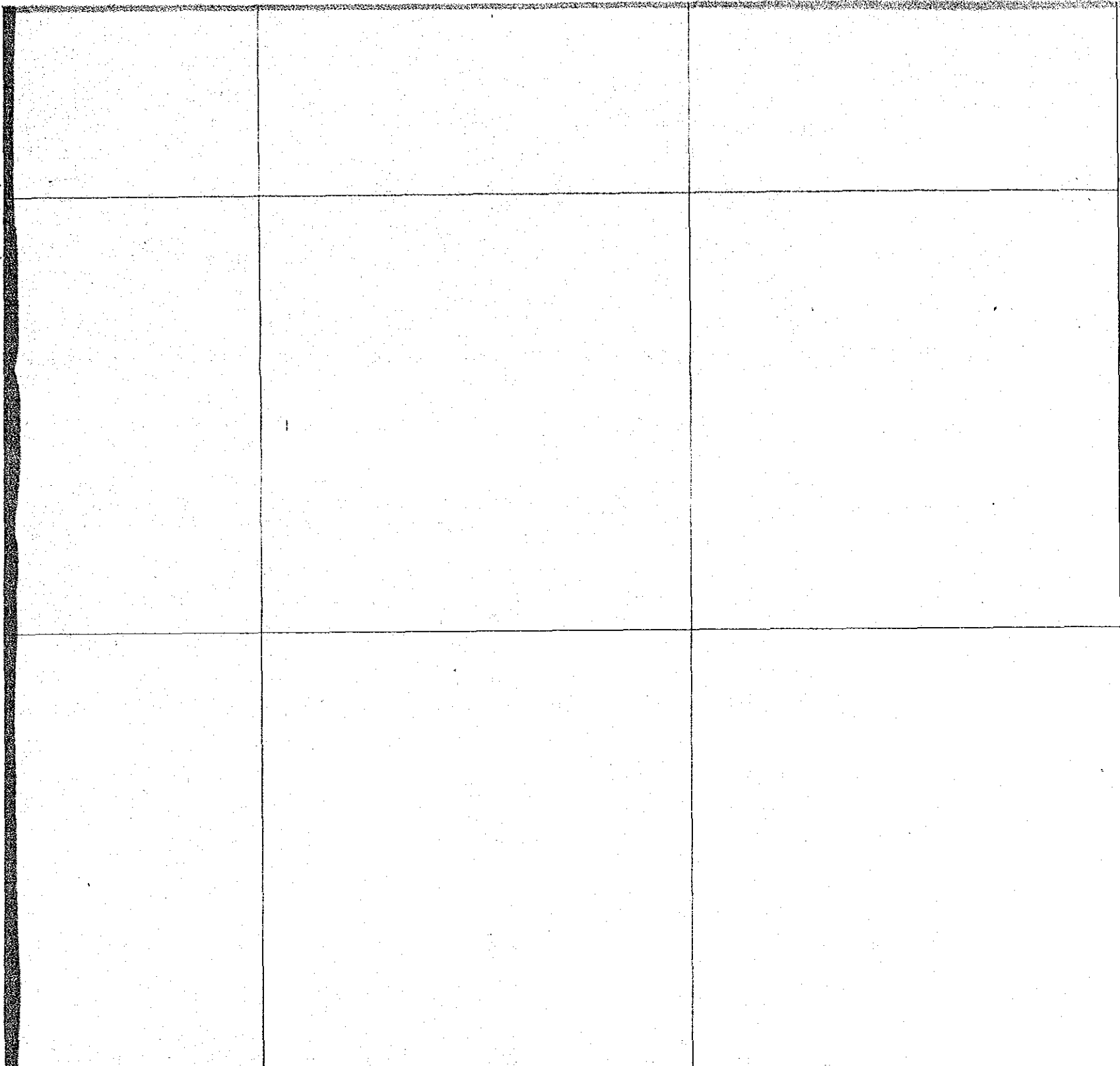
8mm (SB 6023 2.3mm C)

This map was produced under a cooperative undertaking between the Government of the Republic of the Philippines and the Government of Japan.
Base Map: Contoured map 1997 (BCGS, JICA)
Aerial Photography: 1982 & 1988
Field classification by BCGS & JICA 1985
Field completion by BCGS & JICA 1987
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45mm

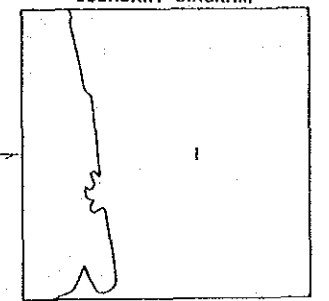
UNIVERSAL TRANSVERSE MERCATOR PROJECTION
ZONE 51 CLARKE SPHEROID 1866 LUZON DATUM
VERTICAL DATUM: MSL FOR HEIGHTS MLLW FOR DEPTHS
CONTOUR INTERVAL 4 METERS



Light Rail Crossing	Police Station	Gas Station
Transit	Water Supply	Fire Station
Underpass	Sewerage	School
Tunnel	Embassy	Mezquita
Church / Mission	Health Center	Temple
Government Building	Bank	Hotel / Motel
Post Office	Factory	Hospital
Hospital	Sports Center	Storage Tank
Spring / Hot Spring	Uighthouse	Cave
Power Plant	Water Tank	Monument
Sub-Station	Stand Pipe	Well
Market	Well	Bus Terminal
Prominent Stone		
Theater, Cinema (Prominent)		
Radio Tower, TV Tower		
Stack, Flagpole		
Telephone		
Mine		
Windpump		
Aero Beacon		

1.5mm

BOUNDARY DIAGRAM (SB 6021 2mm)
REGION IV
I. Metro Manila



4.5cm

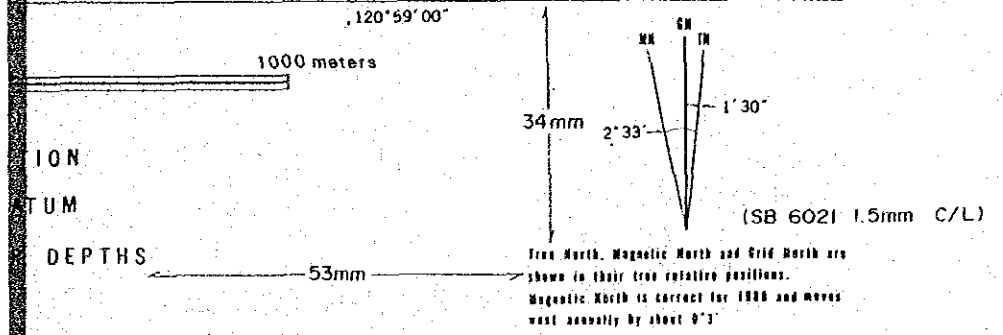
(SB 6021 1.5 mm C.)

INDEX TO ADJOINING SHEETS

3130-II-9	SB 45 1.5mm 3130-II-10	3230-III-6
	3130-II-15 MANILA (NORTH) SBC 1091 1.8 C.	3230-III-11
	3130-II-20	3230-III-16

(SBNS 17 1:5mm)

1.5mm



45mm 35mm

(SA 6007 6mm C.) (C/L)

MANILA (North)

Sheet No. 3130-II - 15

(SA 6007 4mm C/L)



JICA