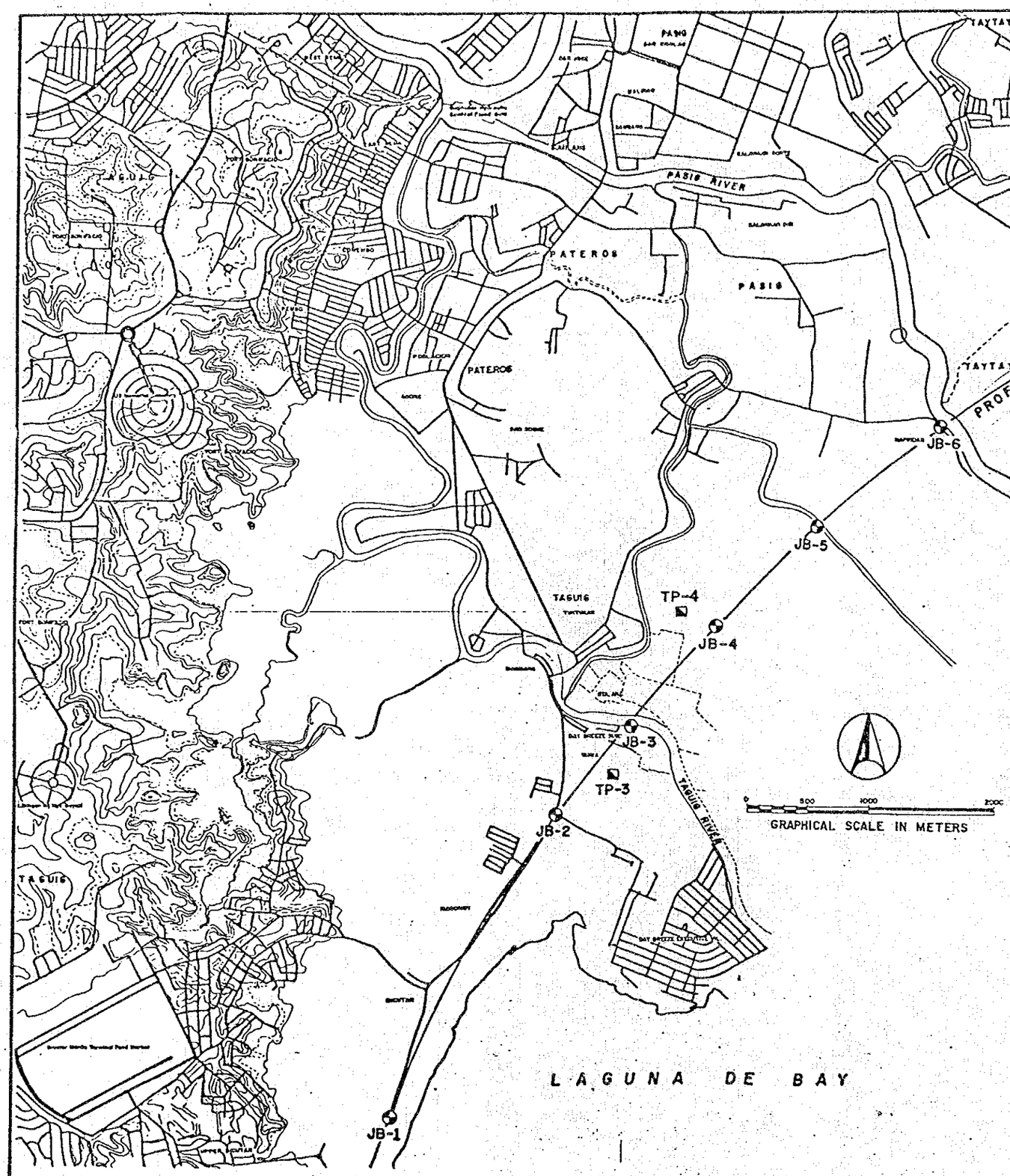
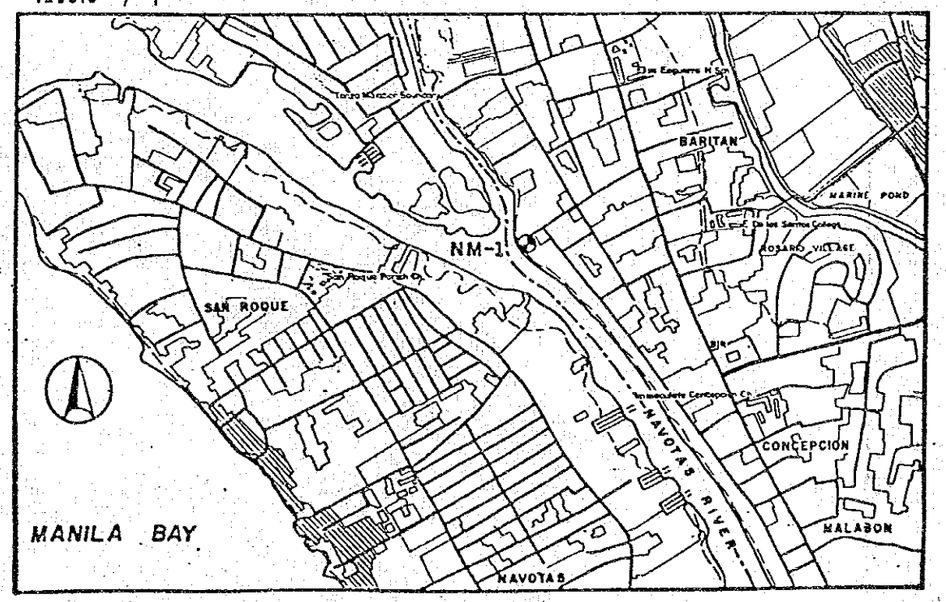
B. RESULTS OF GEOTECHNICAL INVESTIGATION





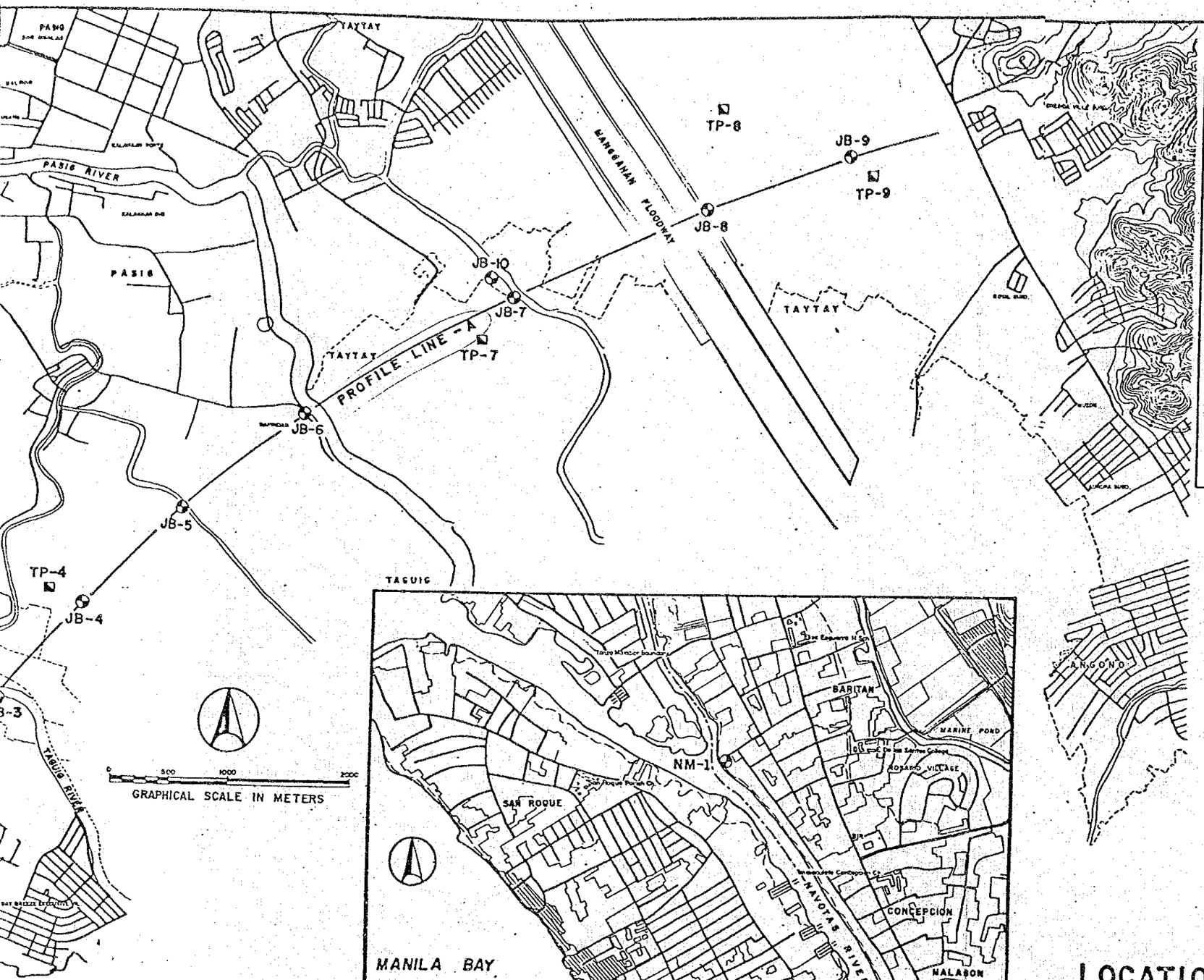
BOREHOLE LOCATION OF NM-1

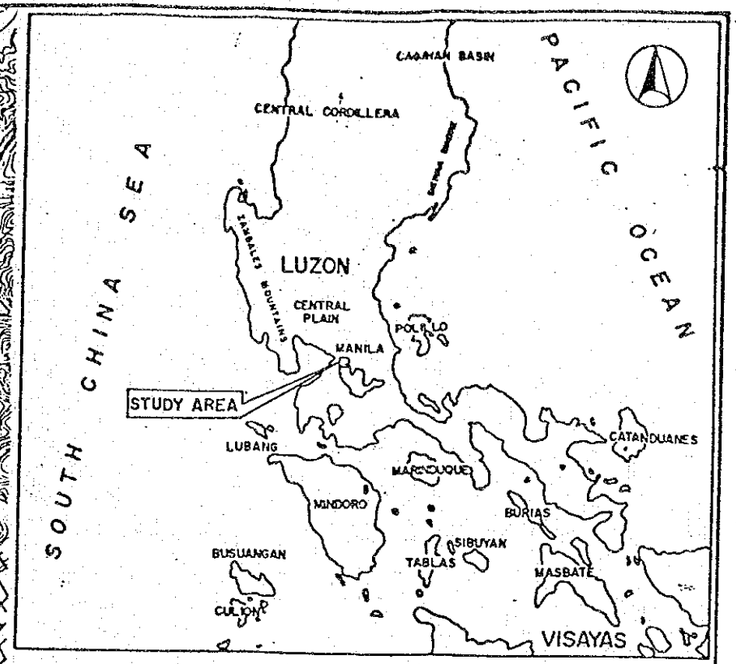
GRAPHICAL SCALE IN METERS

LOCAT

FLOOD

FIG. 1-1





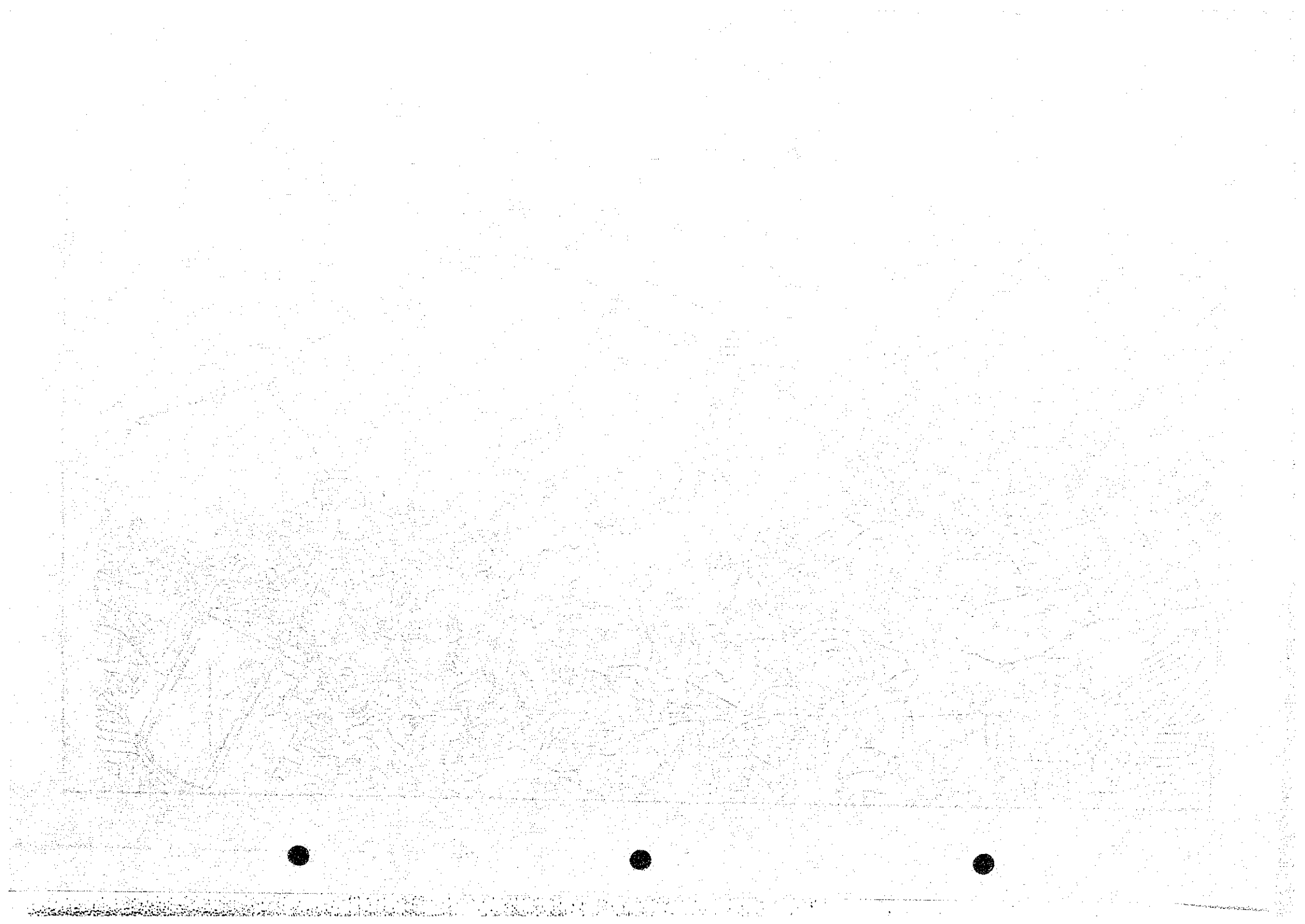
VICINITY MAP

LEGEND:

- --- BOREHOLE LOCATION
- --- TEST PIT LOCATION

LOCATION PLAN OF GEOTECHNICAL INVESTIGATION WORKS

FLOOD CONTROL AND DRAINAGE PROJECT IN METRO MANILA



DRILL LOG

HOLE NO. JB-1 SHEET NO. 1 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	SAMPLE TESTED	STANDARD PENETRATION TEST N	DEPTH
JUNE 14-15, 1989	0.30	11.31	TOP SOIL		Brown organic clay.		6-15-89				
			SAND		Dark brown, medium to coarse sand. Very dense.	SP		95			
	2.50	9.11						95			
			SAND		Dark gray to green, fine to medium sand with shells. Loose.			95			
	5.00	6.61						85			
	5.60	6.01	CLAY		Light gray clay, Very soft, medium plasticity.	CH		75			
			SAND		Dark greenish silty sand. Loose.	SM		95			
	7.00	4.61									
	8.00	3.61	SILT		Greenish gray clayey silt ; very high plasticity.	MH		100	Undisturbed Sample		
			CLAY		Bluish to greenish gray clay with shells. Very high plasticity.	CH		95			
	14.00	-2.39						95			
	15.00	-3.39	SILT		Greenish gray silt ; very high plasticity ; stiff.	MH		100	Undisturbed Sample		
					END OF BOREHOLE						

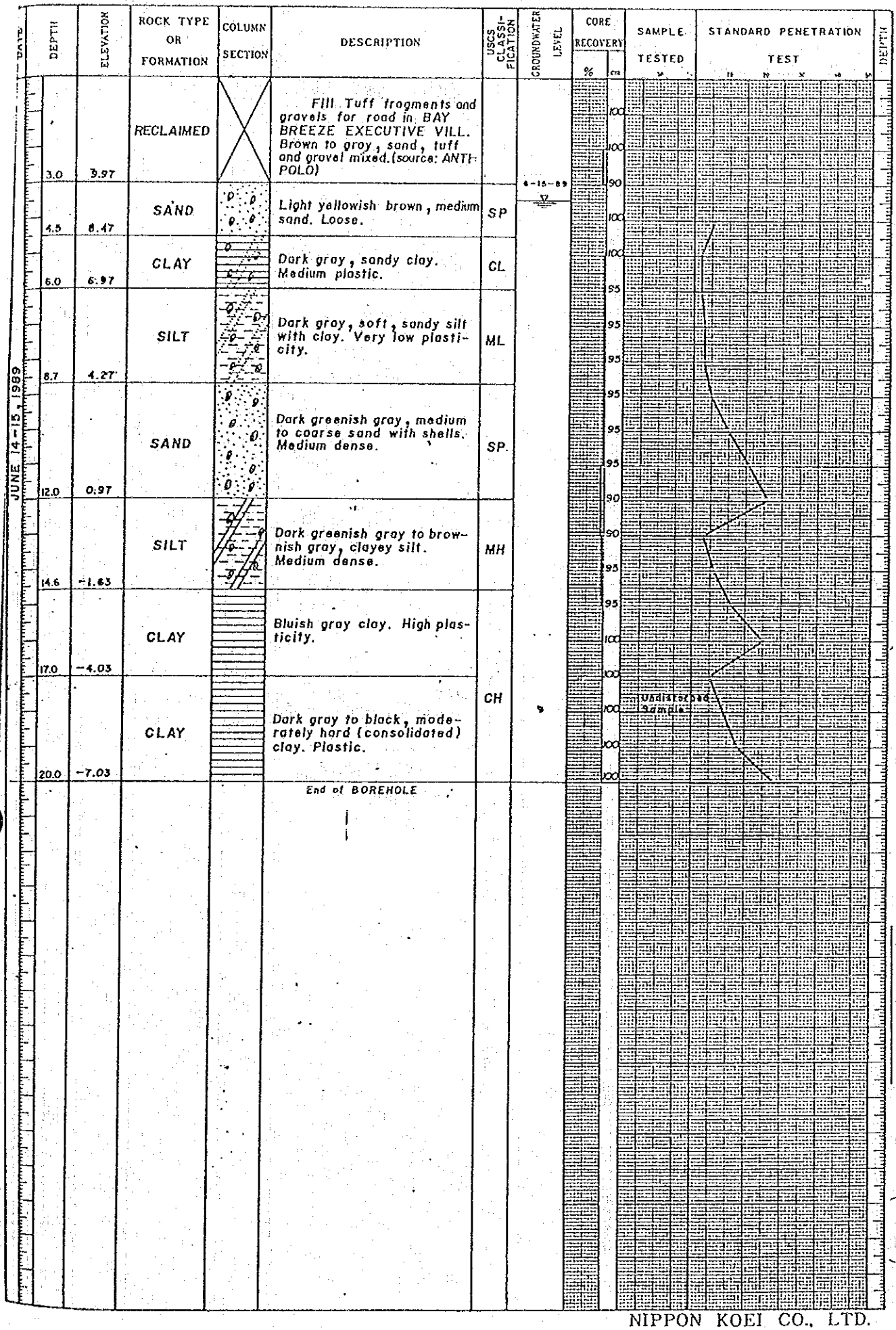
HOLE NO.

LOG FORM C-1

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-2 SHEET NO. 2 OF 11



HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-3 SHEET NO. 3 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLE TESTED	STANDARD PENETRATION TEST	DEPTH
JUNE 11-12, 1989	0.8	12.01	TOP SOIL		Dark brown, organic clay with roots		6-12-89					
	3.0	9.51	CLAY		Yellowish brown, soft clay. High plasticity. 2.5-3.0m.: contained silty matrix.	CH		100				
	6.1	7.41	SAND		Dark greenish brown, medium (3.0-5.0 m) to fine (5.0-6.0m) sand with shells; loose.	SP		100				
	8.1	6.41	SILT		Dark brown, clayey silt; highly plastic; soft.	MH		100		Undisturbed Sample		
	12.0	0.51	CLAY		Dark gray, partly bluish. dark gray, soft clay, high plasticity At 8.0-10.0m., many shells are concentrated.	CH		100				
	13.0	-0.49	SAND		Yellowish brown, fine sand; consolidated.	SP		95				
	16.8	-3.99	CLAY		Dark bluish gray, soft clay. Very high plasticity.	CH		90		Undisturbed Sample		
	19.0	-6.49	CLAY		Dark brown to black, very sticky clay. Very high plasticity. Stiff.			100				
	20.0	-7.49	CLAY		19.0-20.0m.: Including many fragments of light brown tuffaceous sand. Hard.			95				
					END OF BOREHOLE			95				
								95				
								90				

HOLE NO.

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS. TOKYO.

DRILL LOG

HOLE NO. JB-4 SHEET NO. 4 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLE TESTED	STANDARD PENETRATION TEST	DEPTH
JUNE 12-13, 1989	0.0	11.66	TOP SOIL		Fill materials for road "Tabedo", Tuff frogments.							
	1.2	10.96	CLAY		Dark brown, organic clay.	OH						
	3.3	8.86	CLAY		Light grayish brown clay. Silty material included in lower portion. Medium plasticity.	CH	6-13-89		85 90 95			
	4.5	7.66	SAND		Bluish to yellowish light brown, fine sand.				95			
	6.0	6.16	SAND		Dark greenish gray, medium to coarse sand. Medium dense.	SP			95 90			
	8.0	4.16	CLAYEY FINE SAND		Greenish dark gray, fine sand. Very loose; many shell.	SC			95 95			
	10.0	2.16	CLAYEY SILT		Dark greenish clayey silt. Medium to low plasticity; soft.	MH			100 95	Undisturbed Sample		
	11.1	1.06	SAND		Gray, fine to medium sand. Medium dense.	SP			95			
	14.0	-1.84	CLAY		Gray, sandy to silty clay. Very low plasticity. Soft.	CL			100 100			
			SILT		Gray clayey silt; highly plastic; stiff.	MH			100	Undisturbed Sample		
	16.5	-4.34	SAND		Light greenish gray, Silty to Clayey fine sand. Medium dense.	SC			100			
	20.0	-7.84	CLAY		Dark gray clay with many shells. High plasticity.	CH			100 100 100 100			
					END OF BOREHOLE							

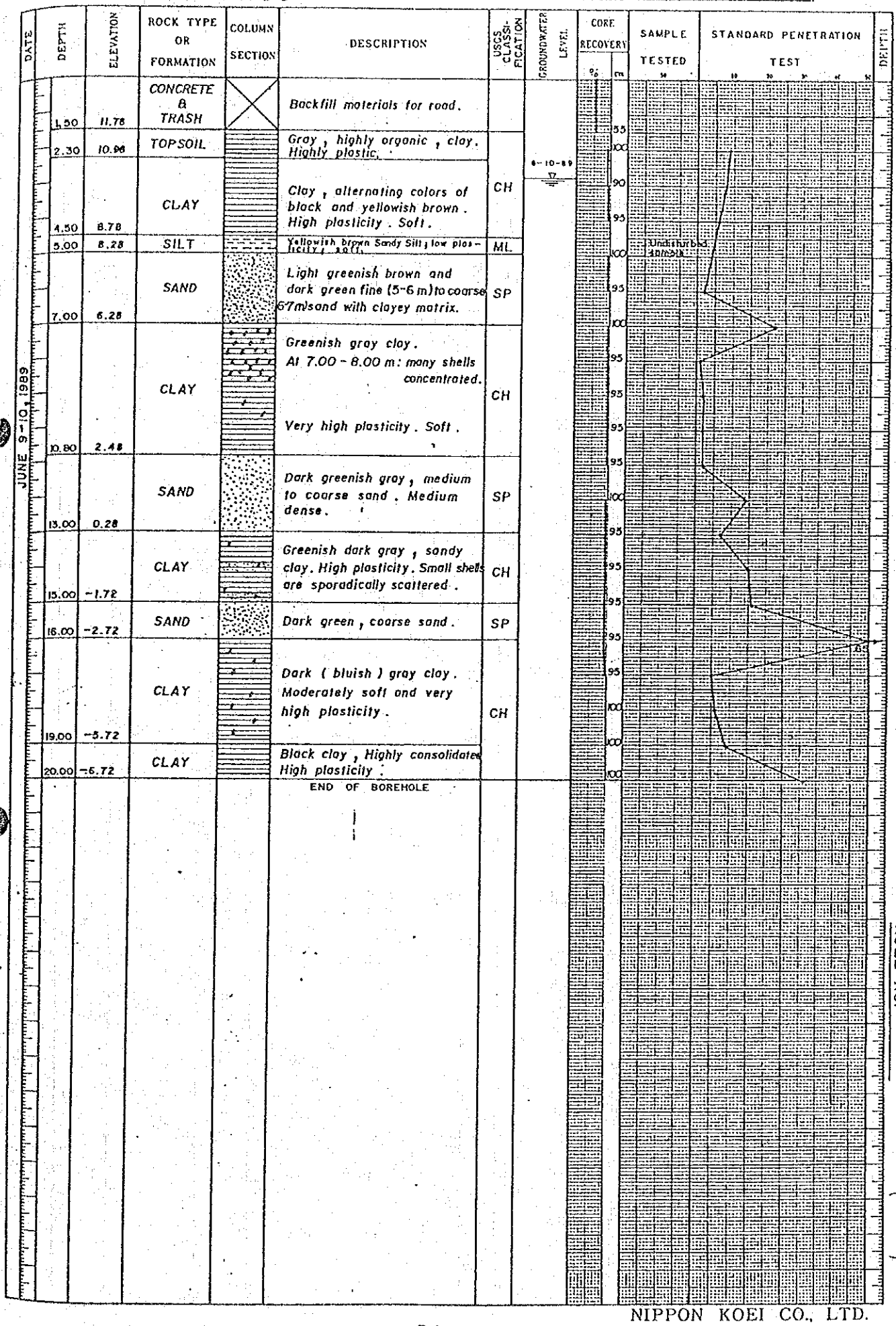
HOLE NO.

LOG FORM-C

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-5 SHEET NO. 5 OF 11



HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-6 SHEET NO. 6 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL
JUNE 6-10-1988	1.80	11.04	SILT		Light yellowish brown, sandy(medium) silt with low water content.	MH	
	3.60	9.04	CLAY		Dark brown sandy(fine) clay. High plasticity, compacted.	CH	6-10-88
	5.30	7.24	SAND		Dark green to greenish brown, silty sand. Loose	SM	
	13.40	-0.86	CLAY		Dark gray, massive and soft clay. At 5.20-7.20m, 8.30-8.50m, 10.50-11.00 m and 13.00-13.20m Many shells are concentrated. 7.00-8.30 m: Medium sands included. 10.30-11.00 m: Fine sand to silt included. Very high plasticity.	CH	
	15.90	-3.36	SAND		Dark greenish gray, fine to coarse (15.00 — 15.90m.) sand. Medium dense.	SP	
	21.80	-8.96	CLAY		Greenish to bluish, dark gray clay. Soft and high plasticity. 19.00, 20.00-20.60m., many small shells are found.	CH	
	22.00	-9.46	SAND		Dark greenish gray, medium sand intercalated. Very dense.	SP	
	24.30	-11.76	CLAY		22.00-24.30m.: Dark gray to black consolidated hard clay.	CH	
	25.00	-12.46	SILT		24.30m.: Light greenish brown, tuffaceous silt. Very hard.	MH	
					END OF BOREHOLE		

CORE RECOVERY (%, cm) — SAMPLE TESTED — STANDARD PENETRATION TEST — DEPTH

Undisturbed Sample

Undisturbed Sample

HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-7 SHEET NO. 7 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLE TESTED	STANDARD PENETRATION TEST N	DEPTH
JUNE 5-6, 1989	0.80	12.22	TOP SOIL		Dark brown, organic clay. Grass roots included.				93			1
	2.00	10.72	CLAY		Brown color, high plasticity clay. Organic matters and roots included. Yellowish light brown, sandy clay at 2.30-3.30m. Firm	OH	6-6-89		95			
	3.30	9.42	SANDY CLAY						95			
	4.55	8.17	SAND		Greenish gray, medium to coorse, loose sand.	SP			95			
	5.10	6.62	SAND		Greenish gray loose silty sand with small shells.	SM			100	Undisturbed Sample		
	7.10	5.62	CLAY		Dark gray soft clay, Organic.	OH			95			
	7.40	5.32	CLAY		Yellowish light brown clay.				95			
	9.00	3.72	CLAY		Yellowish light brown color, Gray to dark gray clay. Sandy to silty in part. 11.50-12.00m. Silty to sandy clay. Very high plasticity. Soft	CH			95			
	12.00	0.72	CLAY						95			
	13.00	-0.28	SAND		12.00-13.00m.: Dark green medium to fine sand. Very dense with clay.	SP			95			
			CLAY		13.00-16.00m.: Greenish to yellowish brown clay, medium plasticity.	CH			100	Undisturbed Sample		
					16.00-19.55m.: Very dark gray, clay with plenty of shells, Organic.				100			
	19.80	-6.78	CLAY		Greenish brown to pale brown, highly consolidated clay.				95			
	20.00	-7.28			END OF BOREHOLE				95			
									90			
									90			
									85			
									90			

HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-8 SHEET NO. 8 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLE TESTED	STANDARD PENETRATION TEST	DEPTH
JUNE 1 ~ 2, 1989	0.60	11.48	TOP SOIL		Dark grayish brown soil; Many grass roots.		6-2-89		85			
	2.60	9.48	CLAY		Yellowish brown to dark brown Sandy clay. Organic. Medium Plasticity.	CH			100			
	5.60	6.48	SAND		Medium to coarse sand; loose. Pale yellowish green (for medium sand with silt) and dark green color (for coarse sand).	SM			85 100 100 100			
	6.00	6.98	SAND		Dark gray, Silty Sand	SM			100	Undisturbed Sample		
	9.00	2.98	CLAY		Dark gray, soft, Silty clay. Very high plasticity.	CH			95 100 100			
	9.60	2.38	SAND		Dark greenish gray coarse sand. Medium dense.	SP			100			
	13.60	-1.52	CLAY		Dark brownish gray clay with partly silty matrix. Many shells and fragments are concentrated.	CH			95 95 95			
	17.20	-5.22	CLAY		Greenish brown to pale brown, sandy to tuffaceous clay. Medium Plasticity at 14.00~14.40 m.; 16.00~16.40m. and 17.10 m. depth. Highly consolidated.				95 93 93 95			
	20.00	-8.02	SAND		Light yellowish brown, medium to coarse silty sand. Very dense and solid.	SM			90 93 95			
					END OF BOREHOLE							

HOLE NO.

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-9 SHEET NO. 9 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL
JUNE 2-3, 1989	0.40	11.98	TOP SOIL		Light brown gravelly clay. Fill.		
	0.90	11.48	CLAY		Light brown, sandy to silty clay.	CH	6-3-89
	1.40	10.98	CLAY		Yellowish brown clay. High plasticity.		
	3.00	9.38	CLAY		Whitish, light brown clay. Contained much silty to sandy, matrix.		
	3.50	8.88	SAND		Whitish brown, medium sand. Loose	SP	
	4.00	8.38	CLAY		White, silty clay. High plasticity.	CH	
	5.50	6.88	SAND		Dark brown, medium to coarse sand. Many shells included.	SP	
	8.50	3.88	CLAY		Light brown (partly yellowish) clay. High plasticity. Stiff.	CH	
	11.00	1.38	CLAY		Reddish to yellowish brown clay. Very high plasticity. Stiff.		
	13.30	-0.92	CLAY		Brown colored clay. Very high plasticity. Hard and sticky.		
	15.00	-2.62	SILT		Yellowish pale brown, clayey silt. Medium plasticity, very hard.	MH	
	16.00	-3.62	FINE SAND		Pale brown, clayey silt to fine sand. Low plasticity.	SC	
	20.00	-7.62	SILT		Light brown, silt to clayey silt. Sticky and high plasticity. Hard. Few gravels/pebbles included.	MH	
					End of BOREHOLE		

CORE RECOVERY (cm): 85, 85, 100, 95, 95, 85, 100, 100, 85, 85, 85, 95, 95, 75, 85, 90, 90, 90, 90, 95

SAMPLE TESTED: Undisturbed sample; Undisturbed sample

STANDARD PENETRATION TEST

HOLE NO.

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. JB-10 SHEET NO. 10 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	SAMPLE TESTED	STANDARD PENETRATION TEST	DEPTH
6 JUNE 1989	0.55	12.64	TOP SOIL		Reclaimed top soil						
	2.00	11.19	CLAY		Light brown, silty clay. Medium Plasticity	CH	6-7-89	100			
	4.00	9.19	CLAY		Yellowish dark brown, sandy clay. Soft.			95			
	4.30	8.89	CLAY		Dark gray, highly plastic, clay.			100			
	6.20	6.99	SAND		Dark greenish brown, medium to coarse sand. Loose. Shell fragments included.	SP		90			
	11.10	2.09	CLAY		Gray to dark gray, very soft clay. High plasticity.	CH		95	Undisturbed sample		
	12.70	0.49	SILT		Yellowish pale brown color Gray silt, medium plasticity. Soft, Sandy	MH		100			
	13.90	-0.71	SAND		Partly very coarse sand materials scattered.	SP		100			
			CLAY		Small shell fragments, randomly distributed.	CH		100	Undisturbed Sample		
	20.00	-6.81			Bluish gray, firm silty clay. Shells are concentrated at 18.5 - 20.0 m			90			
					End of BOREHOLE			95			
								100			
								95			
								95			
								95			
								100			

HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

DRILL LOG

HOLE NO. NM-1 SHEET NO. 11 OF 11

DATE	DEPTH	ELEVATION	ROCK TYPE OR FORMATION	COLUMN SECTION	DESCRIPTION	USCS CLASSIFICATION	GROUNDWATER LEVEL	CORE RECOVERY %	CORE RECOVERY cm	SAMPLE TESTED	STANDARD PENETRATION TEST	DEPTH
JUNE 20, 1989	1.00	10.38			CONCRETE PAVEMENT		6-20-89					
			SAND		Silty Gravelly SAND; dark gray; fine sand; sub-angular gravel; non-plastic fines; med. dense.	SM			40			
					Gravelly Silty SAND; fine to very fine sand; slightly plastic fines; with abundant shell fragments; medium dense.				75			
	4.50	6.88			Silty Fine to Very Fine SAND; gray; slightly plastic fines; with traces of shell fragments; loose				85			
			CLAY		Sandy Silty CLAY; dark gray; medium to high plasticity; very fine sand; with traces of shell fragments; Fine to Soft.	CH			95			
					with greenish tinge.				95			
	9.00	2.38							95			
	10.00	1.38	SHELLS		SHELLS with CLAY-SILT materials; gray with greenish tinge.				95			
					End of BOREHOLE							

HOLE NO. ( )

NIPPON KOEI CO., LTD.
CONSULTING ENGINEERS, TOKYO.

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-1

SAMPLE NO.			UDS-1	UDS-2				
SAMPLE DEPTH (m)			7.55-8.00	14.55-15.00				
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100				
	#4		99	99				
	#10		99	95				
	#40		98	92				
	#100		96	91				
	#200		93	87				
CONSISTENCY	Liquid Limit, WI (%)		40	78				
	Plastic Limit, Wp (%)		21	40				
	Plasticity Index, Ip		19	39				
	Shrinkage Limit, SI, %							
Soil Classification (ASTM)			MH	MH				
Specific Gravity, G_s			2.60	2.61				
Natural Moisture Content, W_n (%)			93	92				
Organic Content								
Wet Unit Weight, γ_t (g/cm³)								
Dry Unit Weight, γ_d (g/cm³)			1.76	1.34				
Natural Void Ratio, e_o			1.13	0.70				
Degree of Saturation, Sr (%)								
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)							
	Compression Index, Cc							
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1		0.105				
		2						
	Strain, ε (%)	1		8.815				
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)		0.07					
	Angle of Internal Friction, ϕu (deg)		29					
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-2

SAMPLE NO.			UDS-1					
SAMPLE DEPTH (m)			17.55-18.00					
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100					
	#4		99					
	#10		97					
	#40		95					
	#100		95					
	#200		95					
CONSISTENCY	Liquid Limit, Wl (%)		91					
	Plastic Limit, Wp (%)		47					
	Plasticity Index, Ip		44					
	Shrinkage Limit, Sl, %							
Soil Classification (ASTM)			CH					
Specific Gravity, G_s			2.61					
Natural Moisture Content, W_n (%)			83					
Organic Content								
Wet Unit Weight, δ_t (g/cm^3)			1.39					
Dry Unit Weight, δ_d (g/cm^3)			0.67					
Natural Void Ratio, e_o								
Degree of Saturation, Sr (%)								
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm^2)							
	Compression Index, Cc							
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm^2)	1	0.175					
		2						
	Strain, ε (%)	1	3.297					
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm^2)		0.18					
	Angle of Internal Friction, ϕu (deg)		13.5					
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-3

SAMPLE NO.			TP-UDS	UDS-1	UDS-2	S-16		
SAMPLE DEPTH (m)			0.55-1.00	5.55-6.00	14.55-15.00	17.55-18.00		
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100		100		
	#4		100	100		100		
	#10		100	97		99		
	#40		99	97		99		
	#100		99	97		97		
	#200		99	95		93		
CONSISTENCY	Liquid Limit, Wl (%)		62	67	103			
	Plastic Limit, Wp (%)		33	34	54			
	Plasticity Index, Ip		29	32	49			
	Shrinkage Limit, Sl, %		34		43			
Soil Classification (ASTM)			CH	MH	CH	CH		
Specific Gravity, G_s			2.63	2.60	2.61	2.57		
Natural Moisture Content, W_n (%)			43	72	122	103		
Organic Content								
Wet Unit Weight, γ_t (g/cm³)			1.60	1.52	1.42			
Dry Unit Weight, γ_d (g/cm³)			1.12	0.88	0.64			
Natural Void Ratio, e_o			1.353	1.941	0.082			
Degree of Saturation, Sr (%)			84	97	95			
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)		0.78	0.92	0.77			
	Compression Index, Cc		0.377	1.01	1.395			
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1		0.097	0.121			
		2						
	Strain, ε (%)	1		5.714	11.152			
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)			0.06				
	Angle of Internal Friction, ϕu (deg)			15				
COMPACTION TEST	Maximum Dry Density, g/cc		1.48					
	Optimum Moisture Content, %		25					

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Floof Control and Drainage Project in Metro Manila

BOREHOLE No. JB-4

SAMPLE NO.			TP-UDS	UDS-1	UDS-2			
SAMPLE DEPTH (m)			0.50-1.00	8.55-9.00	14.55-15.00			
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100	100			
	#4		100	99	100			
	#10		100	98	99			
	#40		99	97	97			
	#100		99	95	96			
	#200		99	86	80			
CONSISTENCY	Liquid Limit, Wl (%)		65	34	44			
	Plastic Limit, Wp (%)		35	17	22			
	Plasticity Index, Ip		30	16	22			
	Shrinkage Limit, Sl, %		24					
Soil Classification (ASTM)			OH	MH	MH			
Specific Gravity, G_s			2.62	2.63	2.60			
Natural Moisture Content, W_n (%)			45	42	49			
Organic Content								
Wet Unit Weight, γ_t (g/cm³)			1.63	1.64				
Dry Unit Weight, γ_d (g/cm³)			1.12	1.15				
Natural Void Ratio, e_o			1.273					
Degree of Saturation, Sr (%)			93					
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)		0.99					
	Compression Index, Cc		0.408					
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1		0.182				
		2						
	Strain, ε (%)	1		2.747				
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)			0.32				
	Angle of Internal Friction, ϕu (deg)			8				
COMPACTION TEST	Maximum Dry Density, g/cc		1.43					
	Optimum Moisture Content, %		29					

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-5

SAMPLE NO.			UDS-1	S-12				
SAMPLE DEPTH (m)			4.55-5.00	13.55-14.00				
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100				
	#4		100	98				
	#10		100	89				
	#40		99	78				
	#100		95	41				
	#200		63	26				
CONSISTENCY	Liquid Limit, WI (%)		50					
	Plastic Limit, Wp (%)		27					
	Plasticity Index, Ip		23					
	Shrinkage Limit, SI, %							
Soil Classification (ASTM)			ML	SP				
Specific Gravity, G_s			2.60	2.60				
Natural Moisture Content, W_n (%)			42	44				
Organic Content								
Wet Unit Weight, γ_t (g/cm^3)			1.75					
Dry Unit Weight, γ_d (g/cm^3)			1.23					
Natural Void Ratio, e_o			1.105					
Degree of Saturation, Sr (%)			98					
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm^2)		2.80					
	Compression Index, Cc		0.488					
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm^2)	1	0.629					
		2						
	Strain, ε (%)	1	3.608					
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm^2)		0.18					
	Angle of Internal Friction, ϕu (deg)		23					
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-6

SAMPLE NO.			S-5	UDS-1	UDS-2	S-23		
SAMPLE DEPTH (m)			4.55-5.00	6.55-7.00	14.55-15.00	24.55-25.00		
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	92		100		
	#4		100	88		100		
	#10		99	87		97		
	#40		99	85		95		
	#100		89	68		94		
	#200		64	50		92		
CONSISTENCY	Liquid Limit, Wl (%)			34	63			
	Plastic Limit, Wp (%)			18	32			
	Plasticity Index, Ip			16	30			
	Shrinkage Limit, Sl, %			35				
Soil Classification (ASTM)								
Specific Gravity, G_s			2.63	2.59		2.60		
Natural Moisture Content, W_n (%)			37	39	68	52		
Organic Content								
Wet Unit Weight, δ_t (g/cm³)					1.57			
Dry Unit Weight, δ_d (g/cm³)					0.94			
Natural Void Ratio, e_o								
Degree of Saturation, Sr (%)								
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)							
	Compression Index, Cc							
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1			0.799			
		2						
	Strain, ε (%)	1			5.051			
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)				0.30			
	Angle of Internal Friction, Øu (deg)				13			
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-7

SAMPLE NO.			TP-UDS	UDS-1	UDS-2	S-15		
SAMPLE DEPTH (m)			0.50 1.00	5.50 6.00	11.50 12.00	16.55 17.00		
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100		100		
	#4		99	99		100		
	#10		99	95		99		
	#40		99	66		99		
	#100		99	34		99		
	#200		97	27		97		
CONSISTENCY	Liquid Limit, Wl (%)		56		53			
	Plastic Limit, Wp (%)		30		30			
	Plasticity Index, Ip		26		26			
	Shrinkage Limit, Sl, %		23		43			
Soil Classification (ASTM)			CH	SM	CH	CH		
Specific Gravity, G_s			2.61	2.62	2.61	2.57		
Natural Moisture Content, W_n (%)			33	31	70	47		
Organic Content								
Wet Unit Weight, γ_t (g/cm³)			1.59		1.58			
Dry Unit Weight, γ_d (g/cm³)			1.19		0.93			
Natural Void Ratio, e_o			1.174		1.817			
Degree of Saturation, Sr (%)			74		100			
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)		0.76		0.890			
	Compression Index, Cc		0.380		0.682			
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1	1.663					
		2						
	Strain, ε (%)	1	4.571					
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)							
	Angle of Internal Friction, Øu (deg)							
COMPACTION TEST	Maximum Dry Density, g/cc		1.43		0.18			
	Optimum Moisture Content, %		29		17.5			

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-8

SAMPLE NO.			TP-UDS	UDS-1	S-14	S-17		
SAMPLE DEPTH (m)			0.55-1.00	5.55-6.00	14.55-15.00	17.55-18.00		
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100	100	100		
	#4		100	100	98	100		
	#10		100	99	98	100		
	#40		99	75	98	91		
	#100		99	16	97	60		
	#200		99	8	95	45		
CONSISTENCY	Liquid Limit, Wl (%)		59					
	Plastic Limit, Wp (%)		27					
	Plasticity Index, Ip		32					
	Shrinkage Limit, Sl, %		38					
Soil Classification (ASTM)			CH	SM	CH	SM		
Specific Gravity, G_s			2.61	2.59	2.61	2.64		
Natural Moisture Content, W_n (%)			46	32	39	26		
Organic Content								
Wet Unit Weight, γ_t (g/cm³)			1.69					
Dry Unit Weight, γ_d (g/cm³)			1.16					
Natural Void Ratio, e_o			1.247					
Degree of Saturation, Sr (%)			96					
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)		1.046					
	Compression Index, Cc		0.386					
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1	0.955					
		2						
	Strain, ε (%)	1	4.00					
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)		0.10					
	Angle of Internal Friction, Øu (deg)		13.5					
COMPACTION TEST	Maximum Dry Density, g/cc		1.45					
	Optimum Moisture Content, %		26					

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-9

SAMPLE NO.			TP-UDS	UDS-1	S-16			
SAMPLE DEPTH (m)			0.50-1.00	7.55-8.00	16.55-17.00			
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100	100			
	#4		100	100	100			
	#10		100	95	99			
	#40		100	82	99			
	#100		99	79	98			
	#200		99	77	94			
CONSISTENCY	Liquid Limit, WI (%)		57	63				
	Plastic Limit, Wp (%)		28	34				
	Plasticity Index, Ip		29	29				
	Shrinkage Limit, SI, %		19	19				
Soil Classification (ASTM)								
Specific Gravity, G_s			2.62	2.62	2.62			
Natural Moisture Content, W_n (%)			47	43	30			
Organic Content								
Wet Unit Weight, γ_t (g/cm³)			1.72	1.75				
Dry Unit Weight, γ_d (g/cm³)			1.17	1.22				
Natural Void Ratio, e_o			1.247					
Degree of Saturation, Sr (%)			99					
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)		0.83					
	Compression Index, Cc		0.368					
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1	0.838	0.632				
		2						
	Strain, ε (%)	1	5.58	8.515				
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)		0.06					
	Angle of Internal Friction, Øu (deg)		16.2					
COMPACTION TEST	Maximum Dry Density, g/cc		1.37					
	Optimum Moisture Content, %		30					

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. JB-10

SAMPLE NO.			TP-UDS	S-1	UDS-2	S-14		
SAMPLE DEPTH (m)			0.50-1.00	0.55-1.00	11.55-12.00	15.55-16.00		
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"			94	89	100		
	#4			93	83	97		
	#10			90	82	89		
	#40			88	80	85		
	#100			87	75	85		
	#200			85	67	85		
CONSISTENCY	Liquid Limit, Wl (%)				56			
	Plastic Limit, Wp (%)				28			
	Plasticity Index, Ip				28			
	Shrinkage Limit, SI, %				33			
Soil Classification (ASTM)								
Specific Gravity, G_s			2.66	2.62	2.60	2.65		
Natural Moisture Content, W_n (%)			34	38	65	71		
Organic Content								
Wet Unit Weight, γ_t (g/cm^3)			1.86		1.59			
Dry Unit Weight, γ_d (g/cm^3)			1.39		0.96			
Natural Void Ratio, e_o			0.905		1.703			
Degree of Saturation, Sr (%)			99		99			
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm^2)		1.440		1.99			
	Compression Index, Cc		0.168		0.367			
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm^2)	1	0.089					
		2						
	Strain, ε (%)	1	1.38					
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm^2)				0.20			
	Angle of Internal Friction, ϕu (deg)				12.3			
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
SOIL TESTING LABORATORY
893 EDSA, QUEZON CITY, PHILIPPINES

SUMMARY OF SOIL TEST RESULTS

PROJECT JICA - Flood Control and Drainage Project in Metro Manila

BOREHOLE No. NM-1

SAMPLE NO.			S-1	S-5	S-9			
SAMPLE DEPTH (m)			1.55-2.00	5.55-6.00	9.55 10.00			
GRAIN SIZE ANALYSIS	% PASSING SIEVE 3/8"		100	100	100			
	#4		80	99	99			
	#10		73	99	89			
	#40		51	99	66			
	#100		26	99	60			
	#200		10	92	57			
CONSISTENCY	Liquid Limit, Wl (%)			41	56			
	Plastic Limit, Wp (%)			22	28			
	Plasticity Index, Ip			19	28			
	Shrinkage Limit, Sl, %							
Soil Classification (ASTM)			SM	CL	CH			
Specific Gravity, G_s			2.64	2.60	2.59			
Natural Moisture Content, W_n (%)			31	49	50			
Organic Content								
Wet Unit Weight, γ_t (g/cm³)								
Dry Unit Weight, γ_d (g/cm³)								
Natural Void Ratio, e_o								
Degree of Saturation, Sr (%)								
CONSOLIDATION TEST	Preconsolidation Pressure, pc (kg/cm²)							
	Compression Index, Cc							
UNCONFINED COMPRESSION TEST	Unconfined Compressive Strength, qu (kg/cm²)	1						
		2						
	Strain, ε (%)	1						
		2						
TRIAXIAL COMPRESSION TEST (Cu)	Cohesion, Cu (kg/cm²)							
	Angle of Internal Friction, ϕu (deg)							
COMPACTION TEST	Maximum Dry Density, g/cc							
	Optimum Moisture Content, %							

REMARKS:

TECHNOTEST, INC.
Soil Testing Laboratory
893 EDSA, Quezon City
PHILIPPINES

PROJECT: Flood Control & Drainage Project

DATE TESTED: 06-20-89

UNIT WEIGHT TEST RESULTS

SAMPLE NO.	DEPTH (meter)	UNIT WEIGHT (WET DENSITY) g/cm^3
JB-1 UDS-1	7.55 - 8.00	1.76
JB-6 UDS-1	6.55 - 7.00	1.76
JB-7 UDS-1	5.55 - 6.00	1.65

Tested by:

REUBEN M. MALLARE
Lab. Technician

Checked by:

LARRY P. MALAPAYA
Laboratory Supervisor

SAMPLES ANALYZED AS RECEIVED
ORIGINAL COPY
CHECKED BY: LPM
DATE: 06/26/89
LABORATORY NO 424