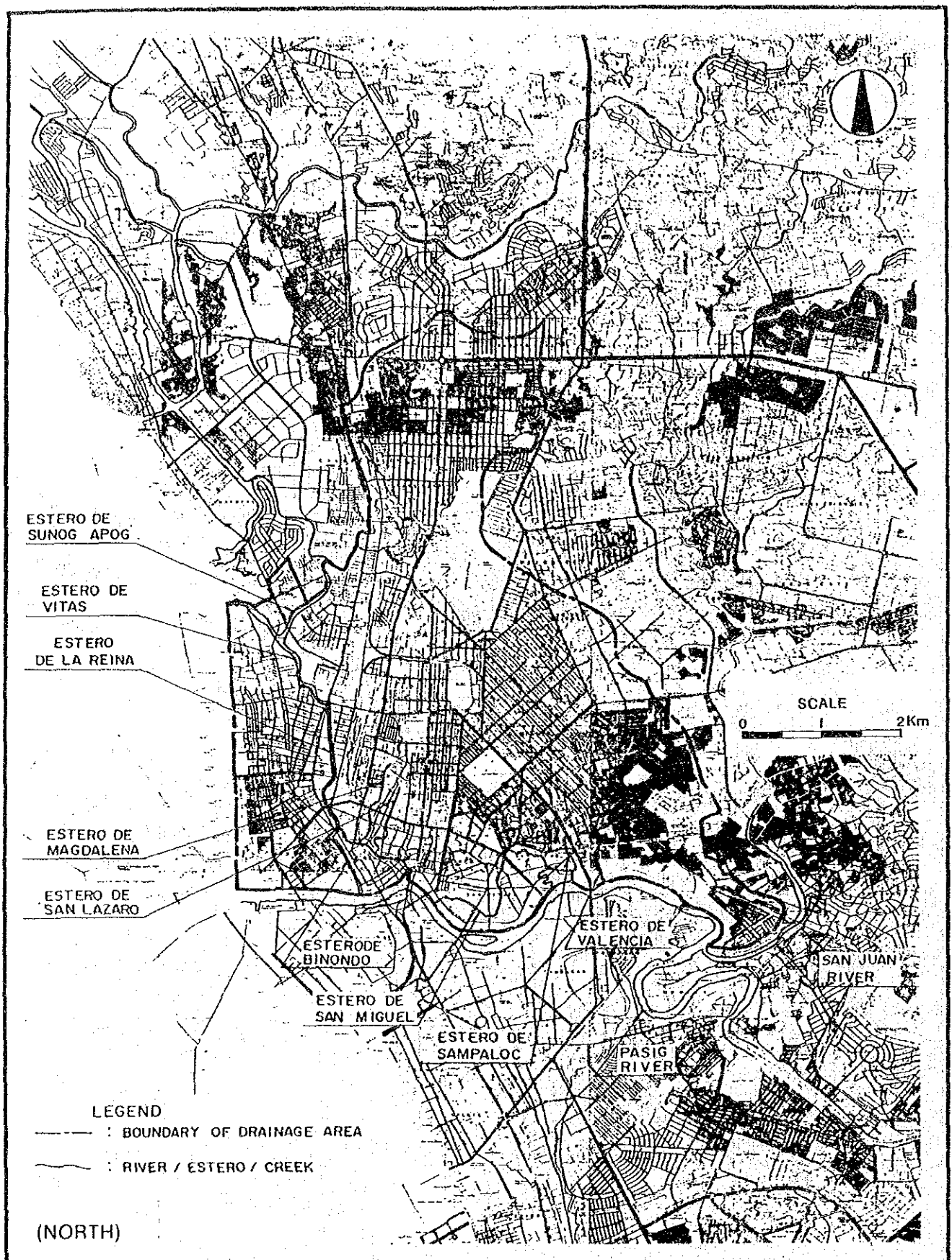
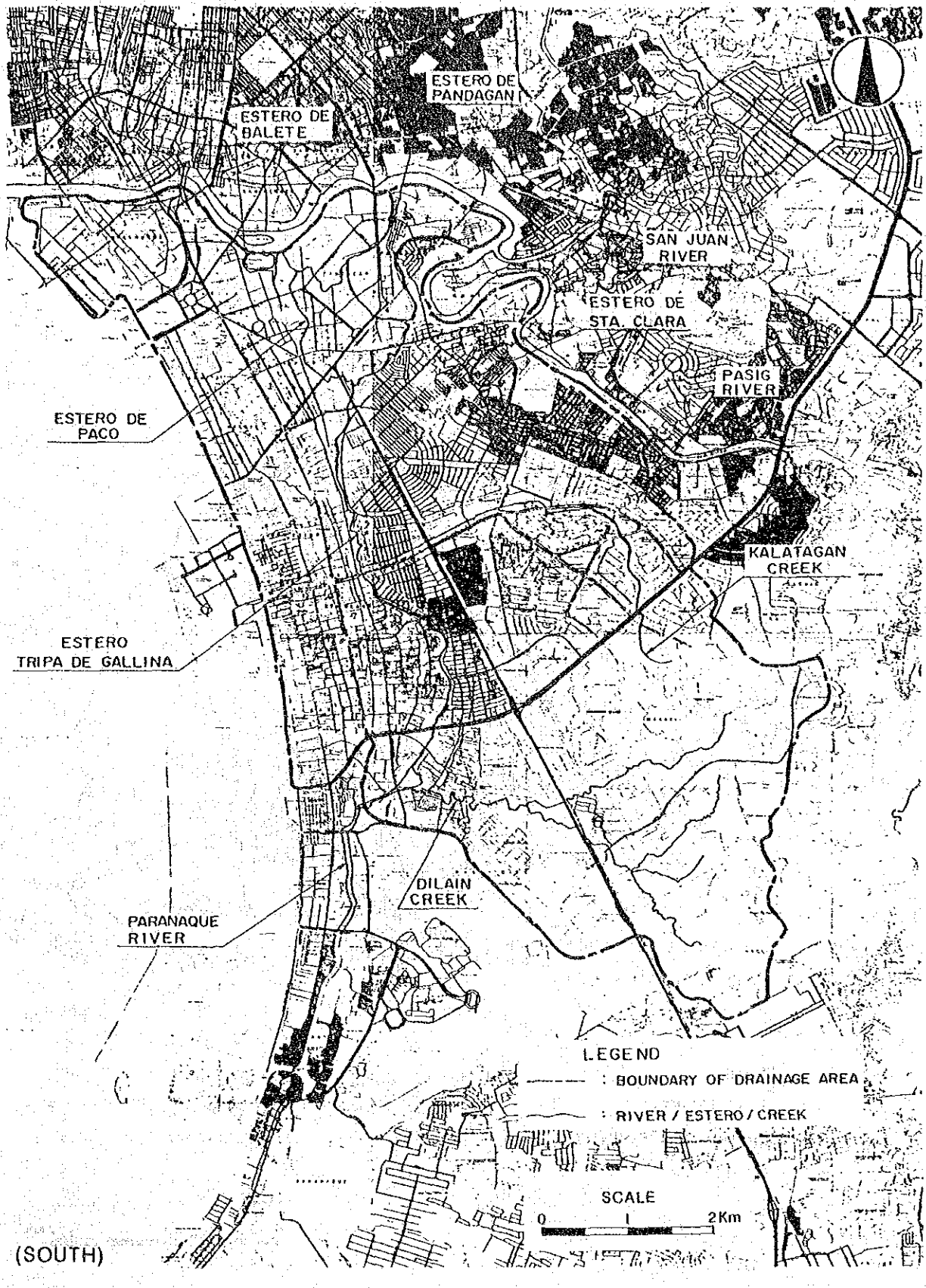


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

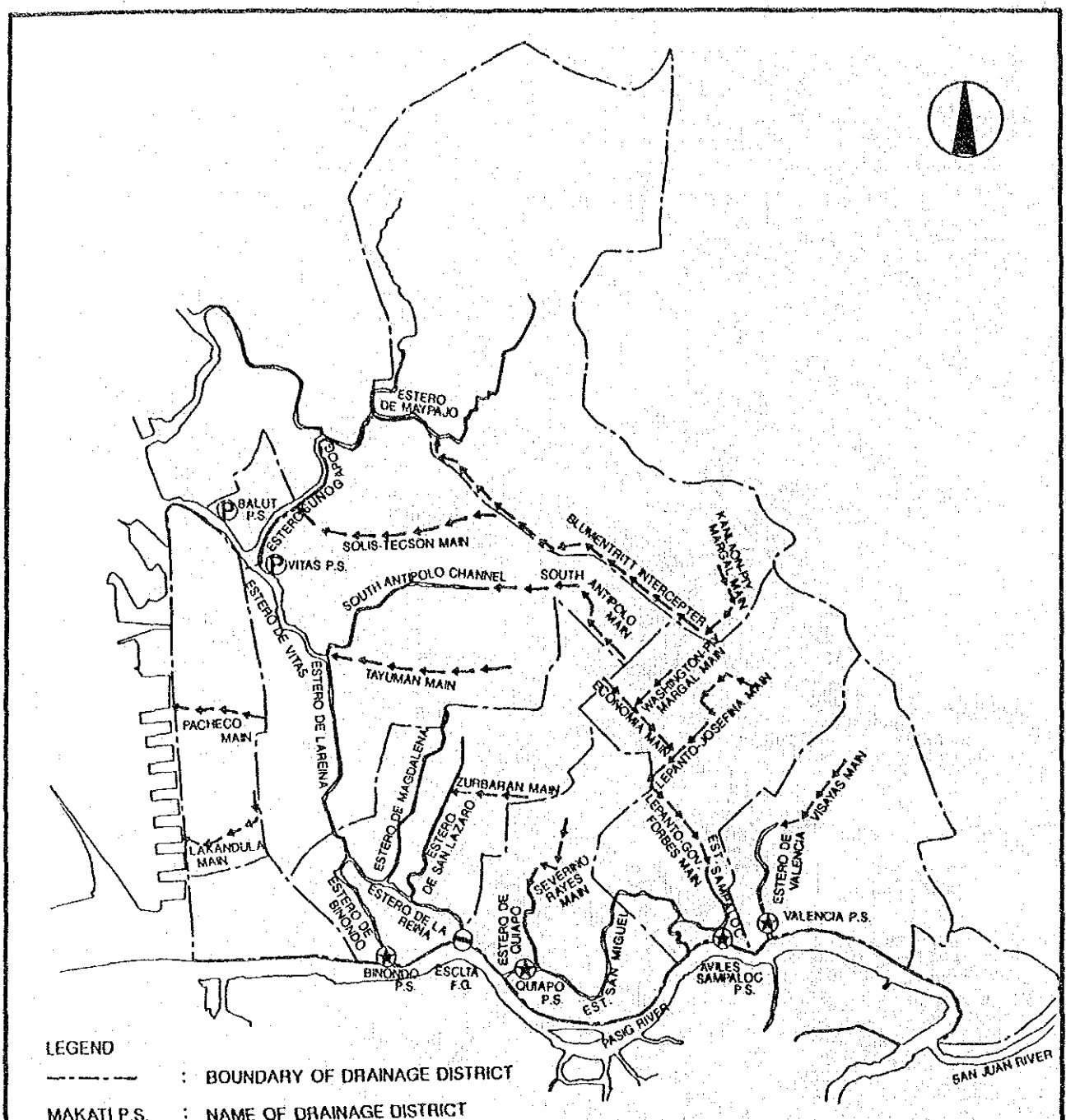
MANILA AND SUBURBS DRAINAGE AREA
Fig.5-2-2(1/2)



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

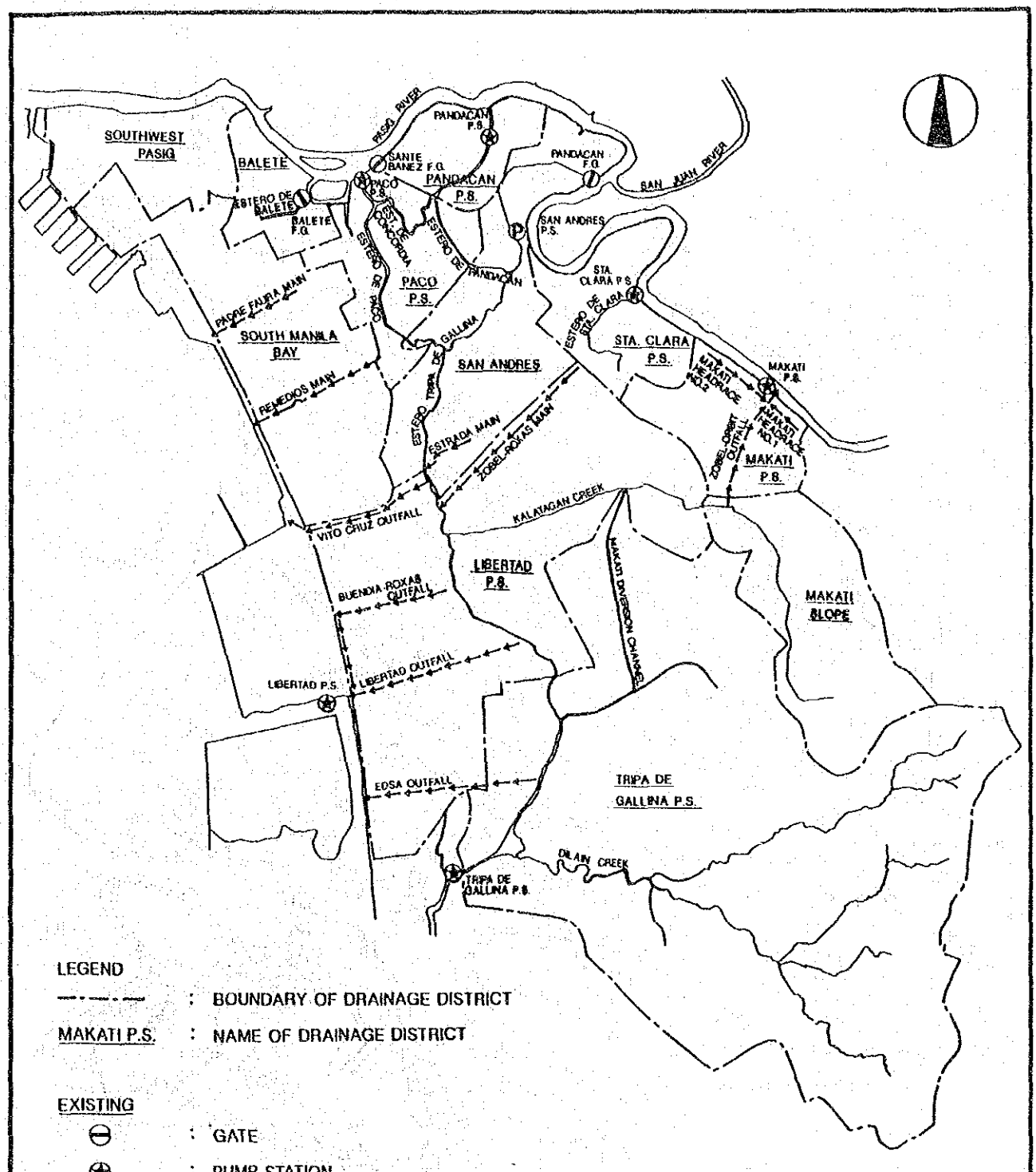
MANILA AND SUBURBS DRAINAGE AREA
Fig.5-2-2(2/2)



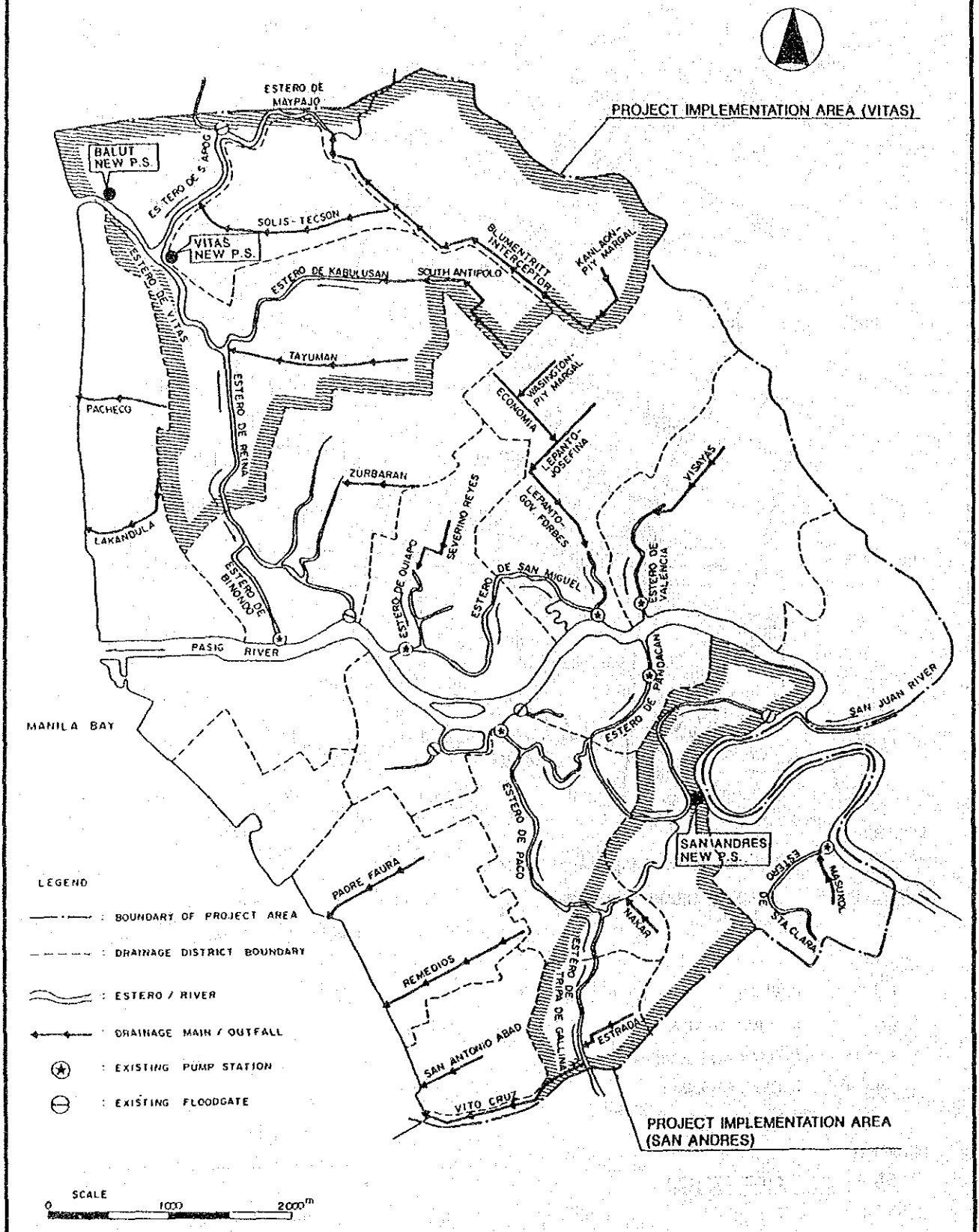
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

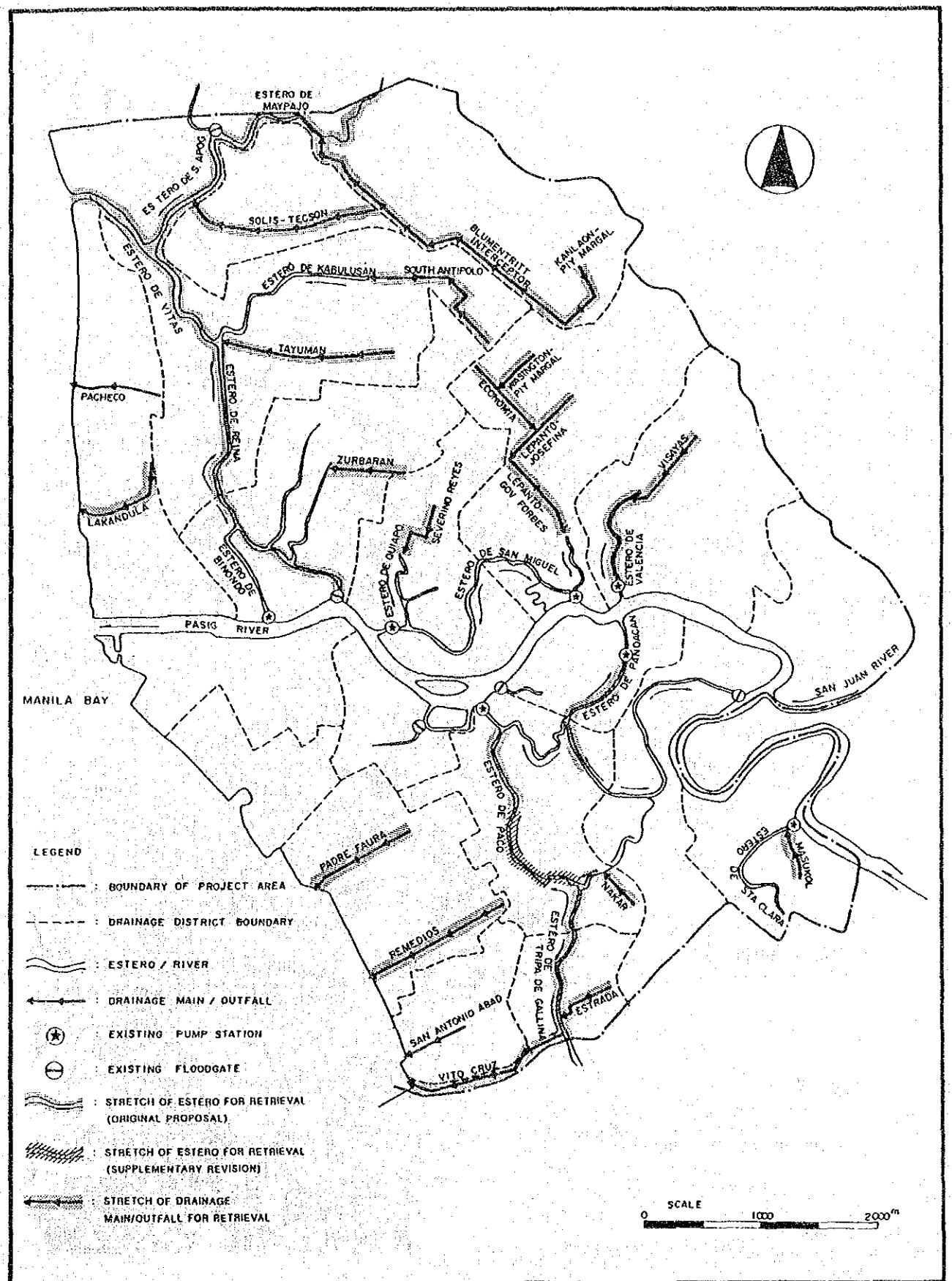
DRAINAGE SYSTEM IN MANILA AND SUBURBS
Fig.5-2-3(1/2)



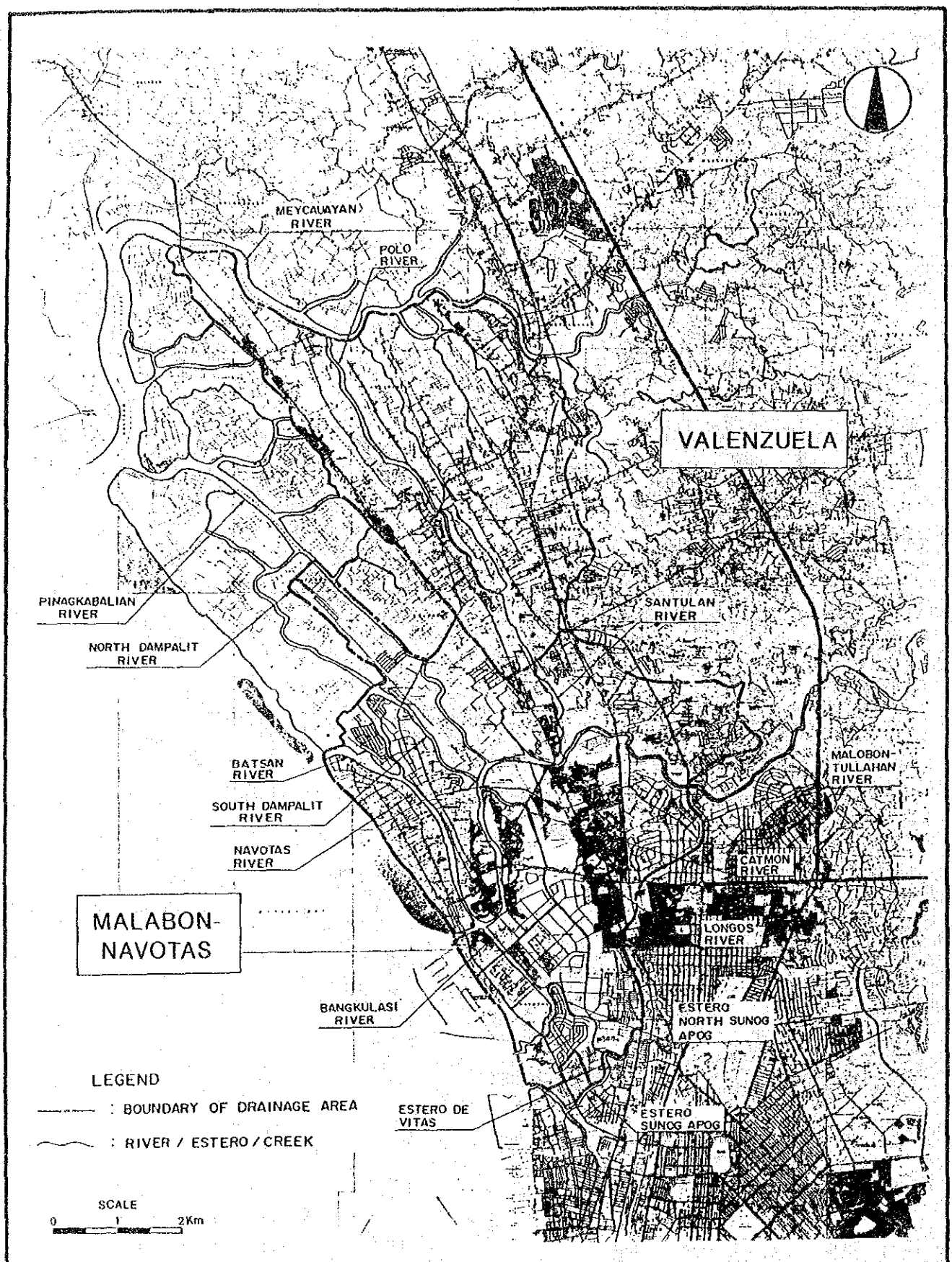
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES JAPAN INTERNATIONAL COOPERATION AGENCY	DRAINAGE SYSTEM IN MANILA AND SUBURBS Fig.5-2-3(2/2)



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	IMPLEMENTATION AREA OF METRO MANILA FLOOD CONTROL PROJECT
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-4



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	IMPLEMENTATION STRETCH OF PROJECT FOR THE RETREAVAL OF FLOOD PRONE AREAS OF METRO MANILA Fig.5-2-5
JAPAN INTERNATIONAL COOPERATION AGENCY	

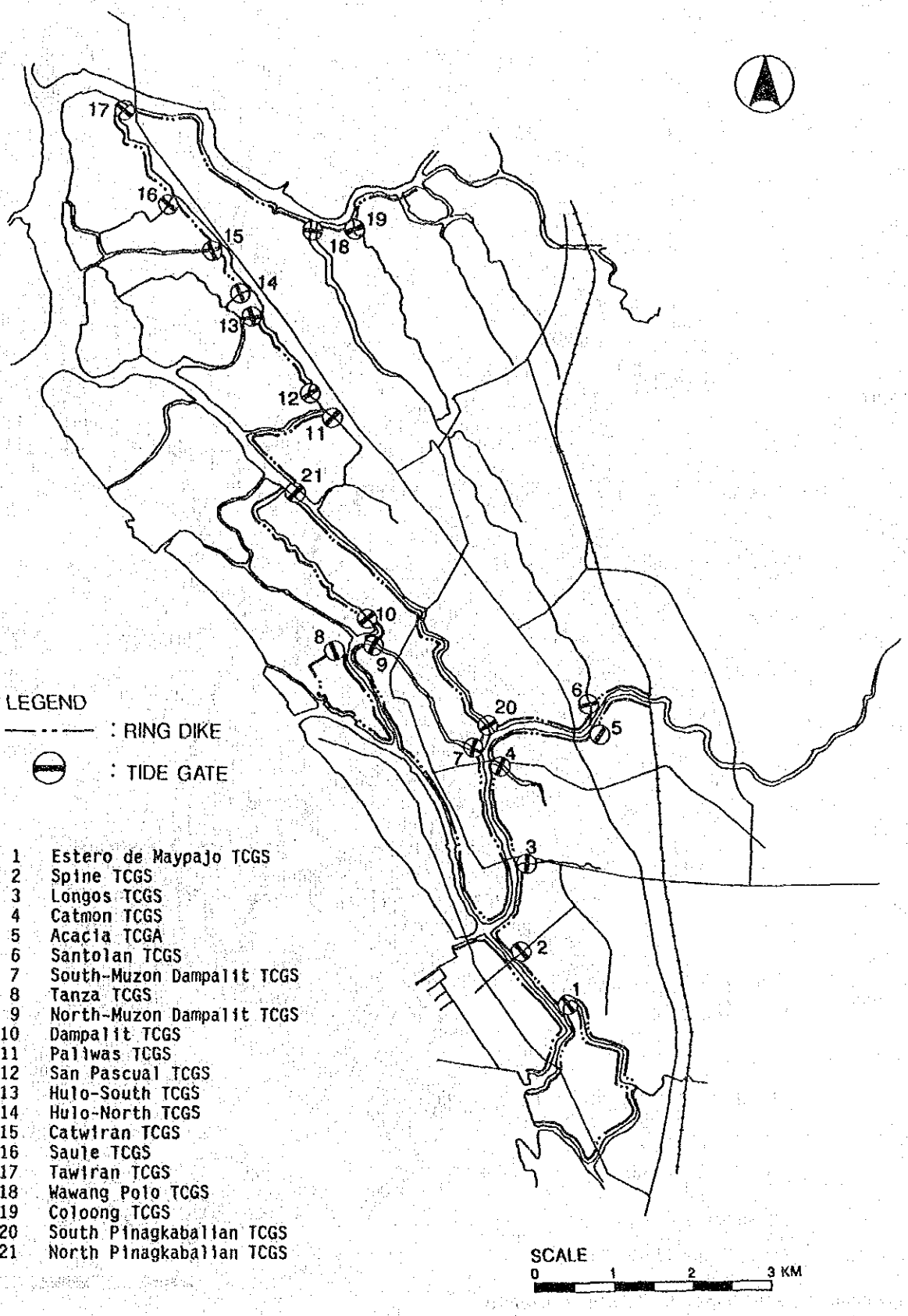


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

MALABON-NAVONTAS DRAINAGE AREA AND VALENZUELA DRAINAGE AREAS

Fig.5-2-6

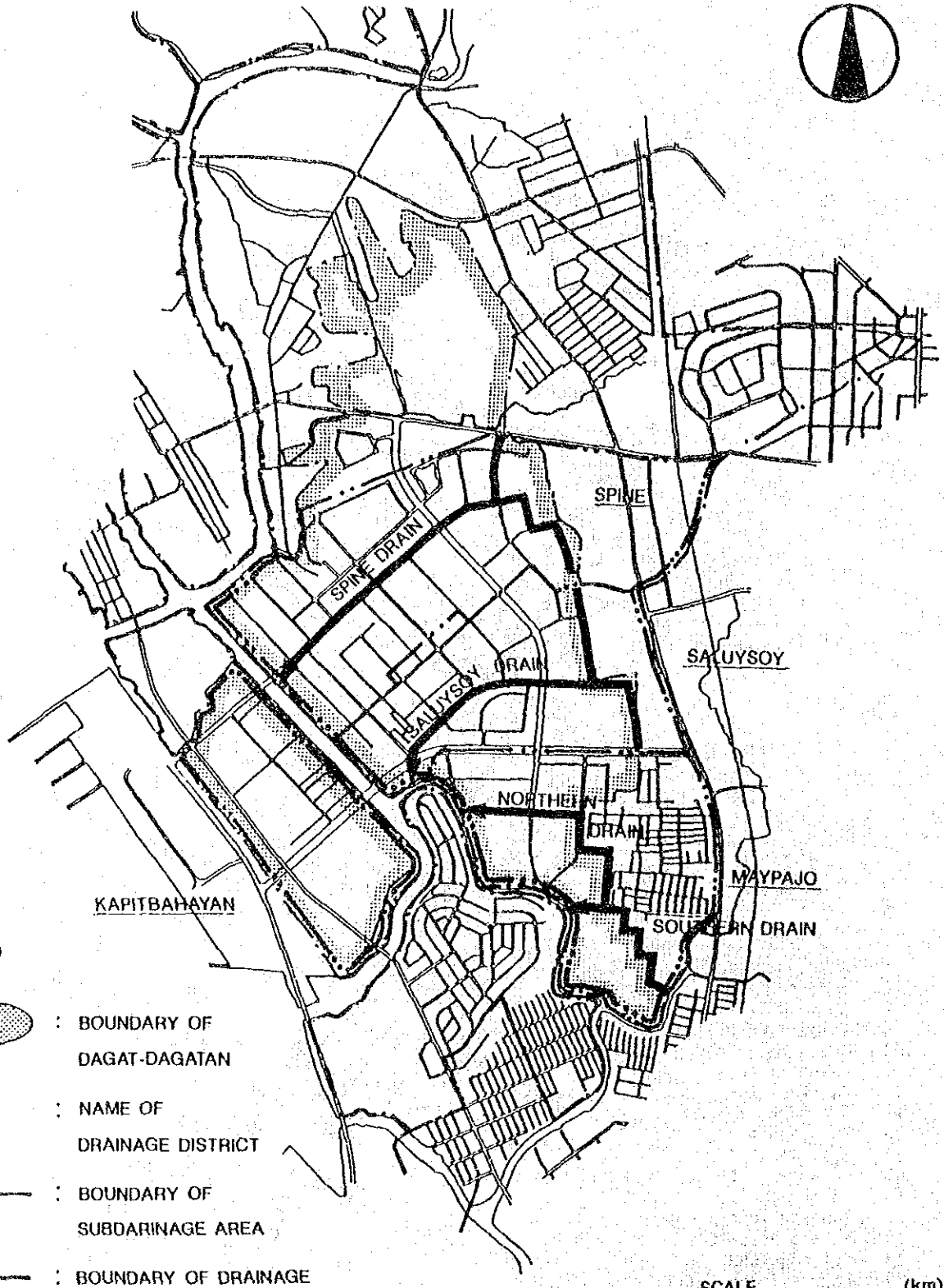


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

EXISTING RING DIKES AND TIDE GATES IN MANAVA

Fig.5-2-7

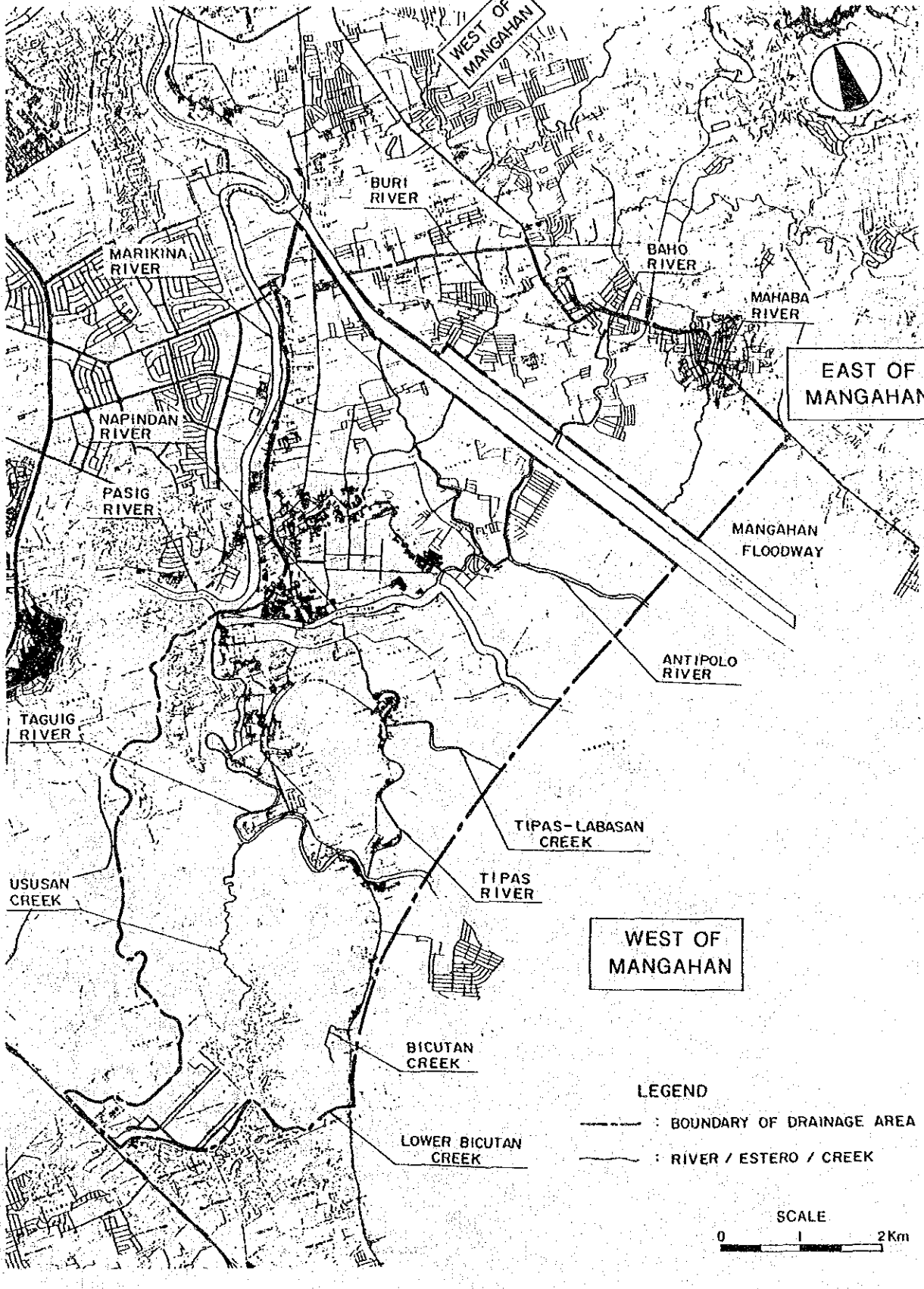


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

DRAINAGE SYSTEM IN DAGAT-DAGATAN

Fig.5-2-8

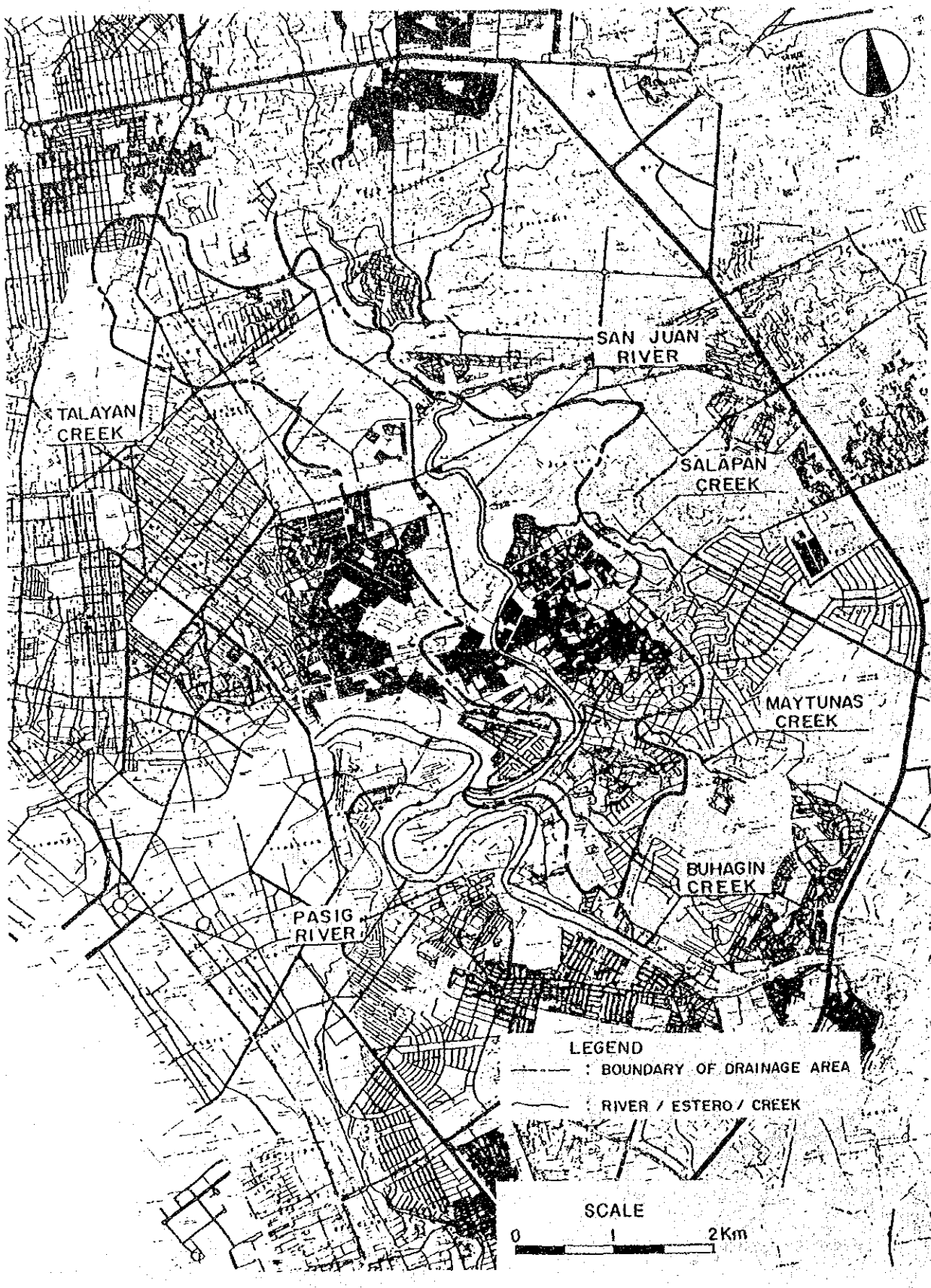


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

EAST AND WEST OF MANGAHAN DRAINAGE AREA

Fig.5-2-9

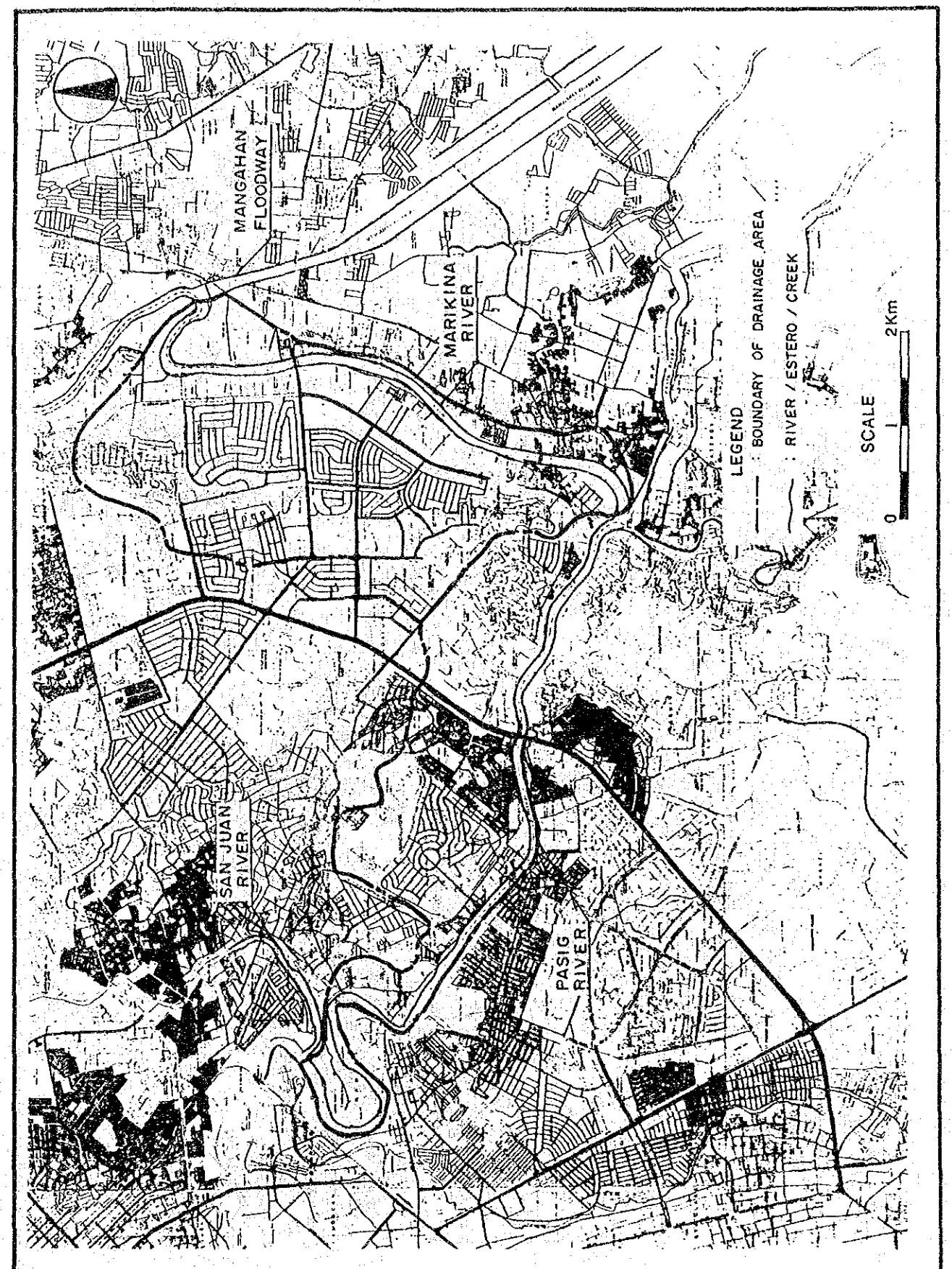


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

SAN JUAN DRAINAGE AREA

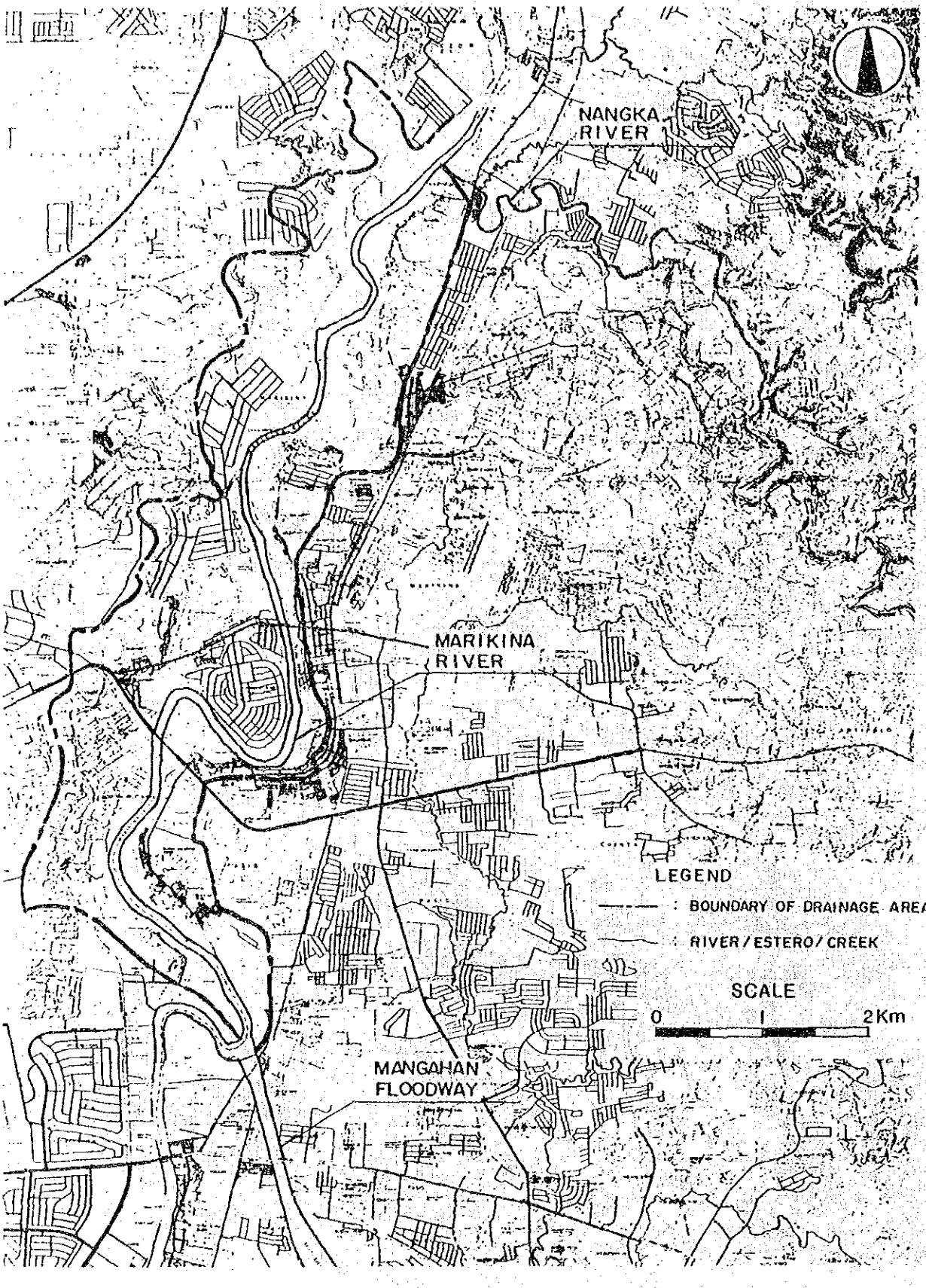
Fig.5-2-10



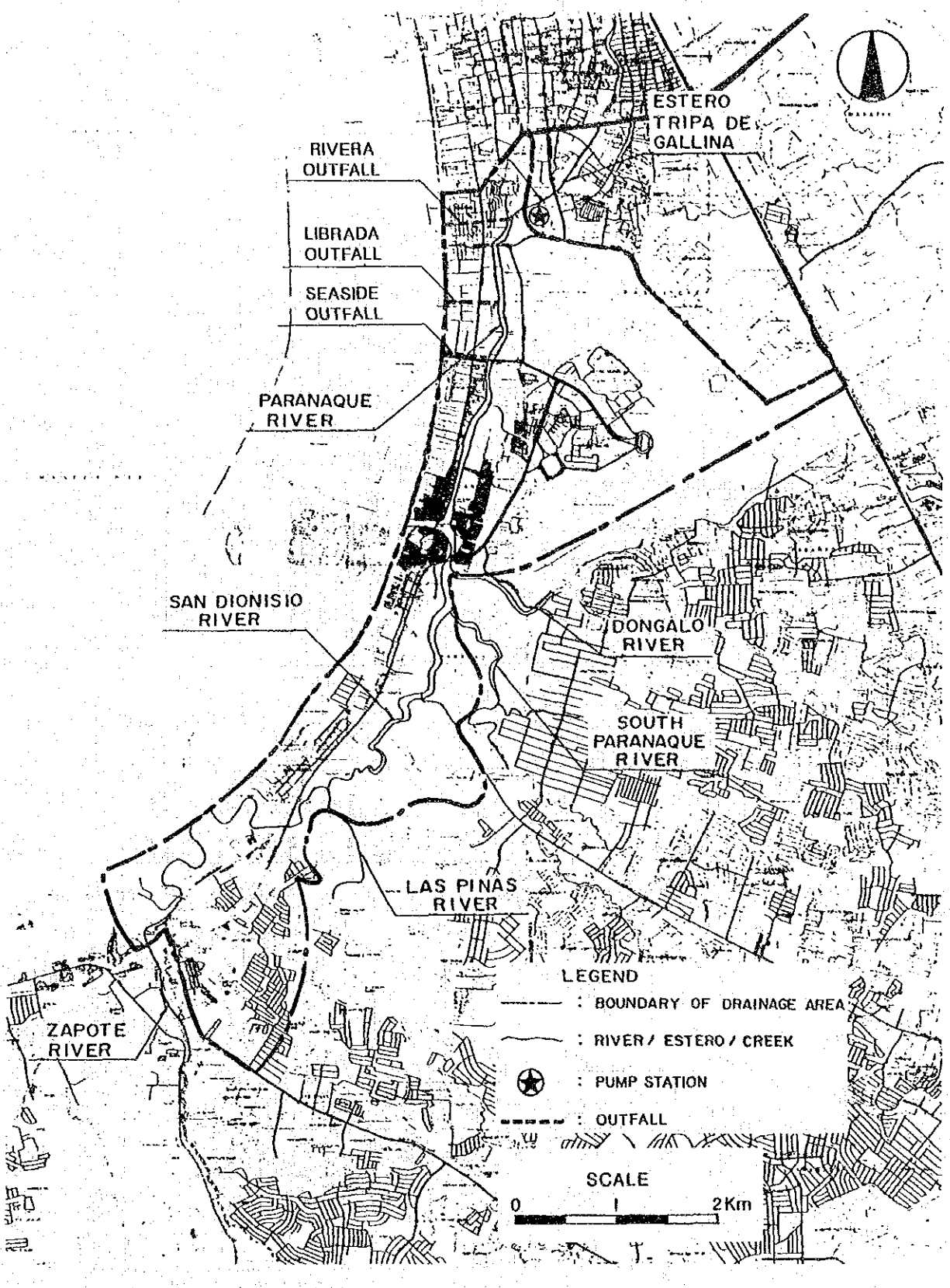
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

MANDALUYONG-PASIG DRAINAGE AREA
Fig.5-2-11



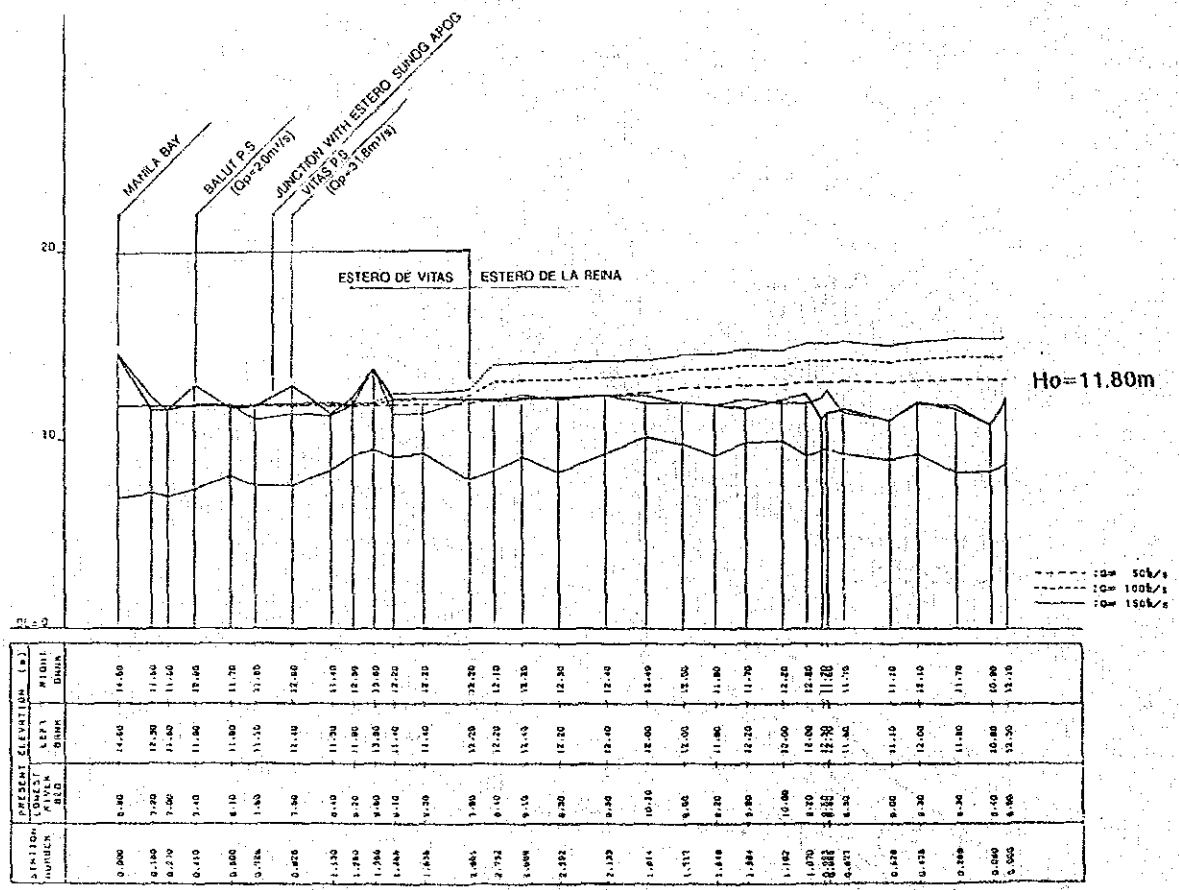
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES JAPAN INTERNATIONAL COOPERATION AGENCY	MARIKINA DRAINAGE AREA Fig.5-2-12



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

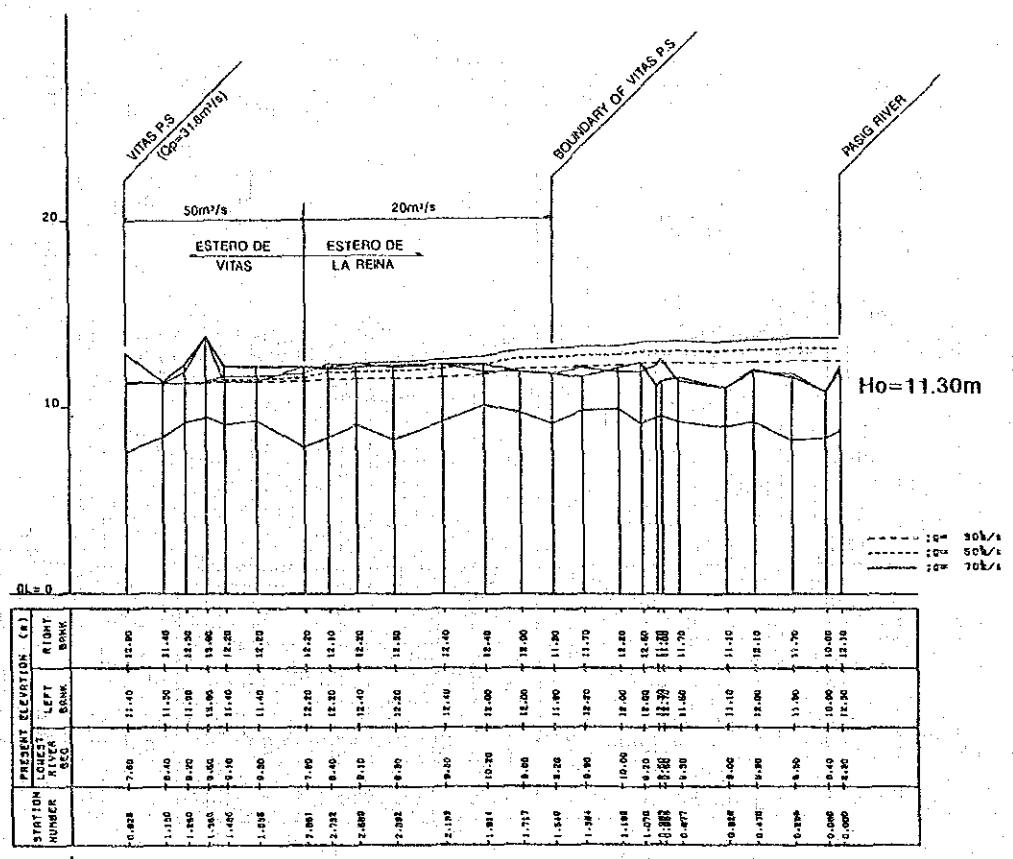
JAPAN INTERNATIONAL COOPERATION AGENCY

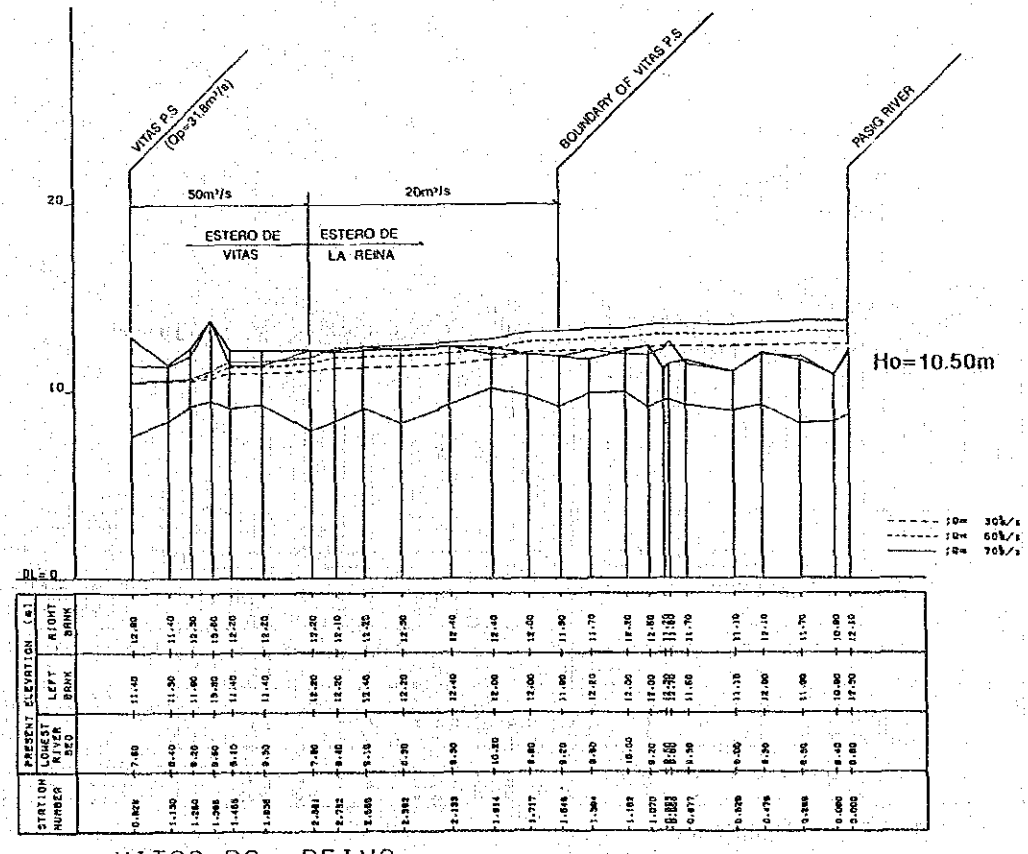
PARANAQUE-LAS PINAS DRAINAGE AREA
Fig.5-2-13



** VITAS - REINA **

THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(1/17)





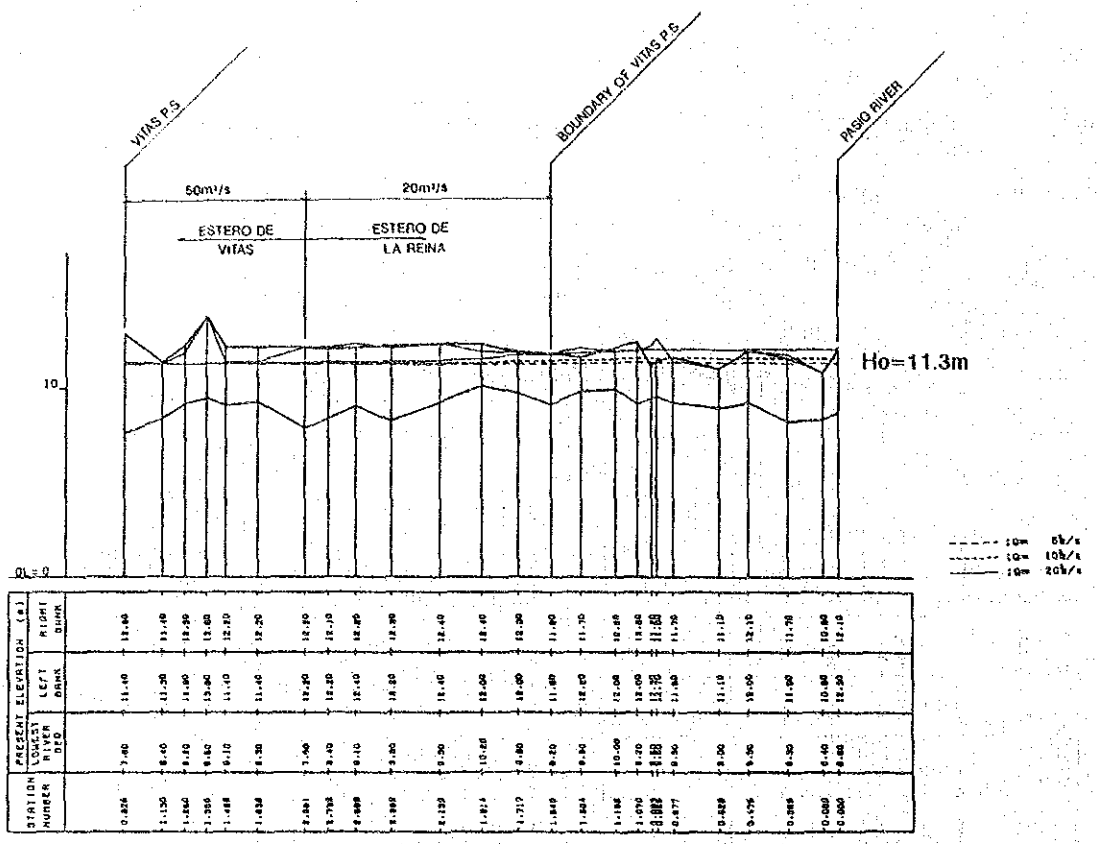
VITAS PS.-REINA

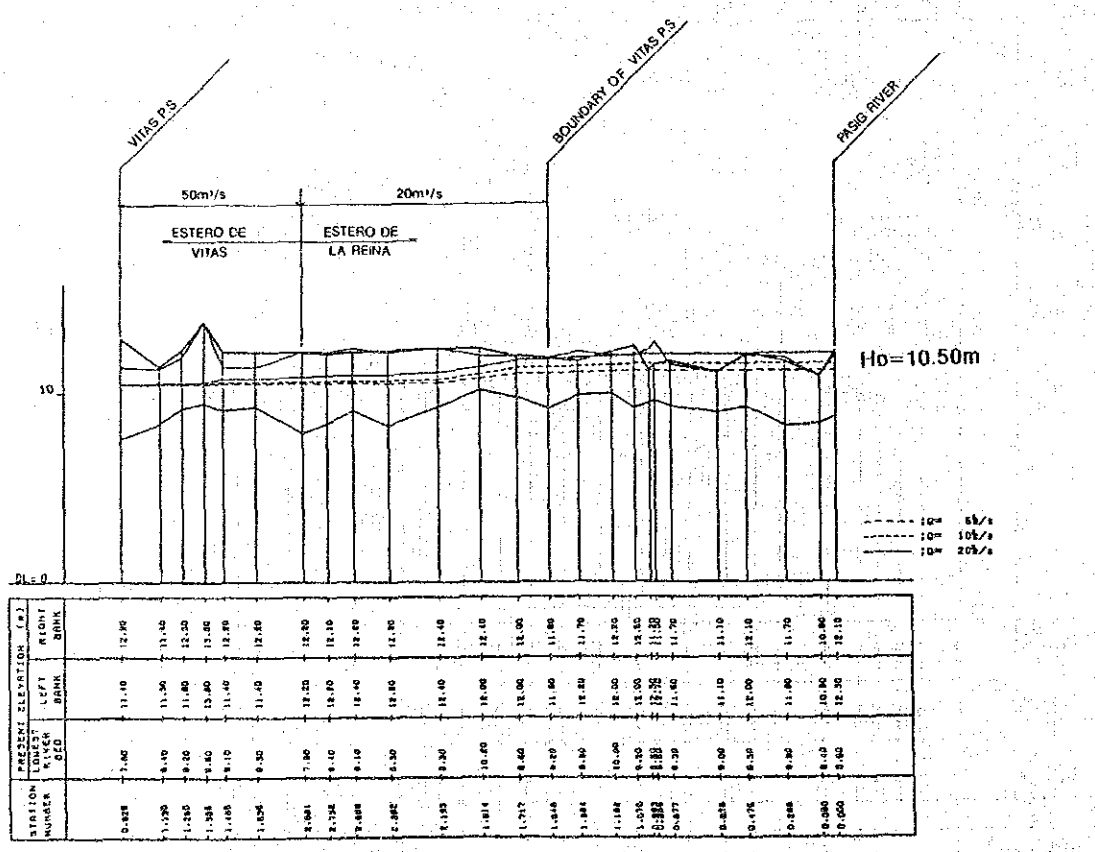
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS

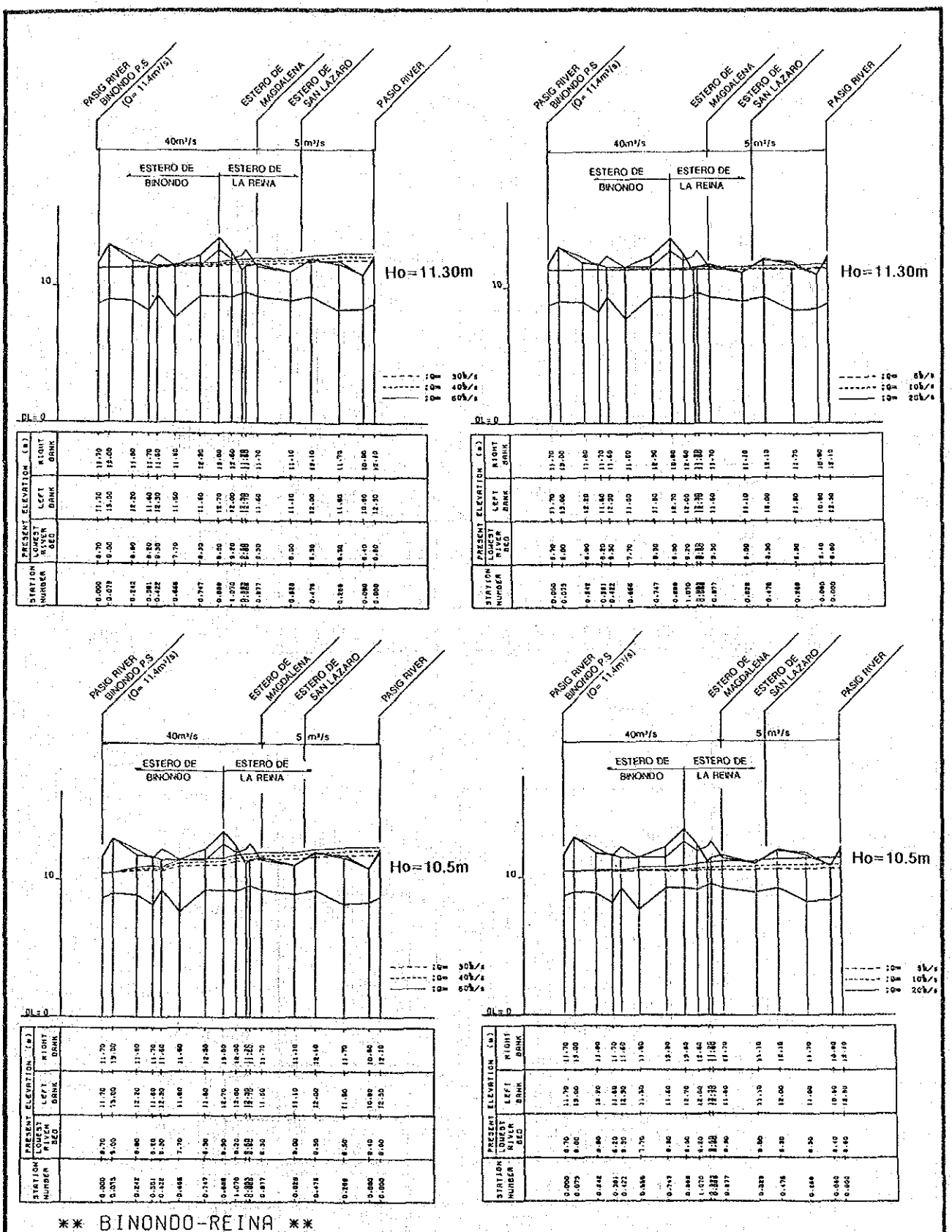
Fig.5-2-14(2/17)





VITAS PS.-REINA

THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(3/17)

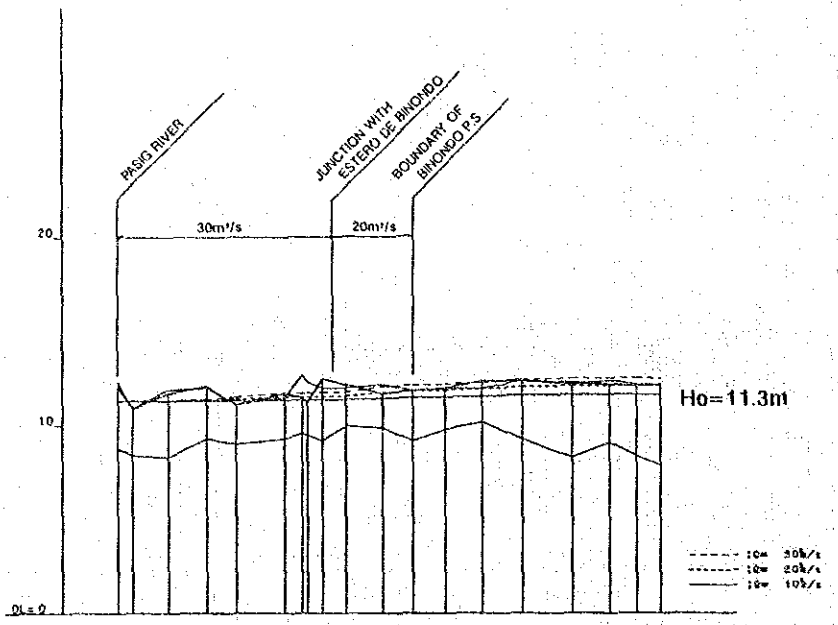


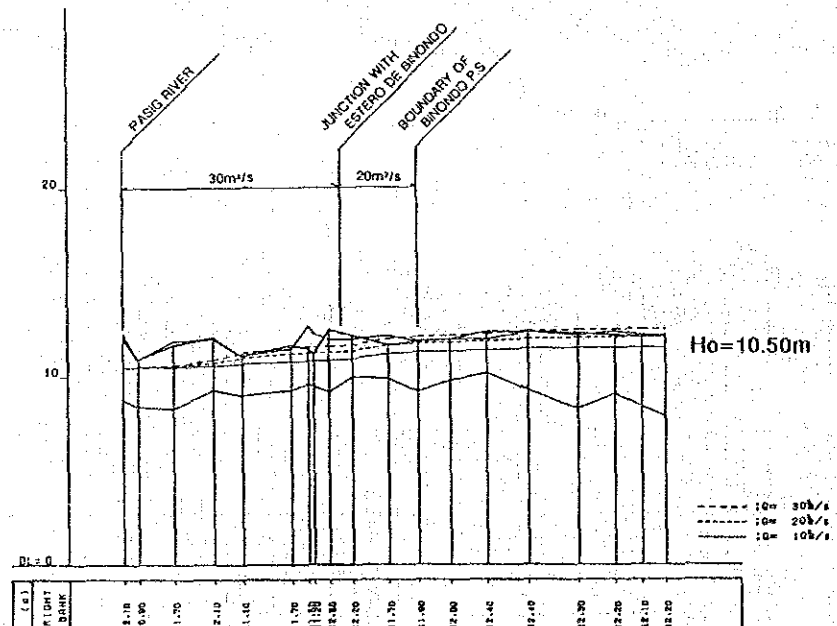
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS

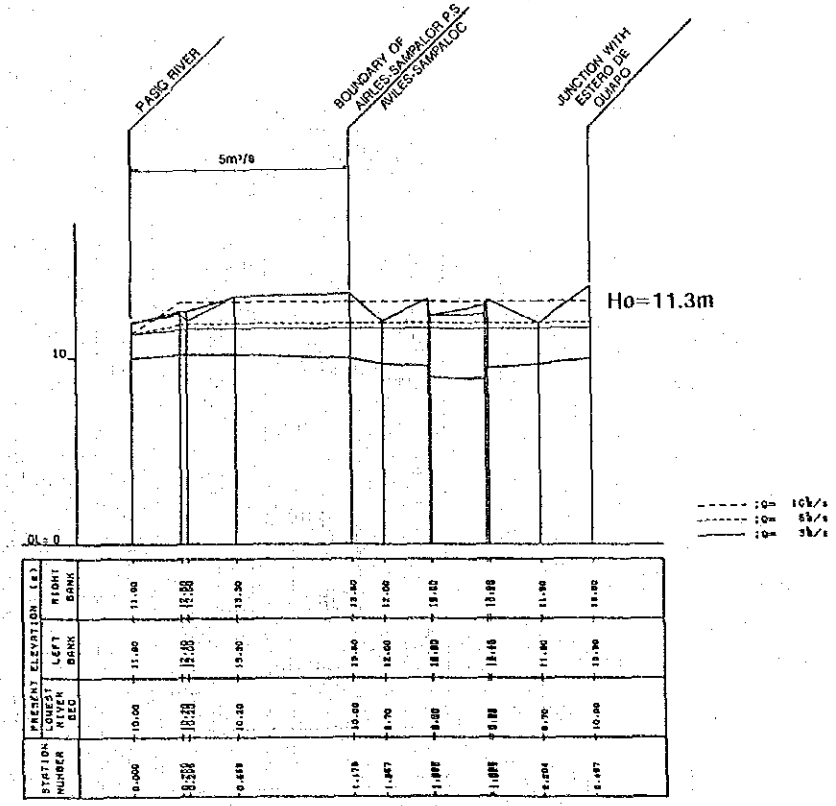
Fig.5-2-14(4/17)

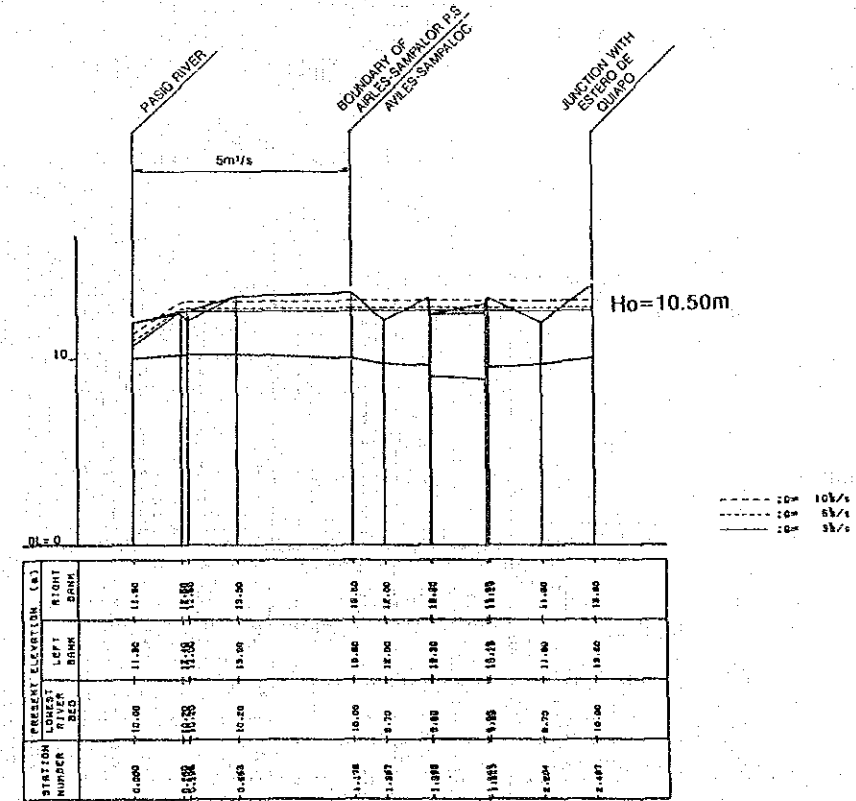




** ESTERO DELA REINA **

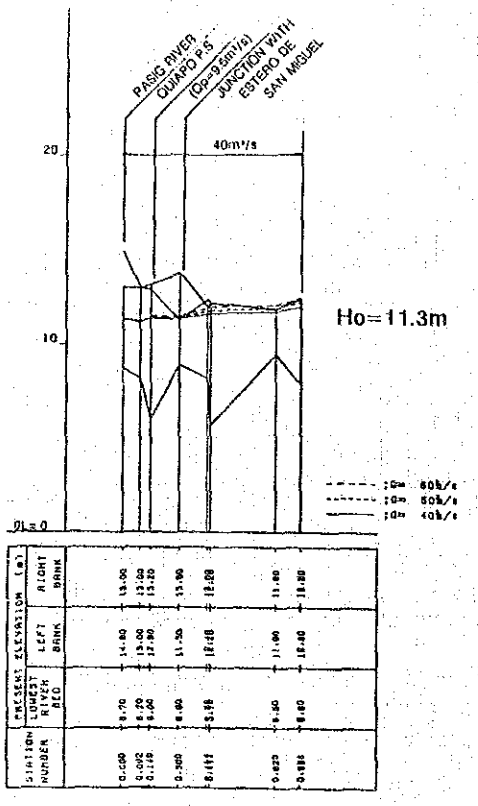
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(5/17)

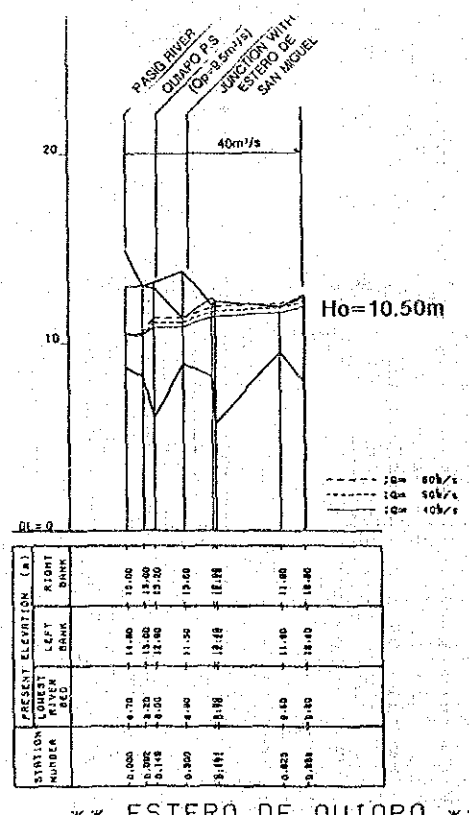




** ESTERO DE SAN MIGUEL **

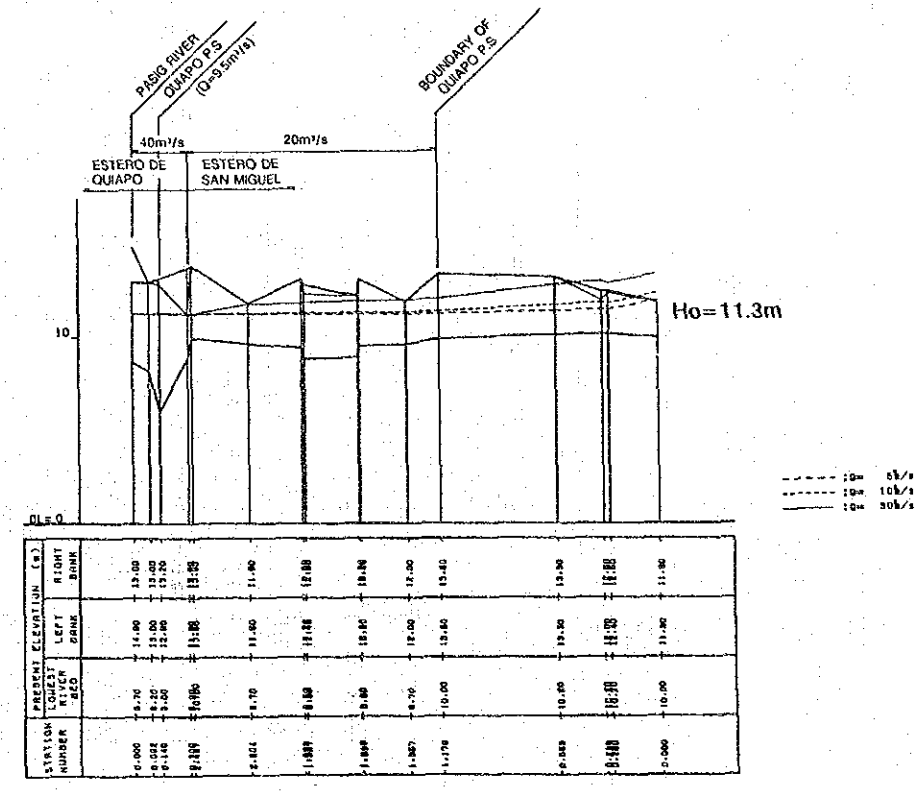
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(6/17)

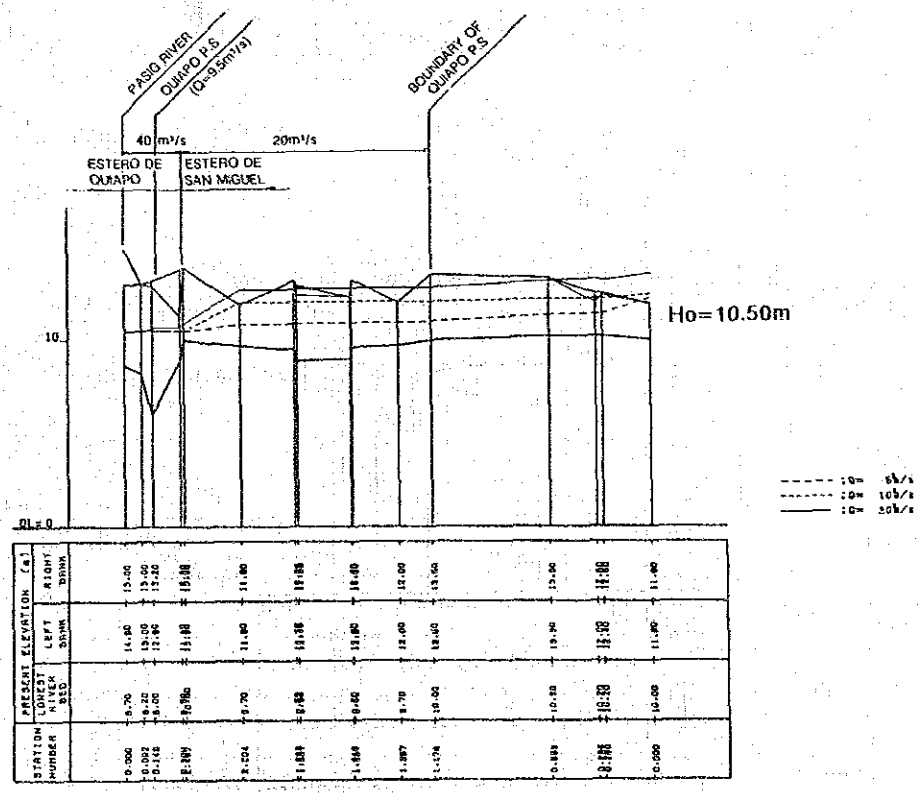




** ESTERO DE QUIAPO **

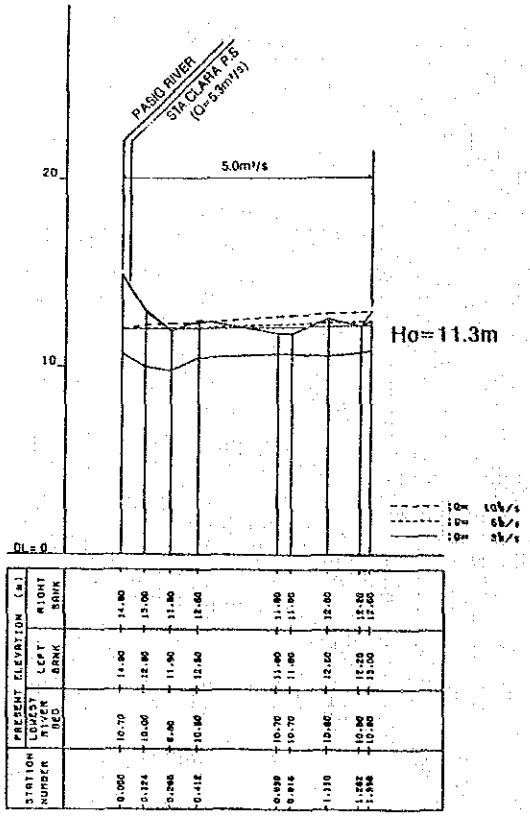
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(7/17)

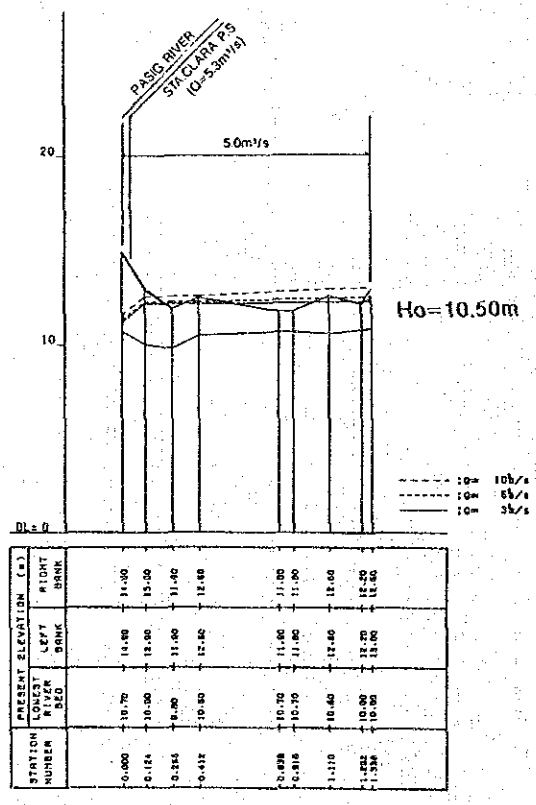




QUIAPO-SAN MIGUEL

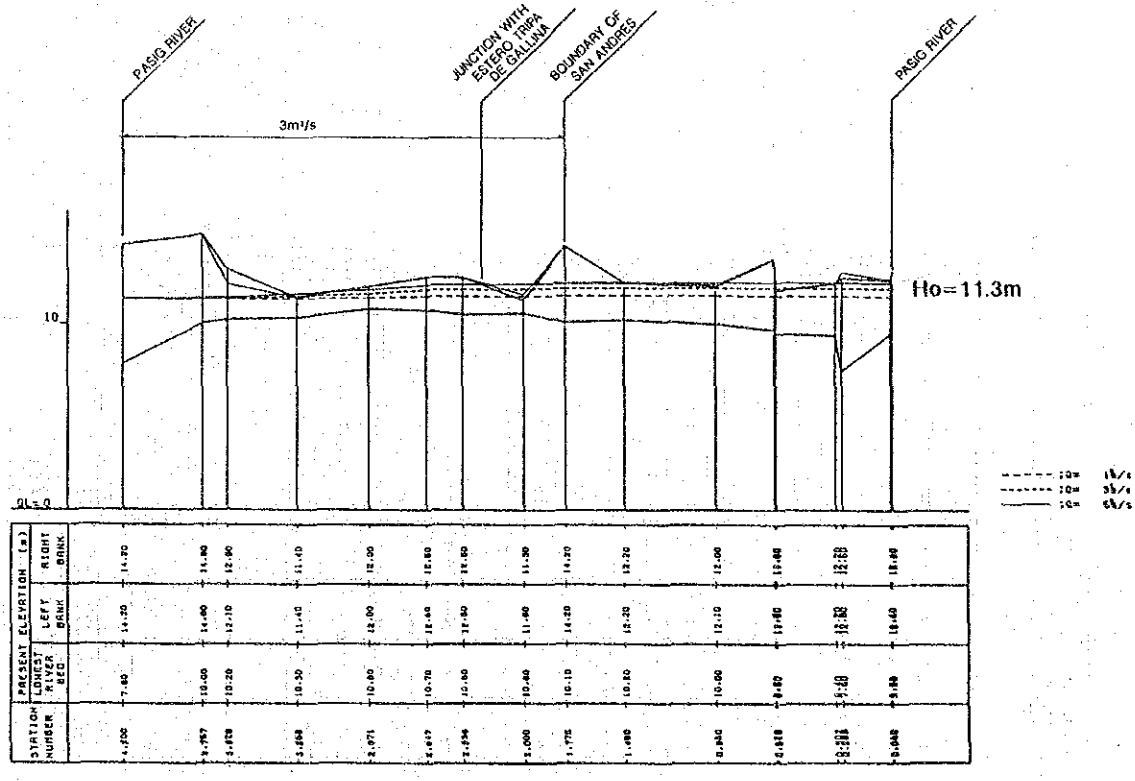
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(8/17)

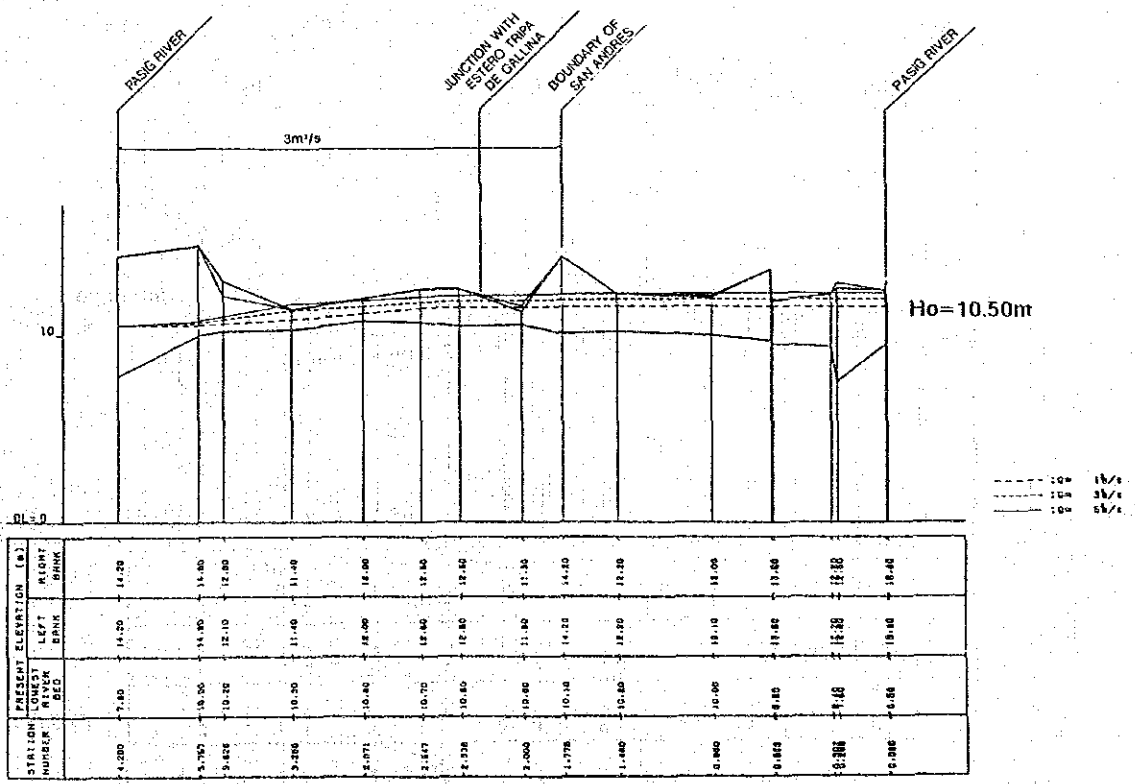




** ESTERO DE STA. CLARA **

THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES JAPAN INTERNATIONAL COOPERATION AGENCY	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS Fig.5-2-14(9/17)





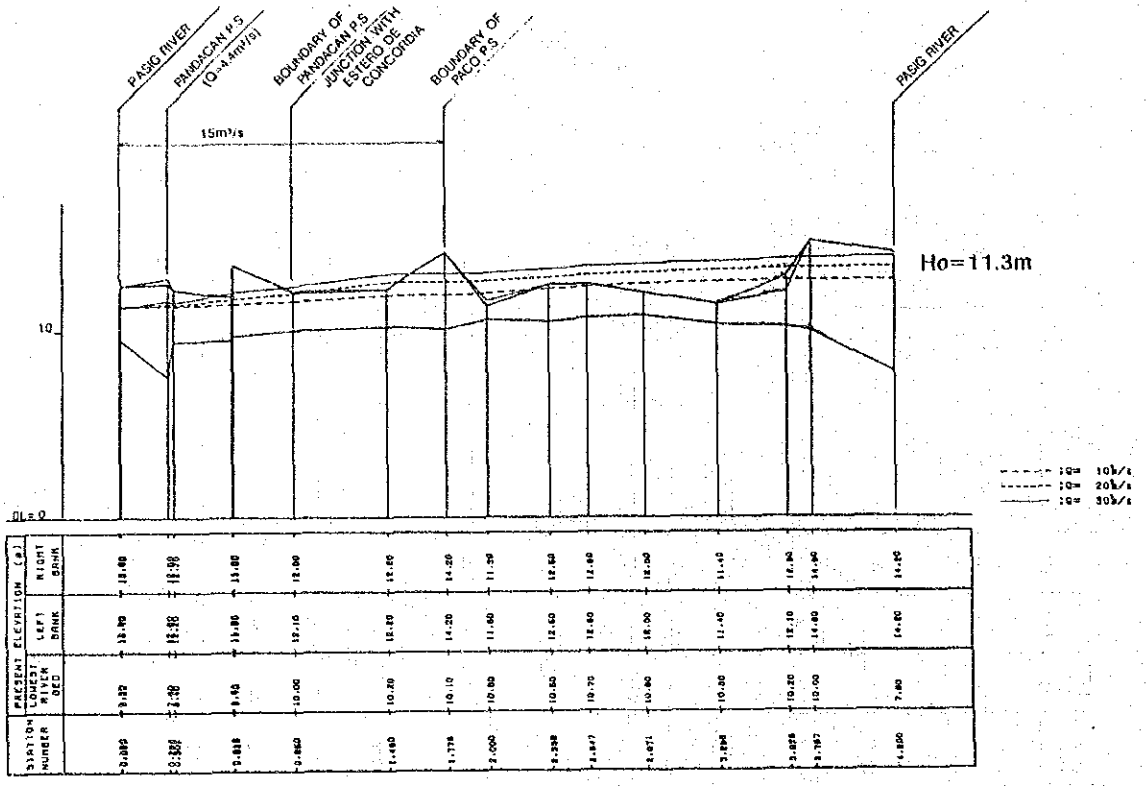
** ESTERO DE PANDACAN **

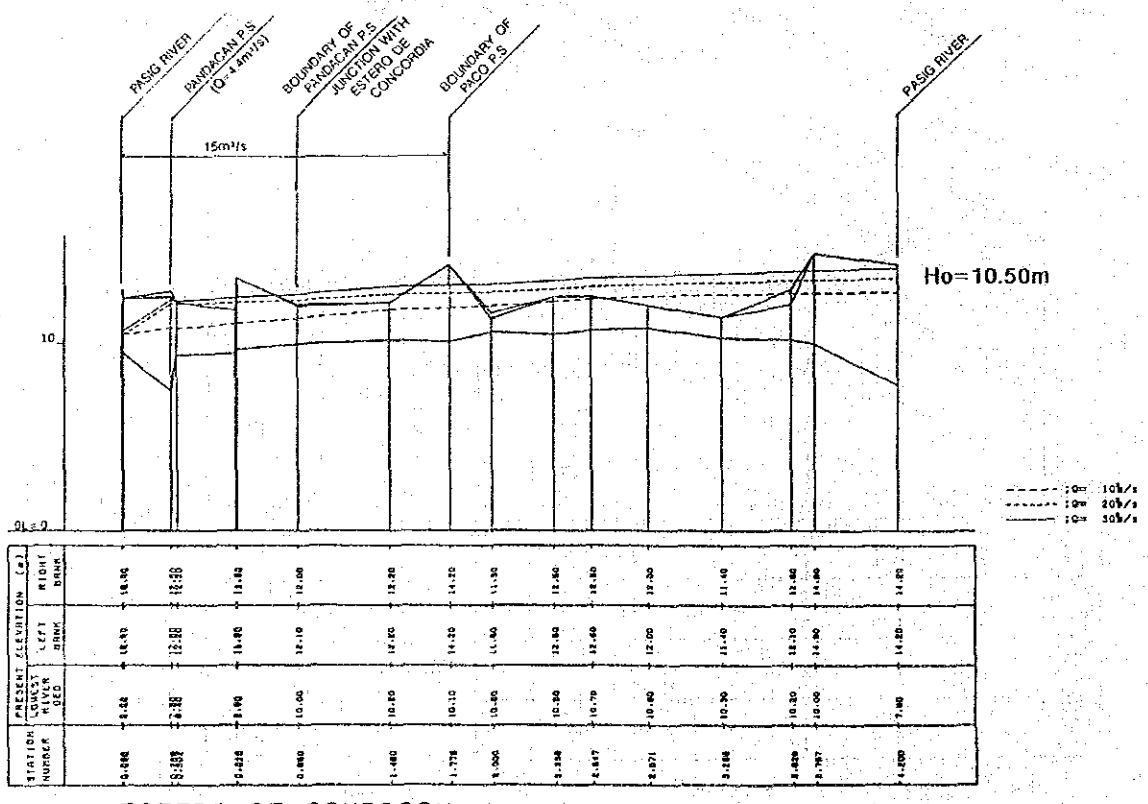
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS

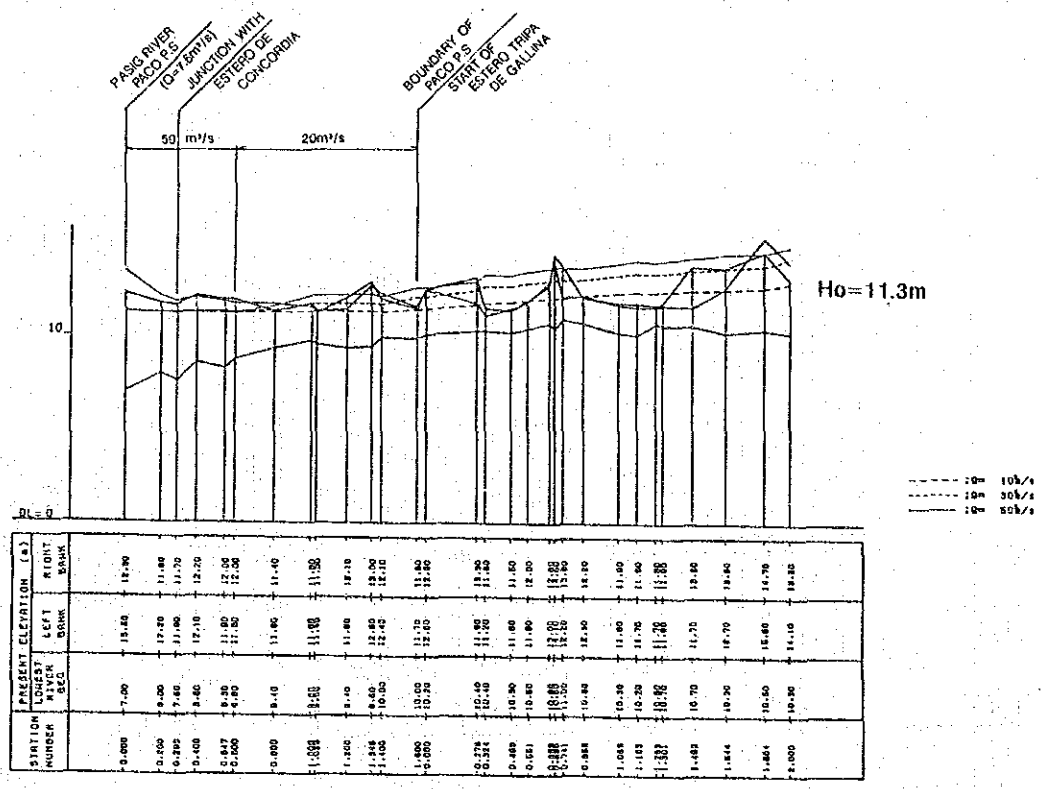
Fig.5-2-14(10/17)

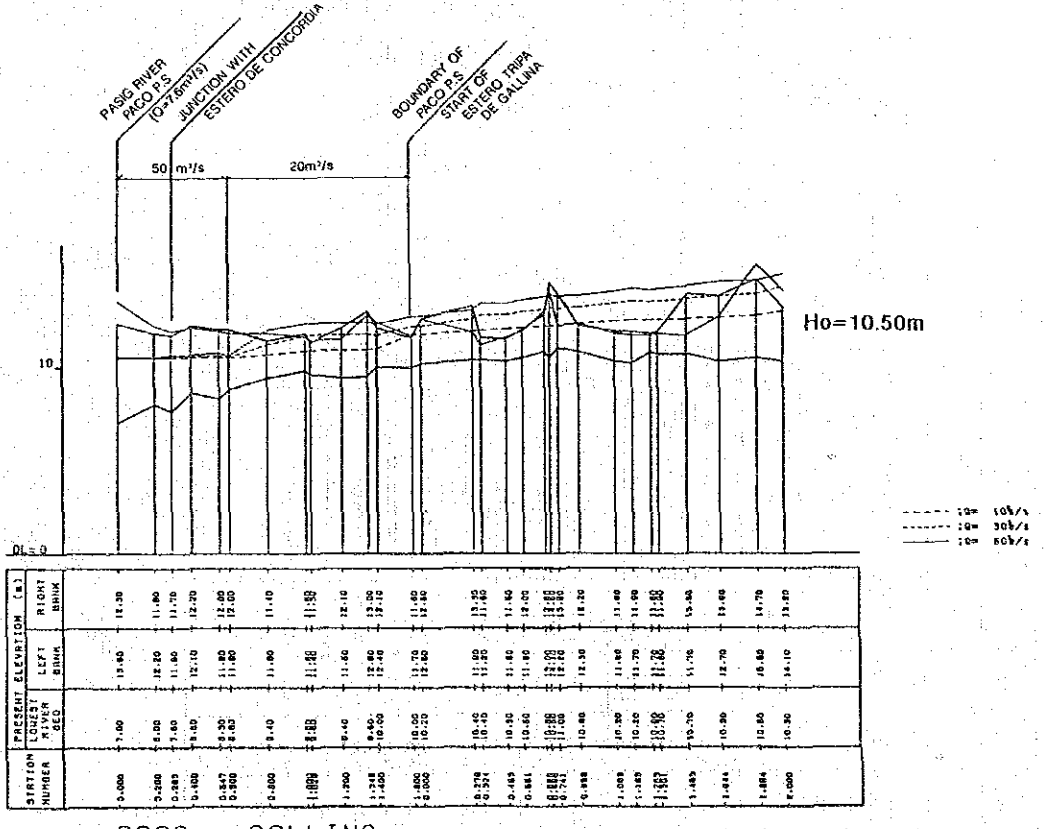




** ESTERO DE PANDACAN **

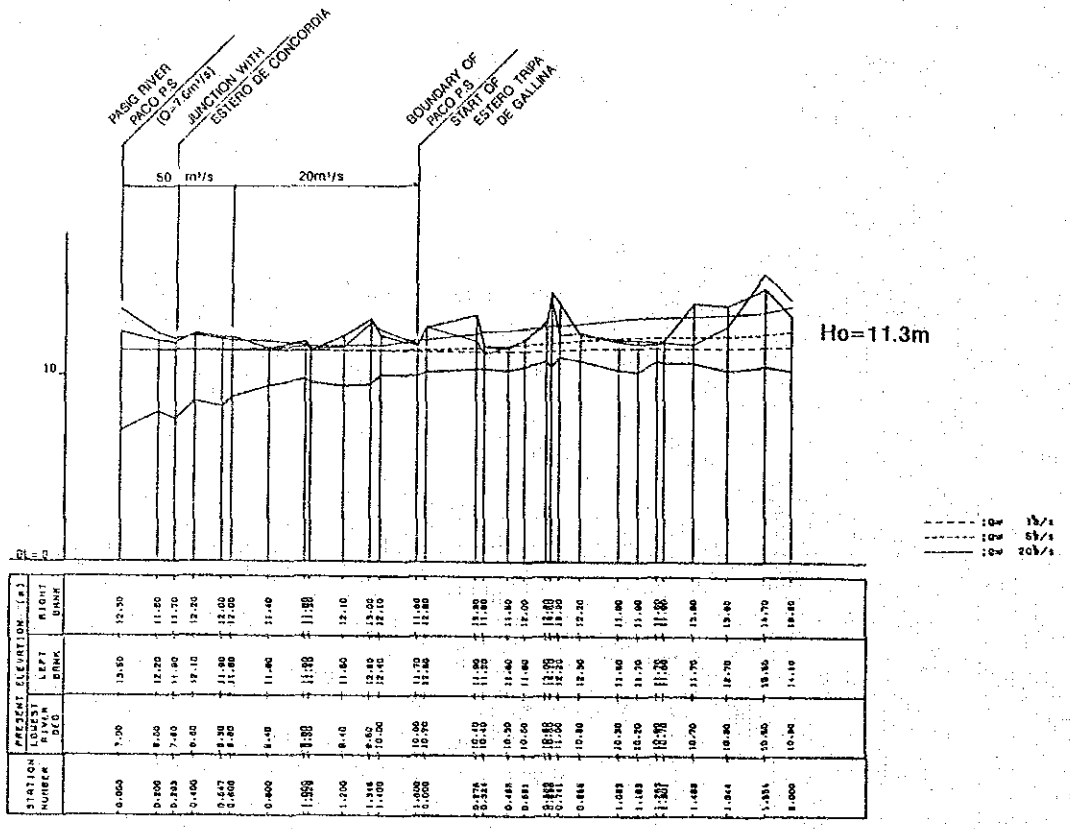
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(11/17)

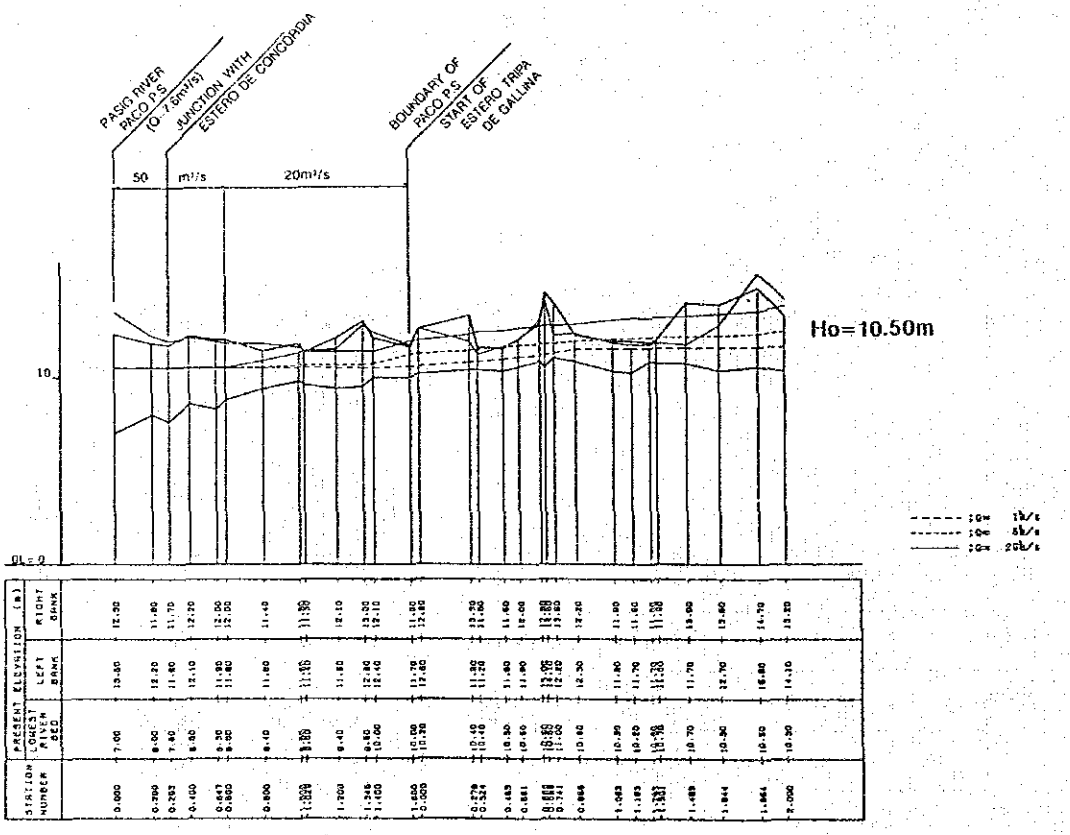




** PACO - GALLINA**

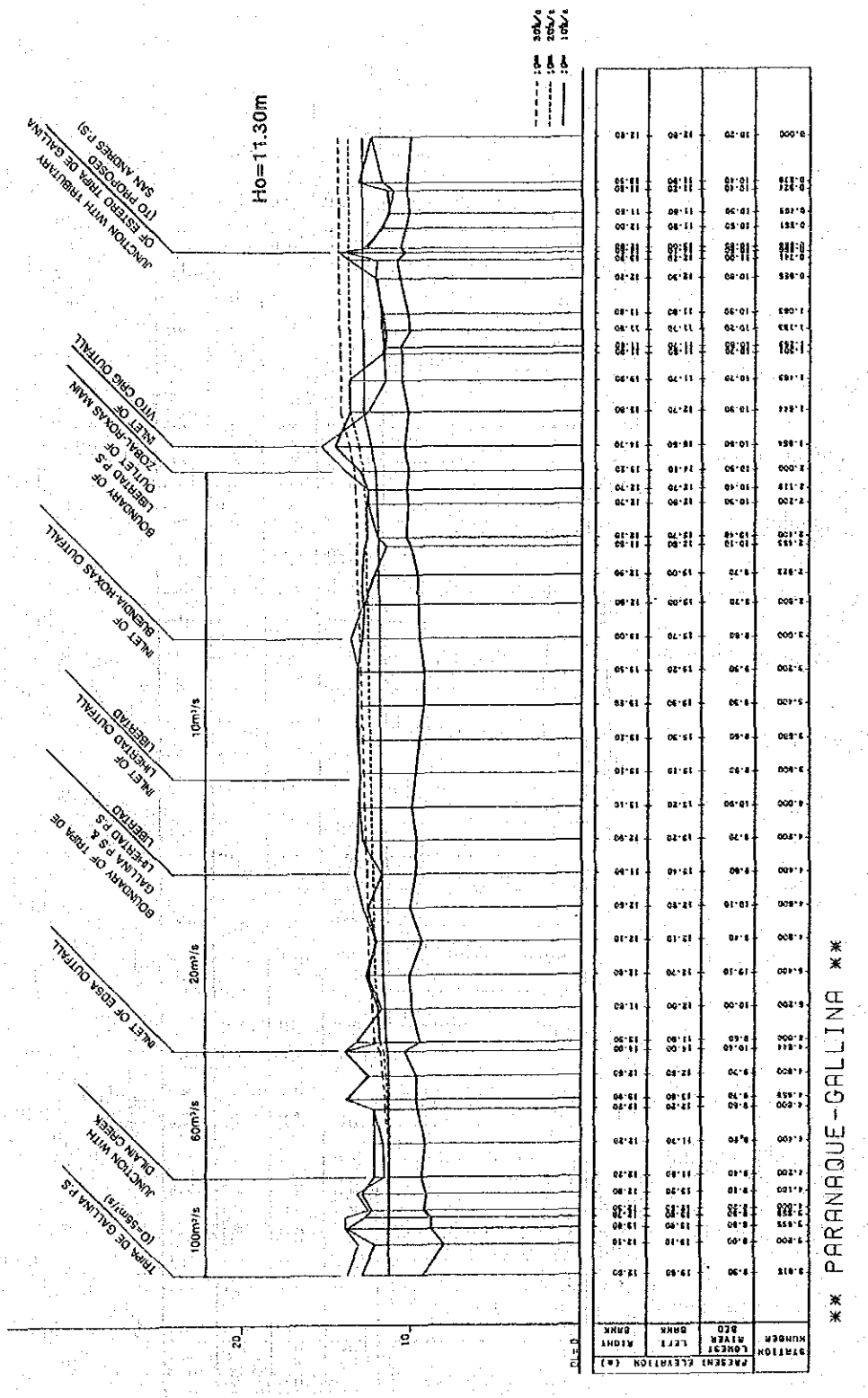
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(12/17)



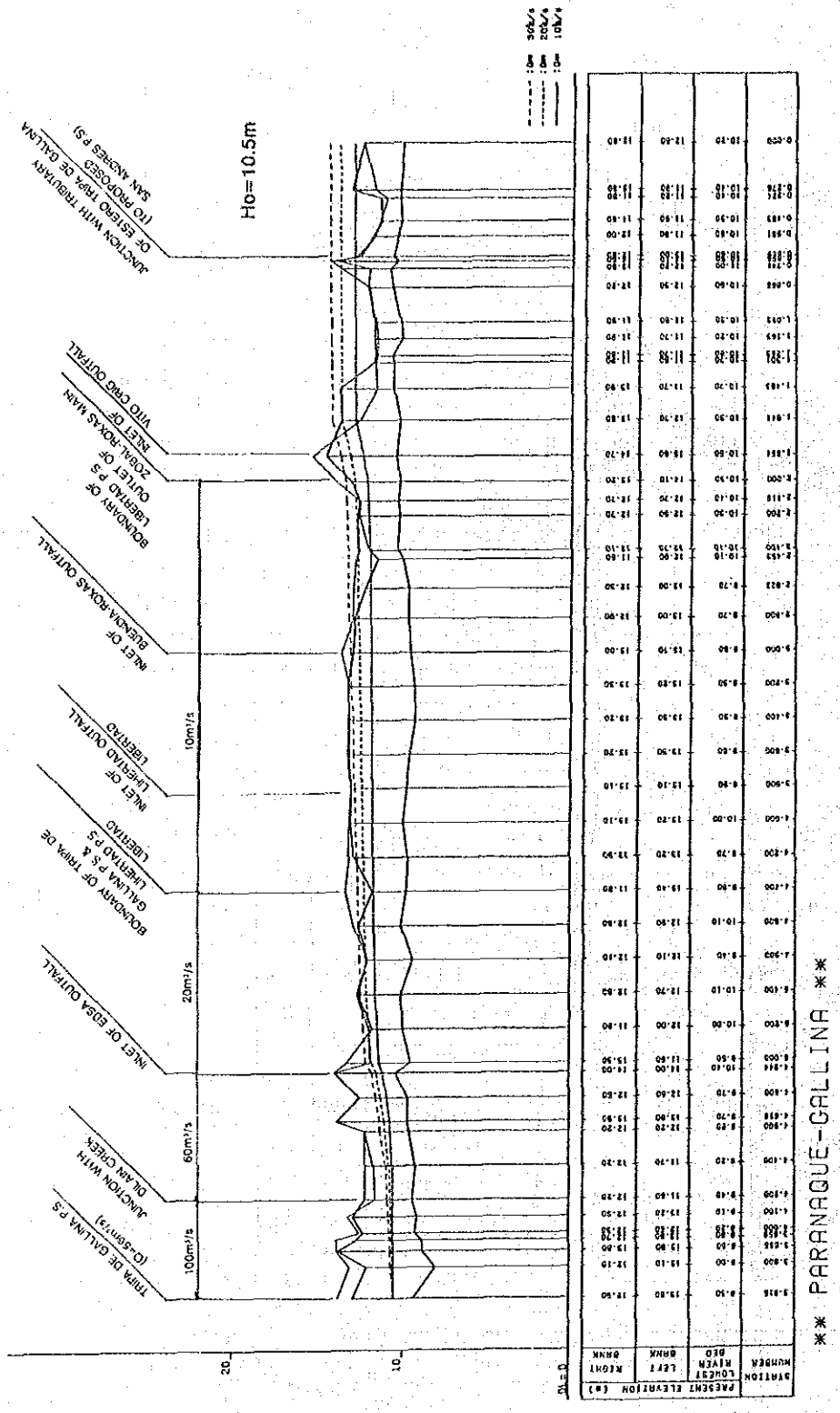


** PACO - GALLINA**

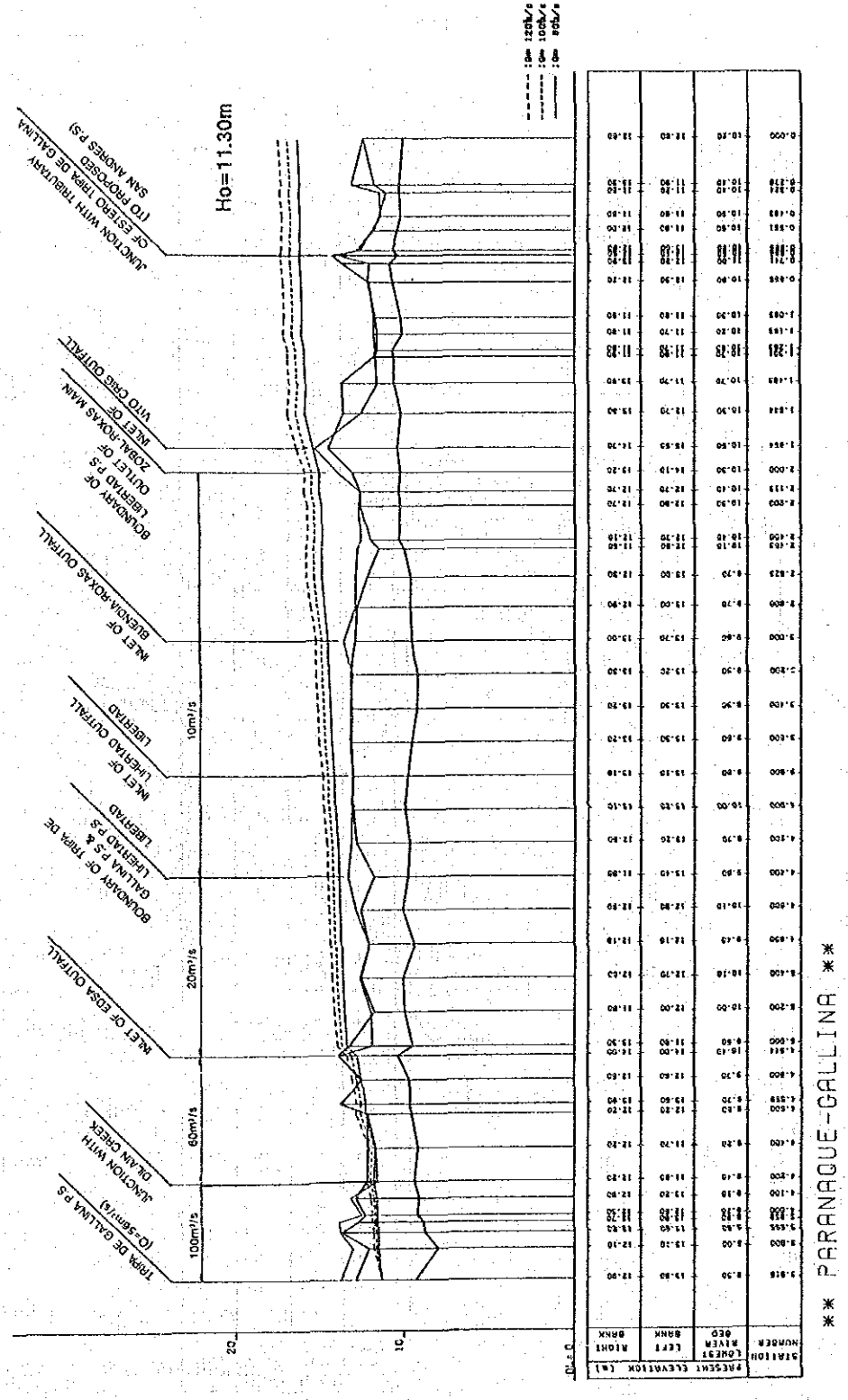
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(13/17)



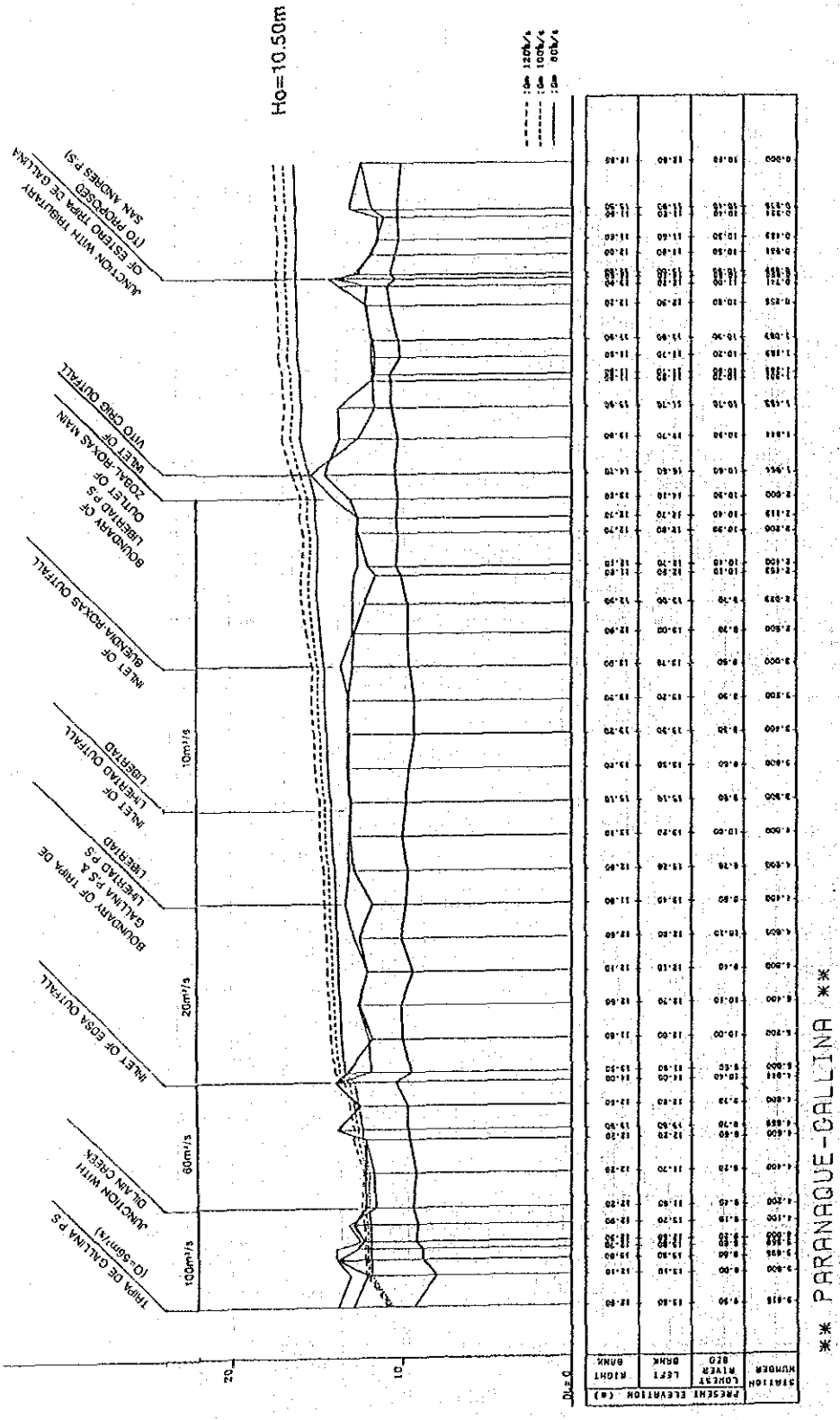
THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(14/17)



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(15/17)



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES	RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS
JAPAN INTERNATIONAL COOPERATION AGENCY	Fig.5-2-14(16/17)

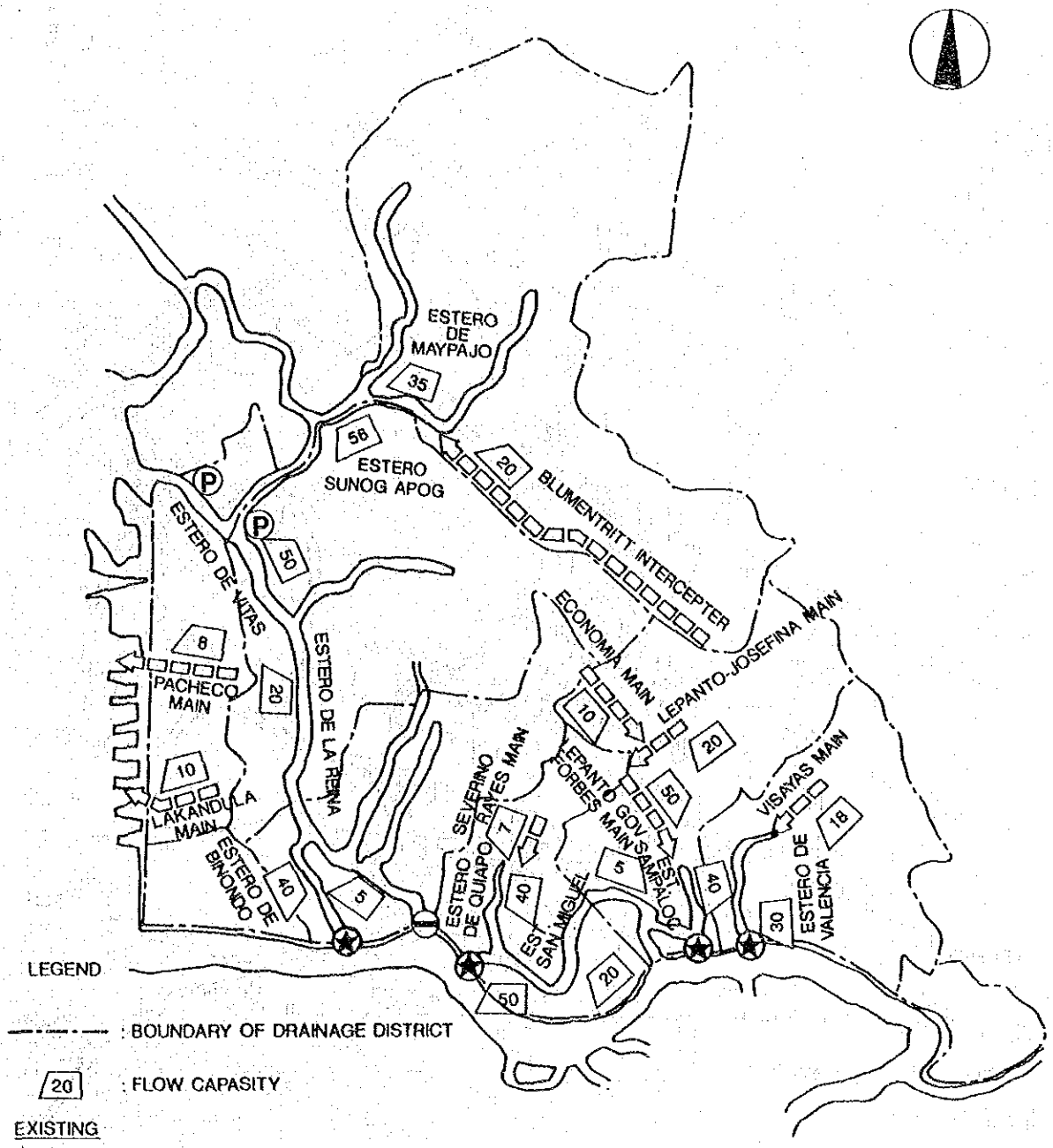


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

RESULT OF NON-UNIFORM CALCULATION FOR MAJOR ESTEROS

Fig.5-2-14(17/17)

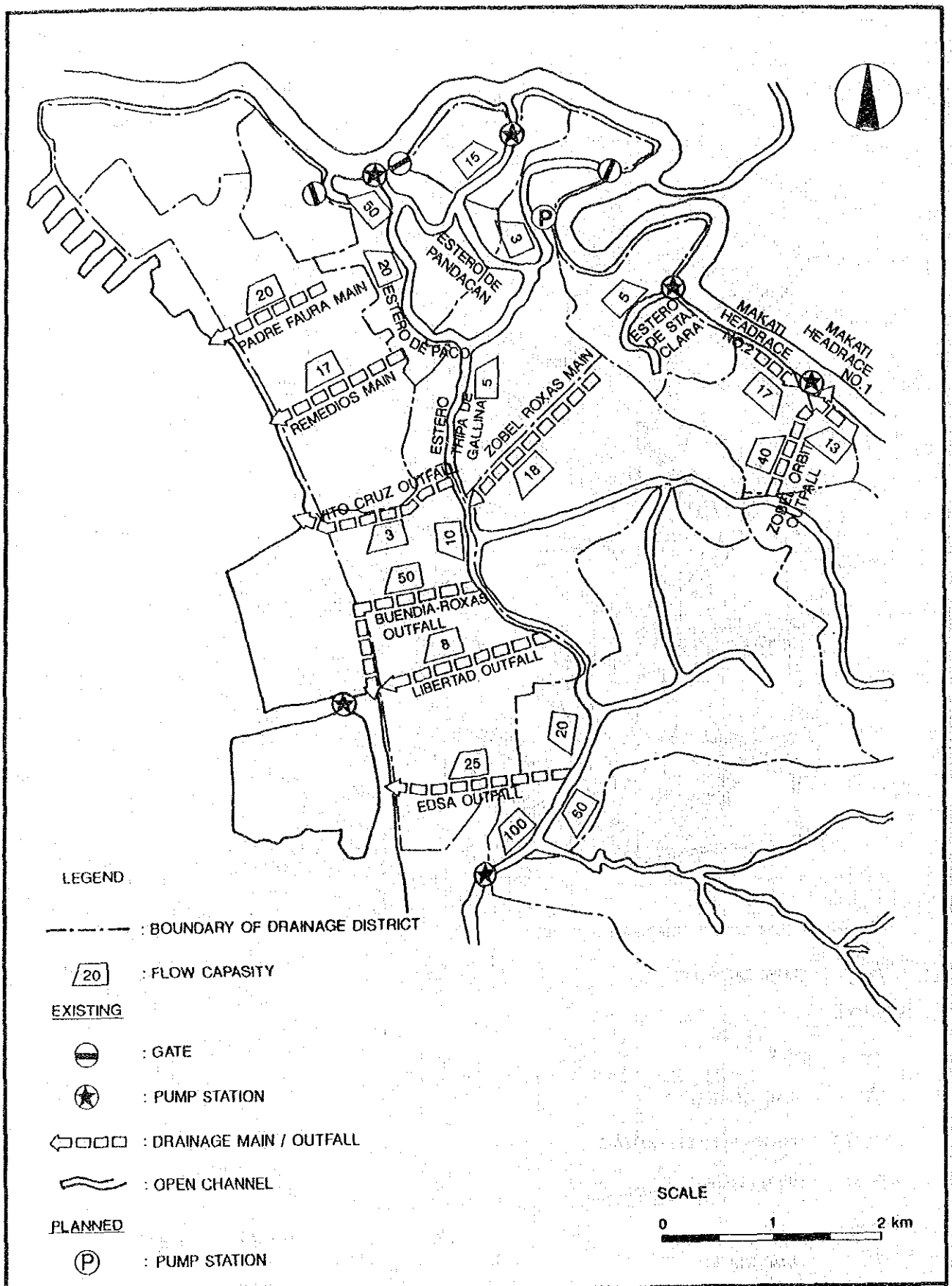


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

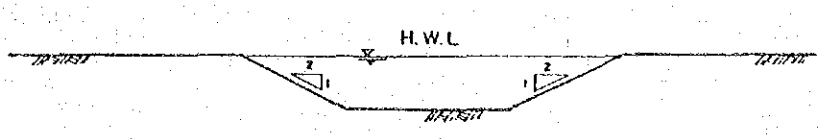
FLOW CAPACITY OF MAIN DRAINAGE CHANNELS IN MANILA AND SUBURBS

Fig.5-2-15(1/2)

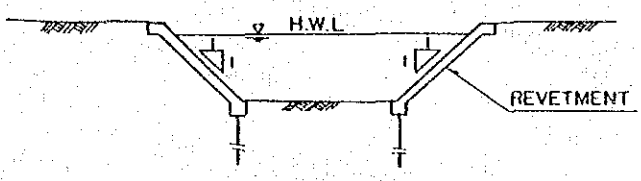


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES JAPAN INTERNATIONAL COOPERATION AGENCY	FLOW CAPACITY OF MAIN DRAINAGE CHANNELS IN MANILA AND SUBURBS Fig.5-2-15(2/2)

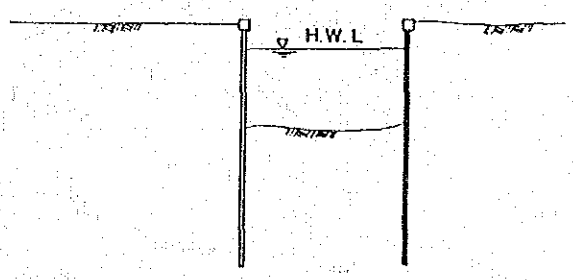
OPEN DRAINAGE CHANNEL



SINGLE CROSS SECTION

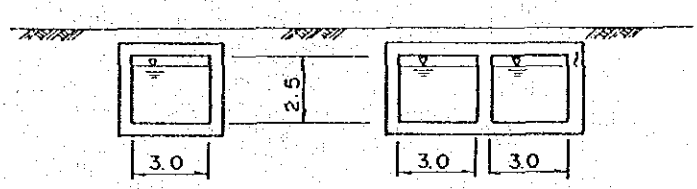


(TRAPEZOIDAL CHANNEL WITH REVETMENT)

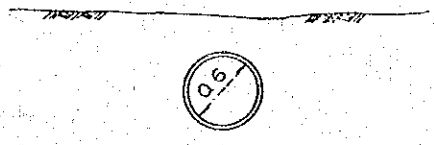


(FOR ESTERO)

CLOSED DRAINAGE CHANNEL

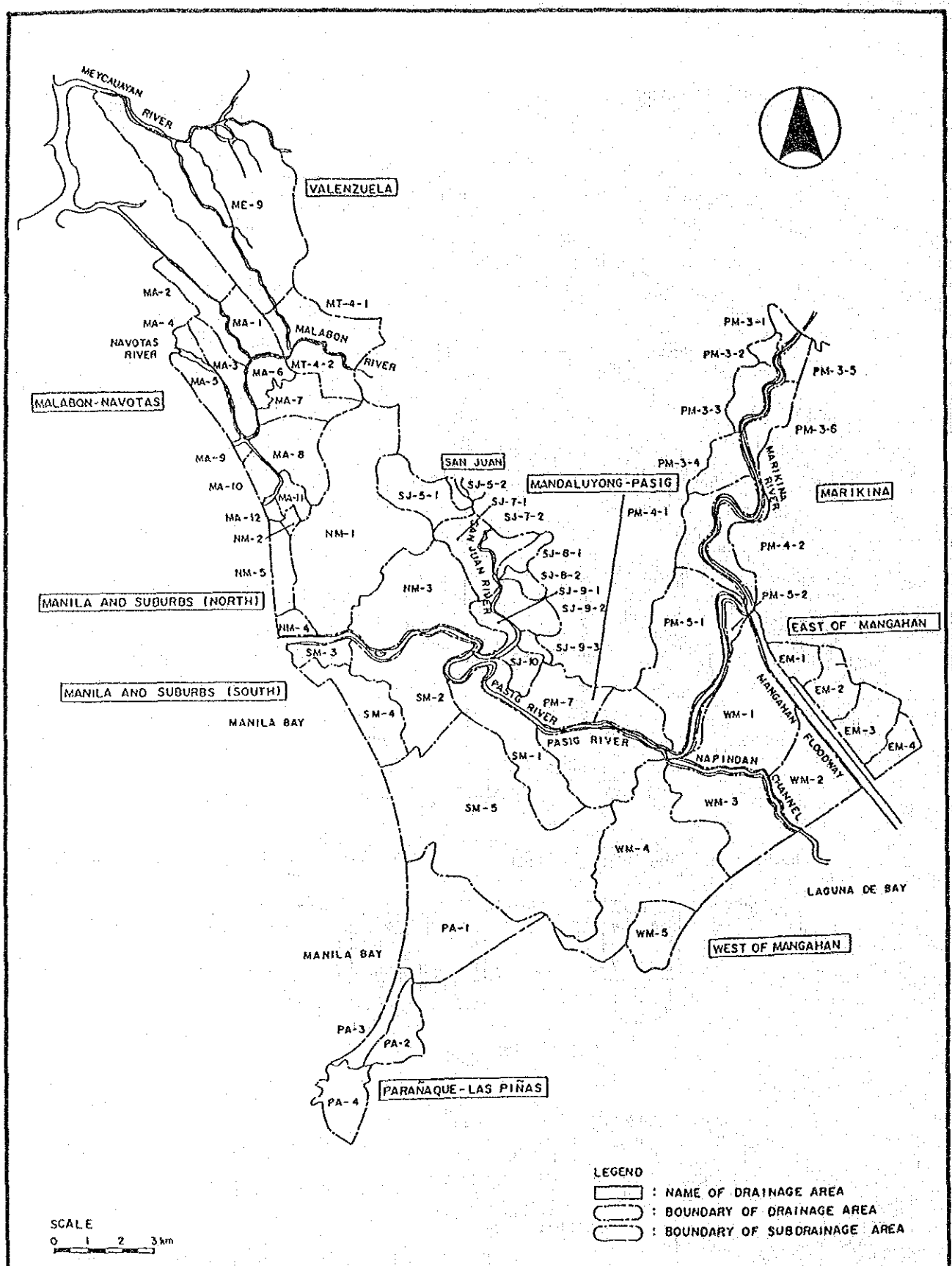


(CONCRETE BOX CULVERT)



LATERAL PIPE

THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES JAPAN INTERNATIONAL COOPERATION AGENCY	TYPICAL CROSS SECTION OF DRAINAGE CHANNEL Fig.5-3-1

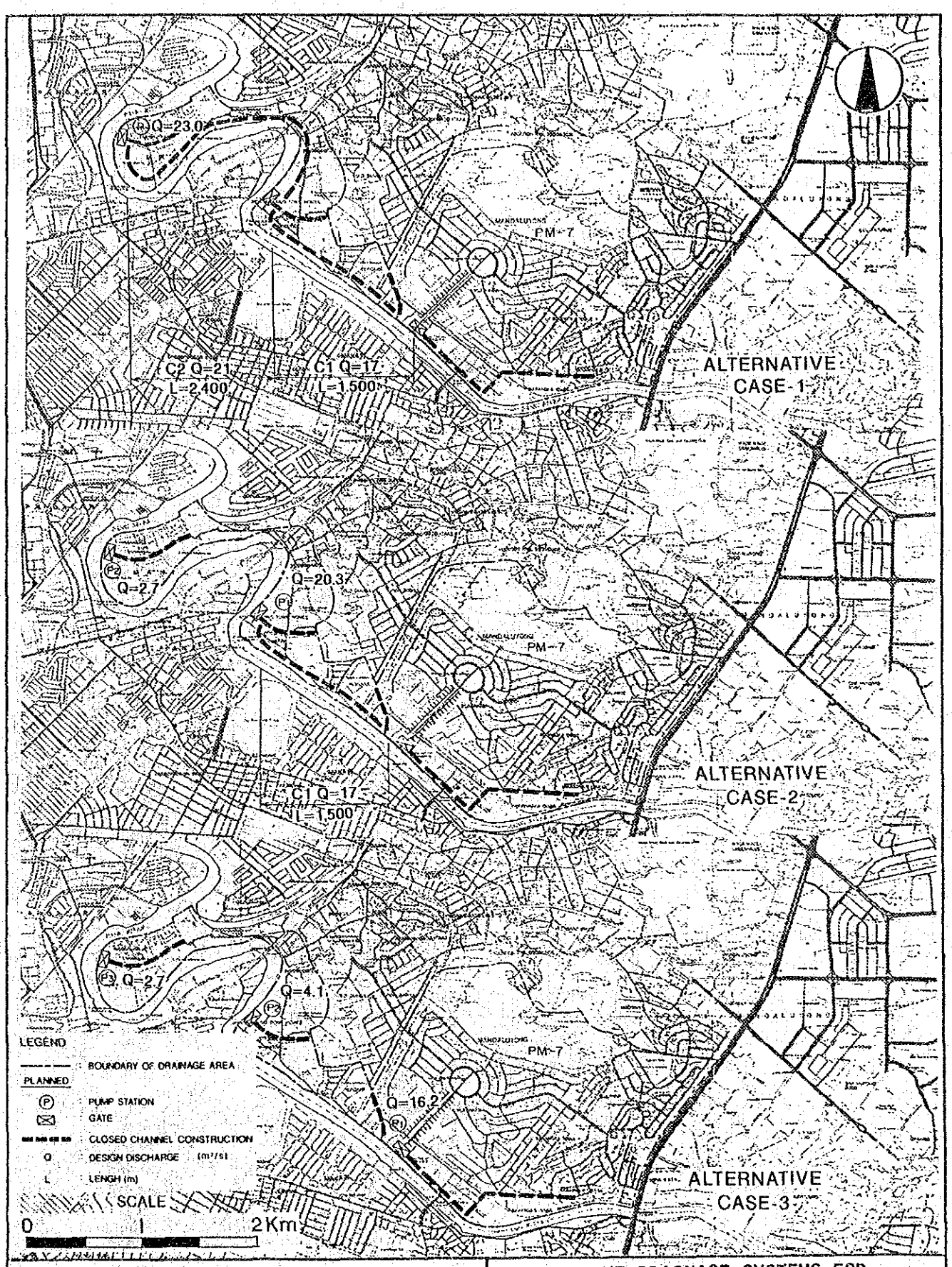


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

DELINEATION OF SUBDRAINAGE AREAS

Fig.5-3-2

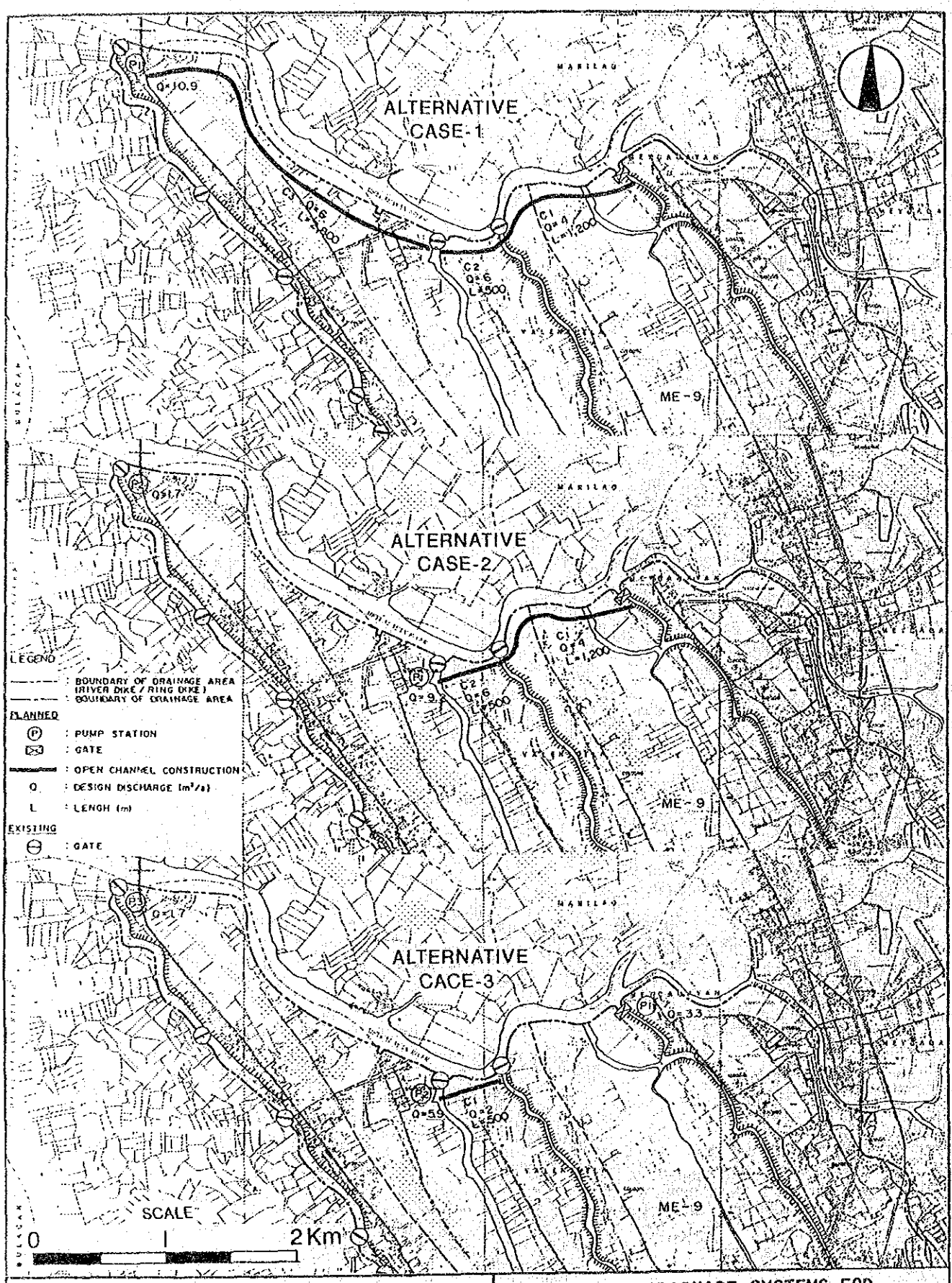


THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

ALTERNATIVE DRAINAGE SYSTEMS FOR MANADALUYONG-PASIG (PM-7)

Fig.5-3-3



THE STUDY ON FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA, PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY

ALTERNATIVE DRAINAGE SYSTEMS FOR VALENZUELA

Fig.5-3-4