

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
CORPORACIÓN DEL ACUEDUCTO Y ALCANTARILLADO DE  
SANTIAGO (CORAASAN) THE DOMINICAN REPUBLIC

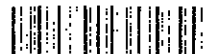
**THE STUDY ON  
THE IMPROVEMENT OF  
SEWERAGE SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO  
IN THE DOMINICAN REPUBLIC**

**FINAL REPORT**

**VOLUME IV  
DRAWINGS**

FEBRUARY 2002

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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

CORPORACIÓN DEL ACUEDUCTO Y ALCANTARILLADO DE  
SANTIAGO (CORAASAN) THE DOMINICAN REPUBLIC

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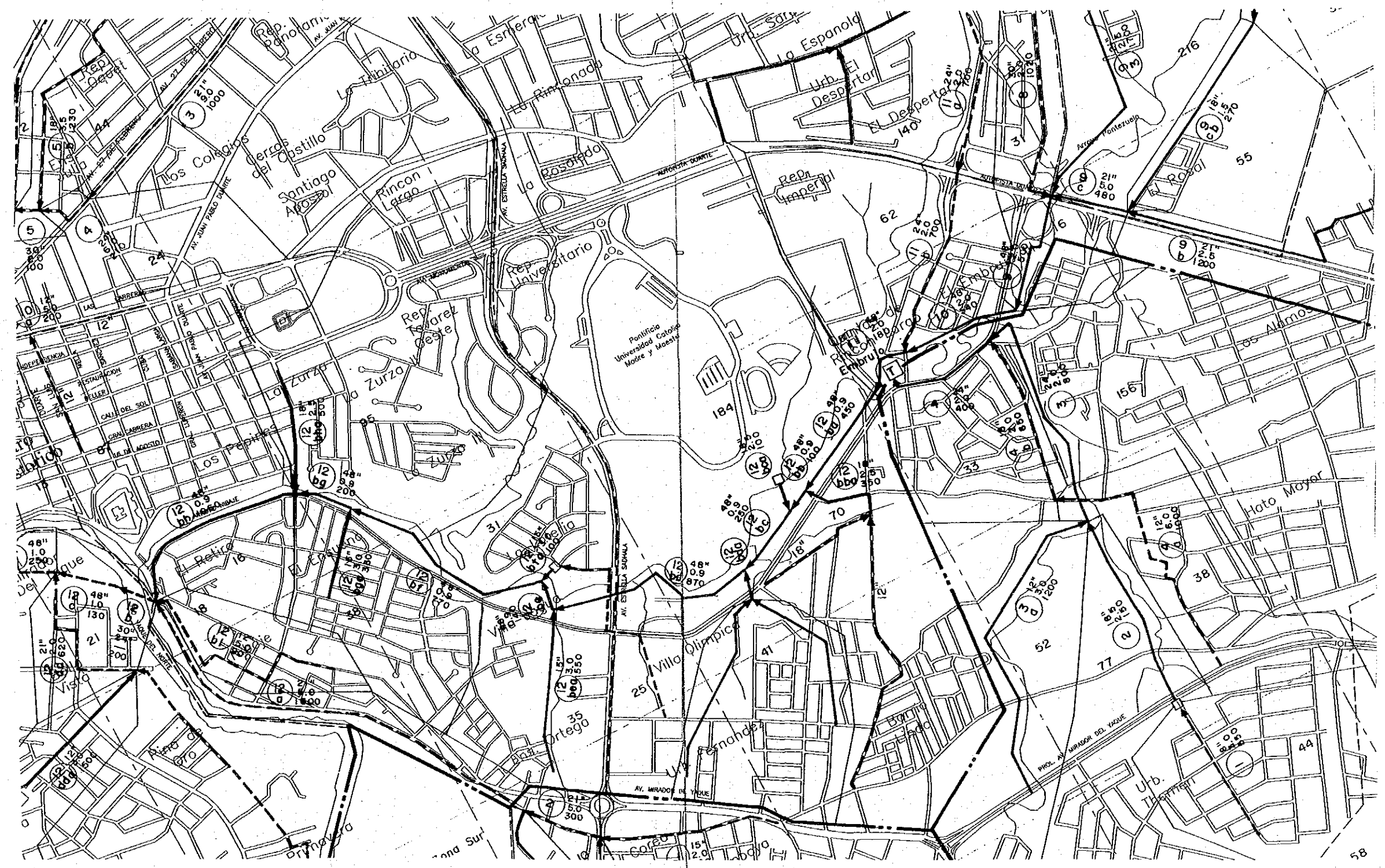
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# LIST OF DRAWINGS

DWG. No.	TITLES	DWG. No.	TITLES
<b>MAIN SEWERS (FIRST STAGE PROPGRAM)</b>		<b>WASTEWATER TREATMENT PLANTS(MASTER PLAN)</b>	
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G-2	GENERAL PLAN OF SEWER, RAFEY SEWERAGE DISTRICT (5)	M-2	GENERAL LAYOUT OF CIENFUEGOS WASTEWATER TREATMENT PLANT
G-3	GENERAL PLAN OF SEWER, RAFEY SEWERAGE DISTRICT (6) - (7)	M-3	GENERAL LAYOUT OF LOS SALADOS WASTEWATER TREATMENT PLANT
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S-2	SEWER PROFILE, RAFEY SEWERAGE DISTRICT(2)	R-1	RAFEY WASTEWATER TREATMENT PLANT LAYOUT
S-3	SEWER PROFILE, RAFEY SEWERAGE DISTRICT(3)	CL-1	CIENFUEGOS WASTEWATER TREATMENT PLANT LAYOUT
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S-7	SEWER PROFILE, RAFEY SEWERAGE DISTRICT(7)	CL-5	CIENFUEGOS/LOS SALADOS WWTPS, CONFIGURATION OF AERATION TANK
S-8	SEWER PROFILE, RAFEY SEWERAGE DISTRICT(8)	CL-6	CIENFUEGOS/LOS SALADOS WWTPS, CONFIGURATION OF FINAL SEDIMENTATION TANK
S-9	SEWER PROFILE, ZONA SUR SEWERAGE DISTRICT(1)	CL-7	CIENFUEGOS/LOS SALADOS WWTPS, REHABILITATION OF PRIMARY SEDIMENTATION TANK
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		CL-9	CIENFUEGOS/LOS SALADOS WWTPS, REHABILITATION OF FINAL SEDIMENTATION TANK
		Z-1	ZONA SUR WASTEWATER TREATMENT PLANT, LAYOUT PLAN
		Z-2	ZONA SUR WASTEWATER TREATMENT PLANT, HYDRAULIC PROFILE
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THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE  
SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO

JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE

GENERAL PLAN OF SEWER,  
RAFEY SEWERAGE DISTRICT (1) ~ (4)

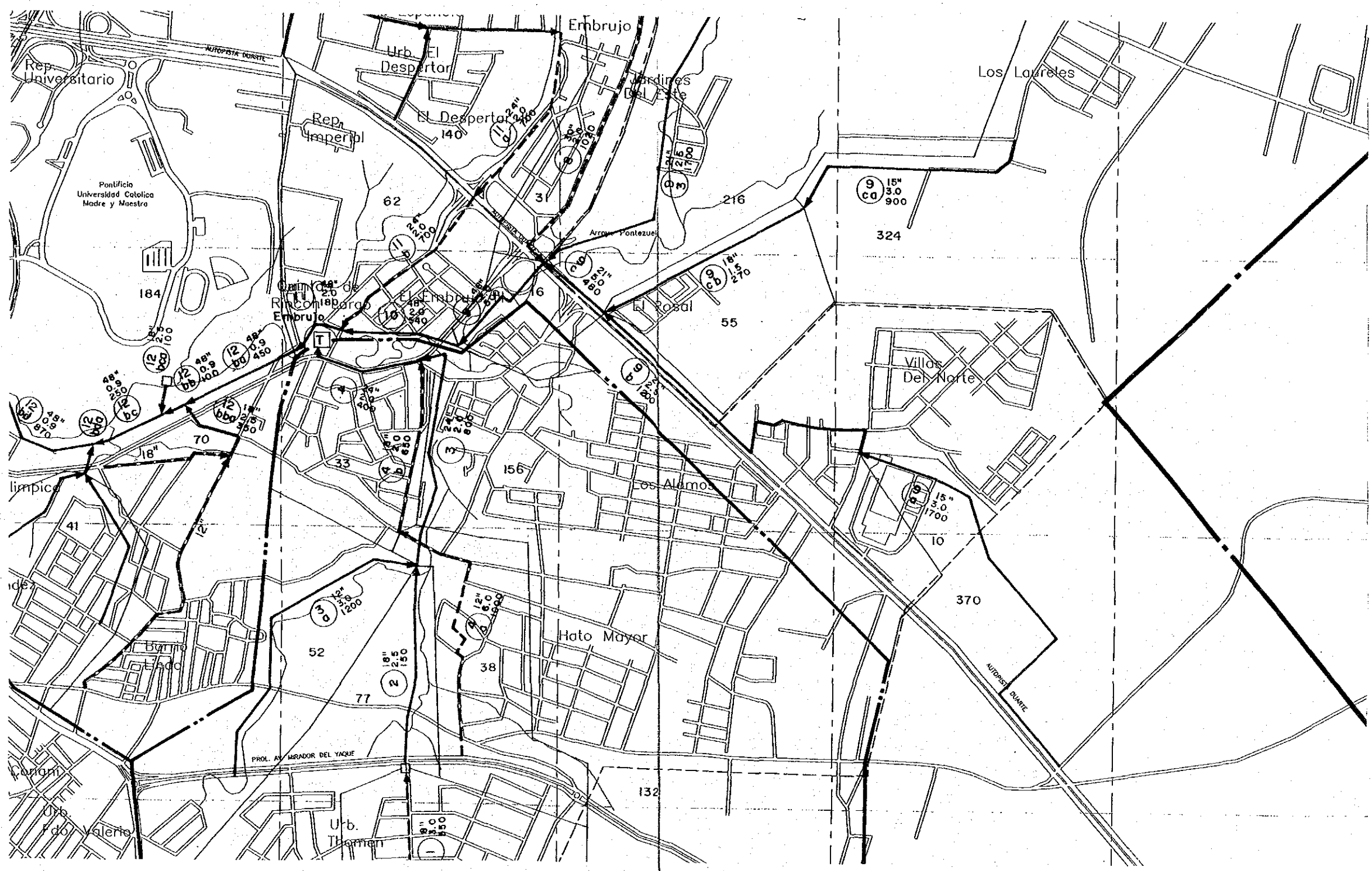


THE STUDY ON  
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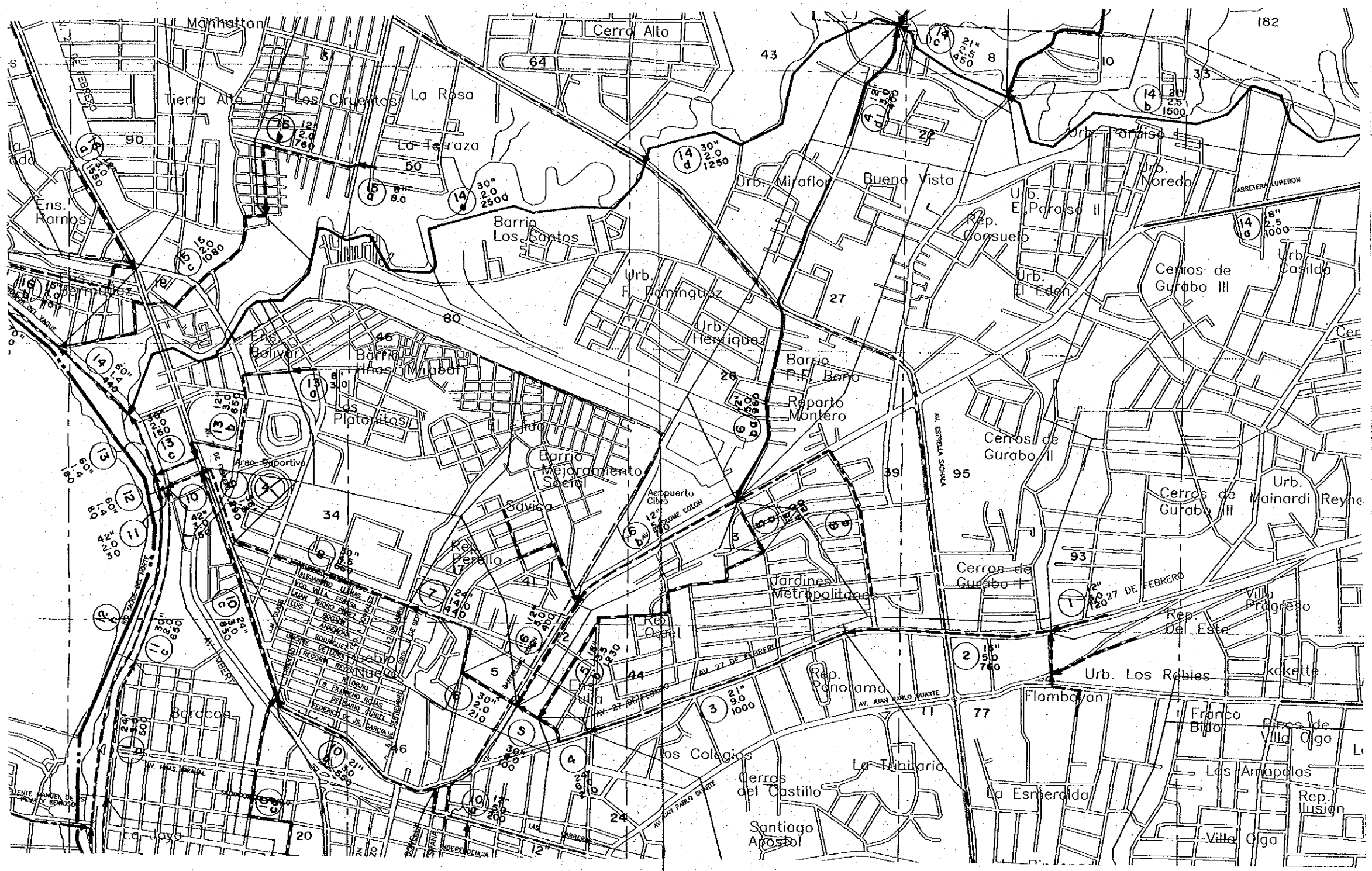
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE

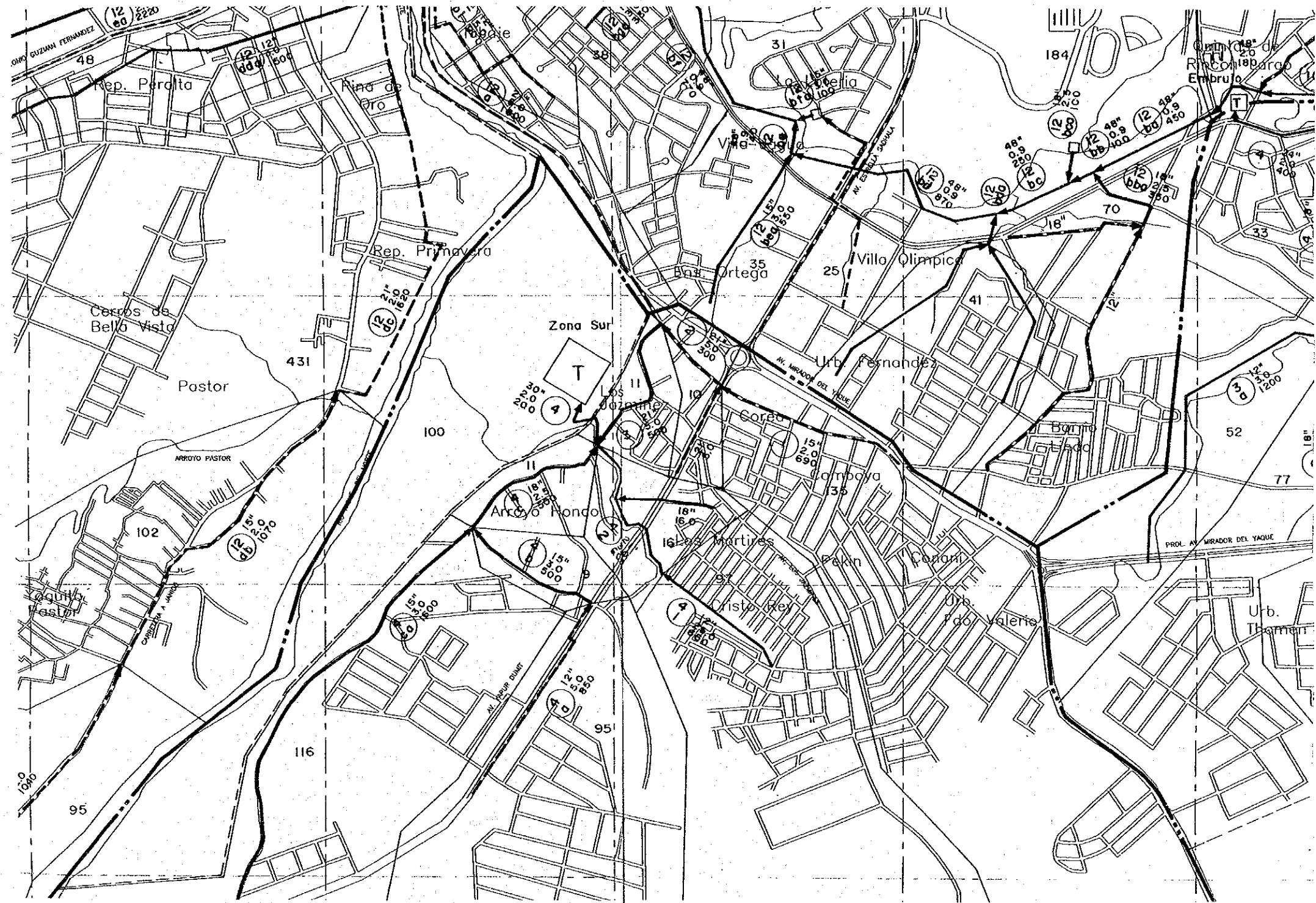
GENERAL PLAN OF SEWER,  
 RAFEY SEWERAGE DISTRICT (5)



<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE GENERAL PLAN OF SEWER, RAFEY SEWERAGE DISTRICT (6) ~ (7)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE GENERAL PLAN OF SEWER, RAFEY SEWERAGE DISTRICT (A)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



THE STUDY ON  
 THE IMPROVEMENT OF SEWERAGE  
 SYSTEM AND ENVIRONMENT  
 IN THE CITY OF SANTIAGO

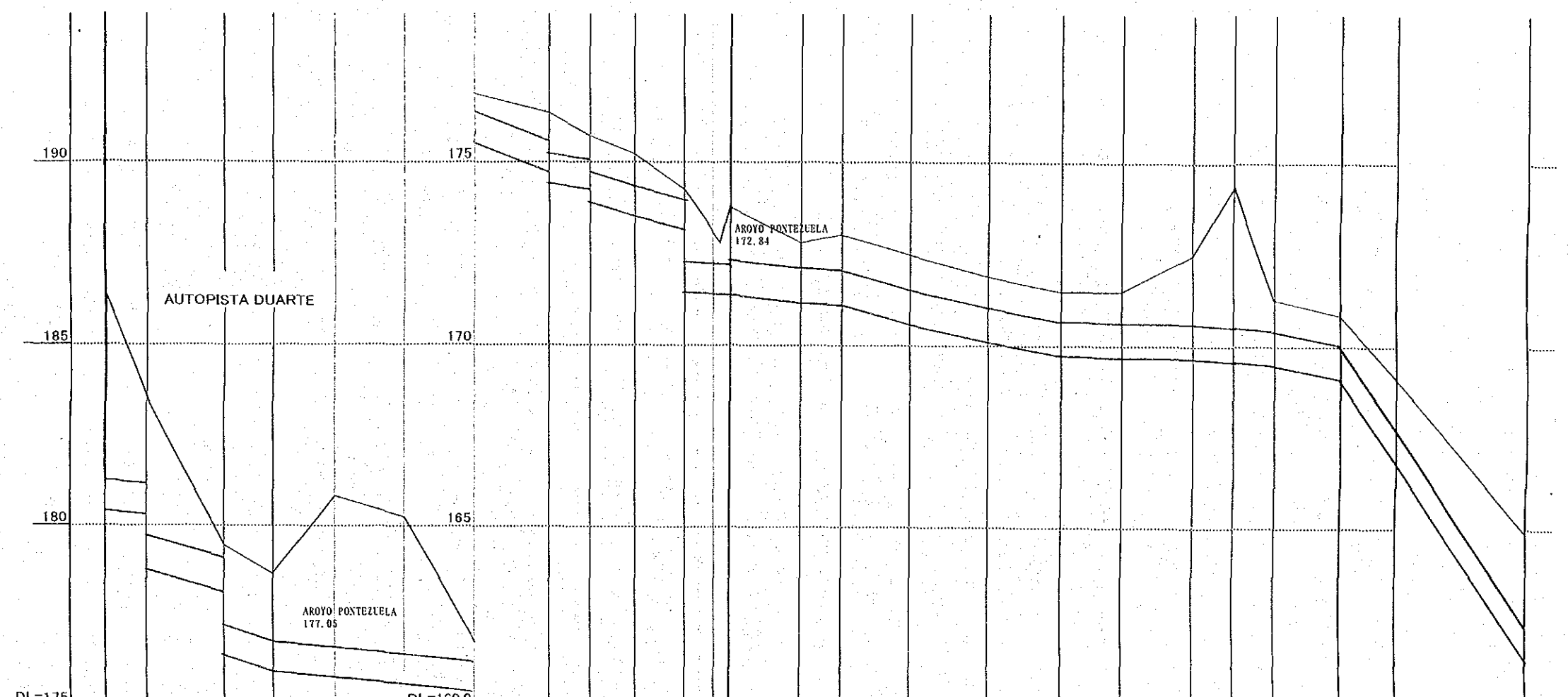
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE

GENERAL PLAN OF SEWER,  
 ZONA SUR DISTRICT (1) ~ (2)



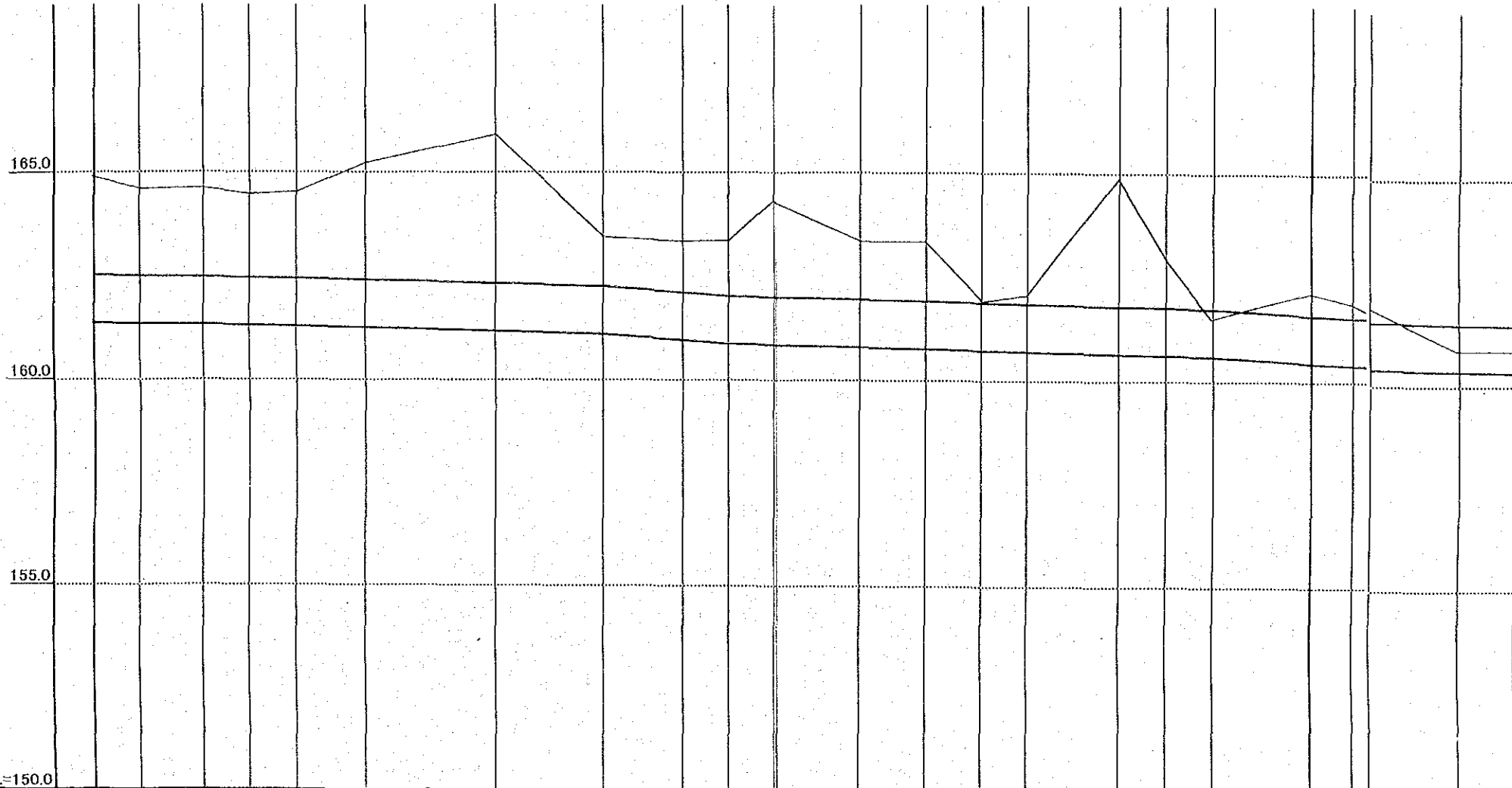
Collector 10



Sewer Number	9 PE										10 PE										11 PE	12ba	12bb	12bc	12bd								
Diameter (inch)	48"	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	48"					
Diameter (mm)	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219					
Slope (%)	10.0	10.0	10.0	2.0	2.0	3.0	10.0	10.0	10.0	10.0	2.4	4.1	0.4	7.0	7.0	6.0	0.4	0.4	0.4	0.4	7.0	7.0	48"										
Length (m)	13.2	77.5	41.22	54.77	65.84	66.96	72.86	25.45	36.85	39.3	42.1	67.49	27.61	63.77	77.73	67.67	53.8	66.62	33.29	16.29	61.65	180	450	100	250								
Ground Level(m)	186.35	185.42	179.46	178.75	180.86	180.14	175.87	176.22	175.71	175.11	174.22	173.80	172.75	173.04	172.55	171.86	171.45	171.43	172.47	174.30	171.29	170.88											
Earth Cover(m)		0.98	0.14	1.57	3.79	3.20	0.06	0.20	0.28	0.37	-0.13	1.22	0.43	0.75	0.72	0.56	0.56	0.61	1.63	3.54	0.59	0.62											
Sewer Invert Elevation(m)	181.350	181.220	178.370	176.960	175.850	175.720	175.590	174.900	174.460	174.210	173.890	173.520	173.130	171.440	170.610	170.080	169.870	169.650	168.820	168.000	165.480	168.050											

THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO	TITLE SEWER PROFILE ,RAFEY SEWERAGE DISTRICT(1)
JAPAN INTERNATIONAL COOPERATION AGENCY	

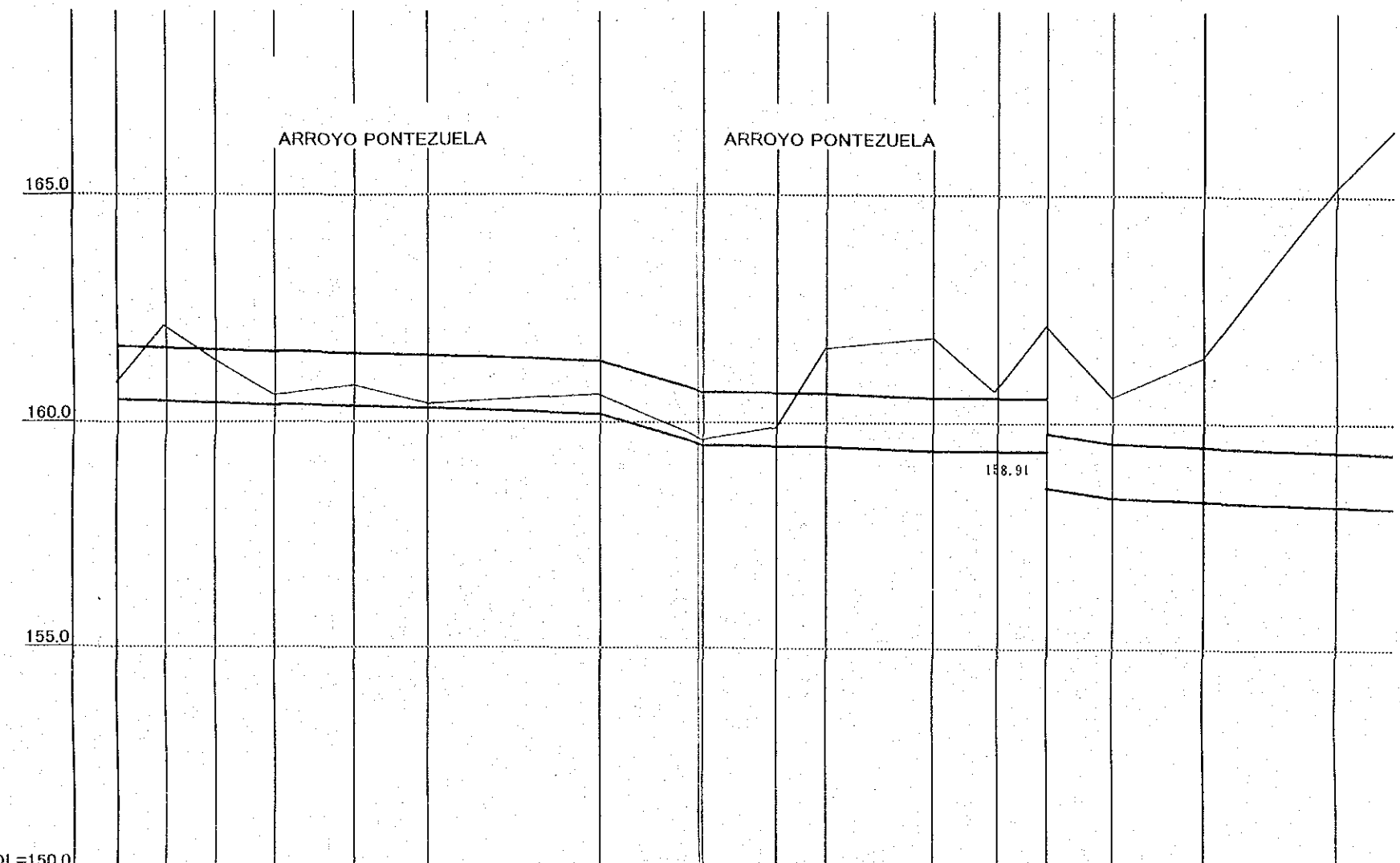
Collector 10



Sewer Number	12bd	PE																		12bc	PE		
Diameter (inch)	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''
Diameter (mm)	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
Slope (%)	16.62	50.02	16.23	23.65	53.25	118.42	96.88	63.72	25.36	30.27	74.4	51.18	40.77	0.8	13	80.35	21.9	15.59	83.39	21.8	74.86	43.89	
Length (m)																							
Ground Level(m)	161.370	164.93	164.77	164.77	154.31	164.52	165.01	165.90	163.44	163.24	163.34	164.26	163.11	163.30	161.90	162.00	164.85	162.98	161.35	162.14	161.92	160.88	160.85
Earth Cover(m)	2.34	2.19	2.24	1.79	2.02	2.56	3.48	1.19	1.05	1.17	2.12	1.03	1.27	-0.09	0.02	2.97	1.09	-0.53	0.24	0.14	-0.82	-0.82	-0.82
Sewer Invert Elevation(m)	161.360	161.310	161.300	161.280	161.230	161.200	161.030	160.970	160.950	160.920	160.860	160.810	160.770	160.760	160.690	160.570	160.560	160.550	160.500	160.480	160.450	160.450	160.450

<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE SEWER PROFILE, RAPEY SEWERAGE DISTRICT(2)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

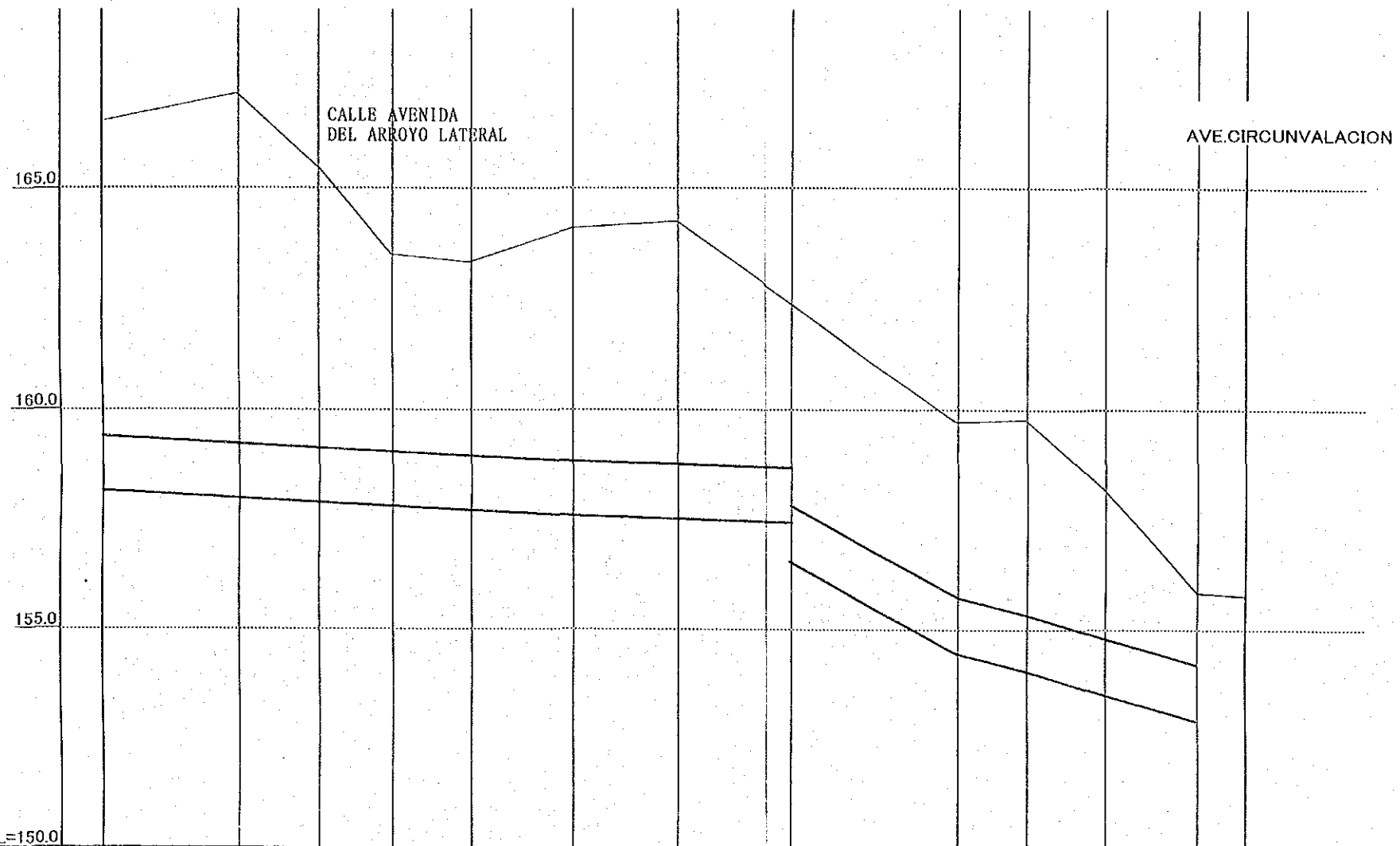
Collector 10



Sewer Number	12bf	PE													12bg PE		
Diameter (inch)	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''
Diameter (mm)	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
Slope (%)							0.8					0.8				0.7	1.4
Length (m)	24.17	25.68	38.61	59.55	53.61	150.09	83.33	53.72	17.54	85.05	46.34	9.66	46.66	73.99	110.85	41.93	
Ground Level(m)	160.85	162.05	161.16	160.54	160.85	160.28	160.66	159.64	159.81	161.71	161.92	160.61	162.09	160.69	161.45	165.12	166.52
Earth Cover(m)	-0.82	0.40	-0.47	-1.05	-0.72	-1.22	-0.70	-1.10	-0.88	1.04	1.33	0.05	1.55	1.09	2.03	5.78	7.24
Sewer Invert Elevation(m)	159.450	160.430	160.410	160.380	160.330	160.280	160.140	159.500	159.470	159.450	159.370	159.330	159.320	158.630	158.280	158.200	158.060

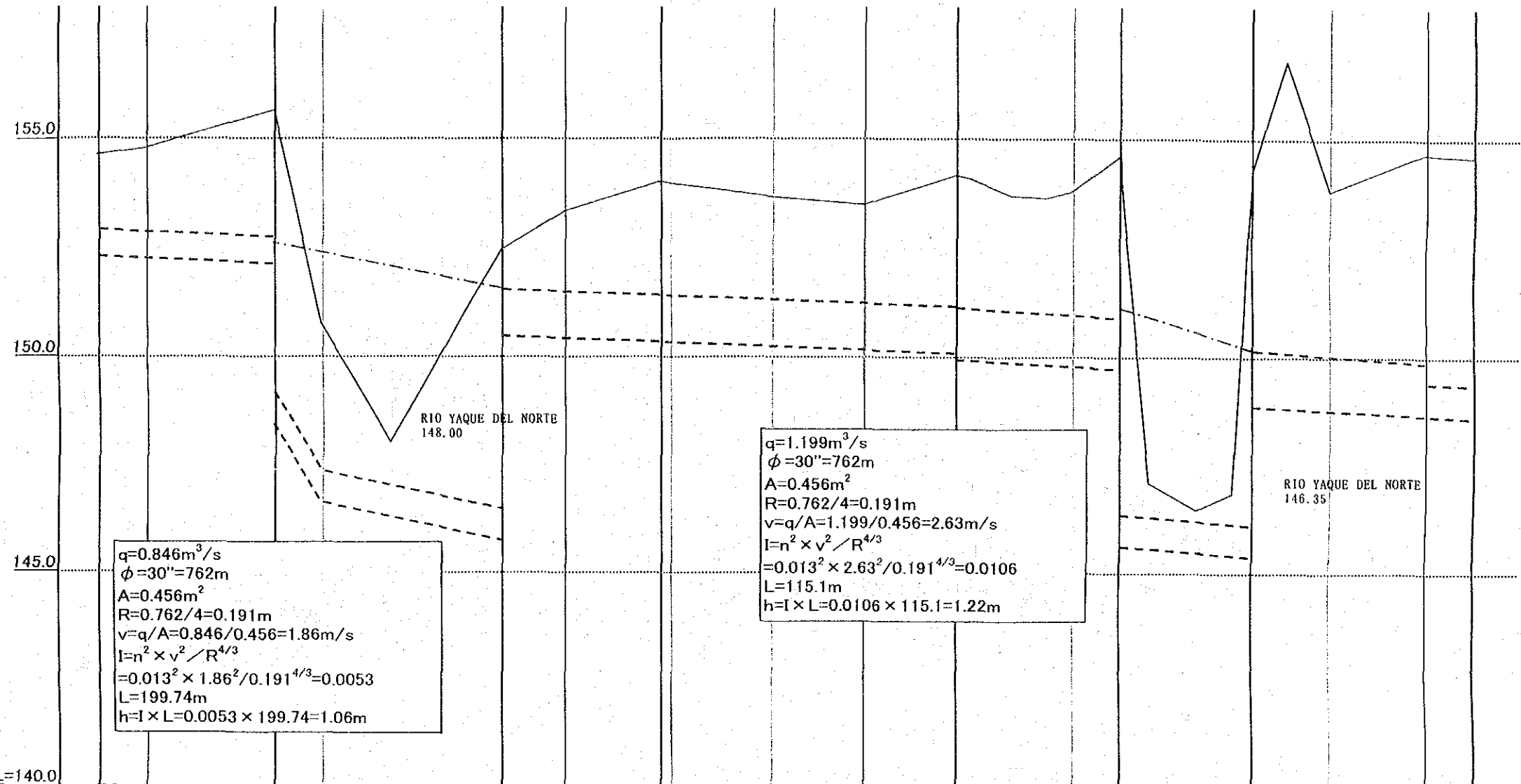
THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO	TITLE SEWER PROFILE, RAFEY SEWERAGE DISTRICT(3)
JAPAN INTERNATIONAL COOPERATION AGENCY	

Collector 10



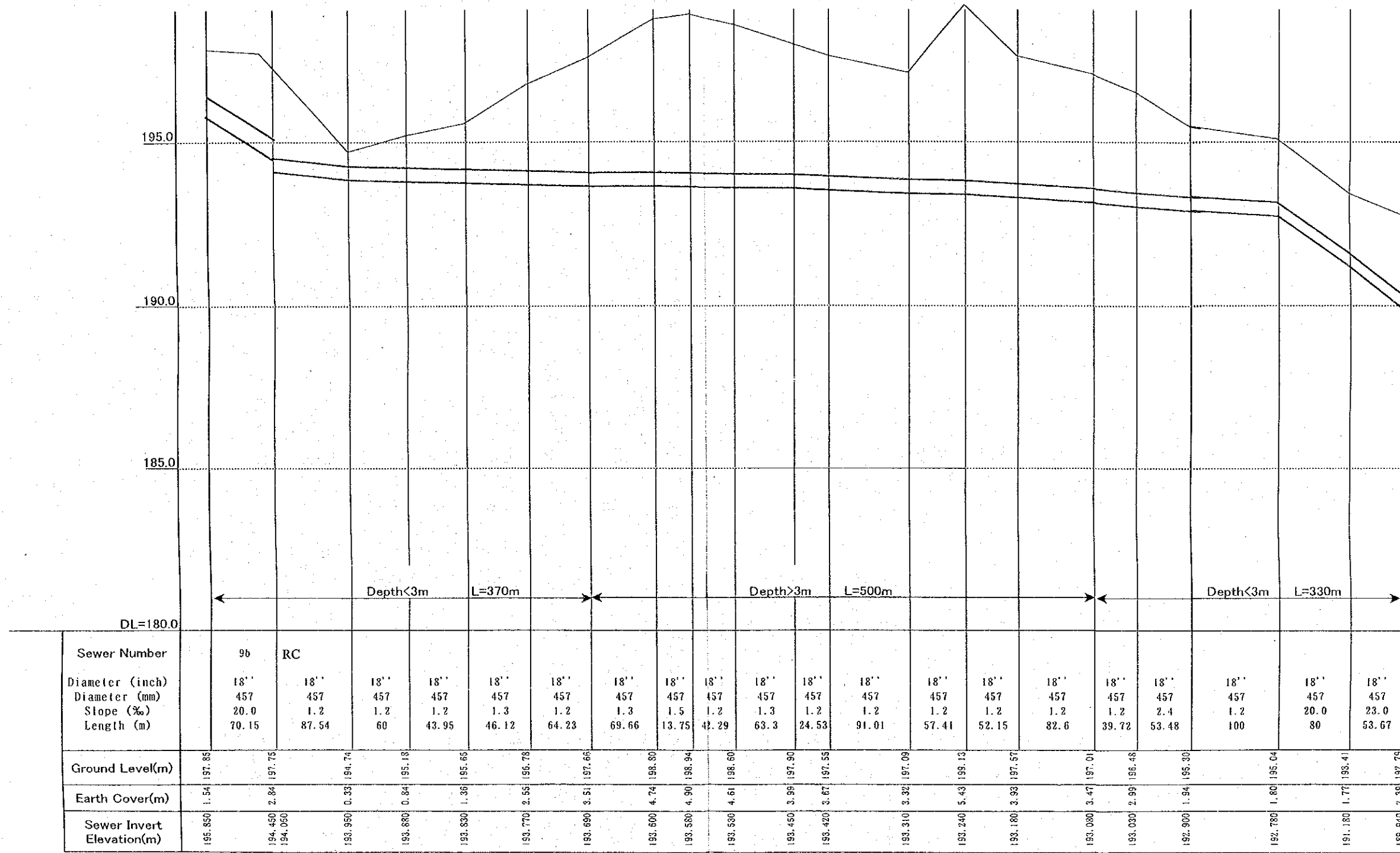
Sewer Number	12bh PE											
Diameter (inch)	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''	48''
Diameter (mm)	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
Slope (%)	1.1									7.5	7.5	7.5
Length (m)	120.57	62.17	53.56	58.24	84.37	84.37	98.86	149.6	50.46	62.43	75.93	
Ground Level(m)	168.060	167.930	166.31	163.59	163.35	164.04	164.15	162.35	159.77	159.84	158.11	155.88
Earth Cover(m)	7.24	7.93	6.22	4.55	4.37	5.13	5.32	3.82	4.15	4.60	3.34	1.88
Sewer Invert Elevation(m)	158.060	157.930	157.870	157.820	157.770	157.690	157.610	156.520	154.400	154.020	153.550	152.950

<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE SEWER PROFILE, RAFEY SEWERAGE DISTRICT(4)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

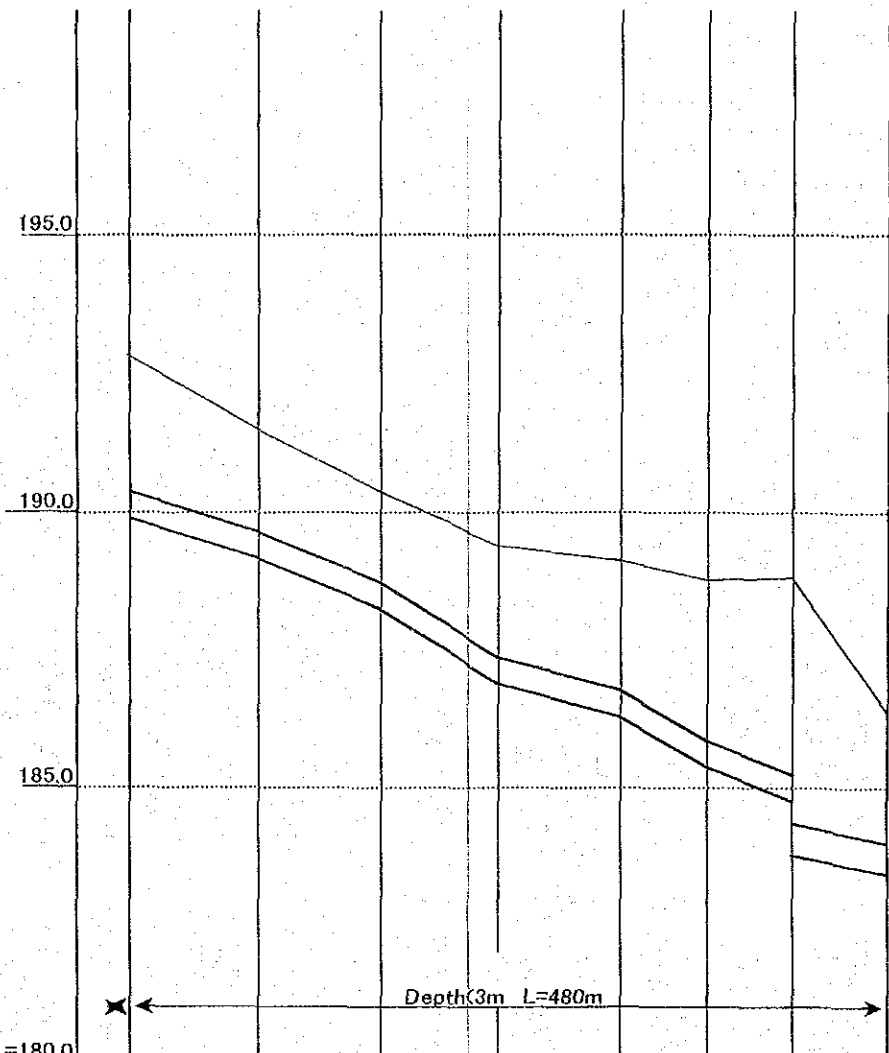


DL=140.0																
Sewer Number	12a		12b		12c		12d		12e		12f		12g			
Diameter (inch)	21''	21''	24''	24''	48''	48''	48''	48''	48''	48''	48''	30''	48''	48''	30''	
Diameter (mm)	533	533	610	610	1219	1219	1219	1219	1219	1219	1219	762	1219	1219	762	
Slope (%)	1.5	1.5	762	762	1219	1219	1219	1219	1219	1219	1219	610	1219	1219	762	
Length (m)	28	110.75	31.3	168.44	44.8	82.5	97.5	76.5	78.5	102.45	32.7	115.1	61.8	80	20	
Ground Level(m)	152.260	154.68	154.80	155.70	150.76	152.40	153.23	154.00	153.70	153.39	154.10	153.78	145.60	145.60	154.21	153.85
Earth Cover(m)	1.89	2.17	3.07	3.55	6.09	1.62	2.48	2.28	2.05	2.84	2.75	5.40	8.34	3.83	4.83	5.15
Sewer Invert Elevation(m)	152.260	152.100	152.100	148.400	146.600	145.700	150.430	150.390	150.300	150.200	150.120	150.040	149.910	149.810	149.780	145.600

THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE SEWER PROFILE, RAFEY SEWERAGE DISTRICT(S)
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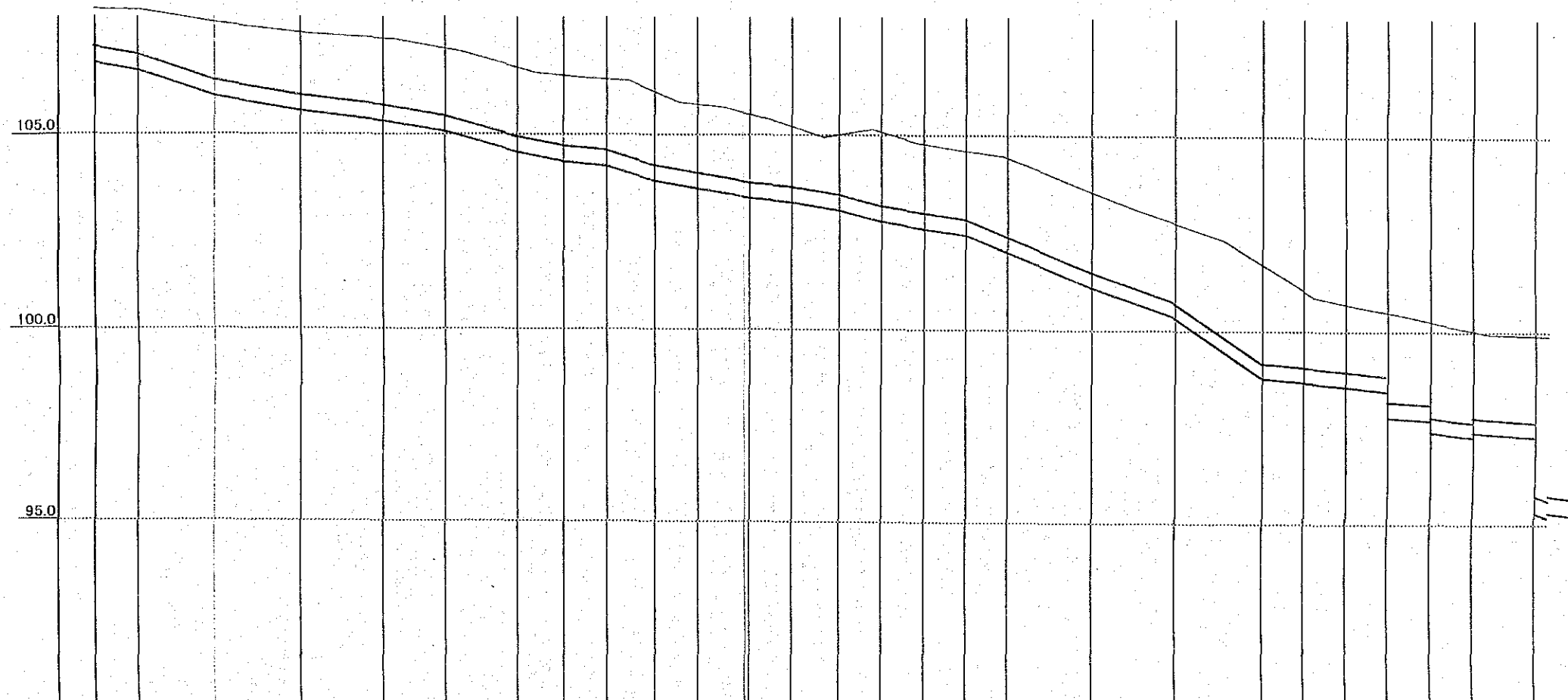


<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE SEWER PROFILE ,RAFEY SEWERAGE DISTRICT(6)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



Sewer Number	9c	RC					
Diameter (inch)	21''	21''	21''	21''	21''	21''	21''
Diameter (mm)	533	533	533	533	533	533	533
Slope (%)	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Length (m)	86.33	80	80	80	50	50	53.03
Ground Level(m)	189.840	189.080	188.280	186.800	186.260	185.260	184.760
Earth Cover(m)	2.32	1.87	1.48	1.95	2.23	2.92	3.55
Sewer Invert Elevation(m)	192.79	191.48	190.29	188.38	189.08	188.71	188.84
							183.740
							183.430

THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE SEWER PROFILE ,RAFEY SEWERAGE DISTRICT(7)
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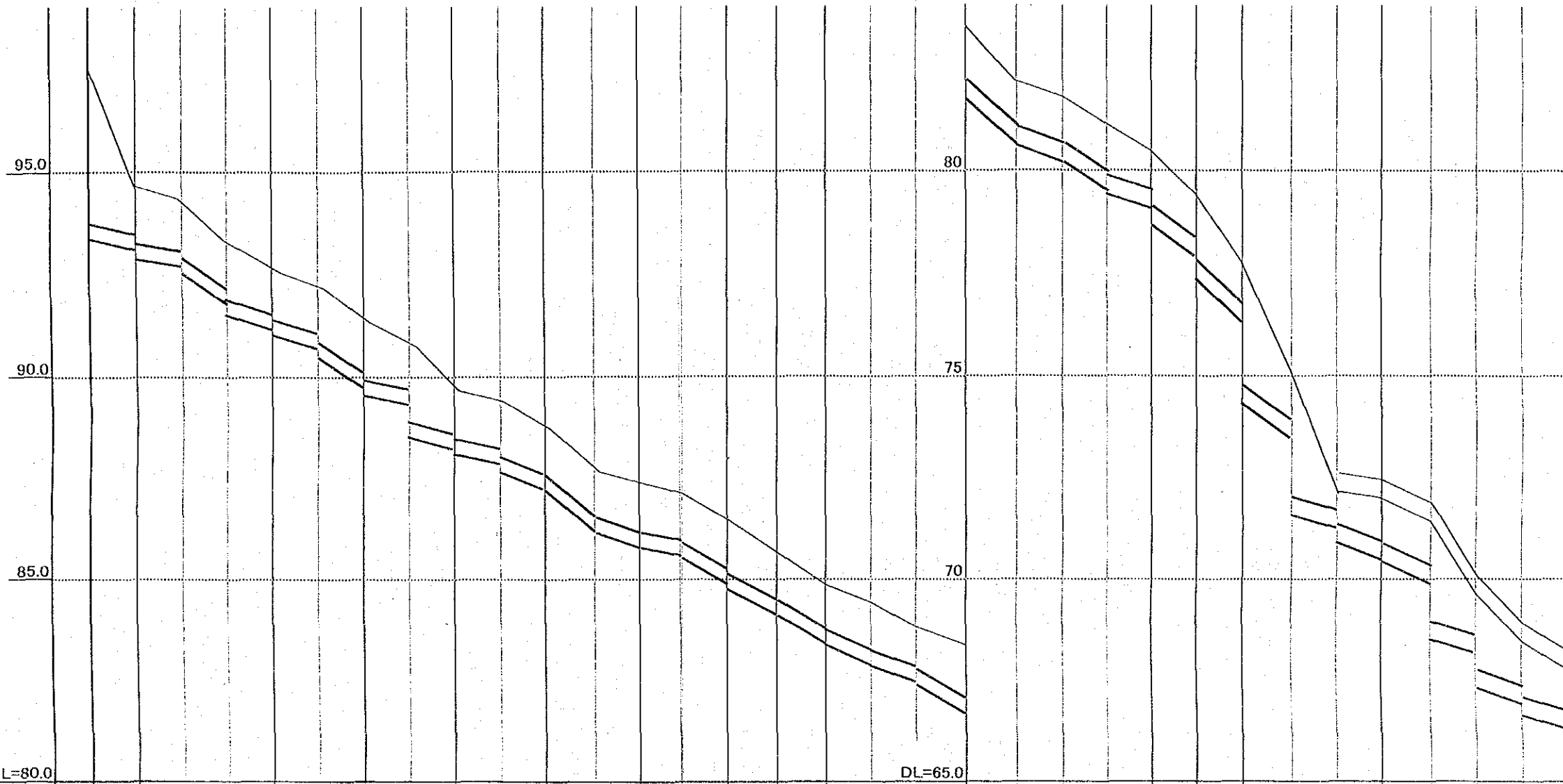


DL=90.0

Sewer Number	6ba	RC																									
Diameter (inch)	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	15''			
Diameter (mm)	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	381			
Slope (%)	40.0	4.0	4.0	4.0	4.2	7.5	9.4	5.0	8.0	6.0	9.3	5.0	5.0	14.0	3.8	15.0	14.0	12.0	10.0	17.0	5.0	4.0	10.0	10.0			
Length (m)	5.5	69.5	80	73.23	54.57	68.35	35.05	5.45	37.08	22.6	47.22	23.66	34.89	16.1	33.72	13.52	34.26	80	77.82	79.22	8.78	16.29	14.62	13.93	9.34		
Ground Level(m)	106.940	106.15	107.92	107.57	107.23	107.05	106.54	105.37	105.27	105.89	105.76	105.90	104.99	105.03	104.66	104.67	104.47	104.00	103.01	102.21	100.84	100.66	100.41	100.13	99.84	99.80	
Earth Cover(m)	0.94	1.13	1.70	1.70	1.70	1.70	1.70	1.56	1.79	1.70	1.70	1.49	1.70	1.76	1.70	1.70	1.70	1.70	1.70	1.71	1.57	1.39	2.26	2.00	2.11	2.25	
Sewer Invert Elevation(m)	106.940	106.720	105.920	105.570	105.280	105.050	104.540	104.210	104.180	103.890	103.760	103.900	103.200	103.030	102.800	102.670	102.470	102.000	101.010	100.210	98.830	98.790	98.720	98.570	97.830	97.700	97.370

<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE SEWER PROFILE ,RAFEY SEWERAGE DISTRICT(8)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

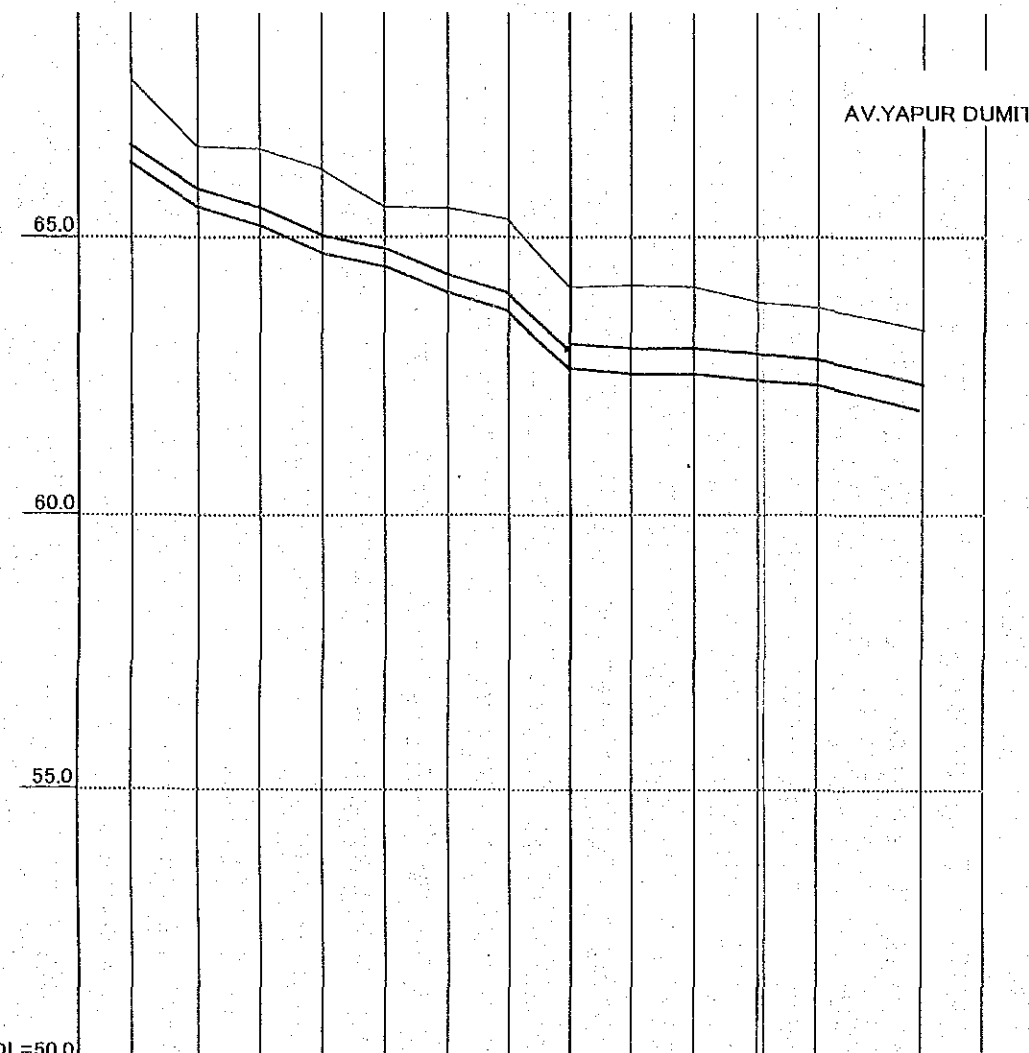




Sewer Number	4-1		PE																																																														
Diameter (inch)	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''	12''																										
Diameter (mm)	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305	305																										
Slope (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0																									
Length (m)	7.5	7.5	28.63	16.6	12.39	24.38	11.5	8.97	7.74	19.04	35.95	5.95	11.8	18.16	28.5	20.68	17.9	15.52	21.08	34.68	13.8	20.28	10.35	22.34	35.02	20.87	14.56	14.56	16.5	8.14	8.03	14.9																																	
Ground Level(m)	95.630	93.335	93.110	92.975	92.750	92.559	91.700	91.588	91.050	91.012	90.640	90.481	89.750	89.675	89.330	88.439	88.170	88.032	87.800	87.771	87.200	87.149	86.070	86.059	85.880	85.864	85.510	85.485	84.940	84.895	84.040	84.010	83.390	83.367	82.830	82.806	82.340	82.312	81.680	81.630	80.590	80.574	80.160	80.128	79.520	79.331	79.020	78.610	77.940	77.301	76.950	74.206	73.580	71.637	71.300	70.937	70.500	70.395	69.900	68.884	68.140	67.211	66.970	66.697	66.250
Earth Cover(m)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.40	1.20	1.40	1.20	1.20	1.20	1.20	1.20	1.20	1.20	0.60	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20					
Sewer Invert Elevation(m)	95.830	93.535	93.310	92.975	92.750	92.559	91.700	91.588	91.050	91.012	90.640	90.481	89.750	89.675	89.330	88.439	88.170	88.032	87.800	87.771	87.200	87.149	86.070	86.059	85.880	85.864	85.510	85.485	84.940	84.895	84.040	84.010	83.390	83.367	82.830	82.806	82.340	82.312	81.680	81.630	80.590	80.574	80.160	80.128	79.520	79.331	79.020	78.610	77.940	77.301	76.950	74.206	73.580	71.637	71.300	70.937	70.500	70.395	99.900	68.884	68.140	67.211	66.970	66.697	66.250

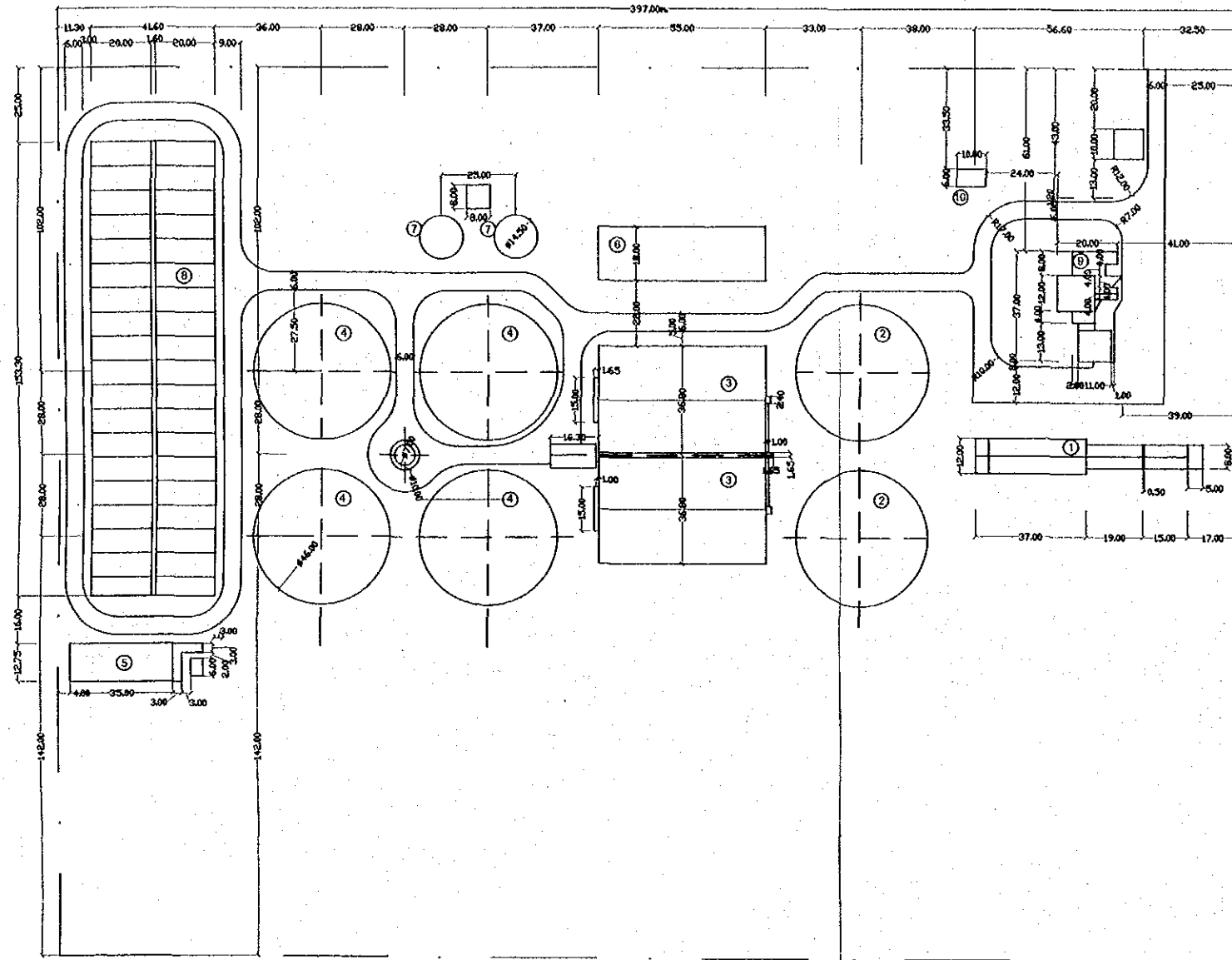
THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE SYSTEM  
AND ENVIRONMENT  
IN THE CITY OF SANTIAGO  
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE  
SEWER PROFILE, ZONA SUR SEWERAGE DISTRICT(1)



Sewer Number									4-2	PE				
Diameter (inch)	12''	12''	12''	12''	12''	12''	12''	12''	21''	21''	21''	21''	21''	21''
Diameter (mm)	305	305	305	305	305	305	305	305	533	533	533	533	533	533
Slope (%)	25.1	24.8	25.0	11.6	24.8	25.1	74.2	3.0	3.1	5.1	4.8	4.9	6.3	
Length (m)	30.31	13.71	18.41	12.03	16.93	9.15	6.6	30.01	16	29.59	26.95	63		
Ground Level(m)	67.75	66.99	66.65	66.15	65.89	65.47	65.24	64.15	64.06	64.01	63.66	63.73	63.42	
Earth Cover(m)	1.20	1.20	1.20	1.16	1.20	1.20	1.20	1.20	0.97	0.97	0.97	0.97	0.97	
Sewer Invert Elevation(m)	66.250	65.490	65.150	64.690	64.390	63.970	63.740	62.650	62.560	62.510	62.360	62.230	61.920	

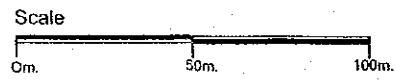
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE SEWER PROFILE ,ZONA SUR SEWERAGE DISTRICT(2)</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



**LEGEND**

- 1- Preliminary Facility  
Pumps, Screens, Grit Chamber
- 2- Primary Sedimentation Tank
- 3- Aeration Tank
- 4- Final Sedimentation Tank
- 5- Chlorine Contact Tank
- 6- Aerobic Sludge Digester
- 7- Sludge Thickener
- 8- Sludge Drying Sand Bed
- 9- Administration Building
- 10- Generator Building

— Boundary



THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE  
SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO

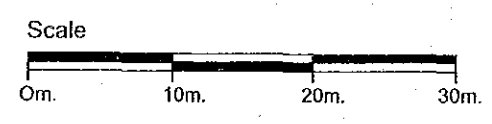
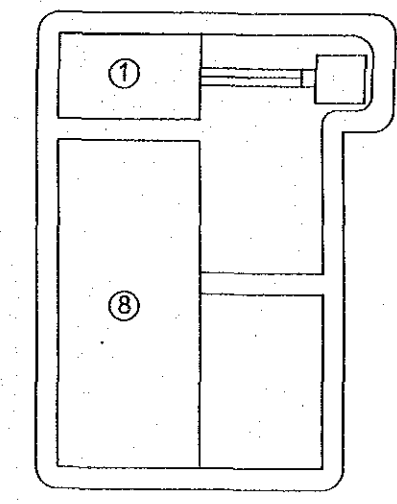
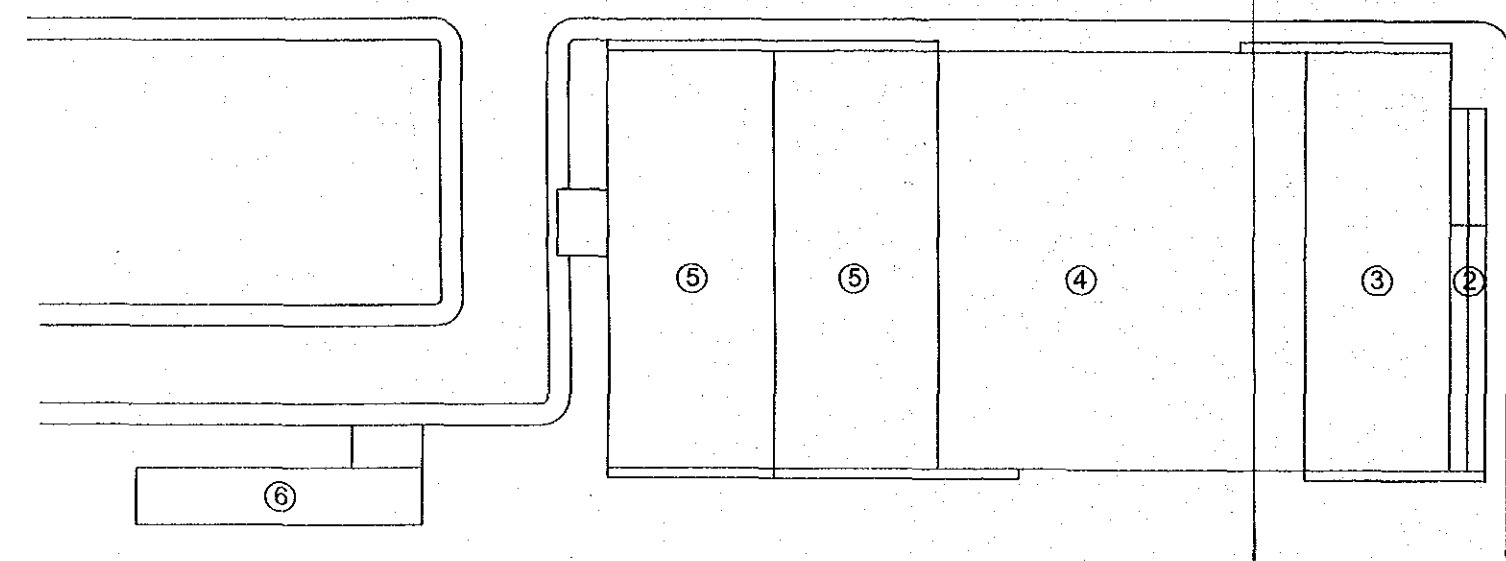
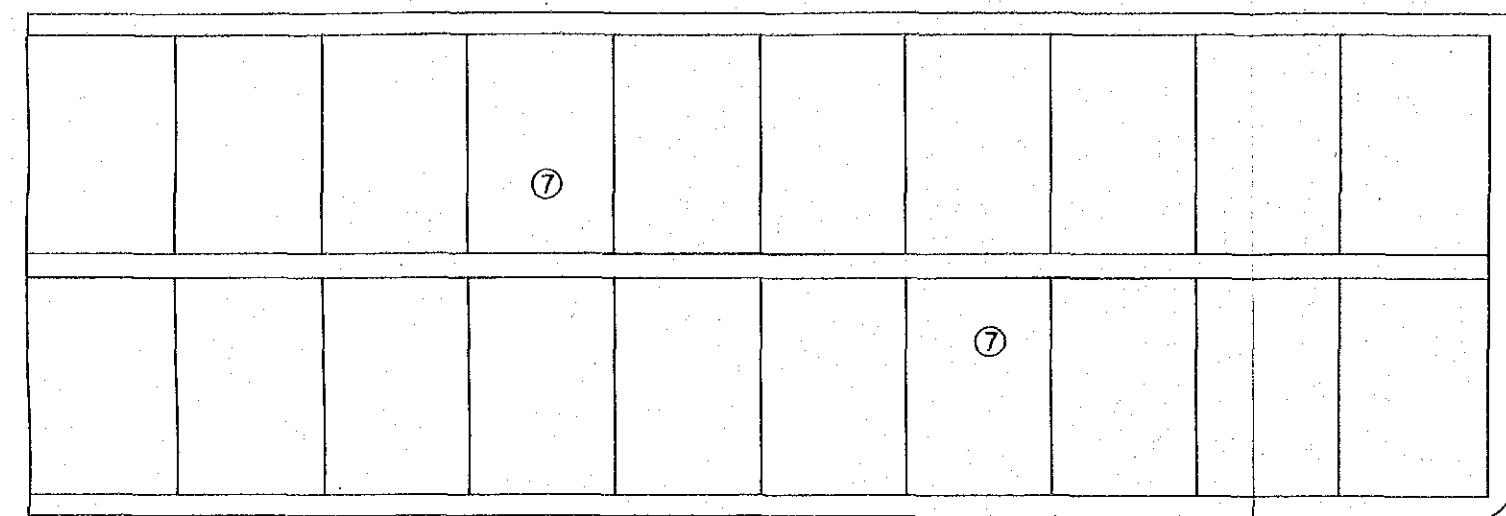
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE  
General Layout of Rafey Wastewater Treatment Plant



### LEGEND

- 1- Influent Pumping Station, Generator Building
- 2- Screen, Grit Chamber
- 3- Primary Sedimentation Tank
- 4- Aeration Tank
- 5- Final Sedimentation Tank
- 6- Chlorine Contact Tank
- 7- Sludge Drying Sand Bed
- 8- Administration Building

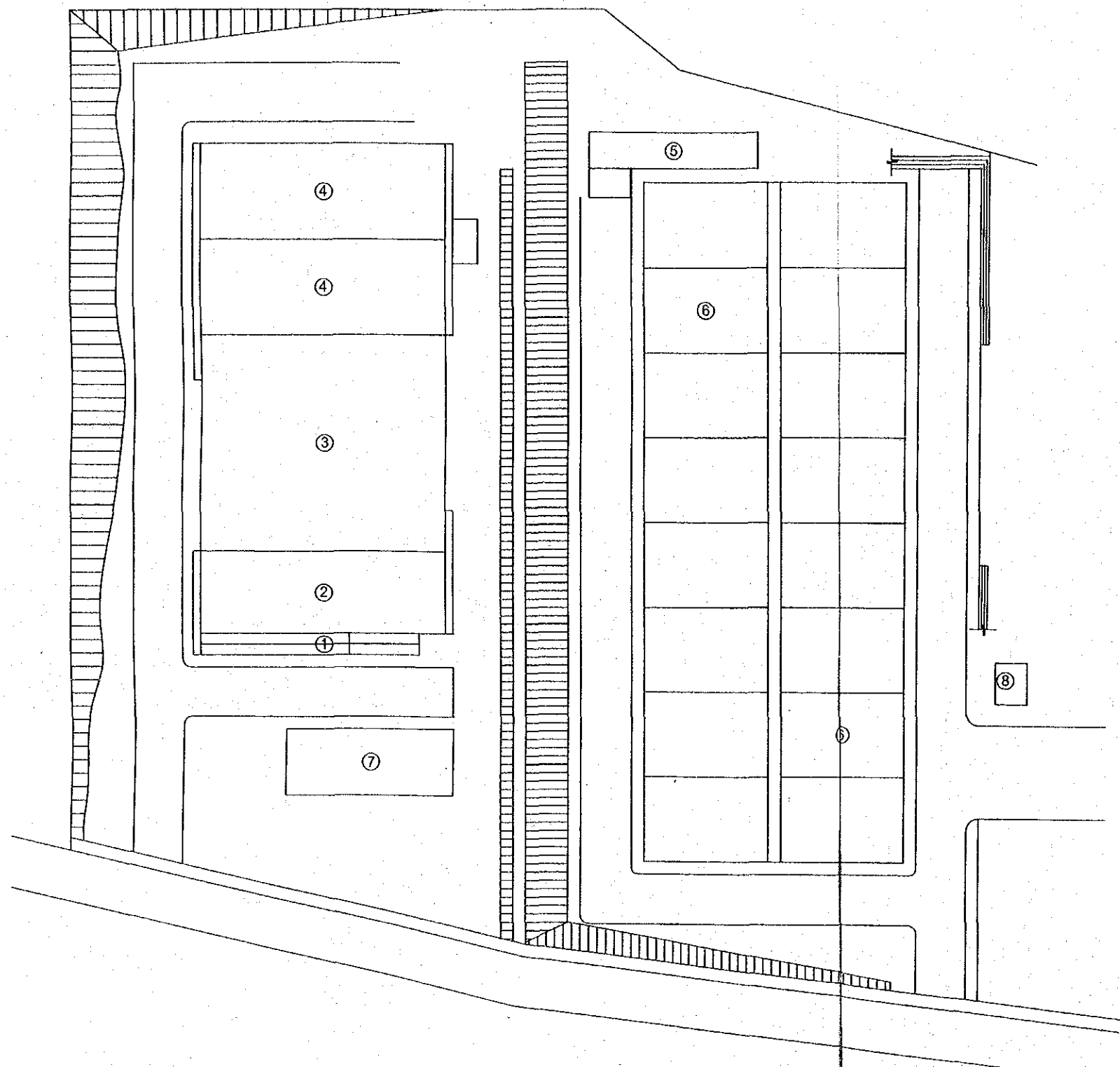


THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE  
SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO

JAPAN INTERNATIONAL COOPERATION AGENCY

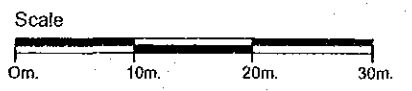
TITLE

General Layout of Cienfuegos Wastewater  
Treatment Plant



**LEGEND**

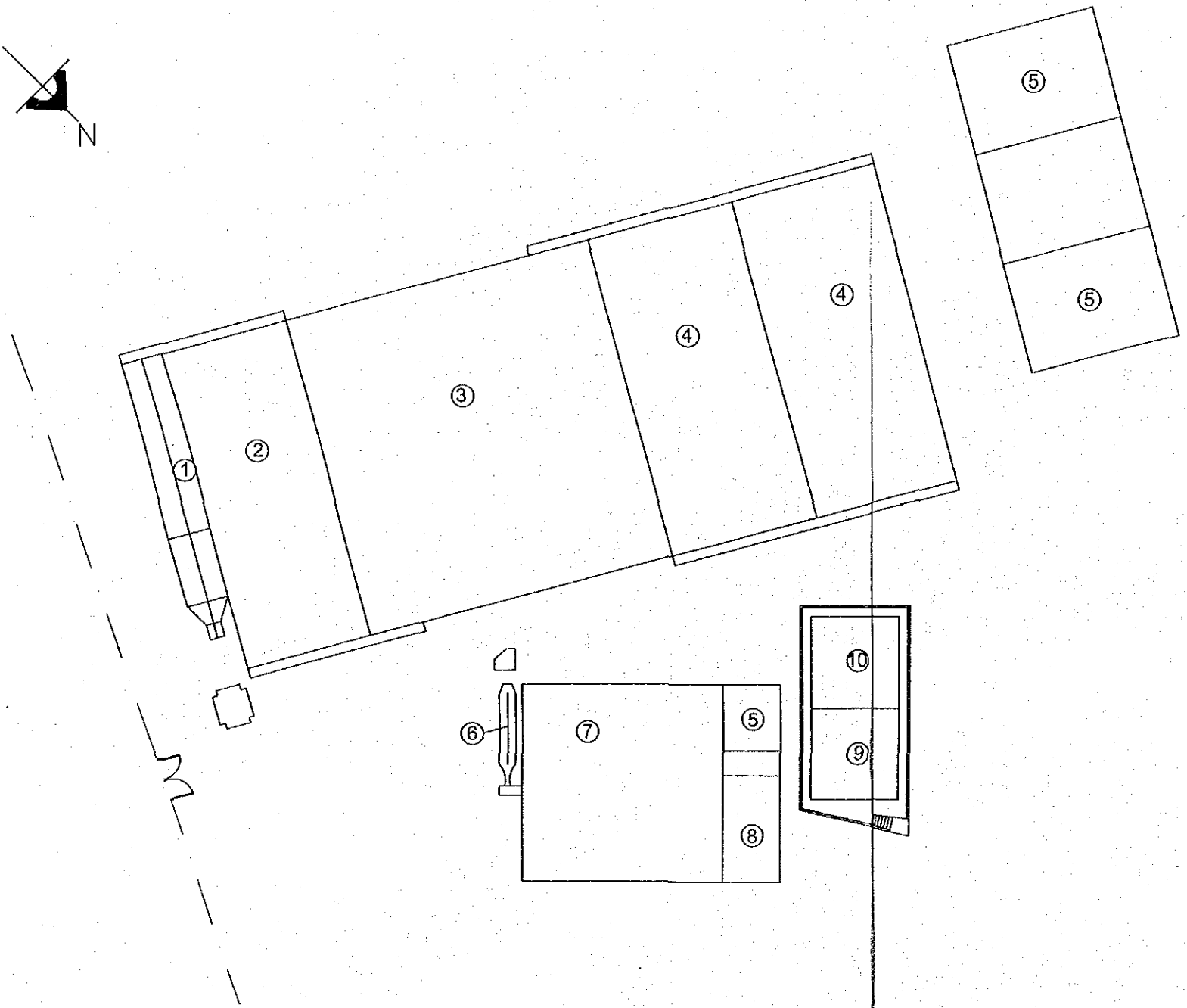
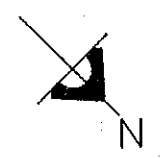
- 1- Screen, Grit Chamber
- 2- Primary Sedimentation Tank
- 3- Aeration Tank
- 4- Final Sedimentation Tank
- 5- Chlorine Contact Tank
- 6- Sludge Drying Sand Bed
- 7- Administration Building
- 8- Generator Building



THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE  
SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO

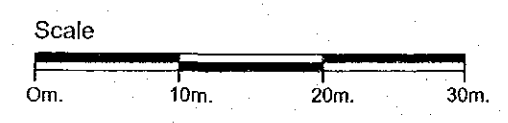
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE  
General Layout of Los Salados Wastewater  
Treatment Plant

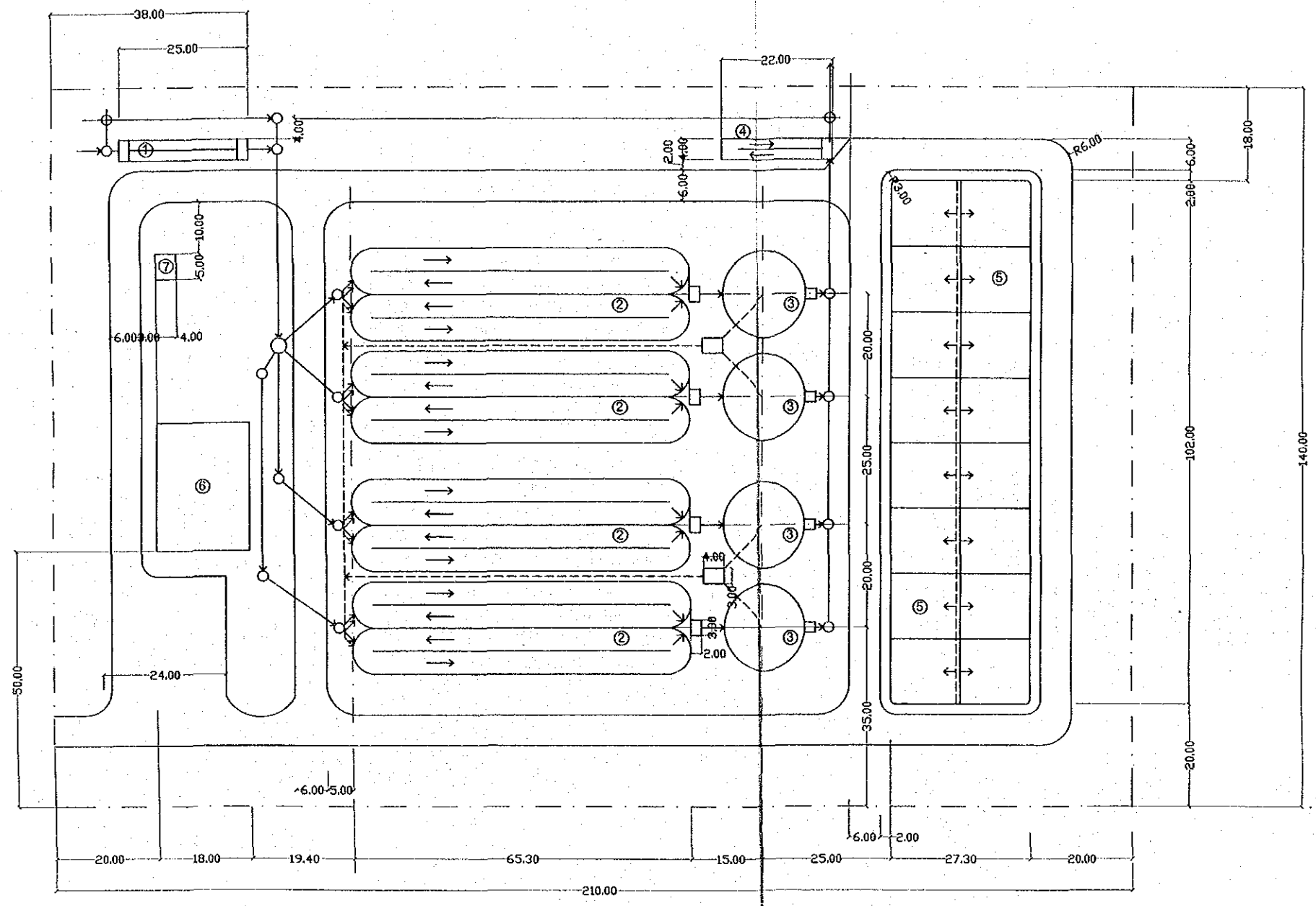


**LEGEND**

- NEW WWTP**
- 1- Screen, Grit Chamber
  - 2- Primary Sedimentation Tank
  - 3- Aeration Tank
  - 4- Final Sedimentation Tank
  - 5- Sludge Drying Sand Bed
- OLD WWTP**
- 6- Screen, Crit Chamber
  - 7- Aeration Tank
  - 8- Final Sedimentation Tank
  - 9- Administration Building

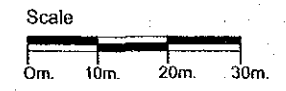


<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE General Layout of Embrujo Wastewater Treatment Plant</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



**LEGEND**

- 1- Screen, Grit Chamber
  - 2- Oxidation Ditches
  - 3- Final Sedimentation Tank
  - 4- Chlorine Contact Tank
  - 5- Sludge Drying Sand Bed
  - 6- Administration Building
  - 7- Generator Building
- > Liquid Flow  
 - - - -> Sludge Flow  
 - - - - Boundary

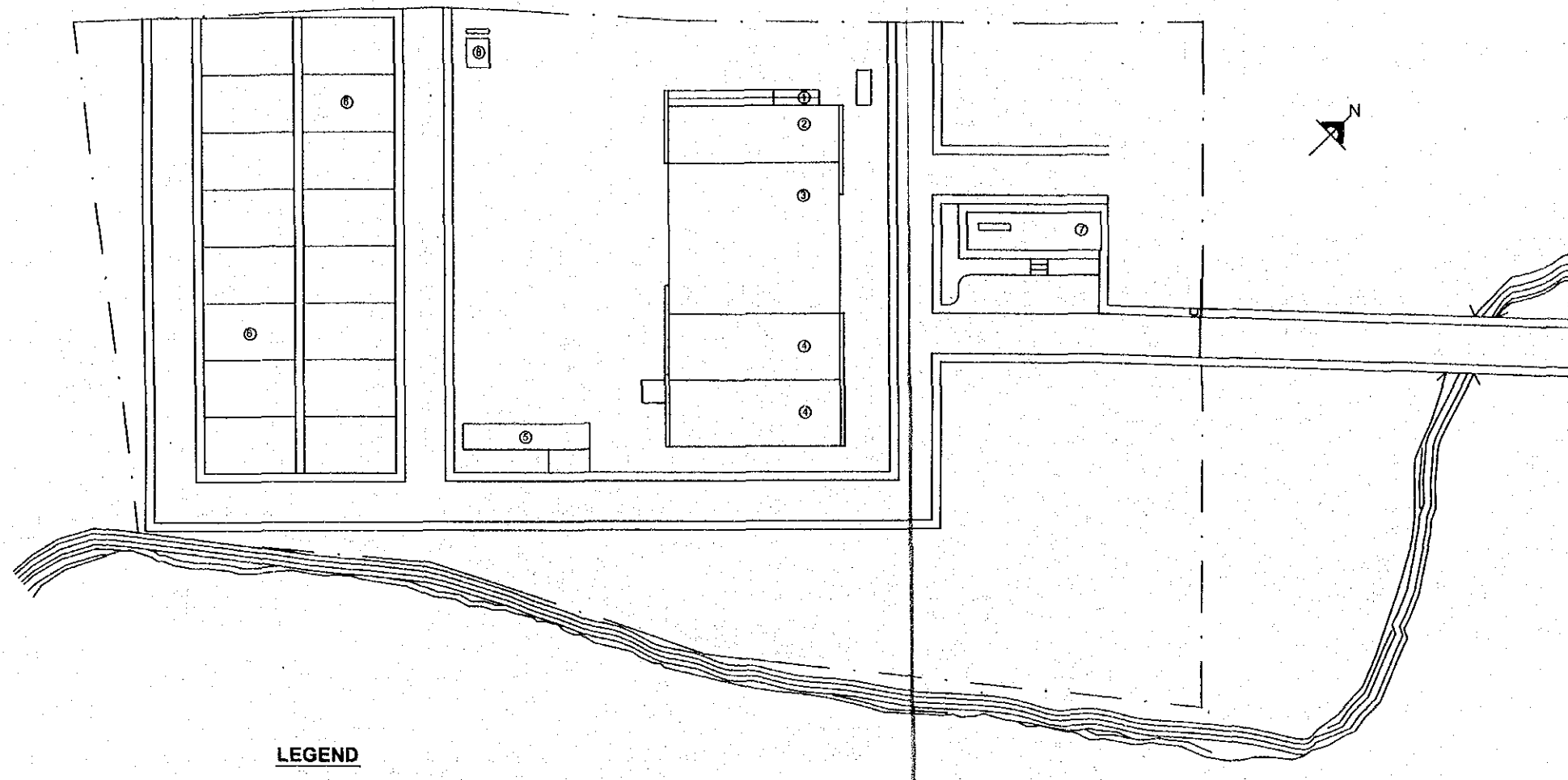


THE STUDY ON  
 THE IMPROVEMENT OF SEWERAGE  
 SYSTEM AND ENVIRONMENT  
 IN THE CITY OF SANTIAGO

JAPAN INTERNATIONAL COOPERATION AGENCY

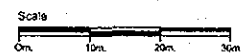
TITLE

Zona Sur Wastewater Treatment Plant, Layout Plan



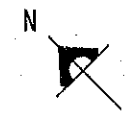
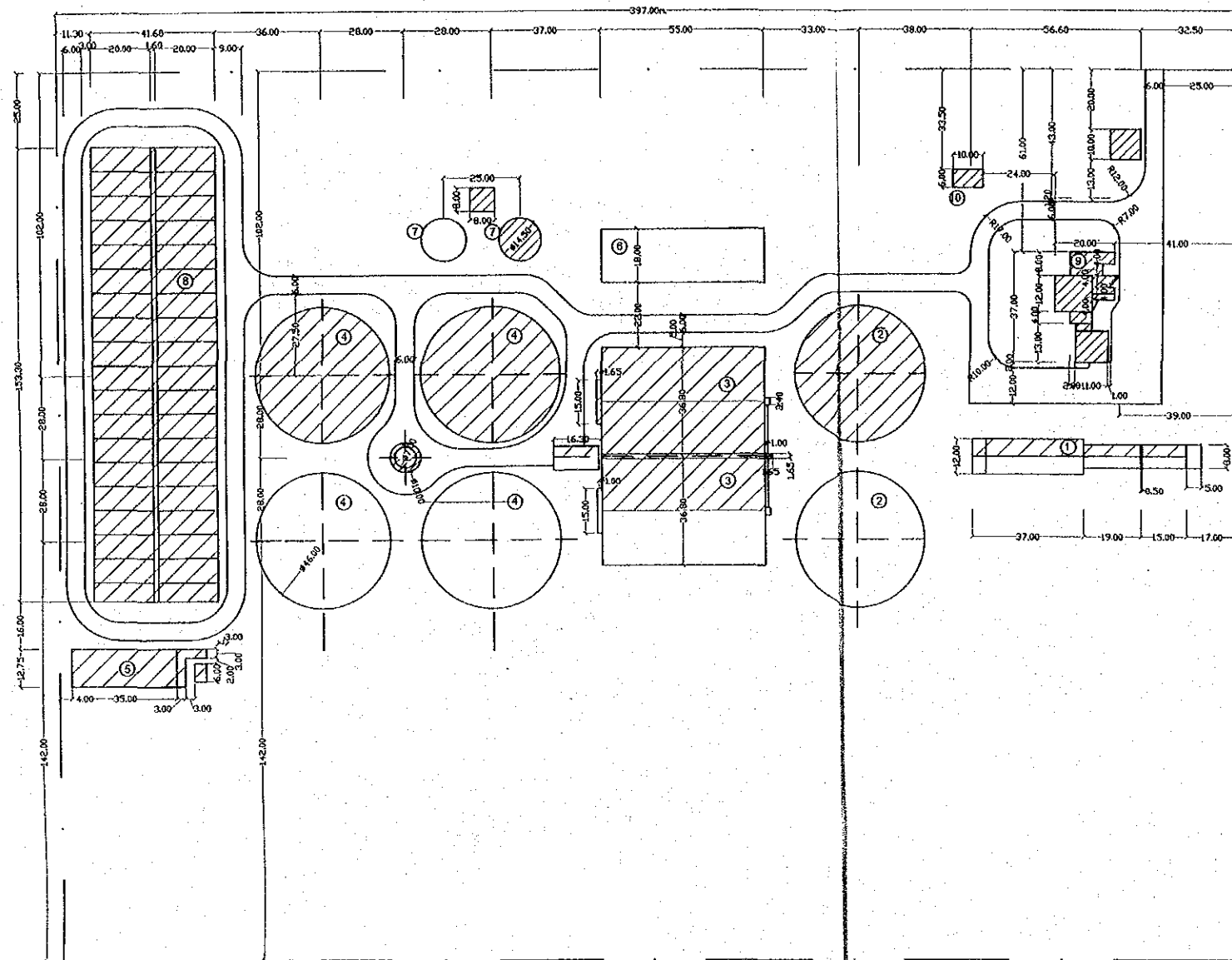
**LEGEND**

- 1- Screen, Grit Chamber
- 2- Primary Sedimentation Tank
- 3- Aeration Tank
- 4- Final Sedimentation Tank
- 5- Chlorine Contact Tank
- 6- Sludge Drying Sand Bed
- 7- Administration Building
- 8- Generator Building



<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE General Layout of Tamboril Wastewater Treatment Plant</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

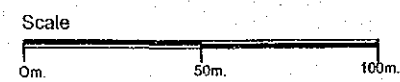




**LEGEND**

- 1- Preliminary Facility  
Pumps, Screens, Grit Chamber
- 2- Primary Sedimentation Tank
- 3- Aeration Tank
- 4- Final Sedimentation Tank
- 5- Chlorine Contact Tank
- 6- Aerobic Sludge Digester
- 7- Sludge Thickener
- 8- Sludge Drying Sand Bed
- 9- Administration Building
- 10- Generator Building

- — — Boundary
- First Stage
- Second/Third Stages

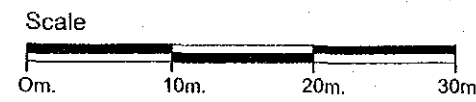
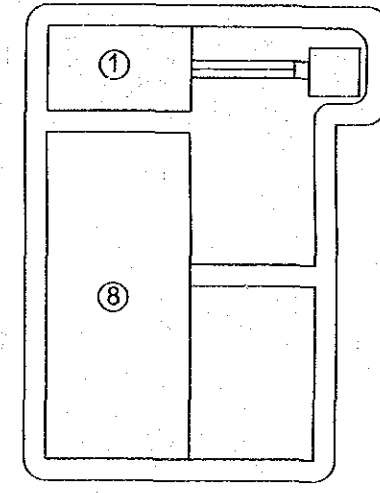
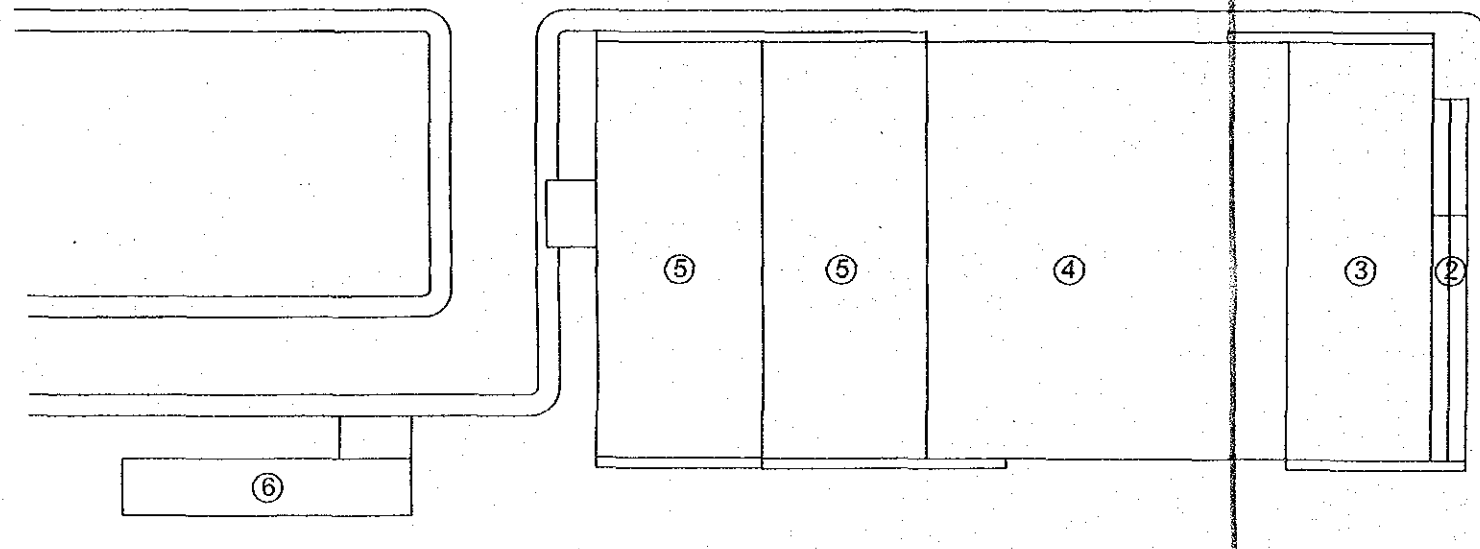
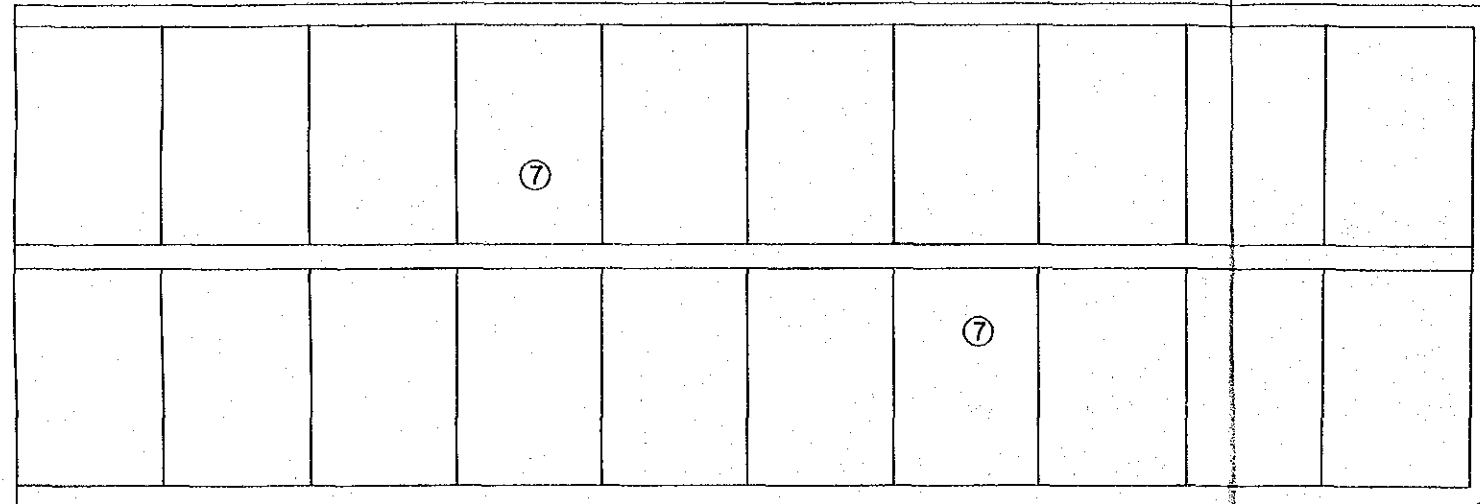


<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE  Rafay Wastewater Treatment Plant Layout</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

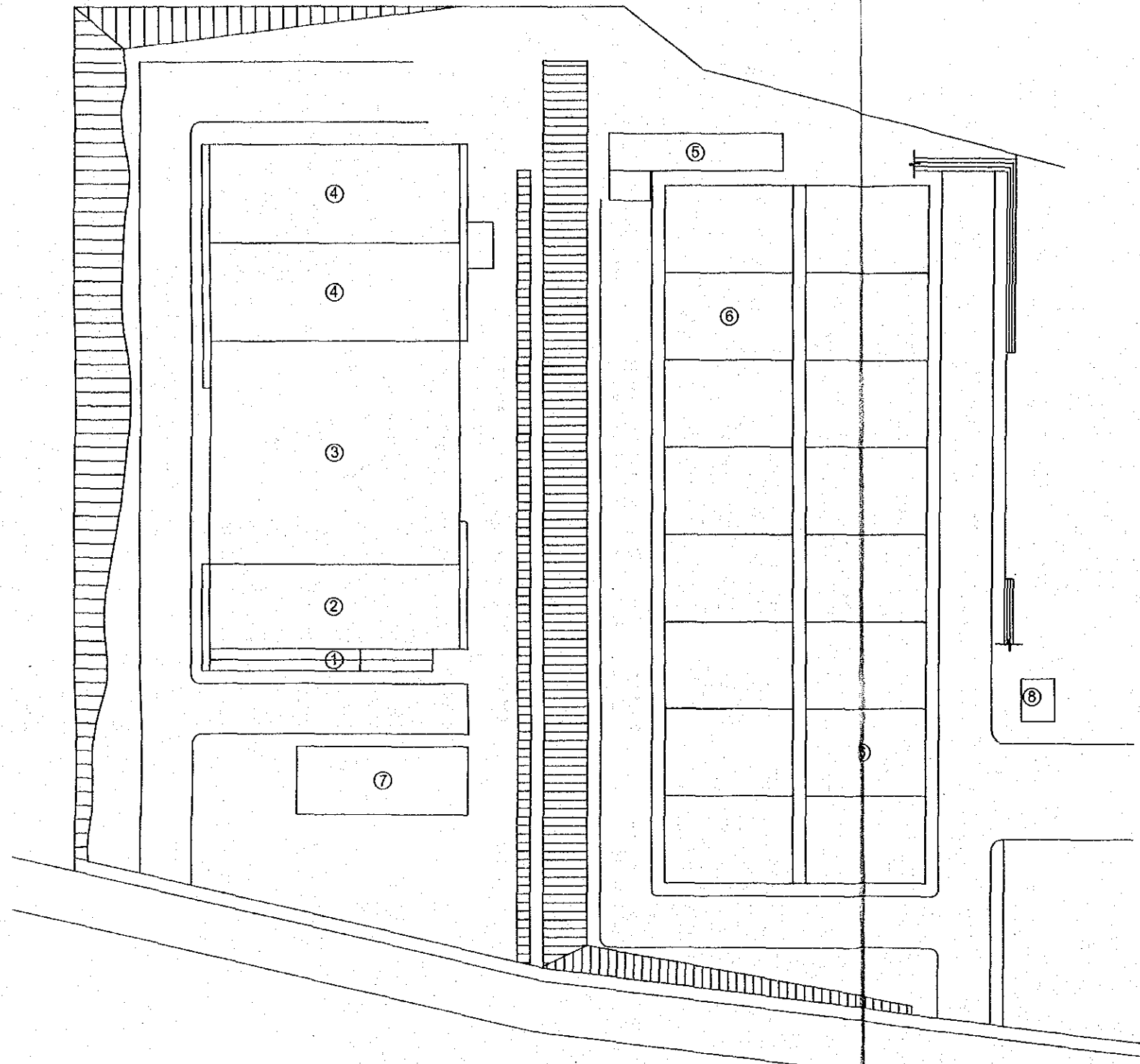


**LEGEND**

- 1- Influent Pumping Station, Generator Building
- 2- Screen, Grit Chamber
- 3- Primary Sedimentation Tank
- 4- Aeration Tank
- 5- Final Sedimentation Tank
- 6- Chlorine Contact Tank
- 7- Sludge Drying Sand Bed
- 8- Administration Building

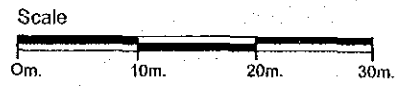


THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO	TITLE  Cienfuegos Wastewater Treatment Plant Layout
JAPAN INTERNATIONAL COOPERATION AGENCY	

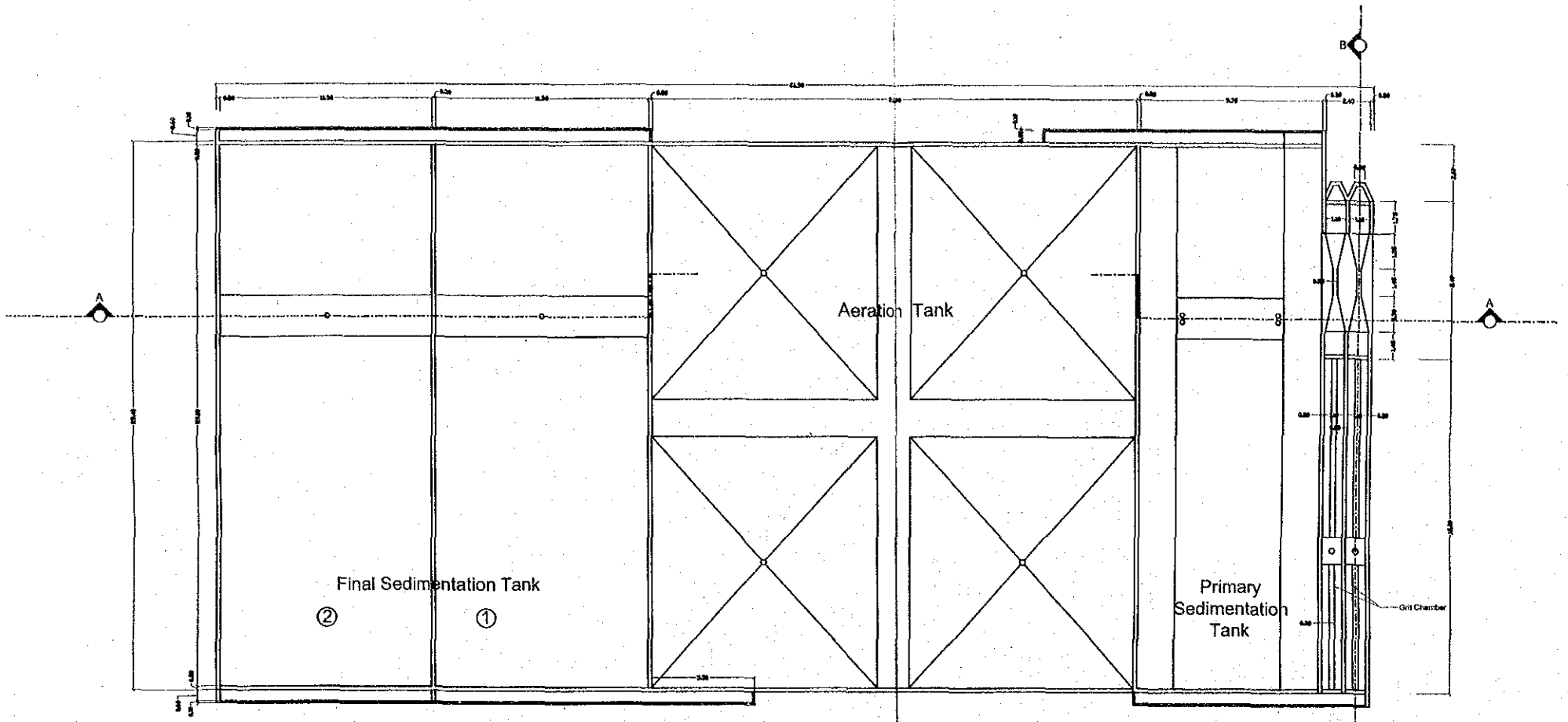


**LEGEND**

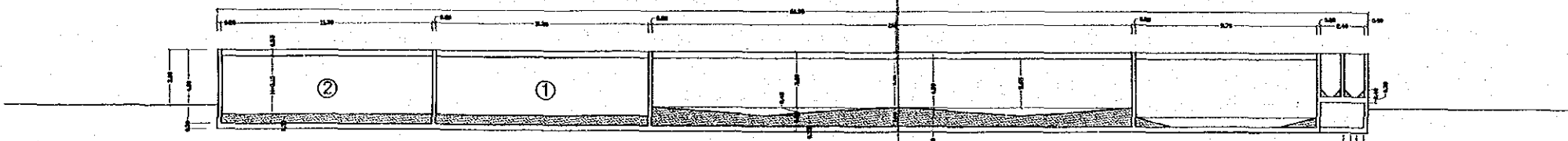
- 1- Screen, Grit Chamber
- 2- Primary Sedimentation Tank
- 3- Aeration Tank
- 4- Final Sedimentation Tank
- 5- Chlorine Contact Tank
- 6- Sludge Drying Sand Bed
- 7- Administration Building
- 8- Generator Building



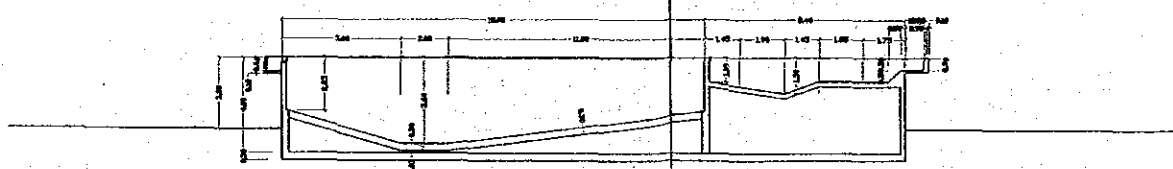
THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO	TITLE Los Salados Wastewater Treatment Plant Layout
JAPAN INTERNATIONAL COOPERATION AGENCY	



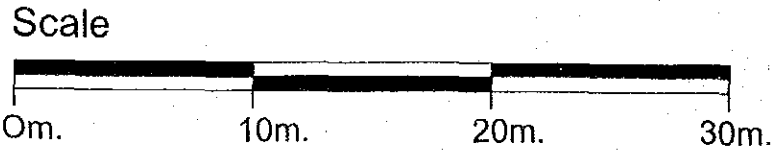
PLANT



SECTION A-A'



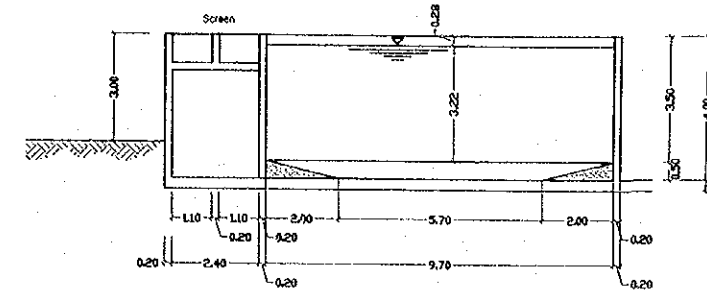
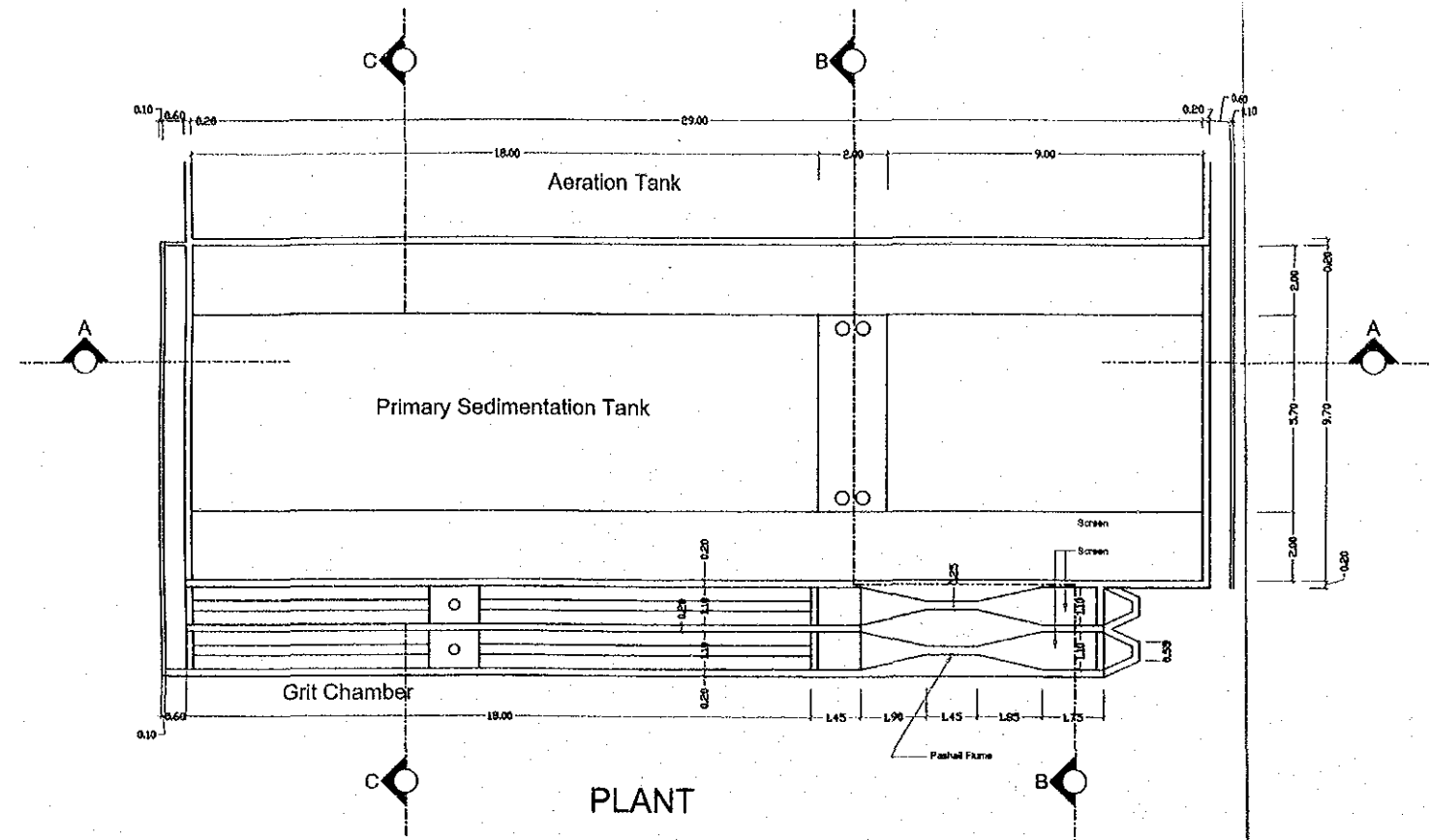
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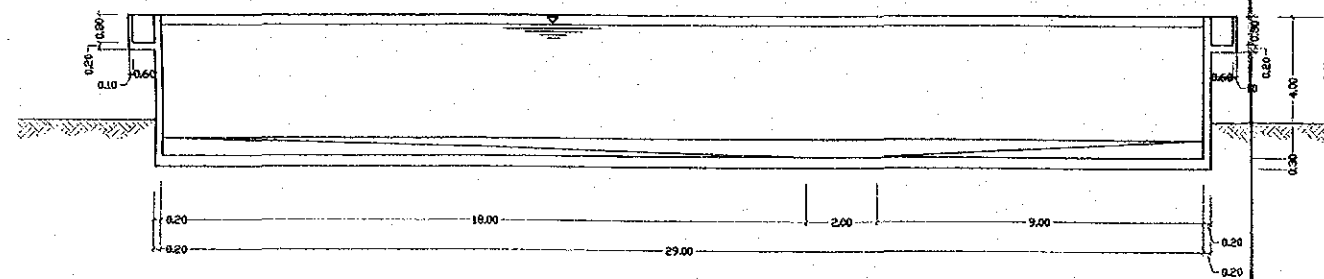
THE STUDY ON  
THE IMPROVEMENT OF SEWERAGE  
SYSTEM AND ENVIRONMENT  
IN THE CITY OF SANTIAGO

JAPAN INTERNATIONAL COOPERATION AGENCY

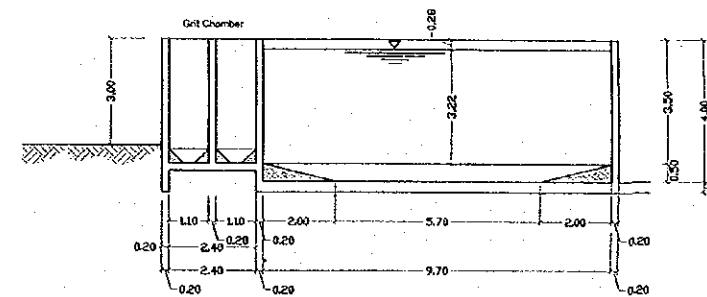
TITLE  
Cienfuegos/Los Salados WWTPS, Existing Facilities



SECTION B-B'

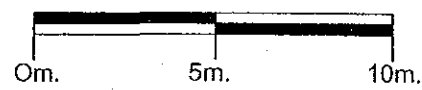


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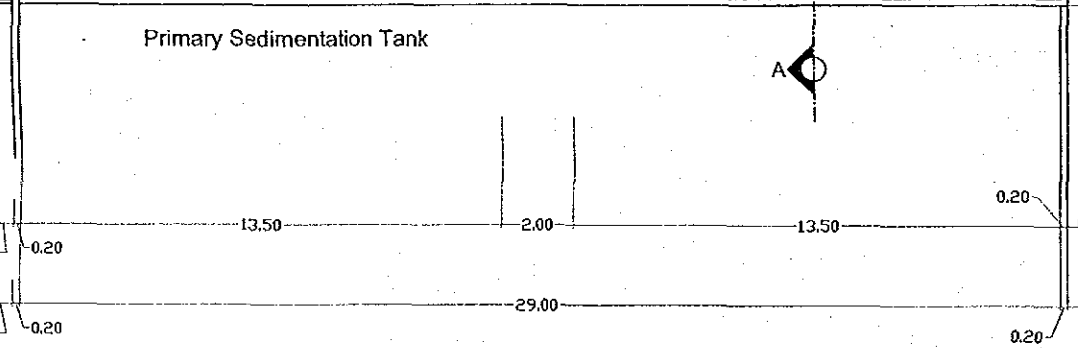
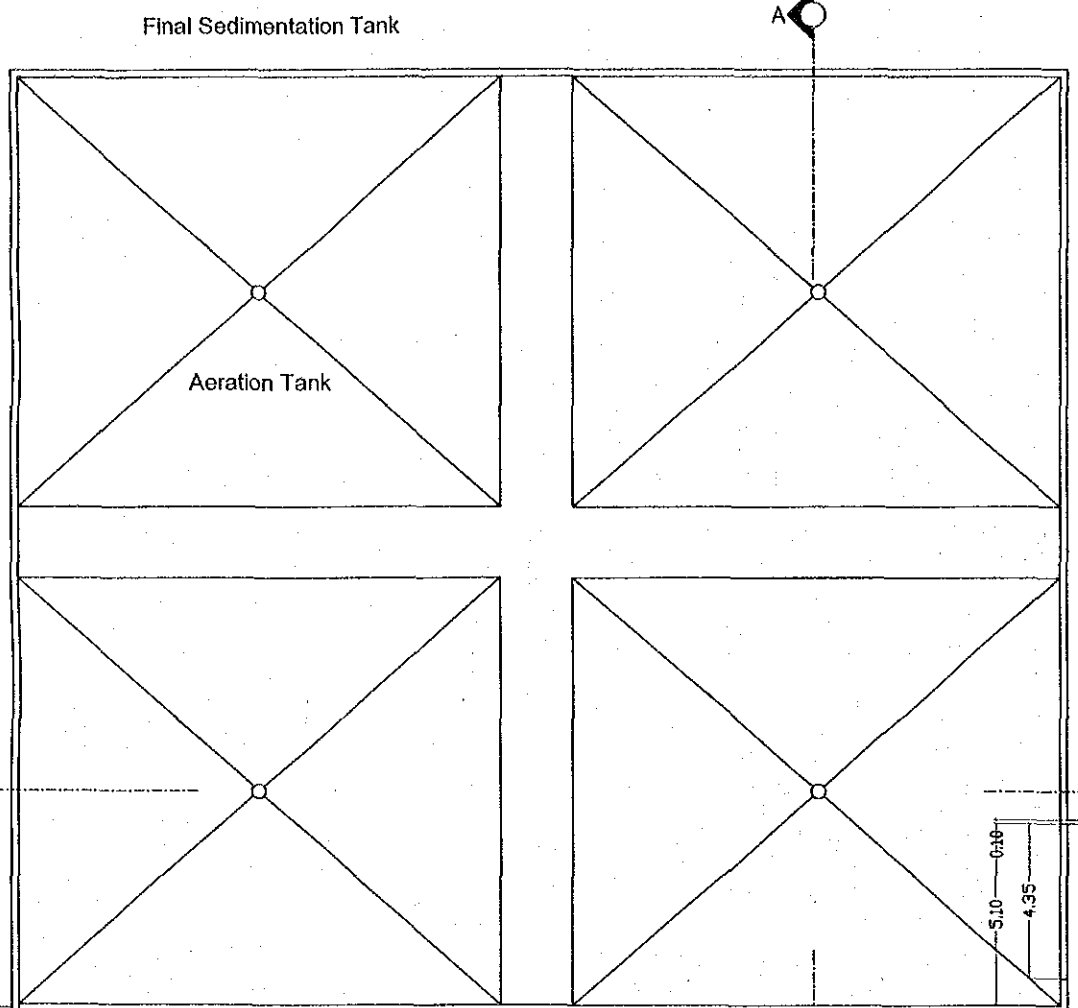


SECTION C-C'

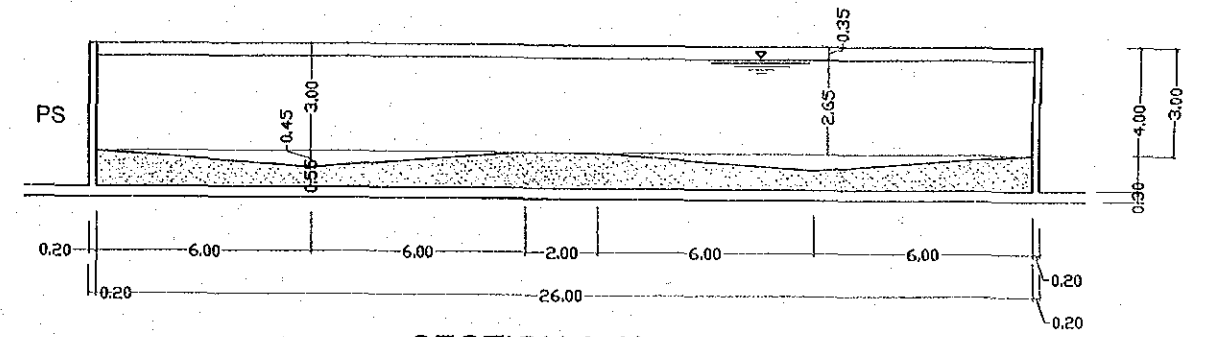
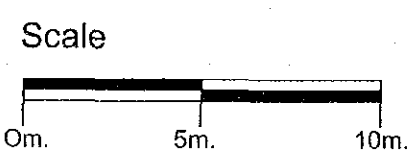
Scale



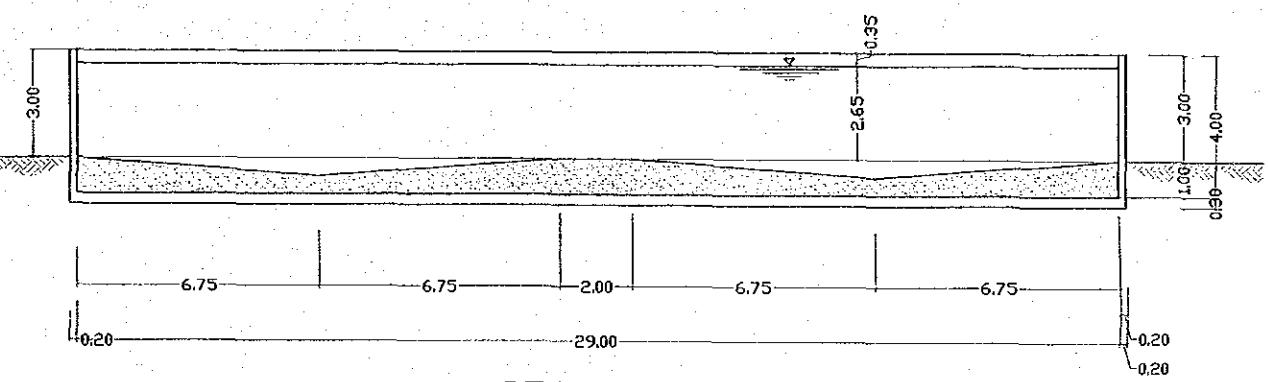
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Configuration of Primary Sedimentation Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



0.10  
0.60  
0.20  
13.50  
2.00  
13.50  
29.00  
0.20  
0.60  
0.10  
0.20  
0.70

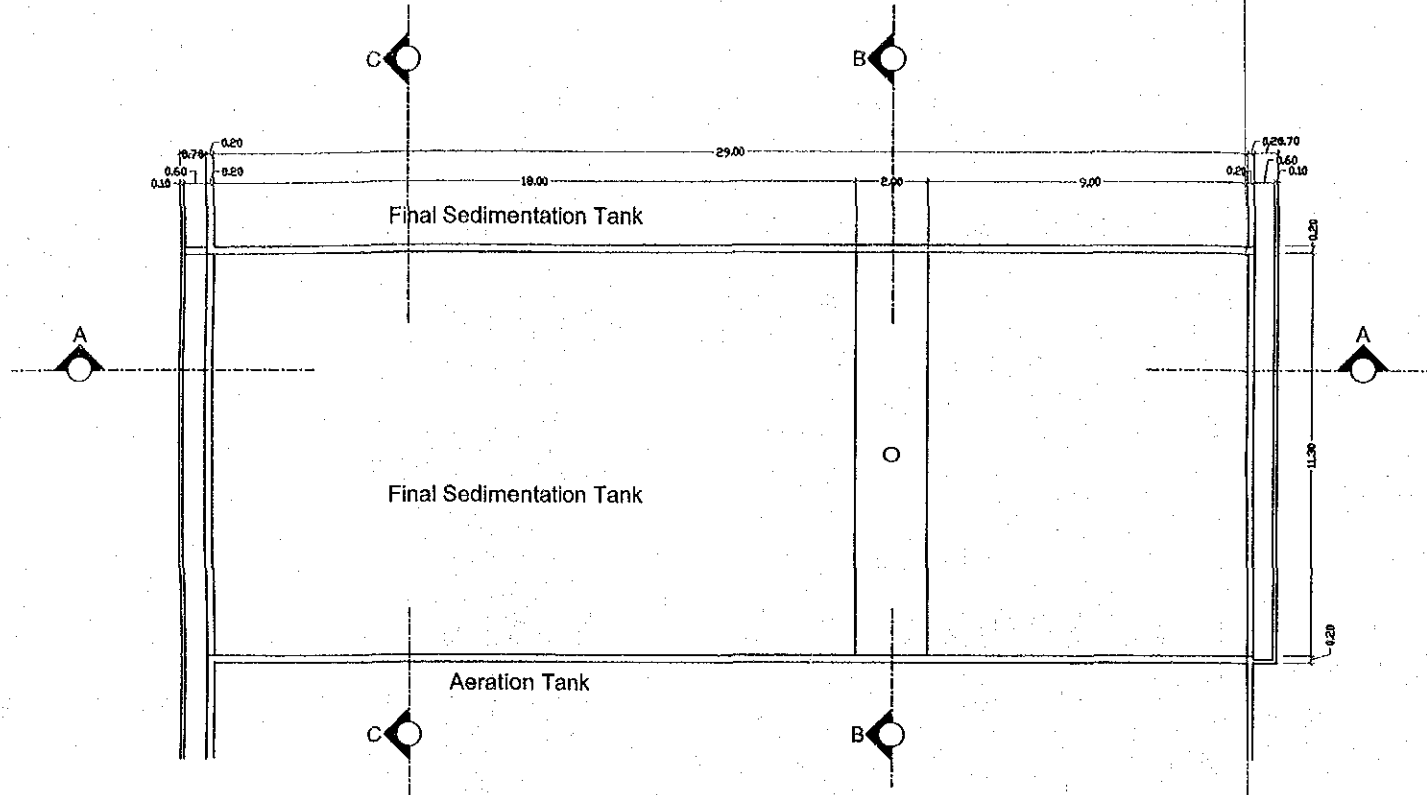


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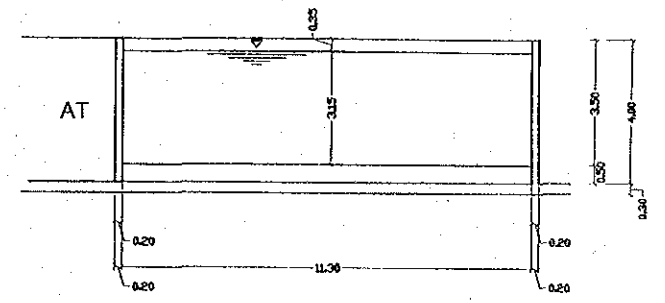


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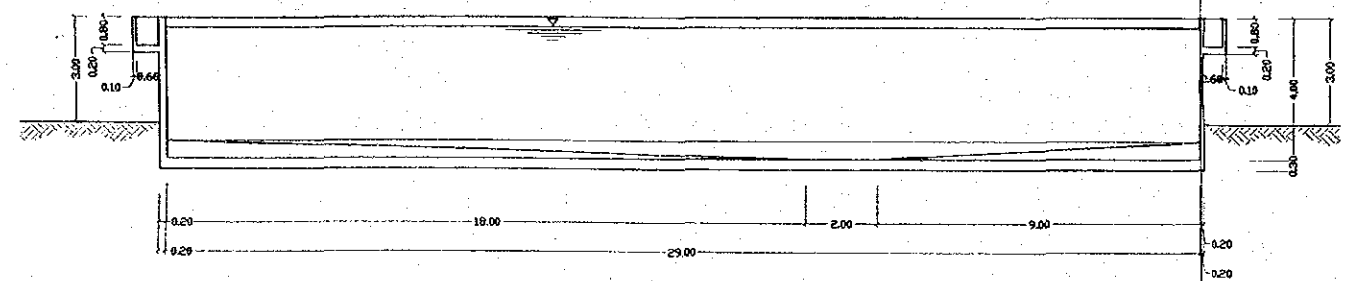
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Configuration of Aeration Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



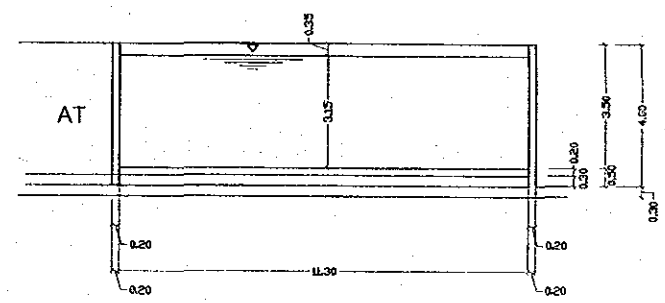
PLAN



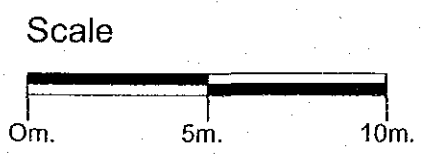
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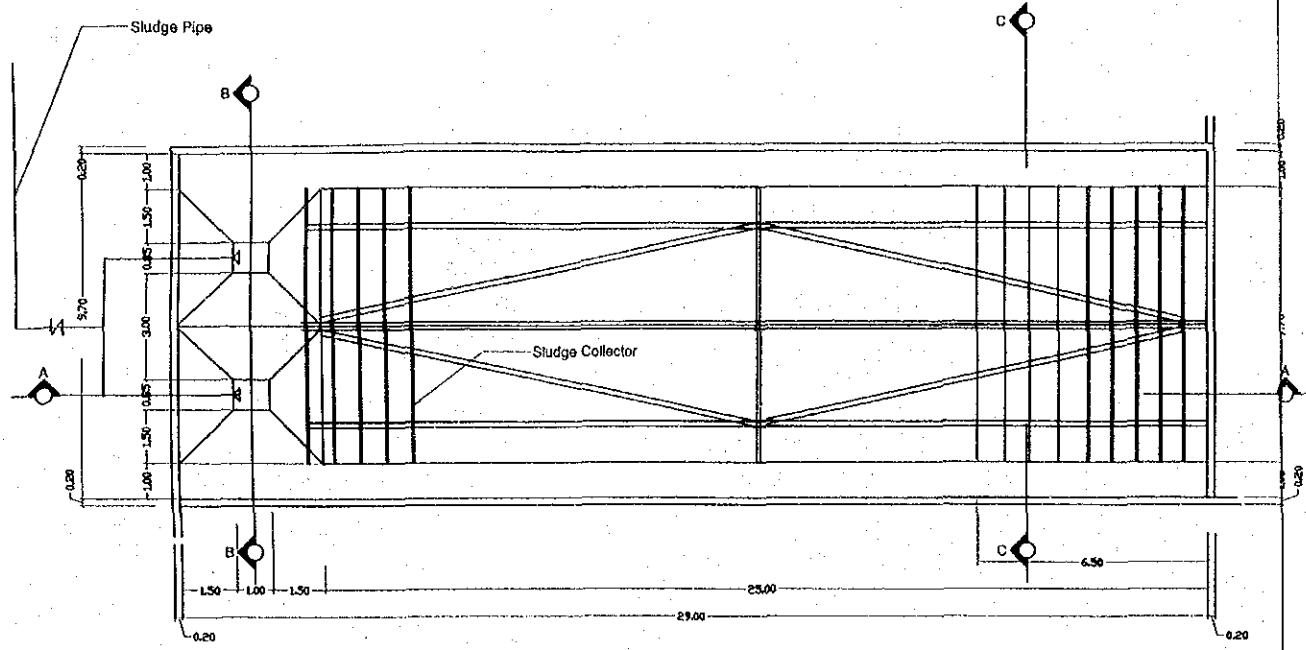
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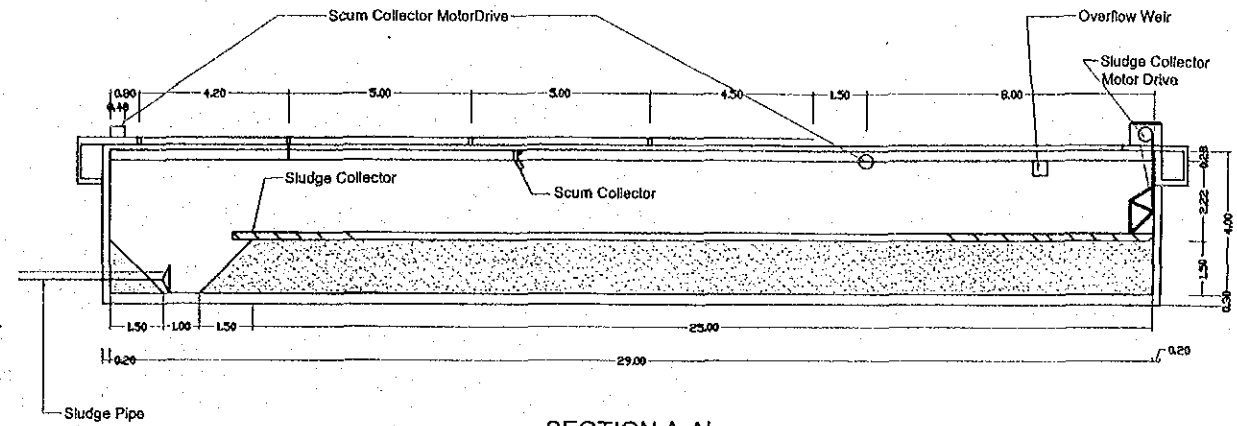
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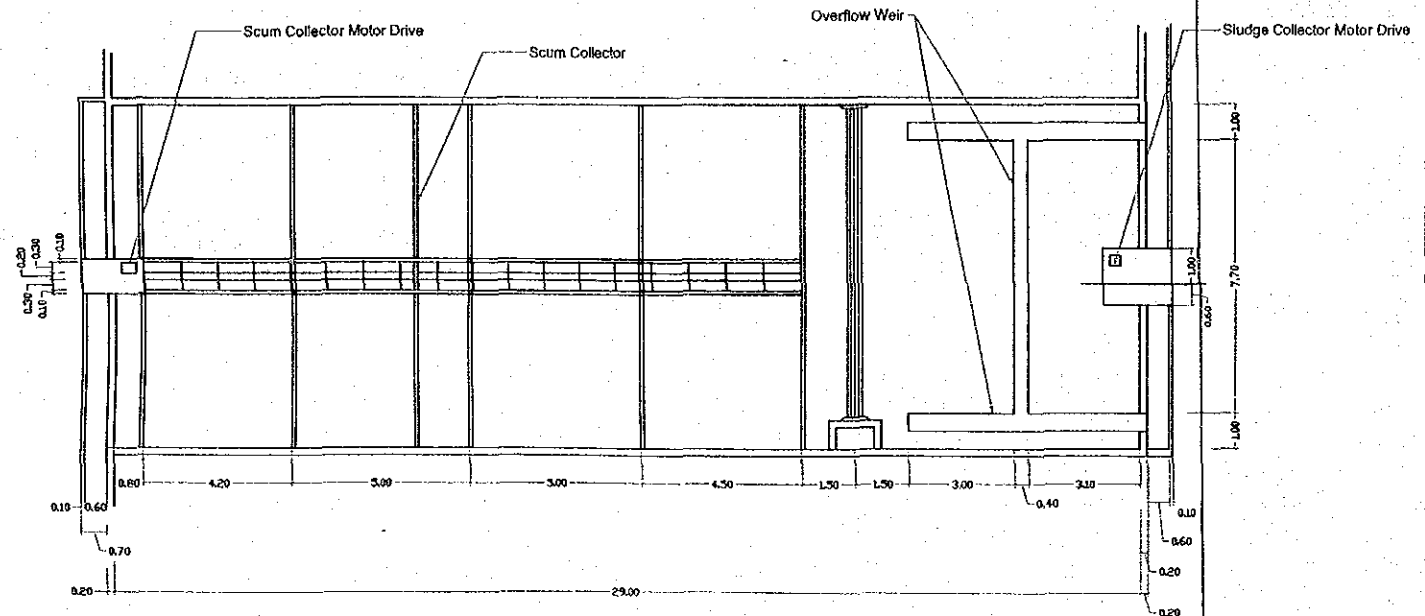
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Configuration of Final Sedimentation Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



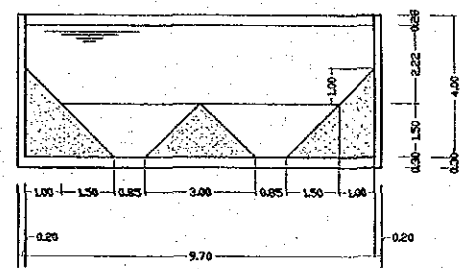
PLAN 1-1



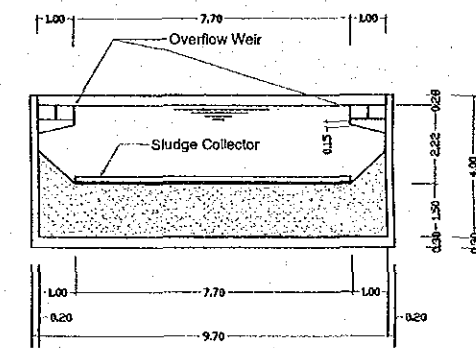
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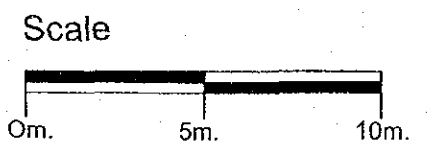
PLAN 2-2



SECTION B-B'

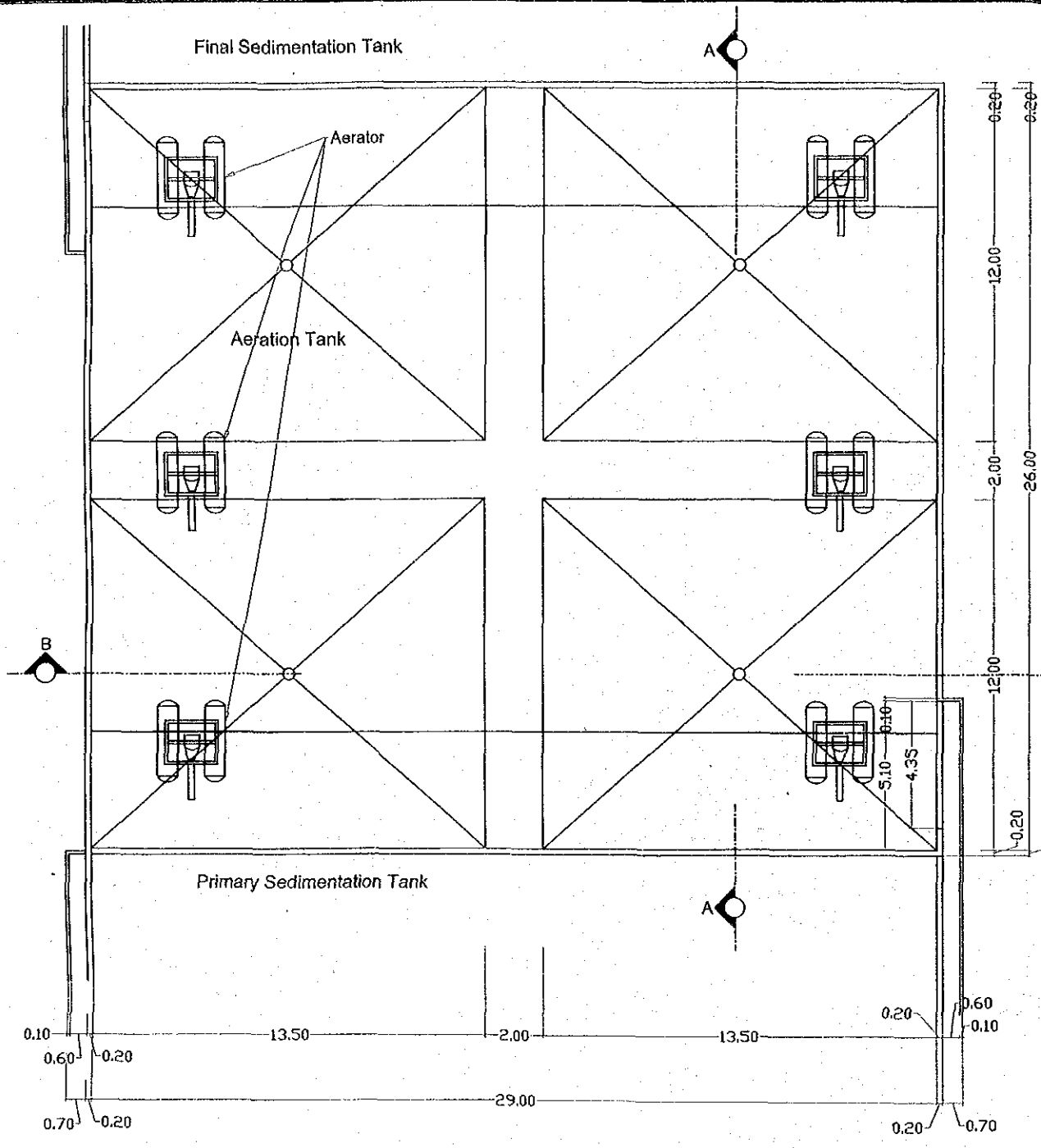


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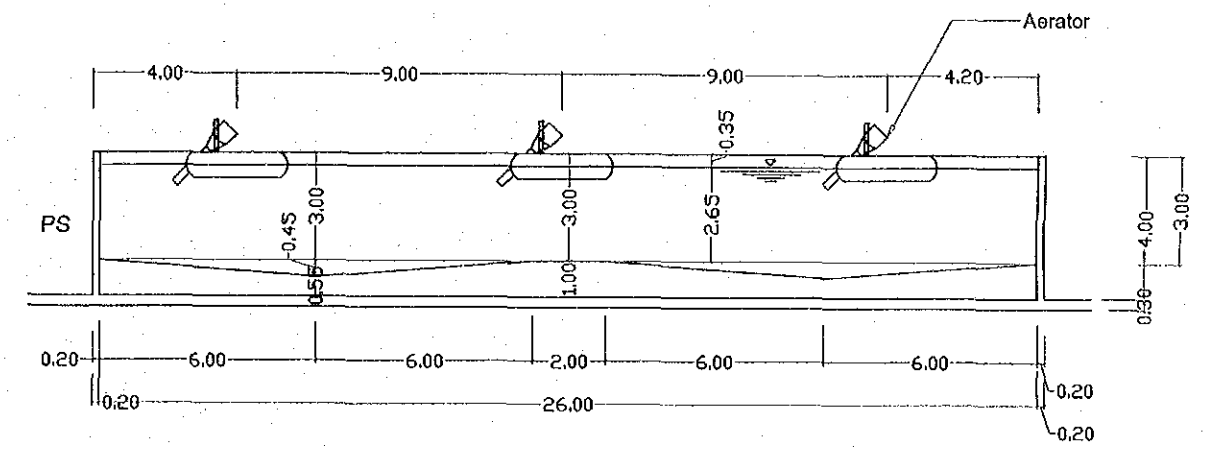
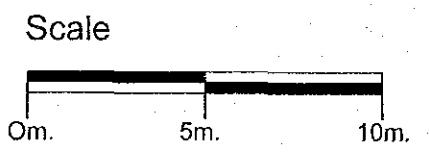


<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Rehabilitation of Primary Sedimentation Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	

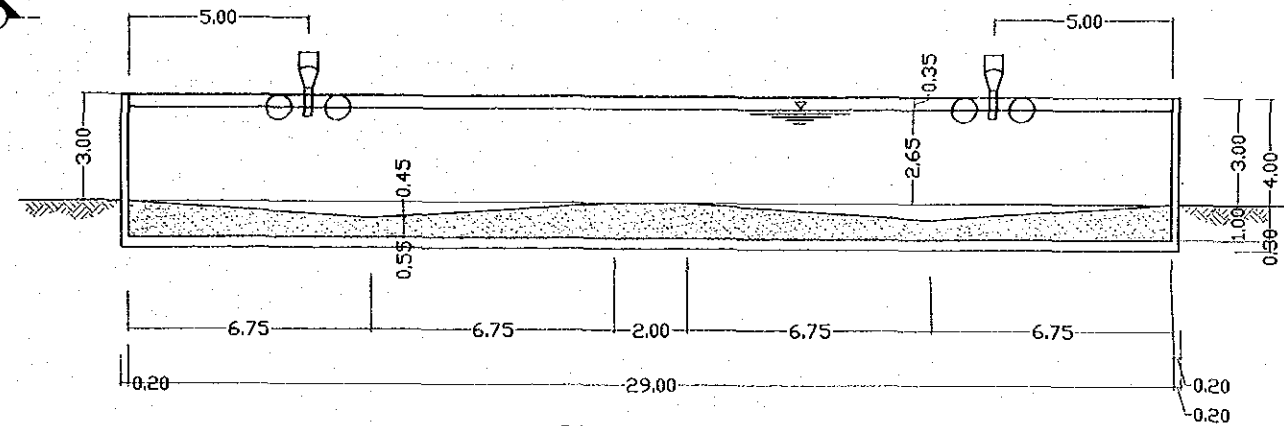




PLAN

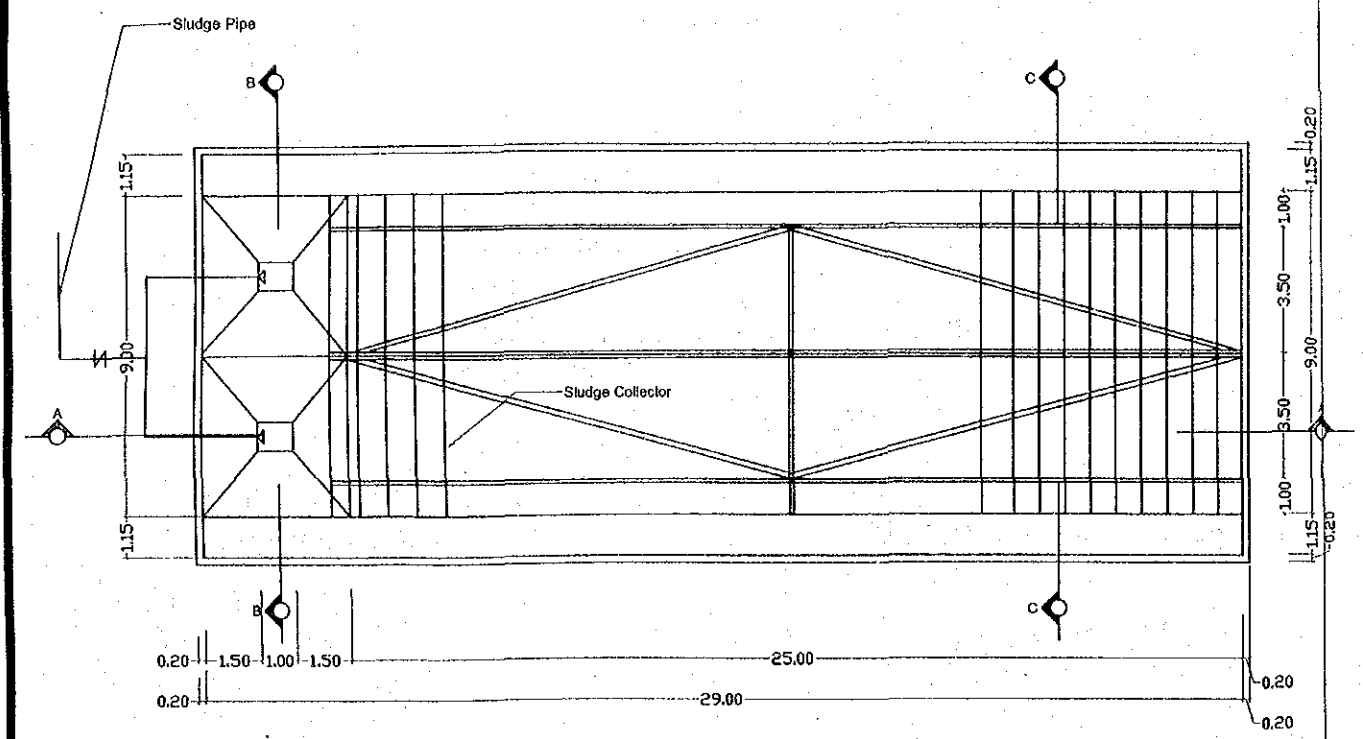


SECTION A-A'

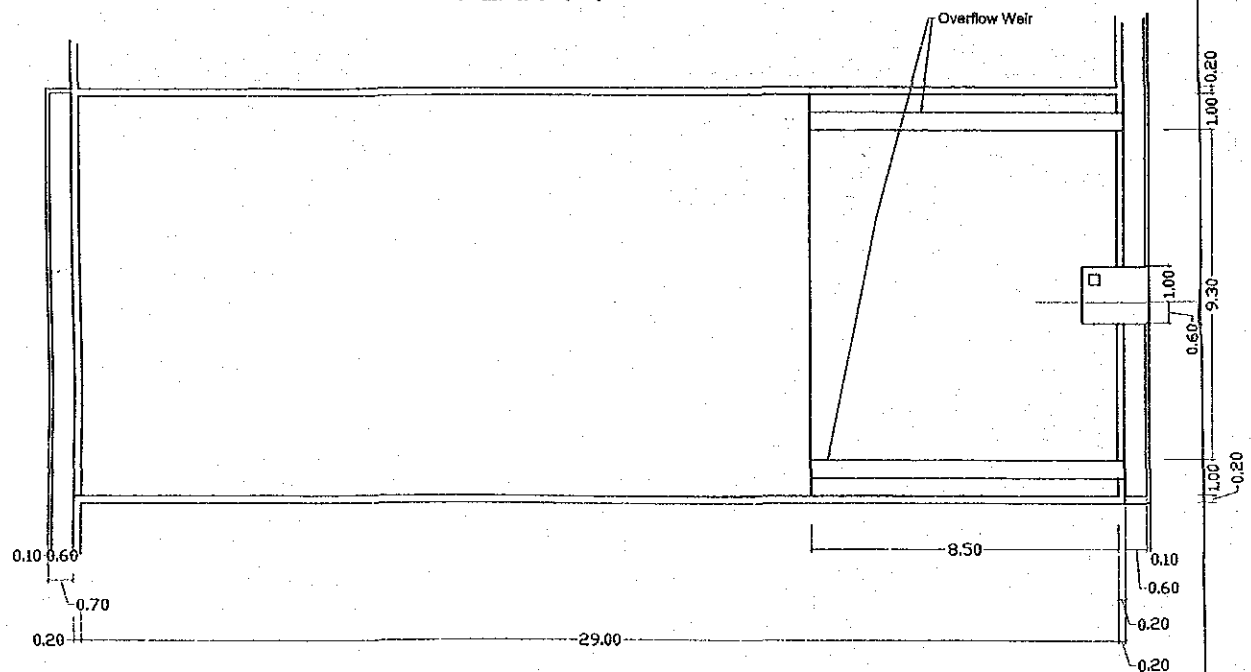


SECTION B-B'

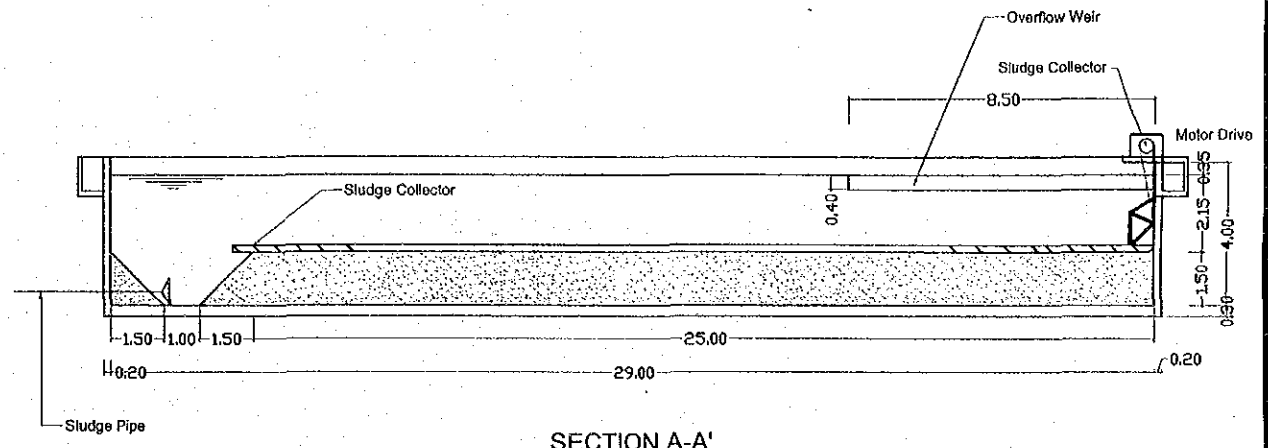
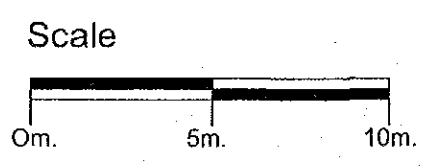
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Rehabilitation Aeration Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



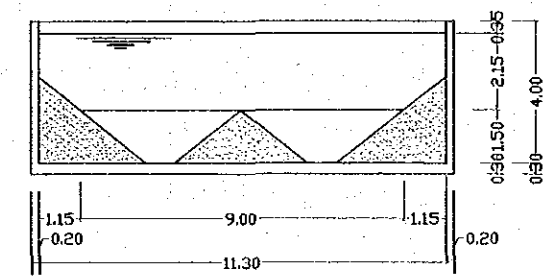
PLAN 1-1



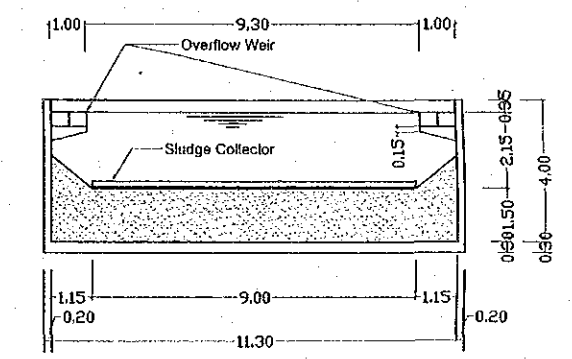
PLAN 2-2



SECTION A-A'

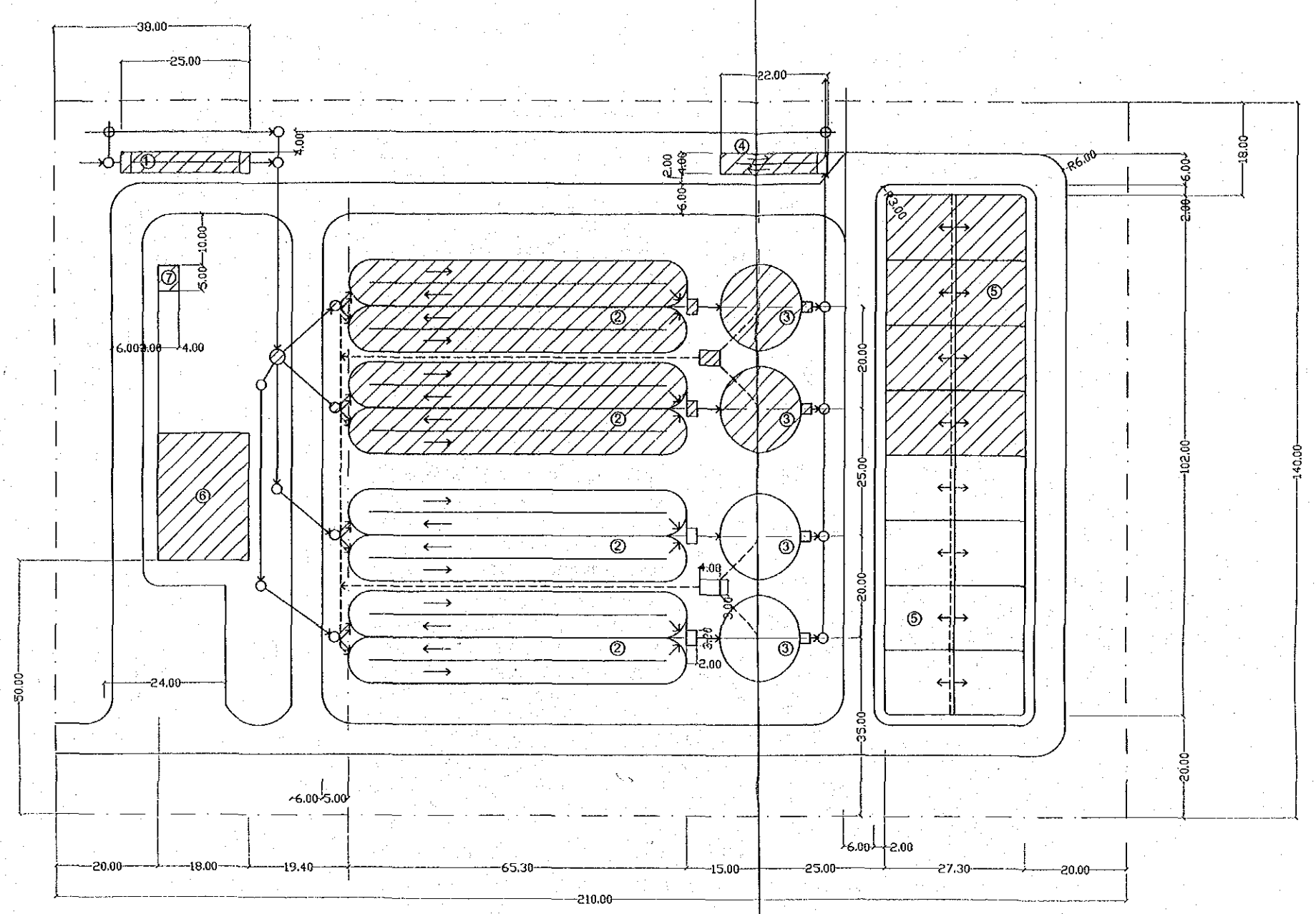


SECTION B-B'



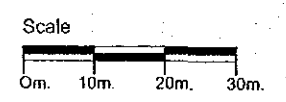
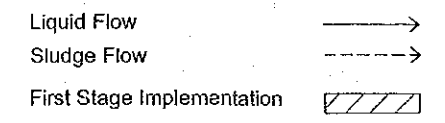
SECTION C-C'

<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Cienfuegos/Los Salados WWTPS, Rehabilitation of Final Sedimentation Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



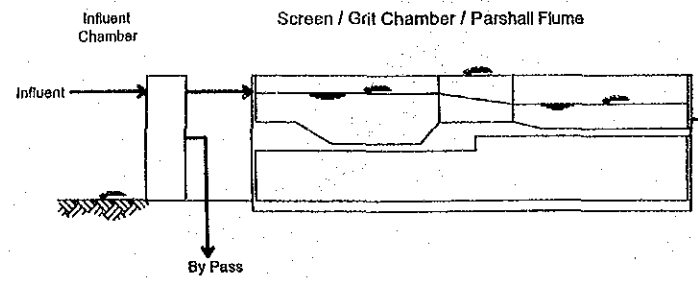
**LEGEND**

- 1- Screen, Grit Chamber
- 2- Oxidation Ditches
- 3- Final Sedimentation Tank
- 4- Chlorine Contact Tank
- 5- Sludge Drying Sand Bed
- 6- Administration Building
- 7- Generator Building

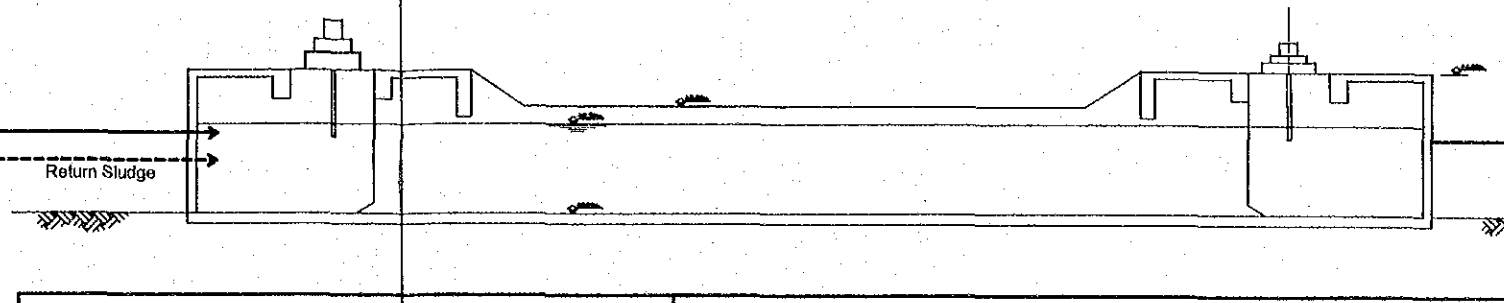


THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO	TITLE
JAPAN INTERNATIONAL COOPERATION AGENCY	Zona Sur Wastewater Treatment Plant, Layout Plan

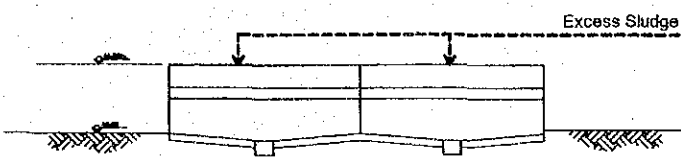
**PRELIMINARY TREATMENT**



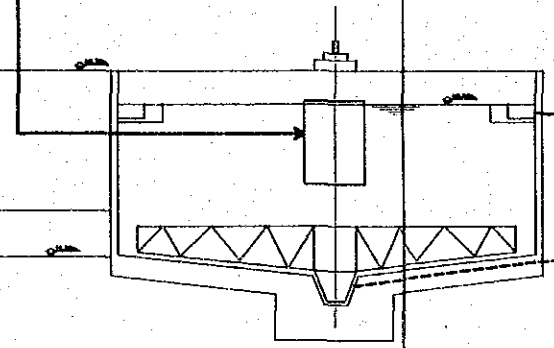
**OXIDATION DITCHES**



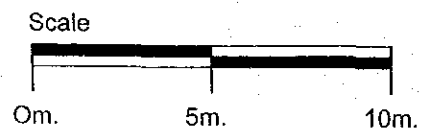
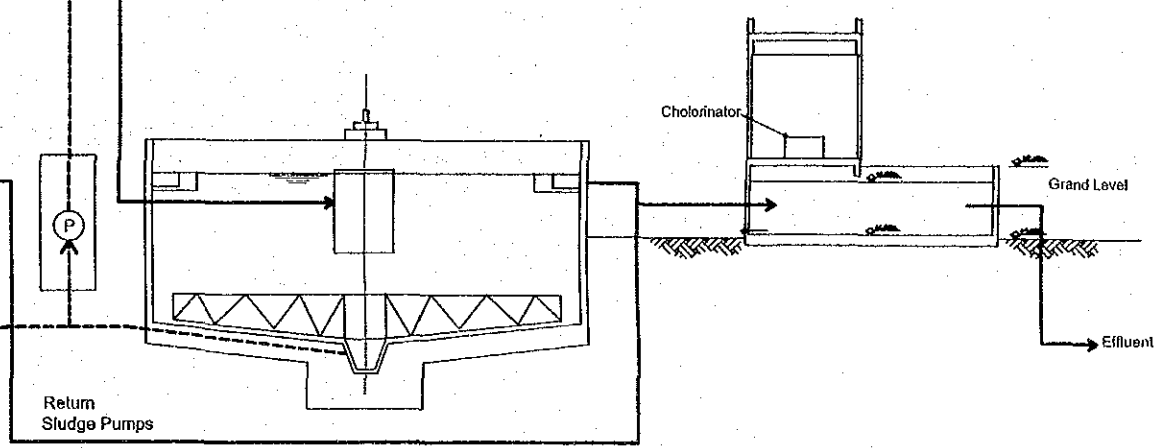
**SLUDGE DRYING SAND BEDS**



**FINAL SEDIMENTATION TANK**



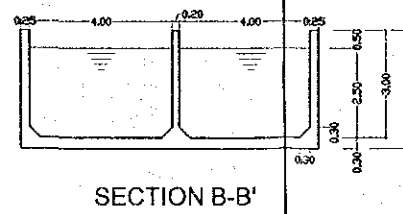
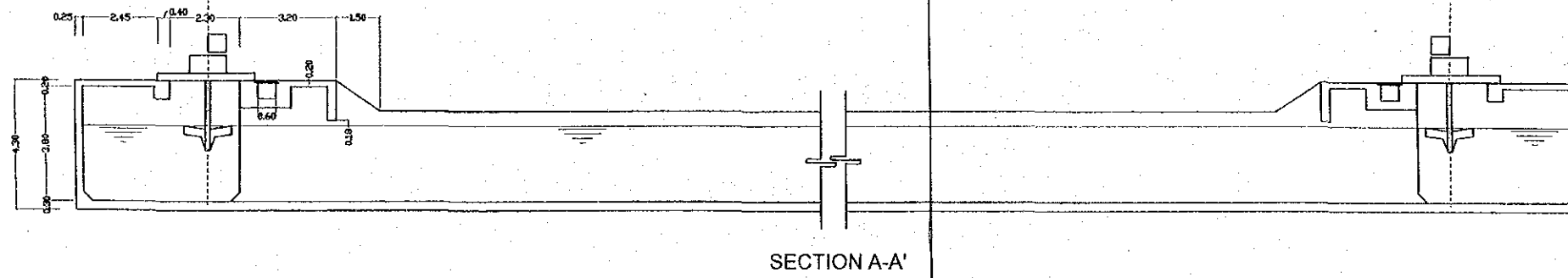
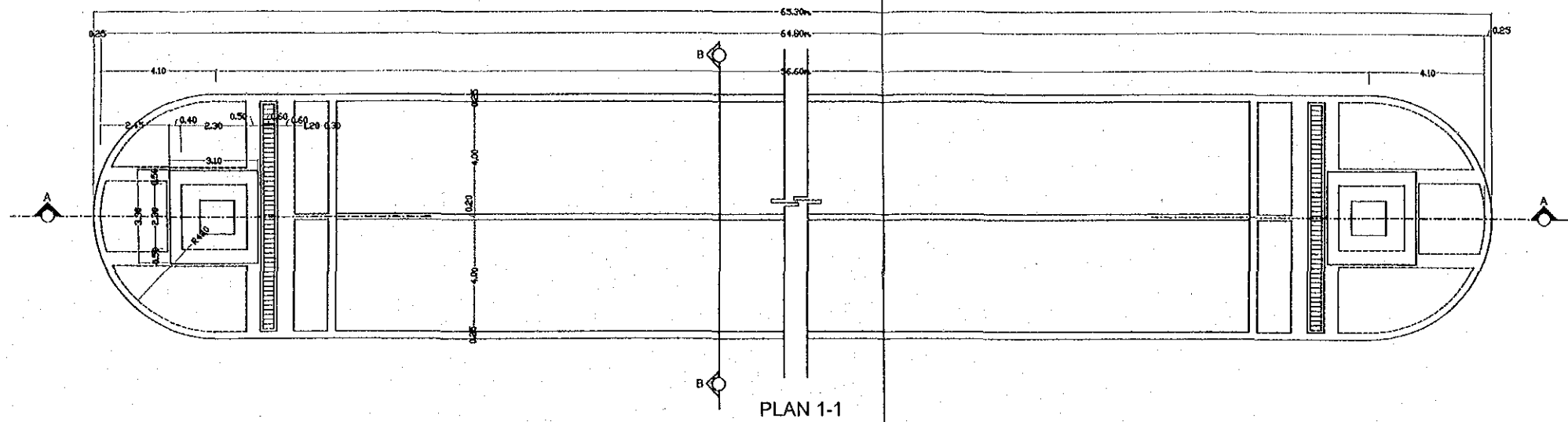
**CHLORIN CONTACT TANK**



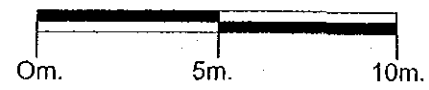
**LEGEND**

- > Wastewater Flow
- - - - -> Sludge Flow

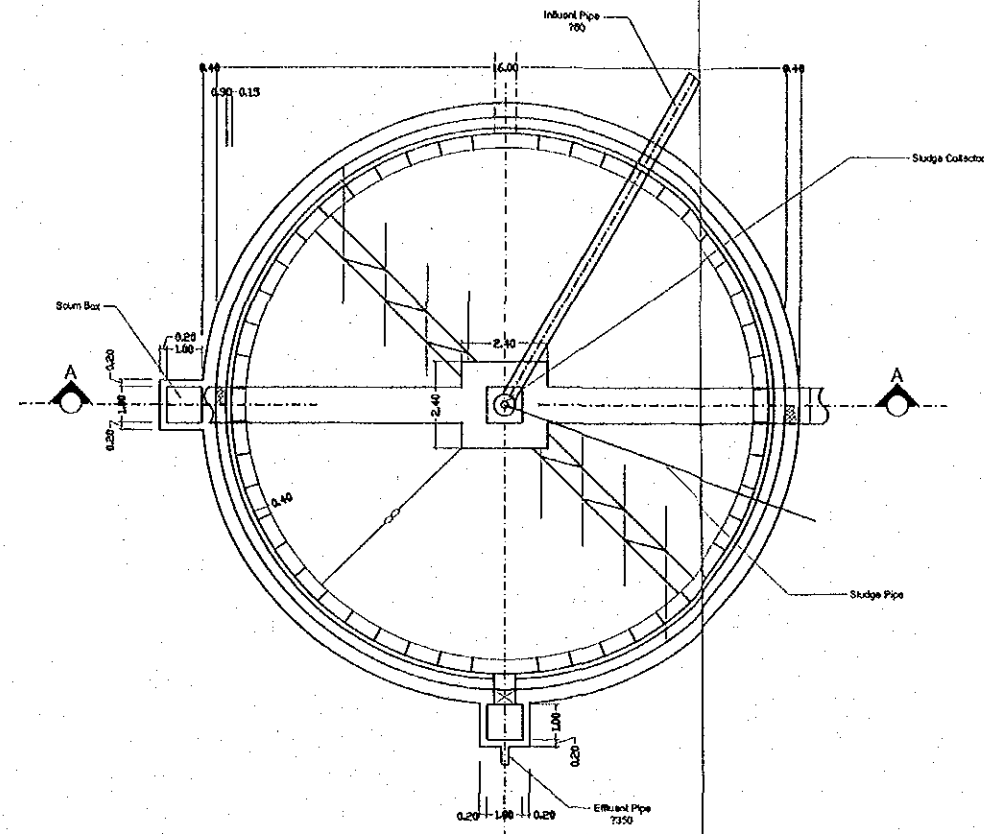
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Zona Sur Wastewater Treatment, Hydraulic Profile</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



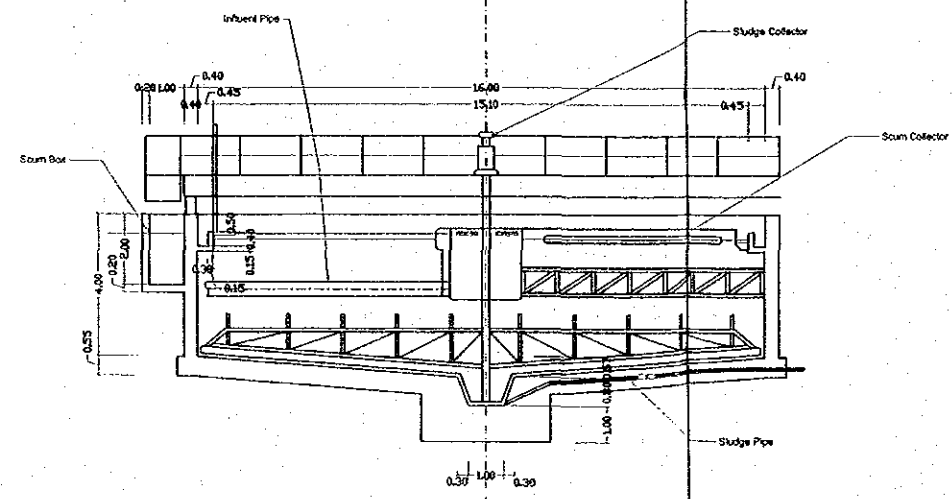
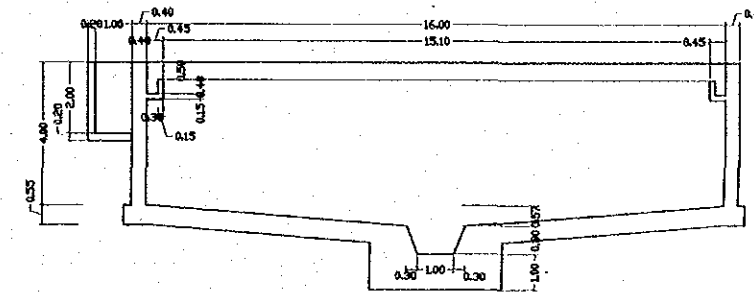
Scale



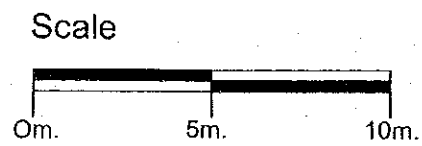
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Zona Sur Wastewater Treatment Plant, Configuration of Oxidation Ditch</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



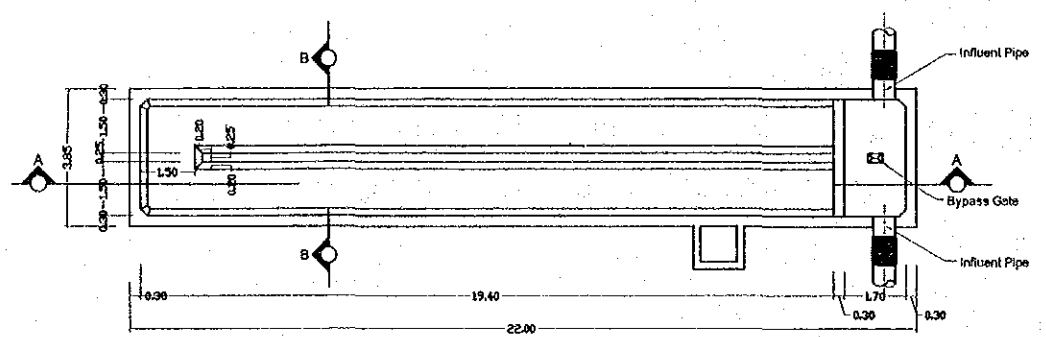
PLAN 1-1



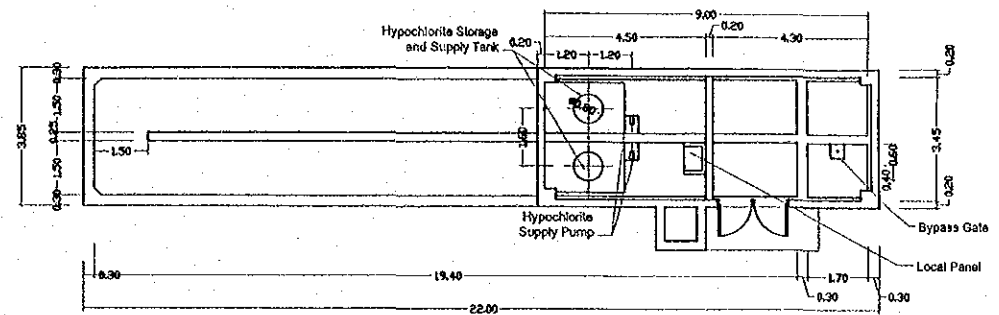
SECTION A-A'



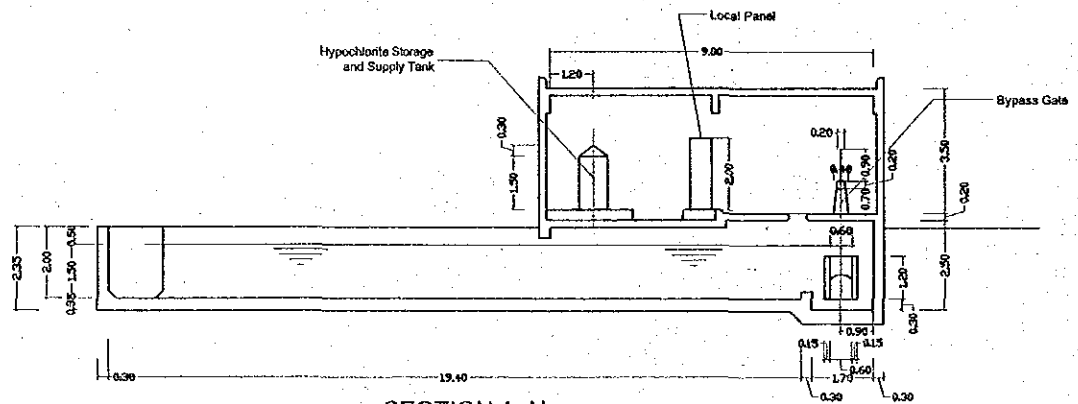
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Zona Sur Wastewater Treatment Plant, Configuration of Final Sedimentation Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



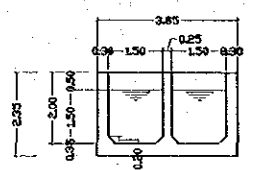
PLANT 1-1'



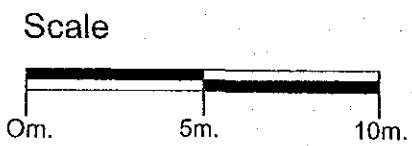
PLANT 2-2'



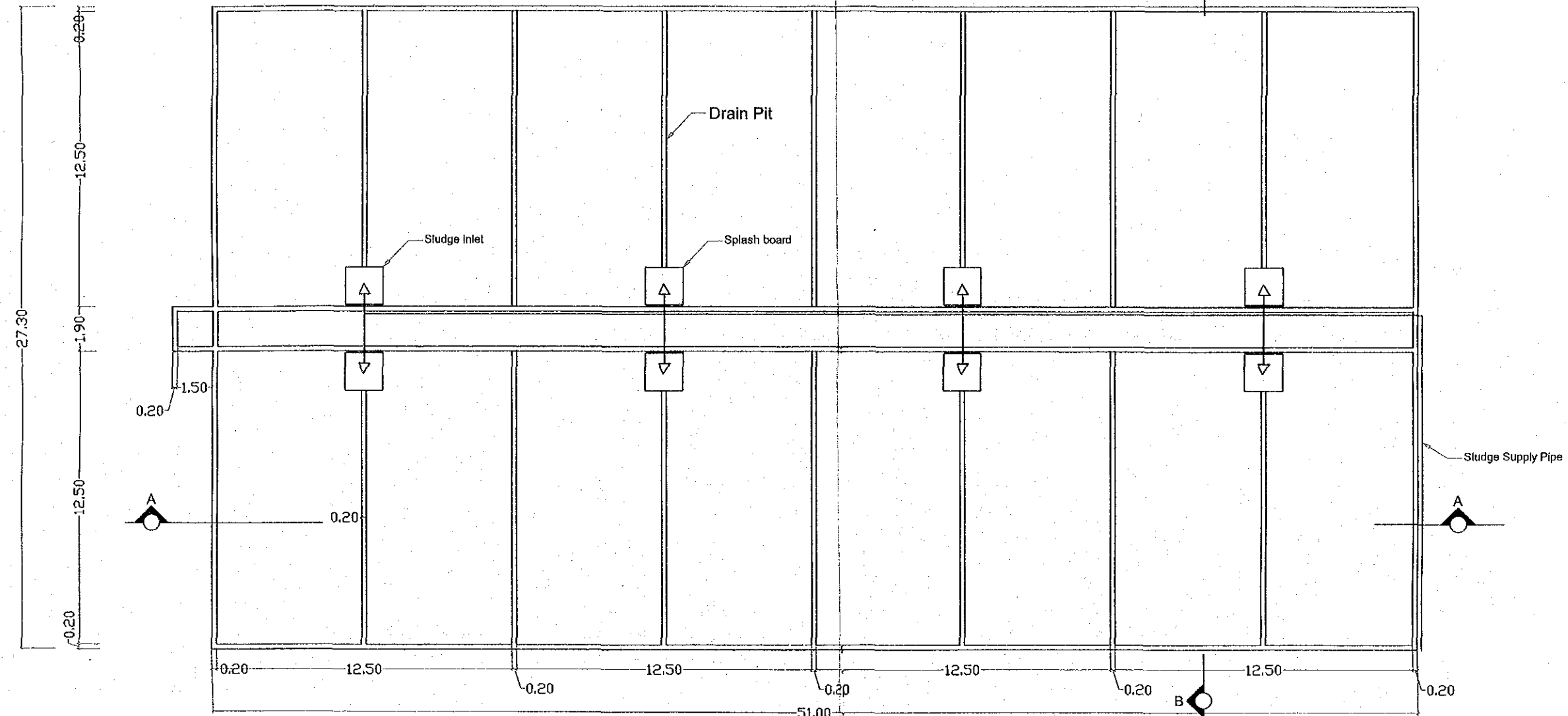
SECTION A-A'



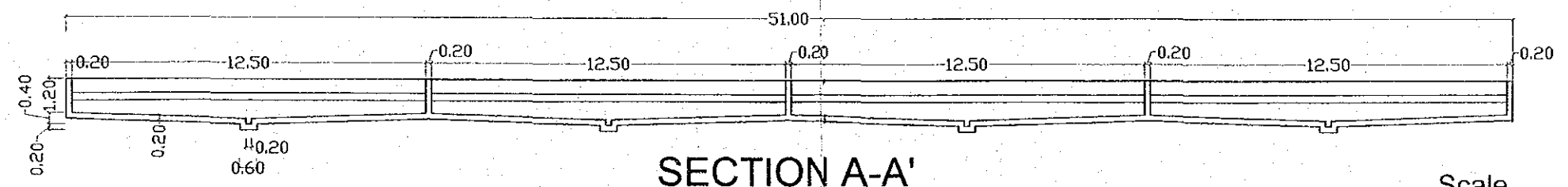
SECTION B-B'



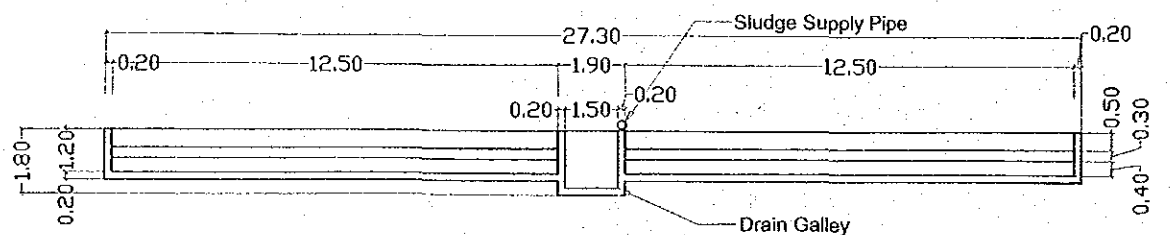
<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE Zona Sur Wastewater Treatment Plant, Configuration of Chlorine Contact Tank</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	



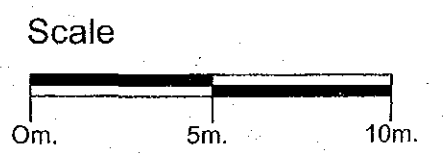
PLAN



SECTION A-A'

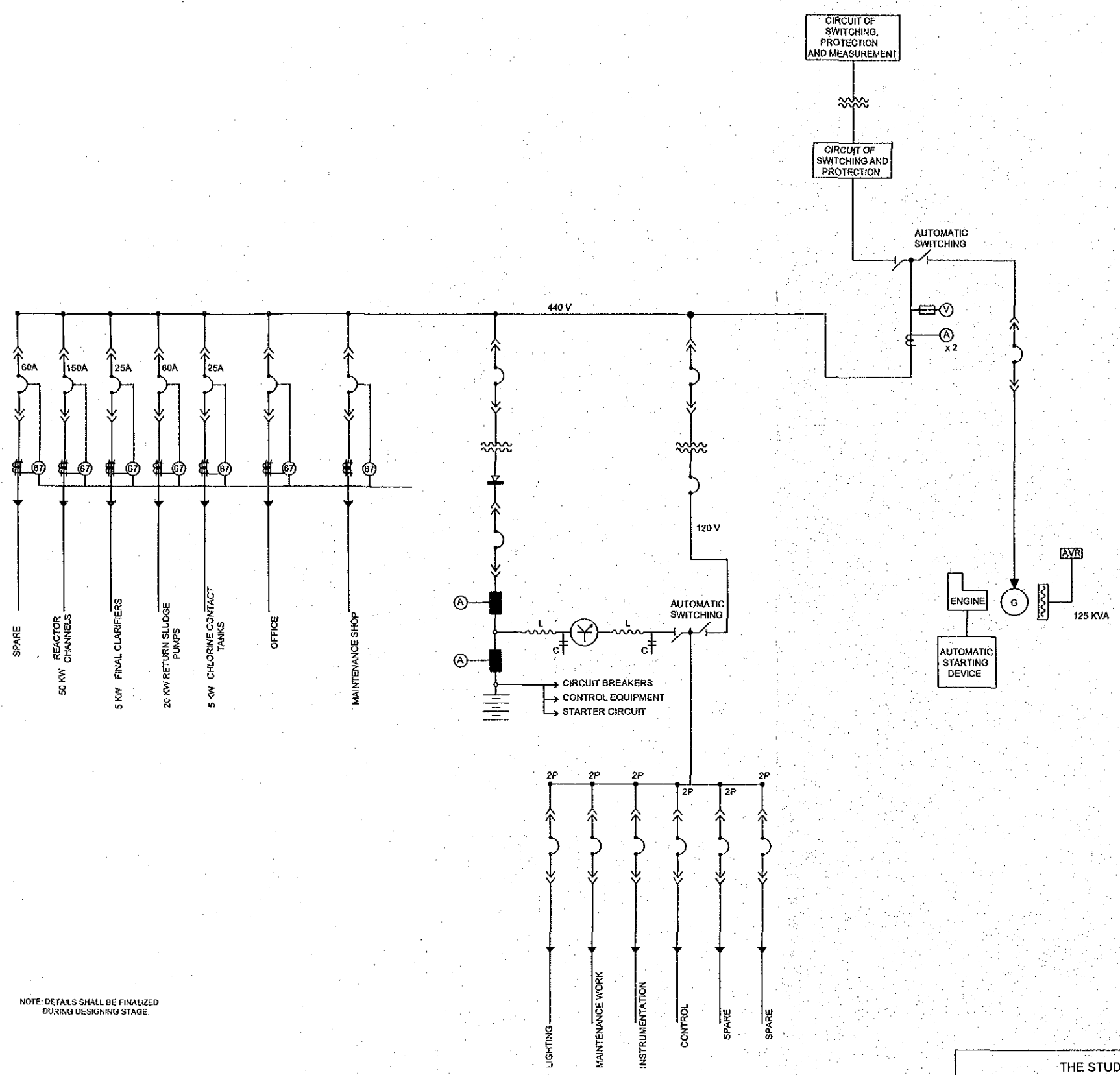


SECTION B-B'



<p>THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO</p>	<p>TITLE  Zona Sur Wastewater Treatment Plant, Configuration of Sludge Drying Sand Beds</p>
<p>JAPAN INTERNATIONAL COOPERATION AGENCY</p>	





LEGEND			
	CURRENT TRANSFORMER		AMMETER WITH SHUNT
	DIRECTIONAL GROUND RELAY		DIESEL ENGINE
	FUSE		FILTER
	MCCB (MOLDED CASE CIRCUIT BREAKER)		INVERTER DC/AC
	TRANSFORMER		VOLTMETER
	AUTOMATIC VOLTAGE REGULATOR		AMMETER
	GENERATOR		BATTERY
	SWITCHING DEVICE		BATTERY CHARGER

NOTE: DETAILS SHALL BE FINALIZED DURING DESIGNING STAGE.

THE STUDY ON THE IMPROVEMENT OF SEWERAGE SYSTEM AND ENVIRONMENT IN THE CITY OF SANTIAGO

FIGURE Z-7

Single Line Diagram of Zona Sur Wastewater Treatment Plant

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