

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT
THE REPUBLIC OF INDONESIA

**THE DETAILED DESIGN
OF
FLOOD CONTROL, URBAN DRAINAGE AND
WATER RESOURCES DEVELOPMENT IN
SEMARANG IN THE REPUBLIC OF INDONESIA**

FINAL REPORT

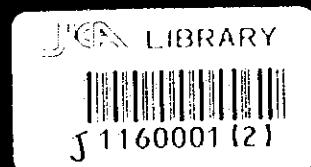
COMPLETION OF
URBAN DRAINAGE SYSTEM IMPROVEMENT

IN SEMARANG

PREPARED BY
CTI ENGINEERING CO INTERNATIONAL, LTD.
IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL
AND
PASCO INTERNATIONAL INC.

DATE OF PUBLICATION
AUGUST 2000

CTI ENGINEERING CO INTERNATIONAL, LTD.
IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL
AND
PASCO INTERNATIONAL INC.



MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT
THE REPUBLIC OF INDONESIA

FLOOD CONTROL, URBAN DRAINAGE AND
WATER RESOURCES DEVELOPMENT IN SEMARANG
COMPONENT C: URBAN DRAINAGE SYSTEM IMPROVEMENT

BIDDING DOCUMENTS

PACKAGE 1:

SEMARANG RIVER DRAINAGE SYSTEM IMPROVEMENT

VOLUME 3

DRAWINGS

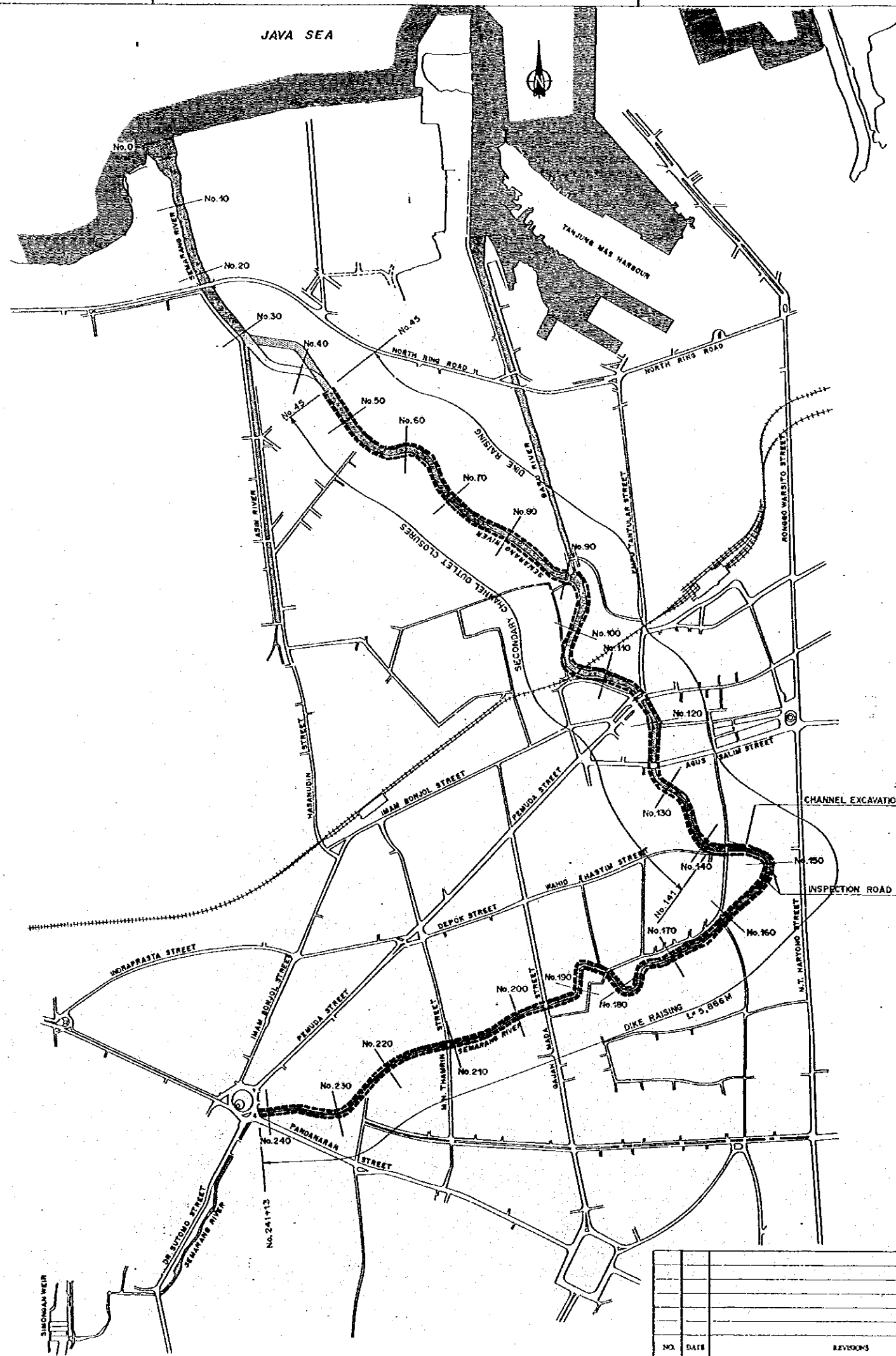
AUGUST 2000




1160001 (2)

PACKAGE - 1 : SEMARANG RIVER DRAINAGE SYSTEM IMPROVEMENT LIST OF DRAWINGS

SHEET		DRAWING		TITLE OF DRAWING		
No	No	1 st LINE	2 nd LINE	3 rd LINE		
GENERAL (G)						
1	UPI-G	PLAN OF THE WORKS				
SEMARANG RIVER IMPROVEMENT (STATION 45-241+13)						
2	UPI-S-P-1	SEMARANG RIVER	KEY PLAN			
3	UPI-S-P-2	SEMARANG RIVER	PLAN (1/7)			
4	UPI-S-P-3	SEMARANG RIVER	PLAN (2/7)			
5	UPI-S-P-4	SEMARANG RIVER	PLAN (3/7)			
6	UPI-S-P-5	SEMARANG RIVER	PLAN (4/7)			
7	UPI-S-P-6	SEMARANG RIVER	PLAN (5/7)			
8	UPI-S-P-7	SEMARANG RIVER	PLAN (6/7)			
9	UPI-S-P-8	SEMARANG RIVER	PLAN (7/7)			
10	UPI-S-L-1	SEMARANG RIVER	LONGITUDINAL PROFILE (1/3)			
11	UPI-S-L-2	SEMARANG RIVER	LONGITUDINAL PROFILE (2/3)			
12	UPI-S-L-3	SEMARANG RIVER	LONGITUDINAL PROFILE (3/3)			
13	UPI-S-C-1	SEMARANG RIVER	CROSS SECTION (1/36)			
14	UPI-S-C-2	SEMARANG RIVER	CROSS SECTION (2/36)			
15	UPI-S-C-3	SEMARANG RIVER	CROSS SECTION (3/36)			
16	UPI-S-C-4	SEMARANG RIVER	CROSS SECTION (4/36)			
17	UPI-S-C-5	SEMARANG RIVER	CROSS SECTION (5/36)			
18	UPI-S-C-6	SEMARANG RIVER	CROSS SECTION (6/36)			
19	UPI-S-C-7	SEMARANG RIVER	CROSS SECTION (7/36)			
20	UPI-S-C-8	SEMARANG RIVER	CROSS SECTION (8/36)			
21	UPI-S-C-9	SEMARANG RIVER	CROSS SECTION (9/36)			
22	UPI-S-C-10	SEMARANG RIVER	CROSS SECTION (10/36)			
23	UPI-S-C-11	SEMARANG RIVER	CROSS SECTION (11/36)			
24	UPI-S-C-12	SEMARANG RIVER	CROSS SECTION (12/36)			
25	UPI-S-C-13	SEMARANG RIVER	CROSS SECTION (13/36)			
26	UPI-S-C-14	SEMARANG RIVER	CROSS SECTION (14/36)			
27	UPI-S-C-15	SEMARANG RIVER	CROSS SECTION (15/36)			
28	UPI-S-C-16	SEMARANG RIVER	CROSS SECTION (16/36)			
29	UPI-S-C-17	SEMARANG RIVER	CROSS SECTION (17/36)			
30	UPI-S-C-18	SEMARANG RIVER	CROSS SECTION (18/36)			
31	UPI-S-C-19	SEMARANG RIVER	CROSS SECTION (19/36)			
32	UPI-S-C-20	SEMARANG RIVER	CROSS SECTION (20/36)			
33	UPI-S-C-21	SEMARANG RIVER	CROSS SECTION (21/36)			
34	UPI-S-C-22	SEMARANG RIVER	CROSS SECTION (22/36)			
35	UPI-S-C-23	SEMARANG RIVER	CROSS SECTION (23/36)			
36	UPI-S-C-24	SEMARANG RIVER	CROSS SECTION (24/36)			
37	UPI-S-C-25	SEMARANG RIVER	CROSS SECTION (25/36)			
38	UPI-S-C-26	SEMARANG RIVER	CROSS SECTION (26/36)			
39	UPI-S-C-27	SEMARANG RIVER	CROSS SECTION (27/36)			
40	UPI-S-C-28	SEMARANG RIVER	CROSS SECTION (28/36)			
41	UPI-S-C-29	SEMARANG RIVER	CROSS SECTION (29/36)			
42	UPI-S-C-30	SEMARANG RIVER	CROSS SECTION (30/36)			
43	UPI-S-C-31	SEMARANG RIVER	CROSS SECTION (31/36)			
44	UPI-S-C-32	SEMARANG RIVER	CROSS SECTION (32/36)			
45	UPI-S-C-33	SEMARANG RIVER	CROSS SECTION (33/36)			
46	UPI-S-C-34	SEMARANG RIVER	CROSS SECTION (34/36)			
47	UPI-S-C-35	SEMARANG RIVER	CROSS SECTION (35/36)			
48	UPI-S-C-36	SEMARANG RIVER	CROSS SECTION (36/36)			
49	UPI-S-R-1	SEMARANG RIVER	DETAILS OF DIKE RAISING			
50	UPI-S-R-1	SEMARANG RIVER	INSPECTION ROAD			
51	UPI-S-M-1	(MISCELLANEOUS) SEMARANG RIVER	SECONDARY CHANNEL OUTLET CLOSURES			



 THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVINCE CENTRAL JAVA
JATUNGSILUMA FLOOD CONTROL PROJECT COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
PLAN OF THE WORKS		DISTRICT SEMARANG CITY
LAPAN INTERNATIONAL COOPERATION AGENCY CTE ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND FARO INTERNATIONAL INC.		DRAWING NO. U - P1 - 0 SHEET NO. 1
DESIGNED <i>[Signature]</i>	CHECKED <i>[Signature]</i>	DATE CONTRACT NO.
OFFICE OF PLANNING AND DESIGN PROJECT MANAGER		

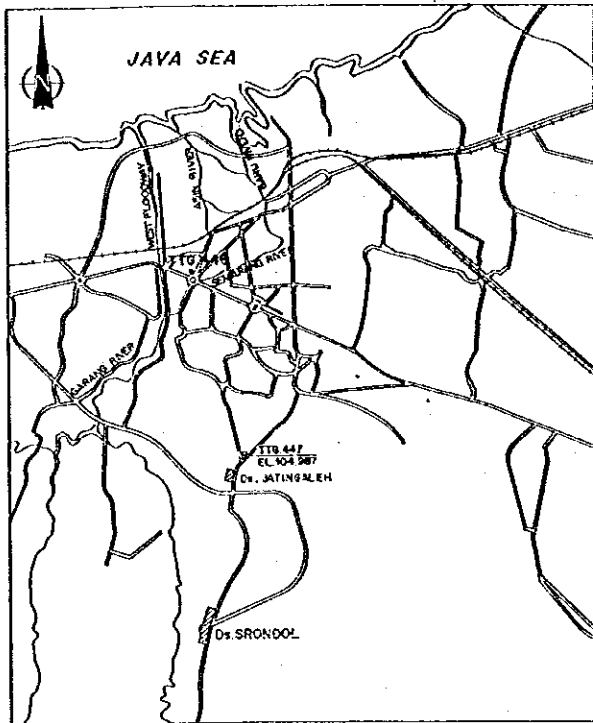
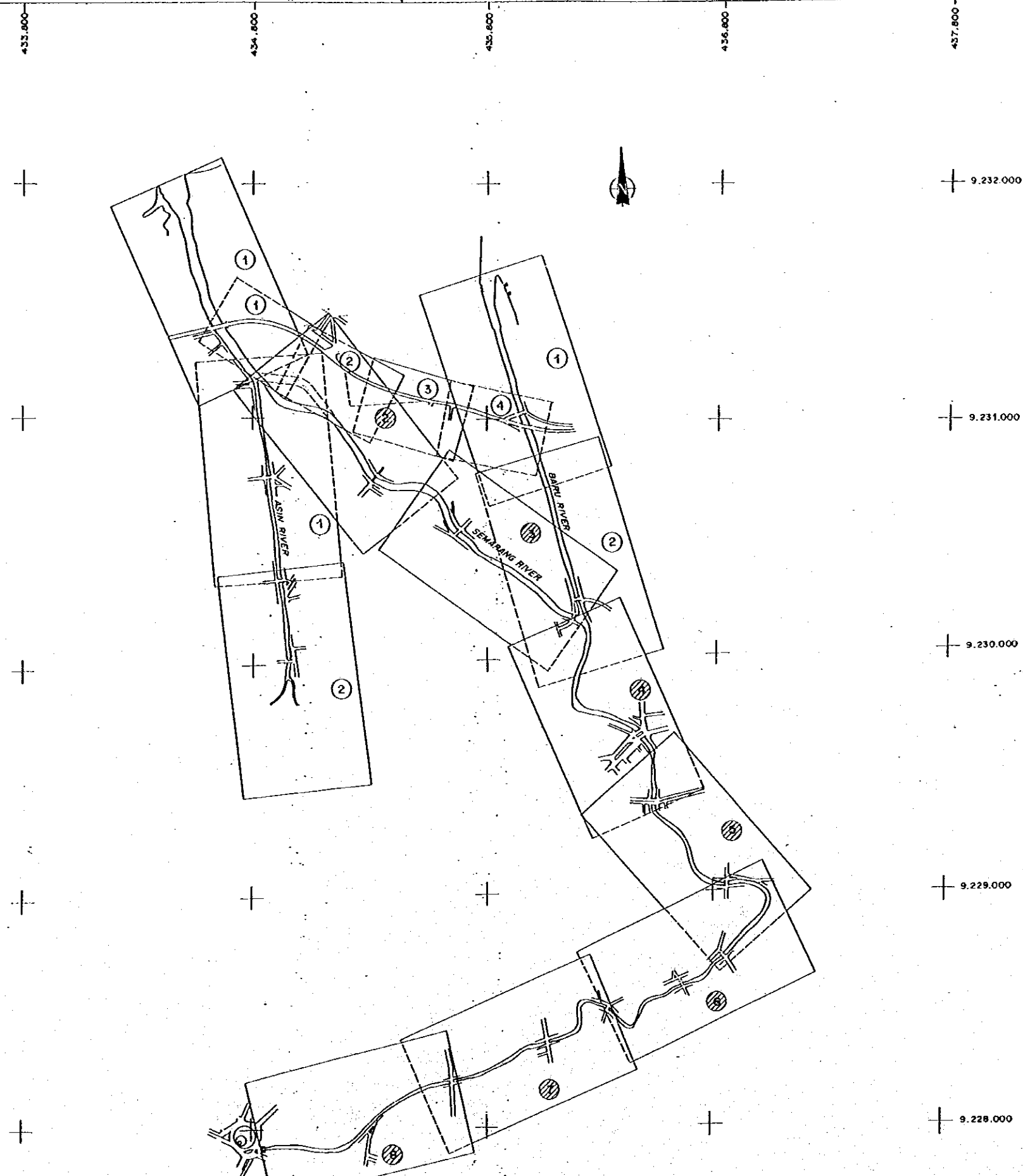


TABLE OF LOCATION AND ELEVATION OF BENCH MARK

STATION	LATITUDE	LONGITUDE	ELEVATION
TTG. 446	9,228,004.682	434,777.817	-
TTG. 447	-	-	104.987

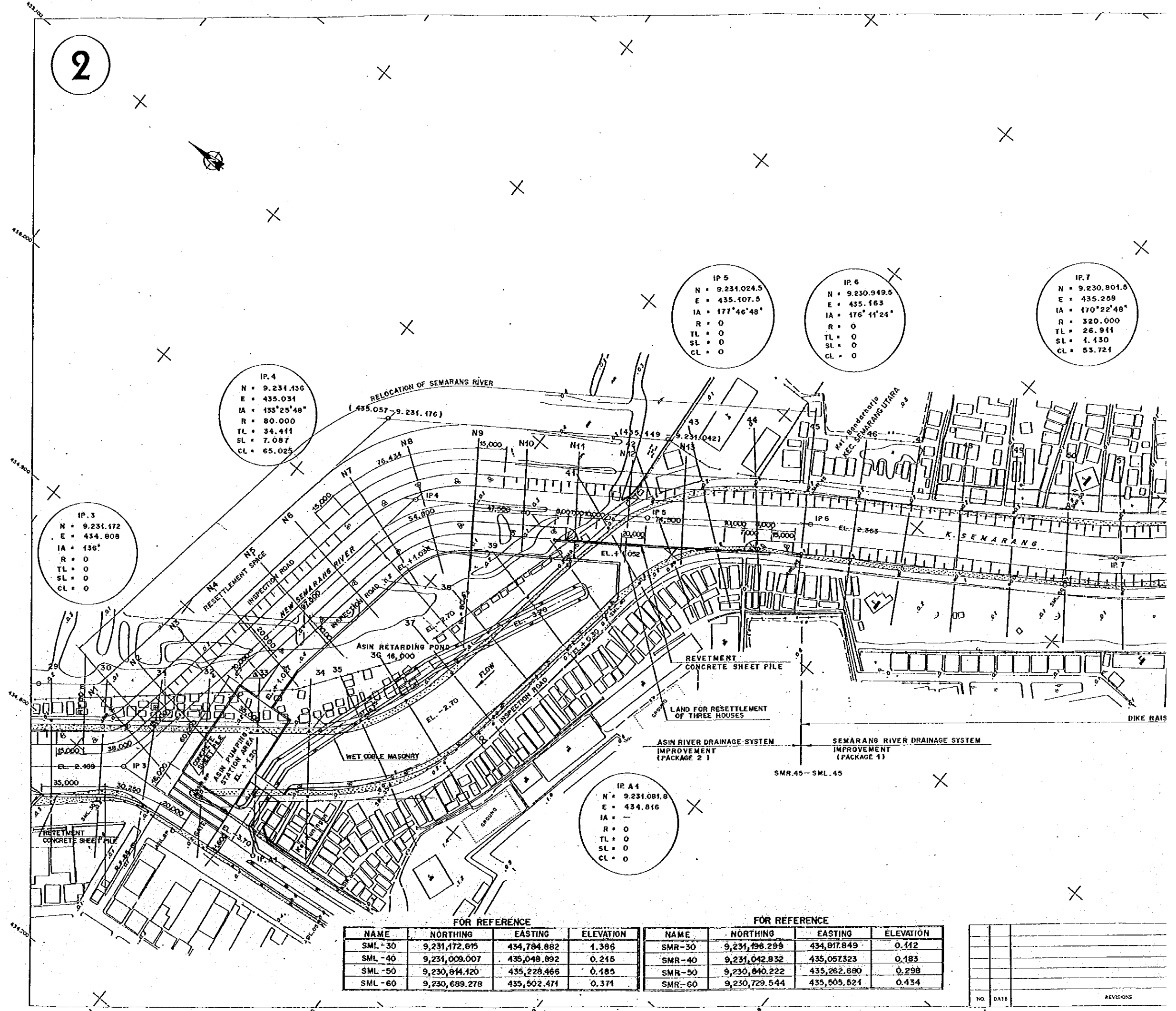


NOTE
 (Symbol) THE AREA TO BE COVERED BY PACKAGE 1.

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVIDER CENTRAL JAVA
JRATUNBELURA FLOOD CONTROL PROJECT COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT KEY MAP OF PLAN PACKAGE 1		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY CITY ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PANGLOSS INTERNATIONAL INC.		DISTRICT SEMARANG CITY
DESIGNED CHECKED APPROVED PROJECT MANAGER		DRAWING NO. U - P1 - 5 - P1 - 1 SHEET NO. 2
DATE		CONTRACT NO.

2



IP. 4
 N = 9.231.436
 E = 435.031
 IA = 133°25'48"
 R = 80.000
 TL = 34.411
 SL = 7.087
 CL = 65.025

IP. 3
 N = 9.231.172
 E = 434.808
 IA = 136°
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP 5
 N = 9.231.024.5
 E = 435.107.5
 IA = 177°46'48"
 R = 0
 TL = 0
 SL = 0
 CL = 0

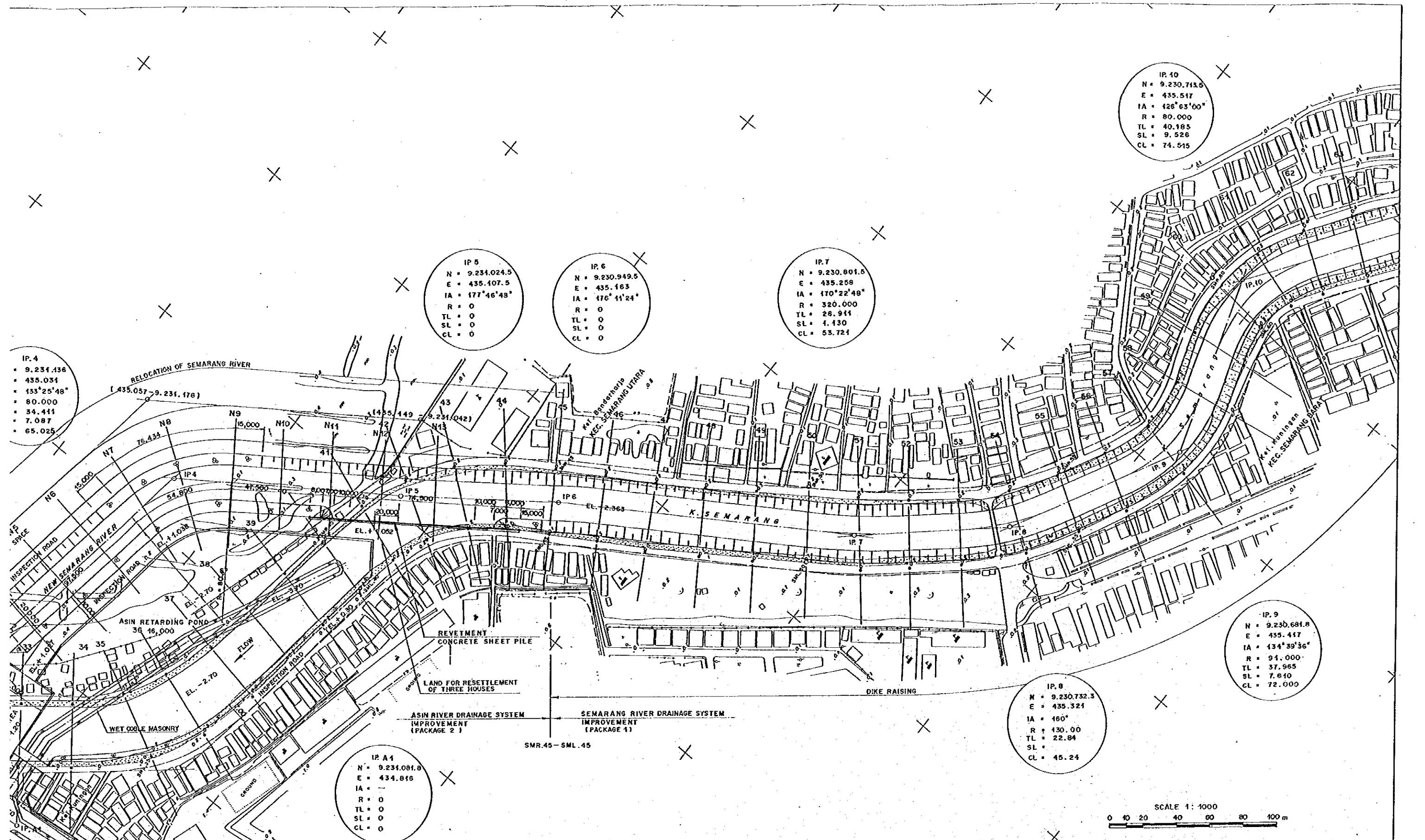
IP. 6
 N = 9.230.949.5
 E = 435.163
 IA = 176°11'24"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 7
 N = 9.230.801.5
 E = 435.259
 IA = 170°22'48"
 R = 320.000
 TL = 26.941
 SL = 1.430
 CL = 53.724

IP. A 4
 N = 9.231.081.8
 E = 434.816
 IA = -
 R = 0
 TL = 0
 SL = 0
 CL = 0

FOR REFERENCE				FOR REFERENCE			
NAME	NORTHING	EASTING	ELEVATION	NAME	NORTHING	EASTING	ELEVATION
SML - 30	9,231,172.675	434,784.882	1.386	SMR - 30	9,231,196.299	434,817.849	0.112
SML - 40	9,231,009.007	435,048.892	0.215	SMR - 40	9,231,042.832	435,057.523	0.183
SML - 50	9,230,814.120	435,228.466	0.185	SMR - 50	9,230,840.222	435,262.680	0.298
SML - 60	9,230,689.278	435,502.471	0.371	SMR - 60	9,230,729.544	435,605.521	0.434

NO.	DATE	REVISIONS



IP. 4
 N = 9.231.436
 E = 435.034
 IA = 133°25'48"
 R = 80.000
 TL = 34.411
 SL = 7.087
 CL = 65.025

IP. 5
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 IA = 177°46'48"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 6
 N = 9.230.949.5
 E = 435.163
 IA = 176°41'24"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 7
 N = 9.230.801.6
 E = 435.258
 IA = 170°22'48"
 R = 320.000
 TL = 26.911
 SL = 1.130
 CL = 53.724

IP. 10
 N = 9.230.713.6
 E = 435.517
 IA = 126°63'00"
 R = 80.000
 TL = 40.185
 SL = 9.526
 CL = 74.515

IP. 9
 N = 9.230.681.8
 E = 435.417
 IA = 134°39'36"
 R = 91.000
 TL = 37.965
 SL = 7.610
 CL = 72.000

IP. 8
 N = 9.230.732.3
 E = 435.324
 IA = 160°
 R = 130.00
 TL = 22.84
 SL =
 CL = 45.24

IP. A1
 N = 9.231.081.8
 E = 434.816
 IA =
 R = 0
 TL = 0
 SL = 0
 CL = 0

SCALE 1: 1000
 0 10 20 40 60 80 100 m

FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SML-30	9,231,172.615	434,784.882	1.396
SML-40	9,231,009.007	435,048.892	0.215
SML-50	9,230,814.120	435,228.466	0.185
SML-60	9,230,689.278	435,502.474	0.371

FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SMR-30	9,231,196.299	434,817.649	0.112
SMR-40	9,231,042.832	435,057.323	0.183
SMR-50	9,230,840.222	435,262.680	0.298
SMR-60	9,230,729.544	435,505.524	0.434

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT
 JATUNSELUNA FLOOD CONTROL PROJECT
 COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER
PLAN (1/7)

JAPAN INTERNATIONAL COOPERATION AGENCY
 CITY ENGINEERING CO. LTD. IN ASSOCIATION WITH
 PACIFIC CONSULTANTS INTERNATIONAL AND
 YASCO INTERNATIONAL INC.

DESIGNED: [Signature]
 CHECKED: [Signature]
 CHIEF OF PLANNING AND DESIGN
 PROJECT MANAGER

PROVINCE: CENTRAL JAVA
 PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 DISTRICT: SEMARANG CITY
 DRAWING NO. U-P1-5-P1-2
 SHEET NO. 3
 DATE: [Blank]
 CONTRACT NO. [Blank]

3

IP. 11
 N = 9.230.649
 E = 435.608.3
 IA = 143° 30' 00"
 R = 90.000
 TL = 29.660
 SL = 4.764
 CL = 57.330

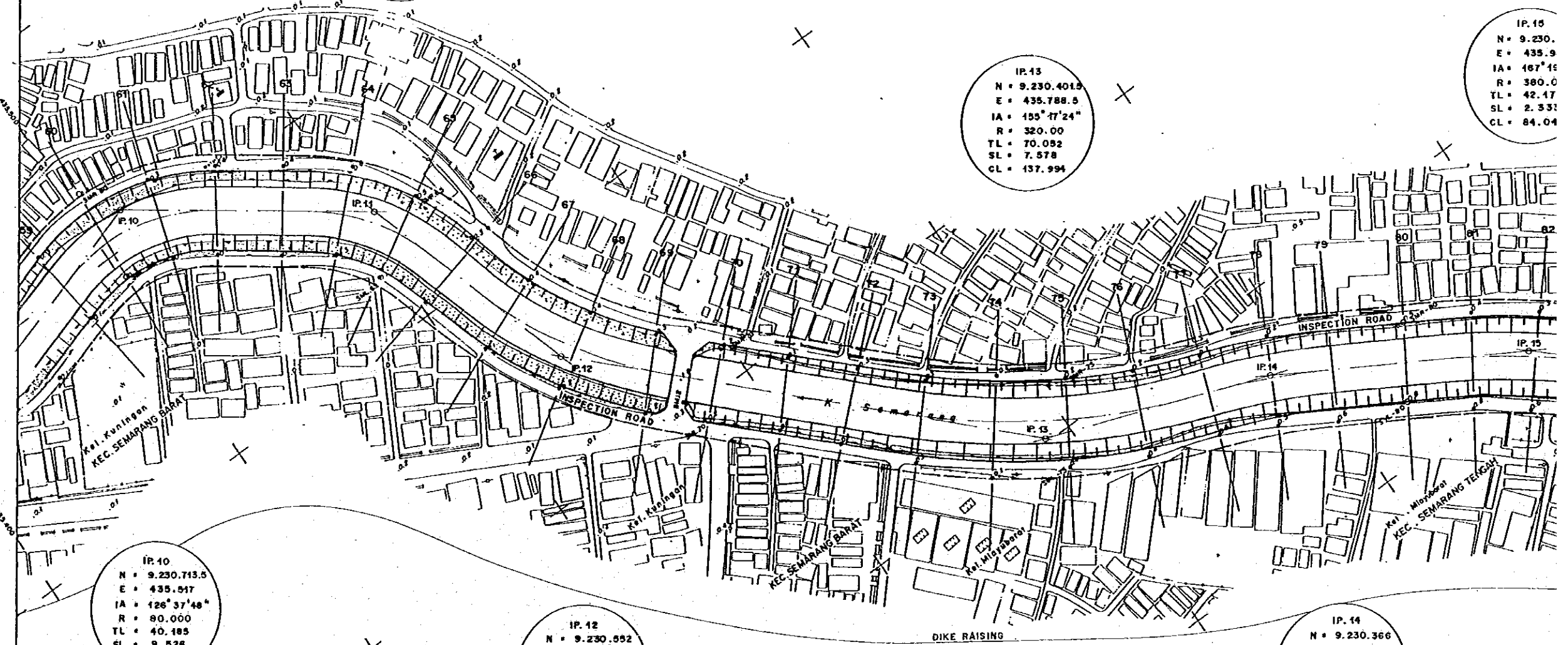
IP. 13
 N = 9.230.401.9
 E = 435.788.5
 IA = 135° 47' 24"
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 TL = 70.052
 SL = 7.578
 CL = 137.994

IP. 15
 N = 9.230.
 E = 435.9
 IA = 167° 15'
 R = 380.0
 TL = 42.47
 SL = 2.331
 CL = 84.04

IP. 10
 N = 9.230.713.5
 E = 435.917
 IA = 126° 37' 48"
 R = 80.000
 TL = 40.185
 SL = 9.528
 CL = 74.515

IP. 12
 N = 9.230.552
 E = 435.637.5
 IA = 152° 37' 48"
 R = 190.000
 TL = 46.244
 SL = 5.647
 CL = 90.768

IP. 14
 N = 9.230.366
 E = 435.885
 IA = 169° 53' 24"
 R = 280.000
 TL = 24.765
 SL = 4.093
 CL = 49.426

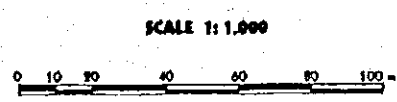


FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SML-60	9,230,689.278	435,502.471	0.371
BM-12			1.456
SML-70	9,230,492.374	435,673.811	0.349
SML-80	9,230,322.322	435,926.579	0.777
SML-90	9,230,151.674	436,179.376	0.914

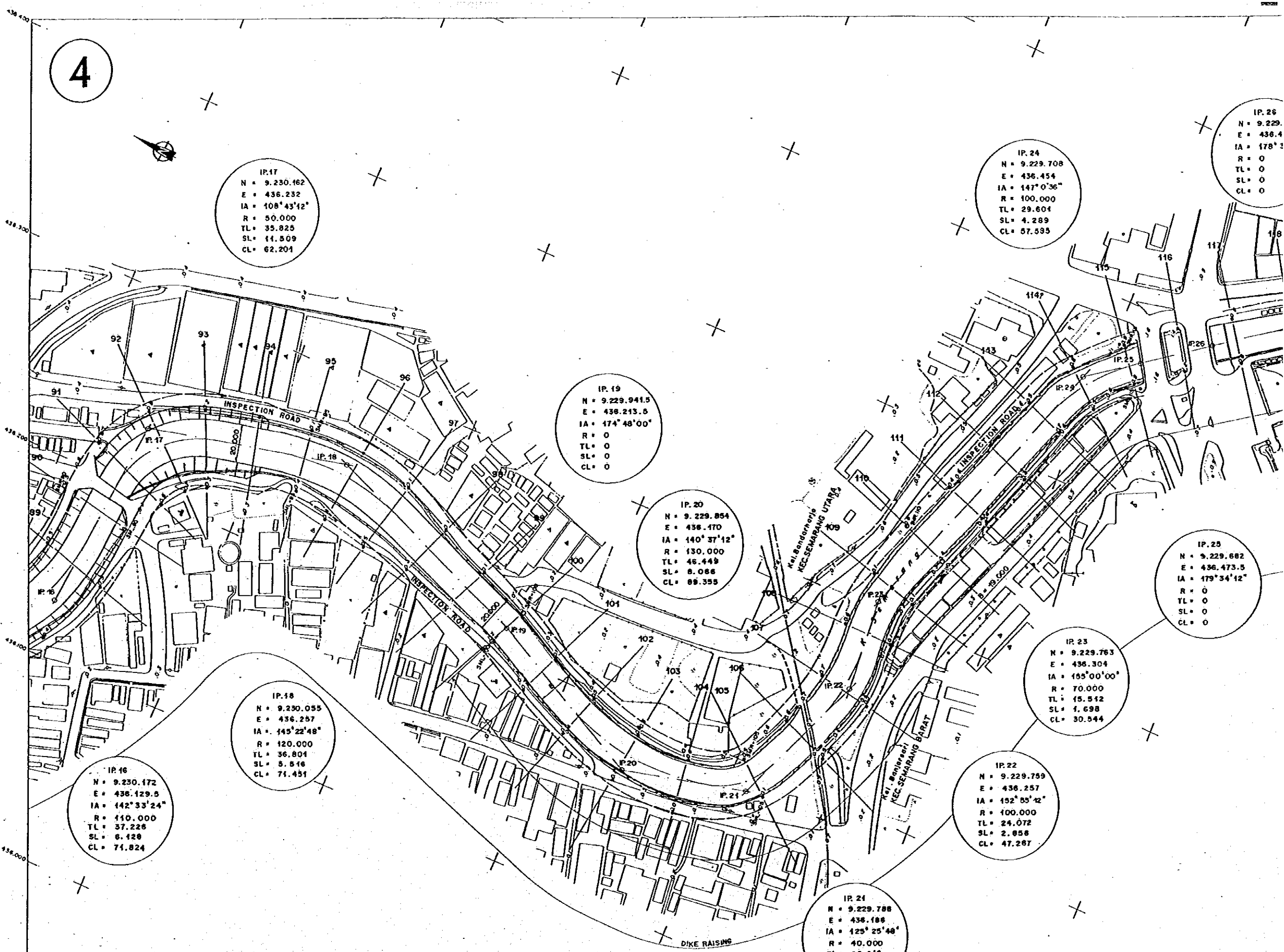
FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SMR-60	9,230,729.544	435,505.321	0.434
SMR-70	9,230,513.946	435,695.944	0.246
SMR-80	9,230,350.797	435,944.250	0.470
SMR-90	9,230,190.877	436,186.384	0.500



NO	DATE	REVISIONS

4



IP.17
 N = 9.230.162
 E = 436.232
 IA = 108° 43' 12"
 R = 50.000
 TL = 35.825
 SL = 11.509
 CL = 62.201

IP.24
 N = 9.229.708
 E = 436.454
 IA = 147° 0' 36"
 R = 100.000
 TL = 29.604
 SL = 4.289
 CL = 57.595

IP.26
 N = 9.229.
 E = 436.4
 IA = 178°
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.19
 N = 9.229.941.5
 E = 436.213.5
 IA = 174° 48' 00"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.20
 N = 9.229.854
 E = 436.470
 IA = 140° 37' 12"
 R = 130.000
 TL = 46.449
 SL = 8.066
 CL = 89.355

IP.25
 N = 9.229.682
 E = 436.473.5
 IA = 179° 34' 12"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.18
 N = 9.230.055
 E = 436.257
 IA = 145° 22' 48"
 R = 120.000
 TL = 36.804
 SL = 5.516
 CL = 71.451

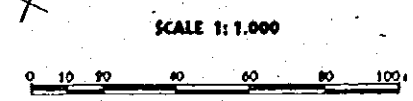
IP.23
 N = 9.229.763
 E = 436.304
 IA = 165° 00' 00"
 R = 70.000
 TL = 15.512
 SL = 1.698
 CL = 30.544

IP.16
 N = 9.230.172
 E = 436.129.5
 IA = 142° 33' 24"
 R = 110.000
 TL = 37.226
 SL = 6.428
 CL = 71.824

IP.22
 N = 9.229.759
 E = 436.257
 IA = 152° 55' 12"
 R = 100.000
 TL = 24.072
 SL = 2.858
 CL = 47.287

IP.21
 N = 9.229.788
 E = 436.186
 IA = 125° 25' 48"
 R = 40.000
 TL = 20.819
 SL = 5.002
 CL = 38.094

FOR REFERENCE				FOR REFERENCE			
NAME	NORTHING	EASTING	ELEVATION	NAME	NORTHING	EASTING	ELEVATION
SML-90	9,230,151.674	436,179.376	0.914	SMR-90	9,230,190.877	436,186.384	0.500
SML-100	9,229,947.305	436,203.807	0.253	SMR-100	9,229,936.999	436,223.946	0.172
SML-110	9,229,739.313	436,337.607	0.486	SMR-110	9,229,763.692	436,346.672	0.684
SML-120	9,229,564.699	436,535.307	0.537	SMR-120	9,229,569.544	436,561.384	0.772



NO.	DATE	REVISIONS

IP.17
 N = 9.230.162
 E = 436.232
 IA = 108° 43' 12"
 R = 50.000
 TL = 35.825
 SL = 11.509
 CL = 62.201

IP.19
 N = 9.229.941.5
 E = 436.213.5
 IA = 174° 48' 00"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.20
 N = 9.229.854
 E = 436.170
 IA = 140° 37' 12"
 R = 130.000
 TL = 46.449
 SL = 8.066
 CL = 88.355

IP.24
 N = 9.229.708
 E = 436.454
 IA = 147° 0' 36"
 R = 100.000
 TL = 29.604
 SL = 4.289
 CL = 57.585

IP.26
 N = 9.229.649.5
 E = 436.497.5
 IA = 178° 30' 00"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.28
 N = 9.229.565
 E = 436.546
 IA = 154° 12' 36"
 R = 100.000
 TL = 22.884
 SL = 2.585
 CL = 45.014

IP.18
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 E = 436.257
 IA = 145° 22' 48"
 R = 120.000
 TL = 36.804
 SL = 5.516
 CL = 71.451

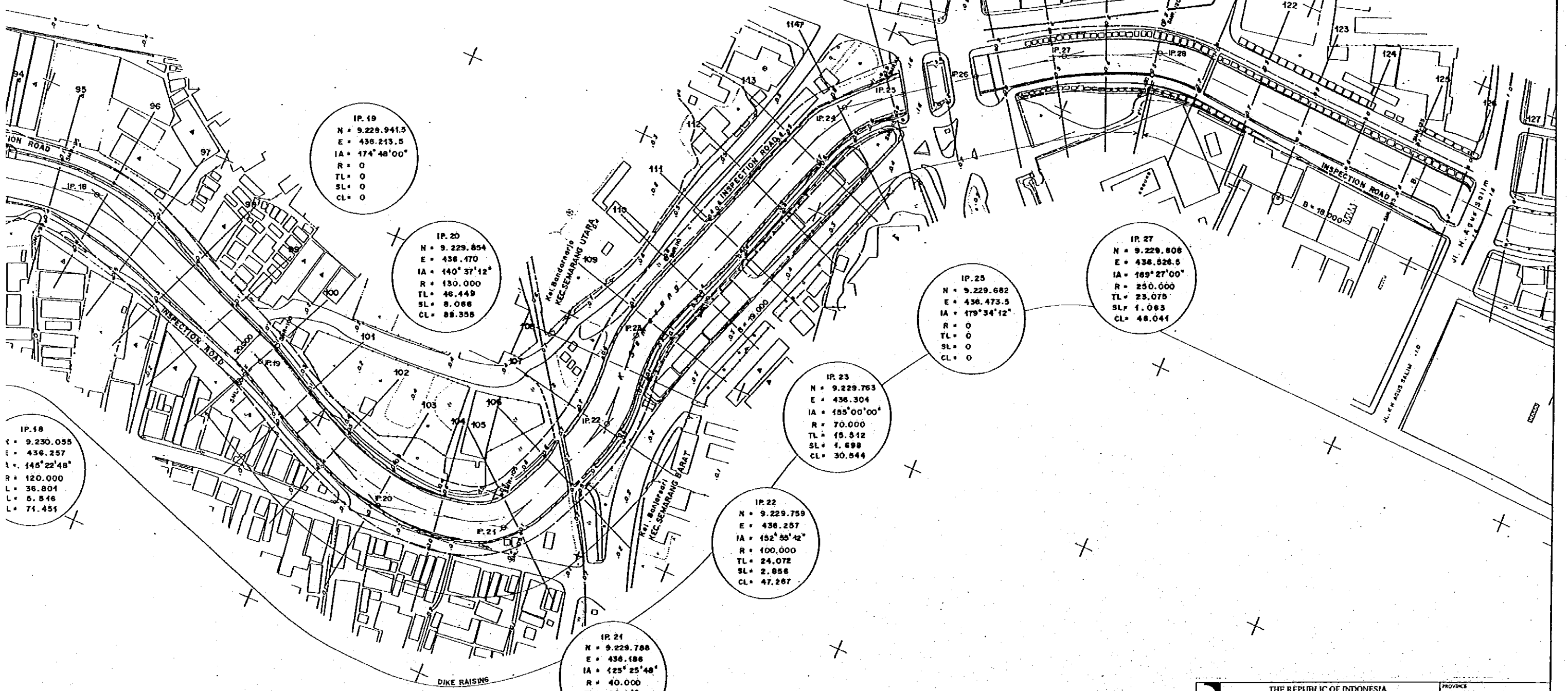
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 N = 9.229.682
 E = 436.473.5
 IA = 179° 34' 12"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.27
 N = 9.229.608
 E = 436.526.5
 IA = 169° 27' 00"
 R = 250.000
 TL = 23.075
 SL = 1.063
 CL = 46.041

IP.23
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 E = 436.304
 IA = 155° 00' 00"
 R = 70.000
 TL = 15.512
 SL = 1.698
 CL = 30.544

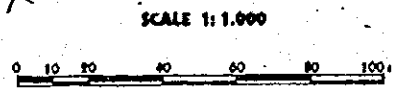
IP.22
 N = 9.229.759
 E = 436.257
 IA = 152° 55' 42"
 R = 100.000
 TL = 24.072
 SL = 2.856
 CL = 47.267

IP.21
 N = 9.229.788
 E = 436.186
 IA = 125° 25' 48"
 R = 40.000
 TL = 20.619
 SL = 5.002
 CL = 38.094



FOR REFERENCE

STING	ELEVATION	NAME	NORTHING	EASTING	ELEVATION
179.376	0.914	SMR-90	9,230,190.877	436,186.384	0.500
203.807	0.253	SMR-100	9,229,936.999	436,223.946	0.172
337.607	0.486	SMR-110	9,229,763.692	436,346.672	0.684
535.307	0.537	SMR-120	9,229,569.544	436,561.384	0.772



NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT
 JRATUNSELUNA FLOOD CONTROL PROJECT
 COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER PLAN (3/7)

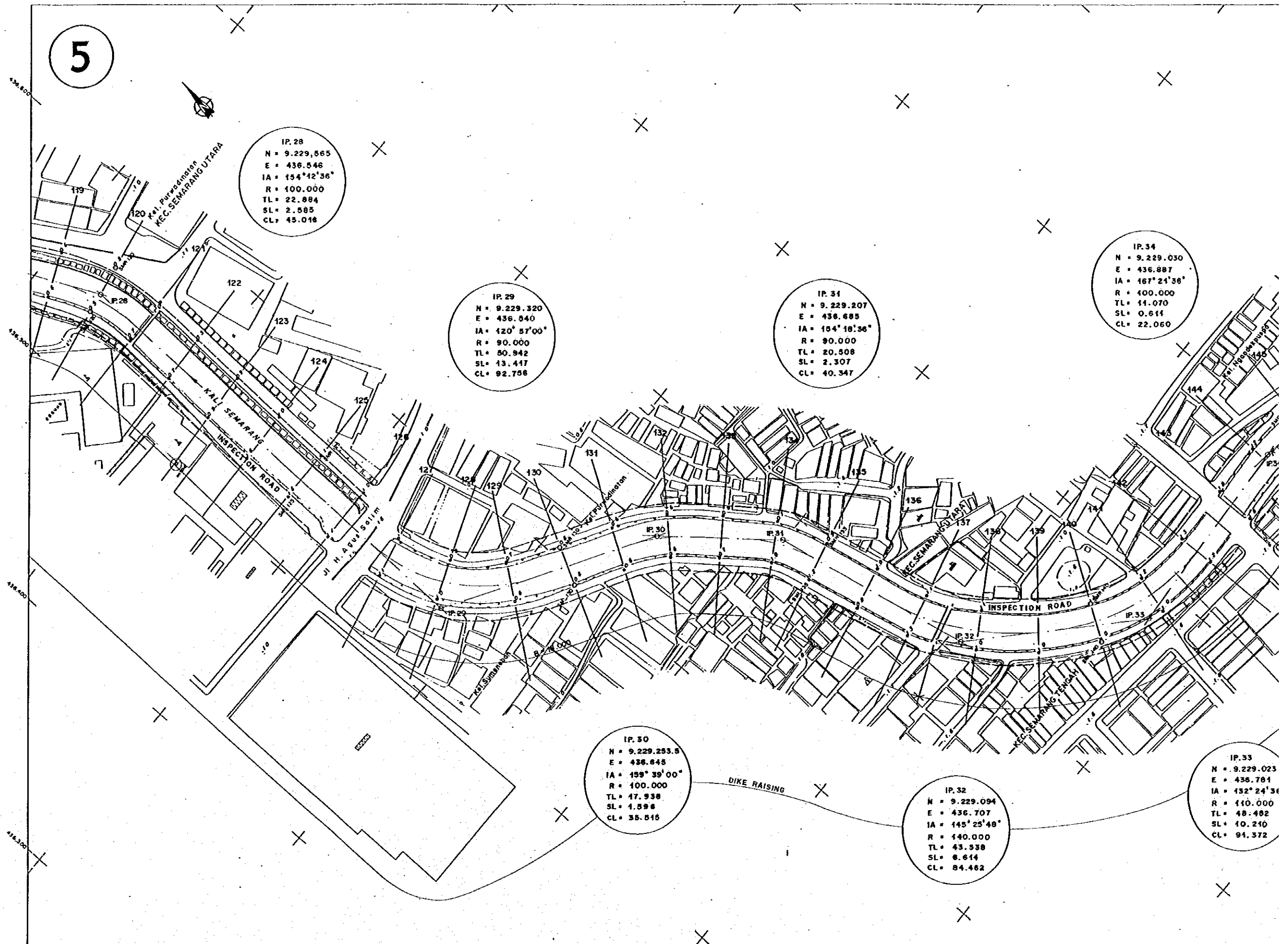
PROVINCE: CENTRAL JAVA
 PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 DISTRICT: SEMARANG CITY
 DRAWING NO. U - P1 - S - P1 - 4
 SHEET NO. 5

APPROVED: [Signature]
 PROJECT MANAGER

DESIGNED: [Signature]
 CHECKED: [Signature]

DATE: [] CONTRACT NO. []

5



IP. 28
 N = 9.229.665
 E = 436.546
 IA = 154°42'36"
 R = 100.000
 TL = 22.884
 SL = 2.585
 CL = 45.016

IP. 29
 N = 9.229.320
 E = 436.840
 IA = 120°57'00"
 R = 90.000
 TL = 80.942
 SL = 13.417
 CL = 92.788

IP. 31
 N = 9.229.207
 E = 436.685
 IA = 104°18'36"
 R = 90.000
 TL = 20.508
 SL = 2.307
 CL = 40.347

IP. 34
 N = 9.229.030
 E = 436.887
 IA = 167°24'36"
 R = 100.000
 TL = 11.070
 SL = 0.611
 CL = 22.060

IP. 30
 N = 9.229.253.9
 E = 436.645
 IA = 159°39'00"
 R = 100.000
 TL = 17.938
 SL = 1.598
 CL = 35.515

IP. 32
 N = 9.229.094
 E = 436.707
 IA = 145°25'48"
 R = 140.000
 TL = 43.538
 SL = 6.614
 CL = 84.462

IP. 33
 N = 9.229.023
 E = 436.781
 IA = 132°24'36"
 R = 110.000
 TL = 48.482
 SL = 10.210
 CL = 94.372

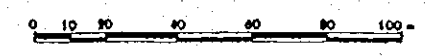
FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SML-120	9,229,364.699	436,535.307	0.337
SML-130	9,229,272.573	436,596.168	0.663
SML-140	9,229,035.153	436,756.469	1.026
SML-150	9,228,965.593	437,018.363	1.492

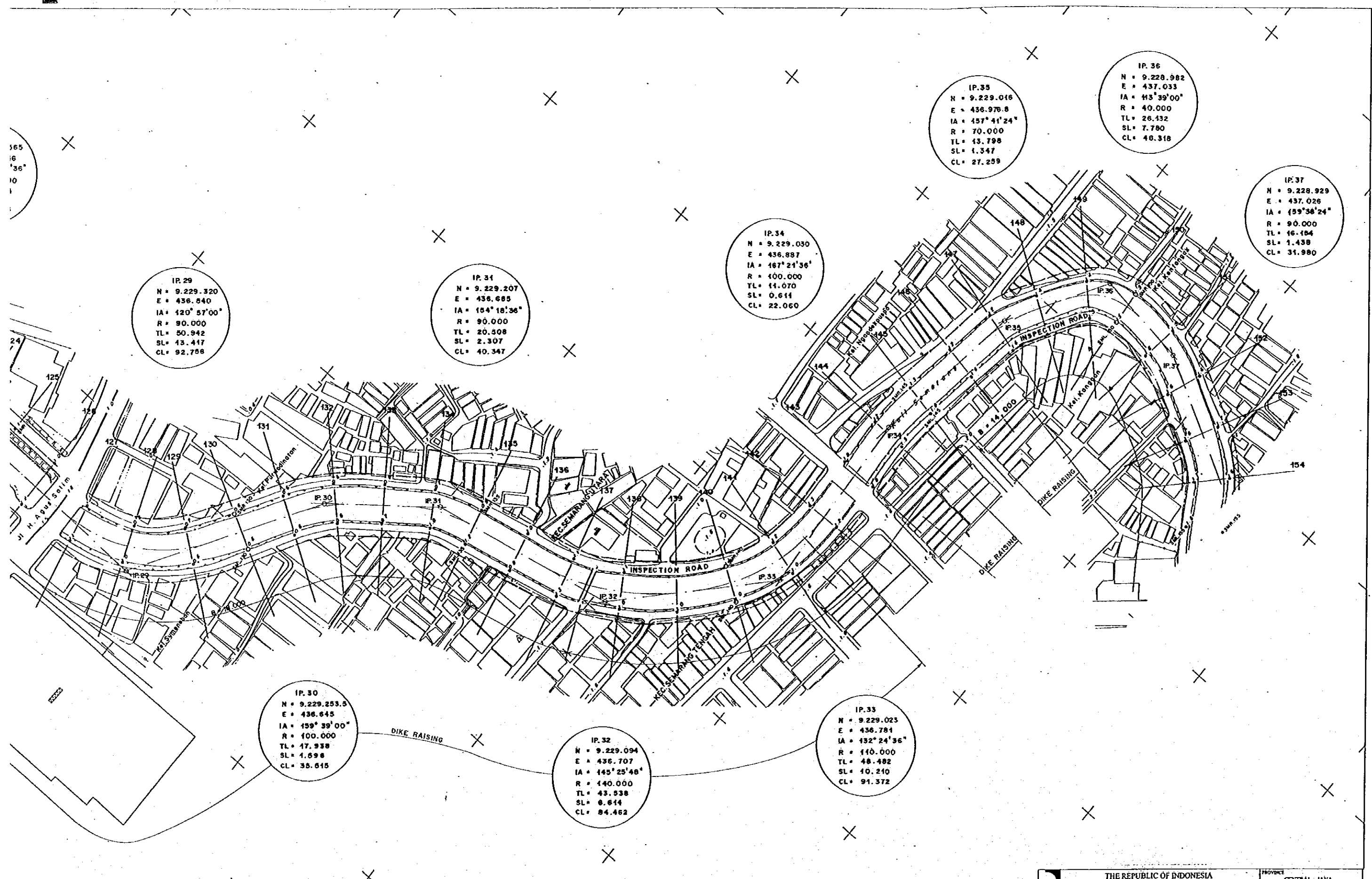
FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SMR-120	9,229,569.544	436,561.384	0.772
SMR-130	9,229,291.277	436,605.715	0.619
SMR-140	9,229,052.496	436,767.796	1.187
SMR-150	9,228,967.193	437,037.069	1.493

SCALE 1:1,000



NO	DATE	REVISIONS



IP. 29
 N = 9.229.320
 E = 436.540
 IA = 120° 57' 00"
 R = 90.000
 TL = 50.942
 SL = 13.417
 CL = 92.758

IP. 31
 N = 9.229.207
 E = 436.685
 IA = 154° 18' 36"
 R = 90.000
 TL = 20.508
 SL = 2.307
 CL = 40.347

IP. 34
 N = 9.229.030
 E = 436.897
 IA = 187° 21' 36"
 R = 100.000
 TL = 11.070
 SL = 0.611
 CL = 22.060

IP. 35
 N = 9.229.016
 E = 436.976.8
 IA = 157° 41' 24"
 R = 70.000
 TL = 13.798
 SL = 1.347
 CL = 27.259

IP. 36
 N = 9.228.982
 E = 437.033
 IA = 113° 39' 00"
 R = 40.000
 TL = 26.432
 SL = 7.780
 CL = 48.318

IP. 37
 N = 9.228.929
 E = 437.026
 IA = 159° 38' 24"
 R = 90.000
 TL = 16.184
 SL = 1.438
 CL = 31.980

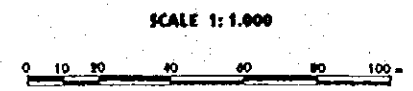
IP. 30
 N = 9.229.253.5
 E = 436.645
 IA = 159° 39' 00"
 R = 100.000
 TL = 17.938
 SL = 1.698
 CL = 35.645

IP. 32
 N = 9.229.094
 E = 436.707
 IA = 145° 25' 48"
 R = 140.000
 TL = 43.538
 SL = 0.614
 CL = 84.462

IP. 33
 N = 9.229.025
 E = 436.781
 IA = 132° 24' 36"
 R = 110.000
 TL = 48.482
 SL = 10.210
 CL = 91.372

FOR REFERENCE

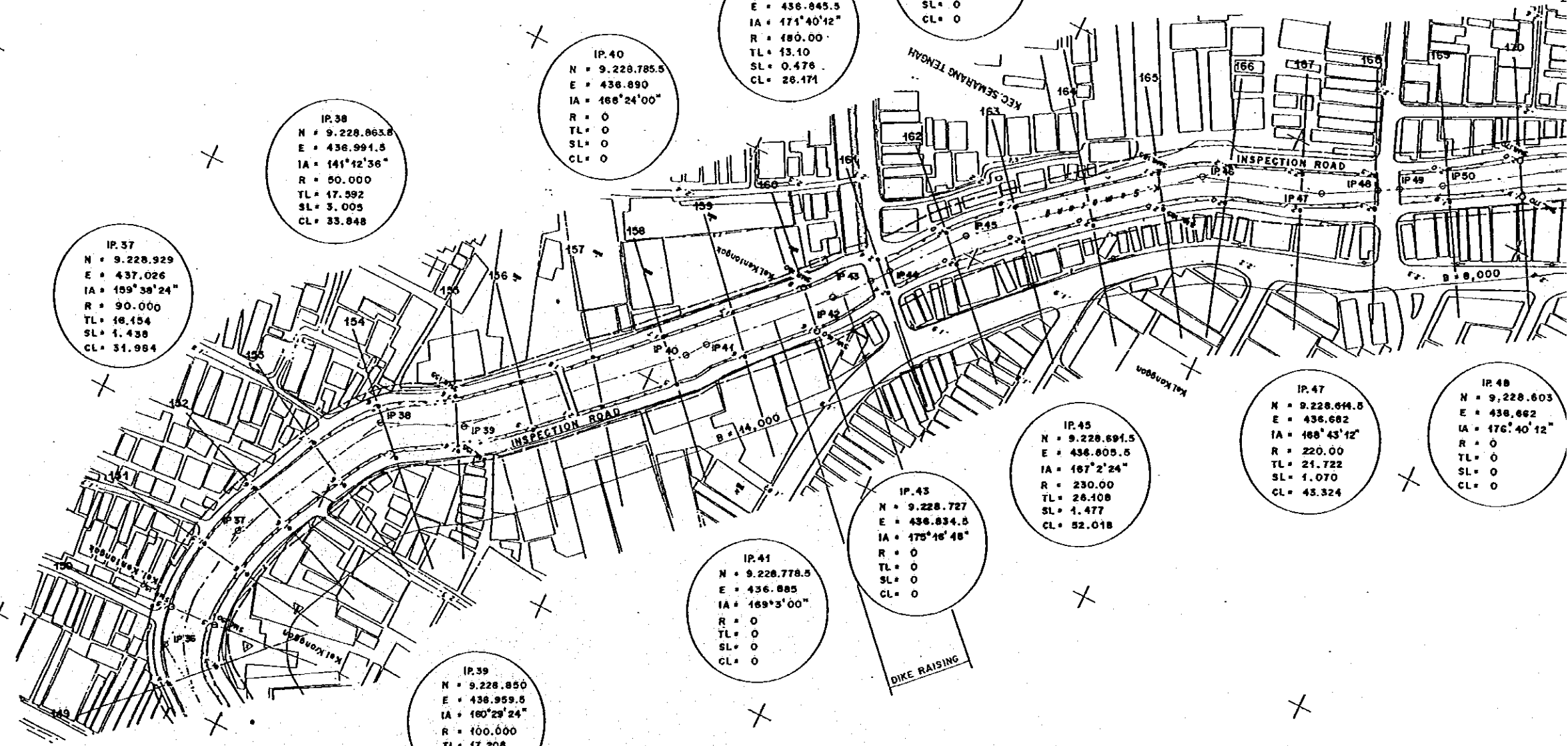
ELEVATION	NAME	NORTHING	EASTING	ELEVATION
0.537	SMR-120	9,229,569.544	436,561.384	0.772
0.663	SMR-130	9,229,291.277	436,605.715	0.619
1.026	SMR-140	9,229,052.496	436,767.796	1.187
1.492	SMR-150	9,228,967.193	437,037.069	1.493



NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVINCE CENTRAL JAWA
JATUNSELUMA FLOOD CONTROL PROJECT COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT SEMARANG RIVER PLAN (4/7)		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
LIAISON INTERNATIONAL COOPERATION AGENCY CH ENGINEERING CO. LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PACCO INTERNATIONAL INC.		DISTRICT SEMARANG CITY DRAWING NO. U - P1 - S - P1 - 6 SHEET NO. 6
DESIGNED CHECKED CHIEF OF PLANNING AND DESIGN PROJECT MANAGER	DATE CONTRACT NO.	APPROVED

6



IP.38
 N = 9.228.863.8
 E = 436.991.5
 IA = 141°42'36"
 R = 50.000
 TL = 17.592
 SL = 3.005
 CL = 33.848

IP.37
 N = 9.228.929
 E = 437.026
 IA = 159°38'24"
 R = 90.000
 TL = 16.154
 SL = 1.438
 CL = 31.984

IP.40
 N = 9.228.785.5
 E = 436.890
 IA = 168°24'00"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.42
 N = 9.228.741
 E = 436.845.3
 IA = 171°40'12"
 R = 480.00
 TL = 13.10
 SL = 0.478
 CL = 28.174

IP.44
 N = 9.228.720
 E = 436.828
 IA = 175°24'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.46
 N = 9.228.630.5
 E = 436.729.5
 IA = 159°51'36"
 R = 100.00
 TL = 17.748
 SL = 1.582
 CL = 35.144

IP.49
 N = 9.228.599
 E = 436.654
 IA = 176°34'48"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.36
 N = 9.228.982
 E = 437.033
 IA = 113°39'00"
 R = 40.000
 TL = 28.138
 SL = 7.780
 CL = 48.318

IP.39
 N = 9.228.850
 E = 436.959.5
 IA = 180°29'24"
 R = 100.000
 TL = 17.208
 SL = 1.469
 CL = 34.095

IP.41
 N = 9.228.778.5
 E = 436.885
 IA = 169°3'00"
 R = 0
 TL = 0
 SL = 0
 CL = 0

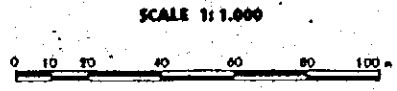
IP.43
 N = 9.228.727
 E = 436.834.5
 IA = 175°16'48"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.45
 N = 9.228.691.5
 E = 436.805.5
 IA = 167°2'24"
 R = 230.00
 TL = 26.108
 SL = 1.477
 CL = 52.018

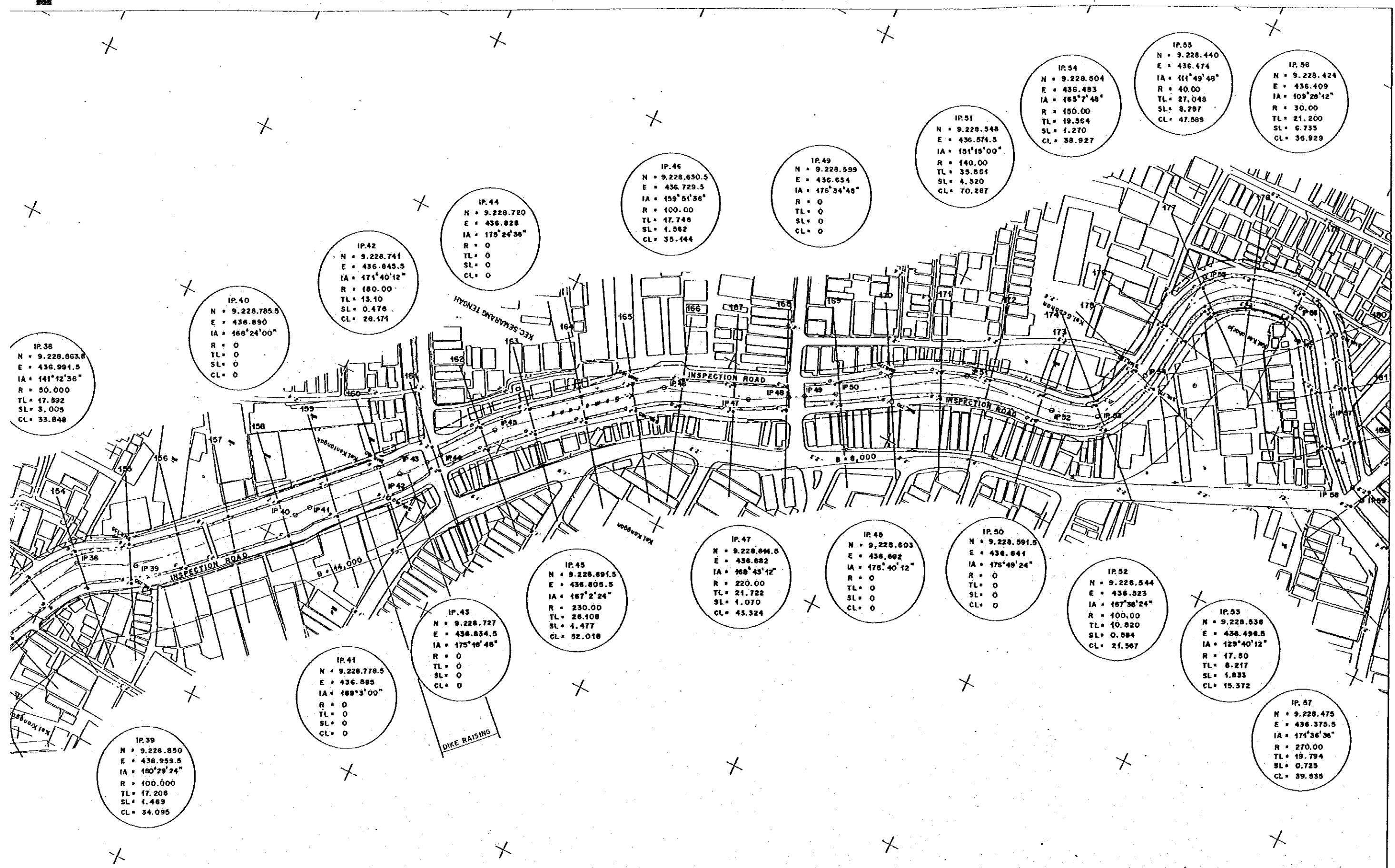
IP.47
 N = 9.228.644.5
 E = 436.682
 IA = 168°43'12"
 R = 220.00
 TL = 21.722
 SL = 1.070
 CL = 43.324

IP.48
 N = 9.228.603
 E = 436.662
 IA = 176°40'12"
 R = 0
 TL = 0
 SL = 0
 CL = 0

FOR REFERENCE				FOR REFERENCE			
NAME	NORTHING	EASTING	ELEVATION	NAME	NORTHING	EASTING	ELEVATION
SML-150	9,228,965.593	437,018.363	1.492	SMR-150	9,228,967.193	437,037.069	1.493
SML-160	9,228,753.601	436,846.474	1.647	SMR-160	9,228,740.903	436,858.765	1.783
SML-170	9,228,577.918	436,608.199	1.984	SMR-170	9,228,565.614	436,615.830	2.052
SML-180	9,228,445.138	436,402.787	2.398	SMR-180	9,228,433.626	436,392.422	2.392

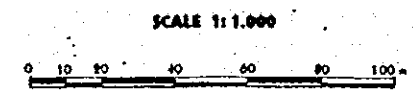


NO.	DATE	REVISIONS



FOR REFERENCE

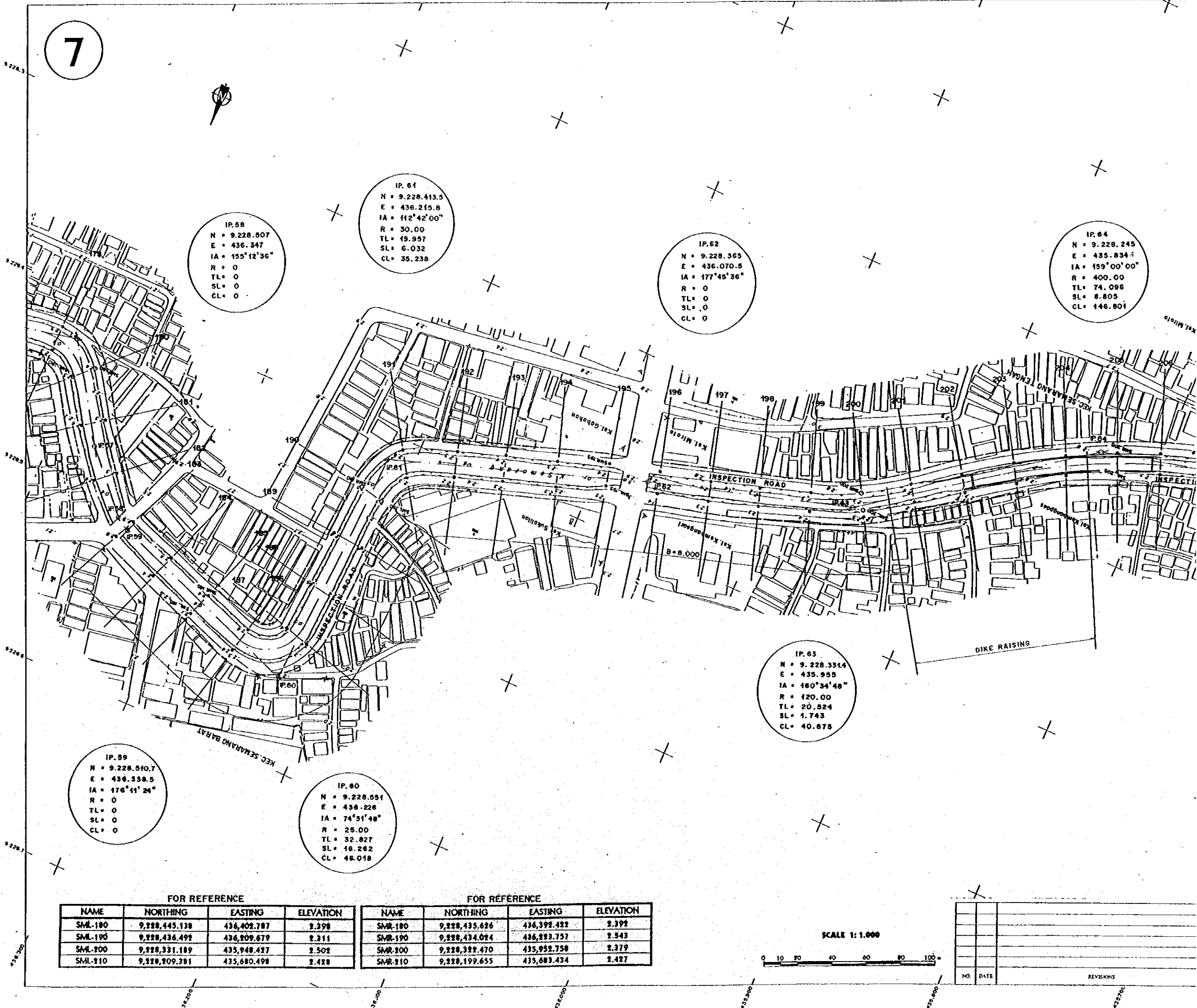
ELEVATION	NAME	NORTHING	EASTING	ELEVATION
1.492	SMR-150	9,228,967.193	437,037.069	1.493
1.647	SMR-160	9,228,740.903	436,858.765	1.785
1.984	SMR-170	9,228,565.614	436,615.230	2.052
2.398	SMR-180	9,228,435.626	436,392.422	2.392



NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVINCE CENTRAL JAVA
JATUNSELUNA FLOOD CONTROL PROJECT COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT SEMARANG RIVER PLAN (5/7)		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA DISTRICT SEMARANG CITY DRAWING NO. U-P1-S-PI-8 SHEET NO. 7
JAPAN INTERNATIONAL COOPERATION AGENCY CITI ENGINEERING CO. LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PACCO INTERNATIONAL INC.	DESIGNED CHECKED CHIEF OF PLANNING AND DESIGN PROJECT MANAGER	DATE CONTRACT NO.

7



IP.58
 N = 9.228.607
 E = 436.347
 IA = 155°12'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.61
 N = 9.228.413.5
 E = 436.215.8
 IA = 112°42'00"
 R = 30.00
 TL = 19.957
 SL = 6.032
 CL = 35.238

IP.62
 N = 9.228.365
 E = 436.070.5
 IA = 177°45'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.64
 N = 9.228.245
 E = 435.834
 IA = 159°00'00"
 R = 400.00
 TL = 74.096
 SL = 6.805
 CL = 146.601

IP.63
 N = 9.228.331.4
 E = 435.955
 IA = 160°34'48"
 R = 120.00
 TL = 20.524
 SL = 1.743
 CL = 40.675

IP.59
 N = 9.228.510.7
 E = 436.358.5
 IA = 176°11'24"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP.60
 N = 9.228.551
 E = 436.226
 IA = 74°31'48"
 R = 25.00
 TL = 32.827
 SL = 18.282
 CL = 46.018

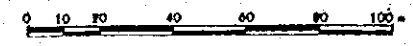
FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SMR-180	9,228,445.138	436,402.787	2.378
SMR-190	9,228,436.492	436,209.679	2.311
SMR-200	9,228,331.189	435,948.427	2.502
SMR-210	9,228,209.381	435,680.498	2.428

FOR REFERENCE

NAME	NORTHING	EASTING	ELEVATION
SMR-180	9,228,435.626	436,392.422	2.392
SMR-190	9,228,434.024	436,283.757	2.543
SMR-200	9,228,322.470	435,952.758	2.379
SMR-210	9,228,192.655	435,683.434	2.427

SCALE 1:1,000



NO.	DATE	REVISIONS



IP. 61
 N = 9.228.413.5
 E = 436.215.8
 IA = 112°42'00"
 R = 30.00
 TL = 19.937
 SL = 6.032
 CL = 35.238

IP. 62
 N = 9.228.365
 E = 436.070.5
 IA = 177°45'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 64
 N = 9.228.245
 E = 435.834.7
 IA = 159°00'00"
 R = 400.00
 TL = 74.098
 SL = 6.805
 CL = 146.801

IP. 66
 N = 9.228.196
 E = 435.651.5
 IA = 172°15'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 63
 N = 9.228.331.4
 E = 435.955
 IA = 160°34'48"
 R = 120.00
 TL = 20.524
 SL = 1.743
 CL = 40.675

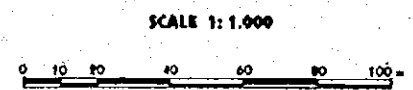
IP. 65
 N = 9.228.201.5
 E = 435.668
 IA = 176°42'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 67
 N = 9.228.179
 E = 435.561.5
 IA = 175°42'36"
 R = 700.00
 TL = 29.278
 SL = 0.612
 CL = 58.545

IP. 60
 N = 9.228.551
 E = 436.226
 IA = 74°31'48"
 R = 25.00
 TL = 32.827
 SL = 16.262
 CL = 46.018

FOR REFERENCE

ELEVATION	NAME	NORTHING	EASTING	ELEVATION
2.398	SMR-180	9,228,435.626	436,392.422	2.392
2.311	SMR-190	9,228,434.024	436,283.757	2.543
2.502	SMR-200	9,228,322.470	435,952.758	2.379
2.428	SMR-210	9,228,199.655	435,683.434	2.427



NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

IRATUNSELUNA FLOOD CONTROL PROJECT
 COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER
 PLAN (6/7)

JAPAN INTERNATIONAL COOPERATION AGENCY
 CII ENGINEERING CO. LTD. in association with
 PACIFIC CONSULTANTS INTERNATIONAL AND
 JASCO INTERNATIONAL INC.

DESIGNED: [Signature]
 CHECKED: [Signature]
 CHIEF OF PLANNING AND DESIGN
 PROJECT MANAGER

PROVINCE: CENTRAL JAVA
 PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 DISTRICT: SEMARANG CITY
 DRAWING NO.: U-P1-S-P1-7
 SHEET NO.: 8
 DATE: [Blank]
 CONTRACT NO.: [Blank]

8

IP. 70
 N = 9.227.915
 E = 435.208
 IA = 437°58'48"
 R = 80.00
 TL = 30.707
 SL = 5.694
 CL = 58.667

IP. 66
 N = 9.228.496
 E = 435.691.5
 IA = 172°15'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 68
 N = 9.228.156
 E = 435.478.5
 IA = 163°3'00"
 R = 270.00
 TL = 40.207
 SL = 2.977
 CL = 79.866

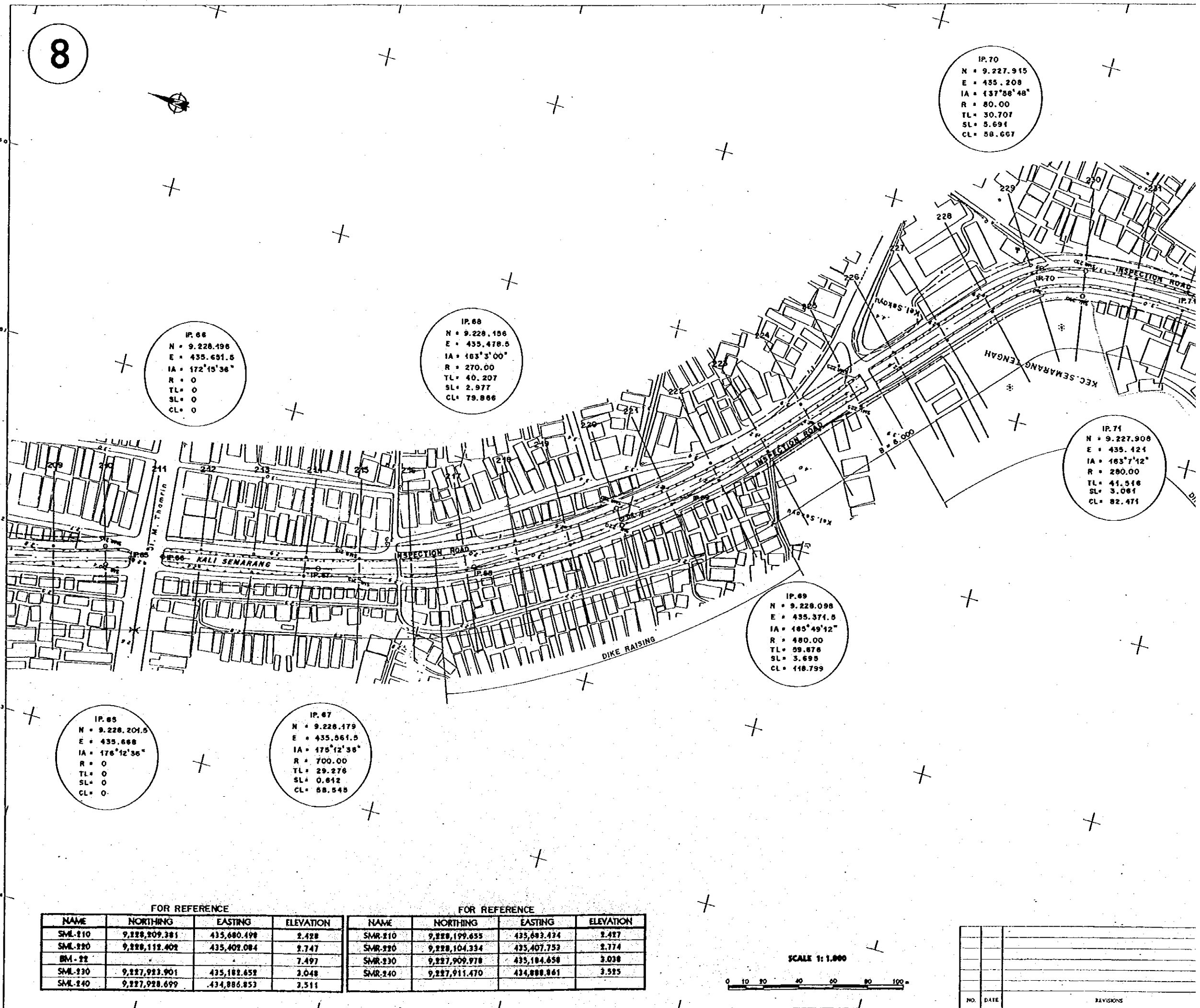
IP. 74
 N = 9.227.908
 E = 435.424
 IA = 163°7'12"
 R = 280.00
 TL = 41.516
 SL = 3.061
 CL = 82.471

IP. 69
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 E = 435.371.5
 IA = 165°49'12"
 R = 480.00
 TL = 59.876
 SL = 3.695
 CL = 118.799

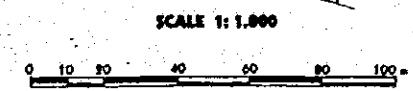
IP. 65
 N = 9.228.201.5
 E = 435.668
 IA = 176°12'36"
 R = 0
 TL = 0
 SL = 0
 CL = 0

IP. 67
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 E = 435.561.5
 IA = 175°12'36"
 R = 700.00
 TL = 29.276
 SL = 0.612
 CL = 58.548

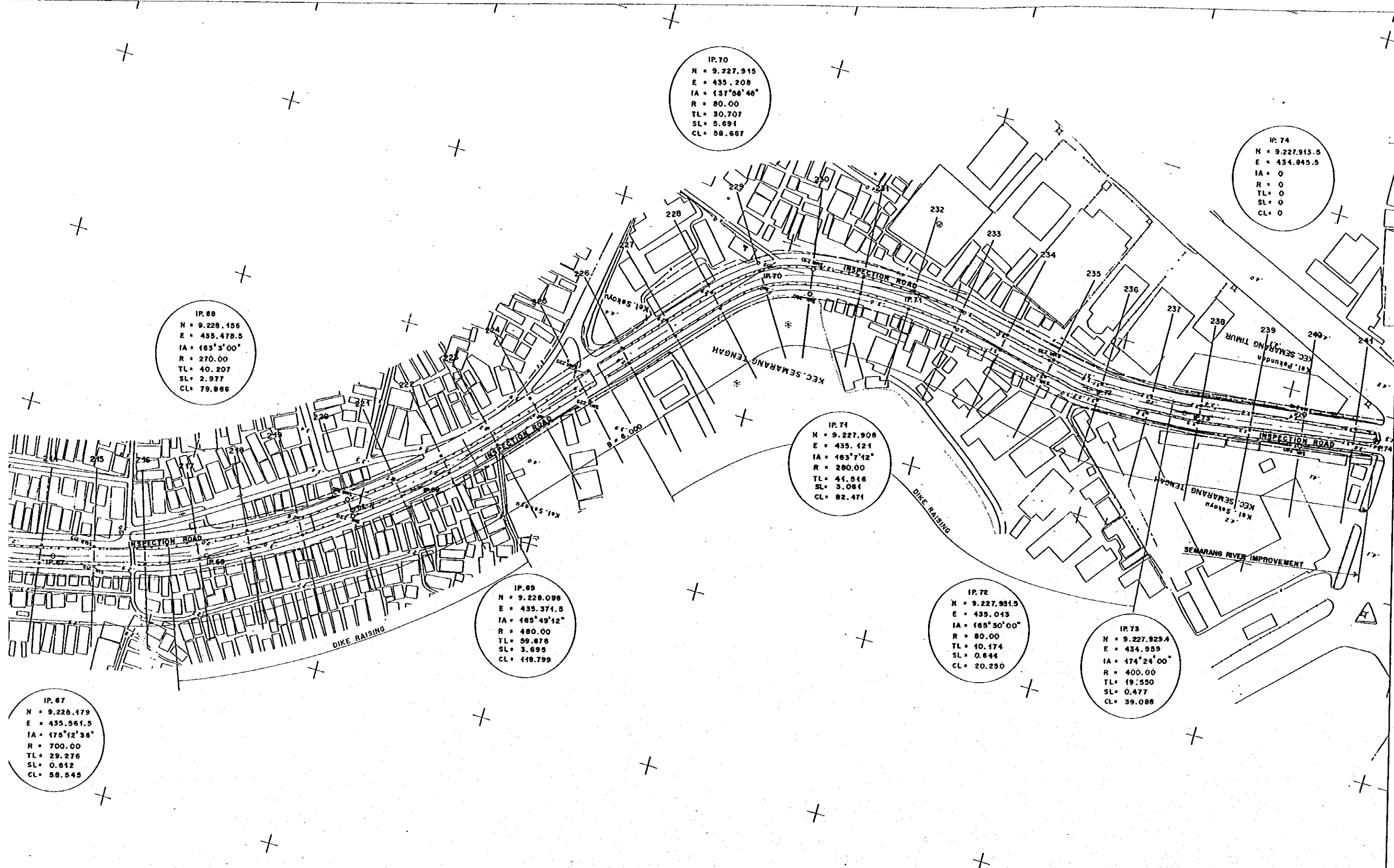
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 9.228.1
 9.228.2
 9.228.3
 9.228.4



FOR REFERENCE				FOR REFERENCE			
NAME	NORTHING	EASTING	ELEVATION	NAME	NORTHING	EASTING	ELEVATION
SMR-210	9,228,209.381	435,680.198	2.428	SMR-210	9,228,199.655	435,693.434	2.427
SMR-220	9,228,112.402	435,402.084	2.747	SMR-220	9,228,104.334	435,407.752	2.774
BM-22			7.497	SMR-230	9,227,909.978	435,184.658	3.038
SMR-230	9,227,923.901	435,182.652	3.048	SMR-240	9,227,911.470	434,888.861	3.525
SMR-240	9,227,928.699	434,886.853	3.511				



NO.	DATE	REVISIONS



IP. 67
 N = 9.228.179
 E = 435.561.5
 IA = 175°12'38"
 R = 700.00
 TL = 29.276
 SL = 0.612
 CL = 58.545

IP. 68
 N = 9.228.456
 E = 435.478.5
 IA = 163°3'00"
 R = 270.00
 TL = 40.207
 SL = 2.977
 CL = 79.866

IP. 69
 N = 9.228.098
 E = 435.371.5
 IA = 165°49'12"
 R = 480.00
 TL = 59.878
 SL = 3.695
 CL = 118.799

IP. 70
 N = 9.227.915
 E = 435.208
 IA = 137°58'48"
 R = 80.00
 TL = 30.707
 SL = 5.691
 CL = 58.667

IP. 71
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 E = 435.421
 IA = 163°7'12"
 R = 280.00
 TL = 41.516
 SL = 3.081
 CL = 82.471

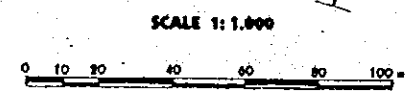
IP. 72
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 E = 435.043
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 R = 80.00
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IP. 73
 N = 9.227.929.4
 E = 434.959
 IA = 174°24'00"
 R = 400.00
 TL = 19.530
 SL = 0.477
 CL = 39.088

IP. 74
 N = 9.227.913.5
 E = 434.845.5
 IA = 0
 R = 0
 TL = 0
 SL = 0
 CL = 0

FOR REFERENCE

ELEVATION	NAME	NORTHING	EASTING	ELEVATION
2.428	SMR-210	9,228,199.655	435,683.434	2.427
2.747	SMR-220	9,228,104.334	435,407.733	2.774
7.497	SMR-230	9,227,909.978	435,184.658	3.038
3.048	SMR-240	9,227,911.470	434,888.861	3.525
3.511				



NO.	DATE	REVISORS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVINCE CENTRAL JAWA
JATUNSELUNA FLOOD CONTROL PROJECT COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT SEMARANG RIVER PLAN (1/1)		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
JAPAN INTERNATIONAL COOPERATION AGENCY CCI ENGINEERING CO. LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL INC. AND FASCO INTERNATIONAL INC.		DISTRICT SEMARANG CITY
DESIGNED CHECKED		DRAWING NO. U-P1-S-P1-8 SHEET NO. 9
CHIEF OF PLANNING AND DESIGN PROJECT MANAGER		DATE CONTRACT NO.

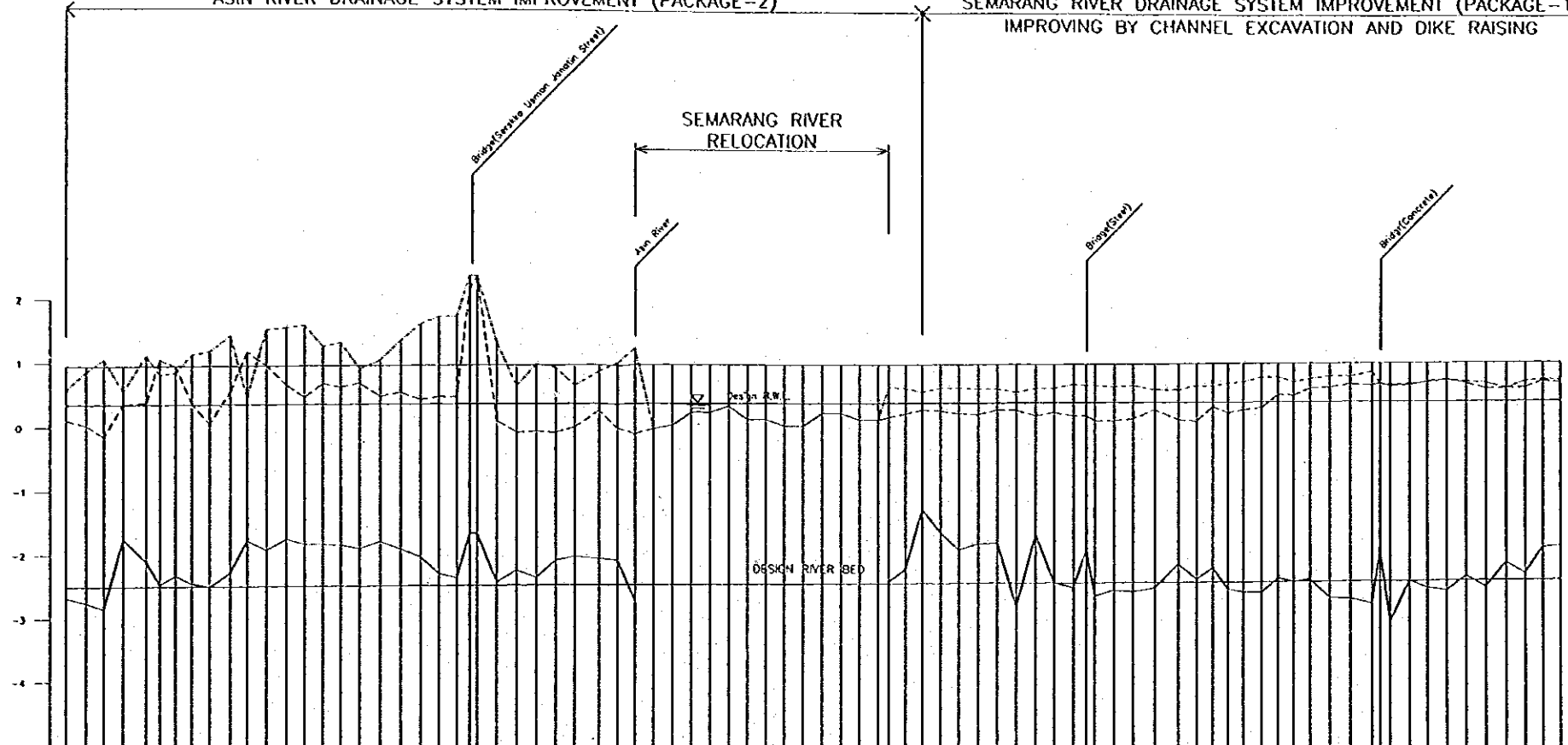
ASIN RIVER DRAINAGE SYSTEM IMPROVEMENT (PACKAGE-2)

SEMARANG RIVER DRAINAGE SYSTEM IMPROVEMENT (PACKAGE-1)
IMPROVING BY CHANNEL EXCAVATION AND DIKE RAISING

(Elevation EL. m)

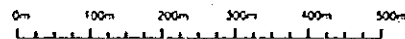


-5.00 (m)



GRADIENT OF DESIGN RIVER BED		1:10,000	
DESIGN ELEVATION (EL. m)	DIKE CROWN	0.950	1.146
	HIGH WATER LEVEL (H.W.L.)	0.350	0.546
	RIVER BED	-2.500	-2.260
EXISTING ELEVATION (EL. m)	RIGHT BANK	0.560	0.630
	LEFT BANK	0.110	0.870
	LOWEST RIVER BED	-2.670	-1.720
DISTANCE (m)	ACCUMULATED	0.000	2400.97
	PARTIAL	31.846	26.215
STATION NO. (SMR-)		0	79

SCALE A
1 : 5000



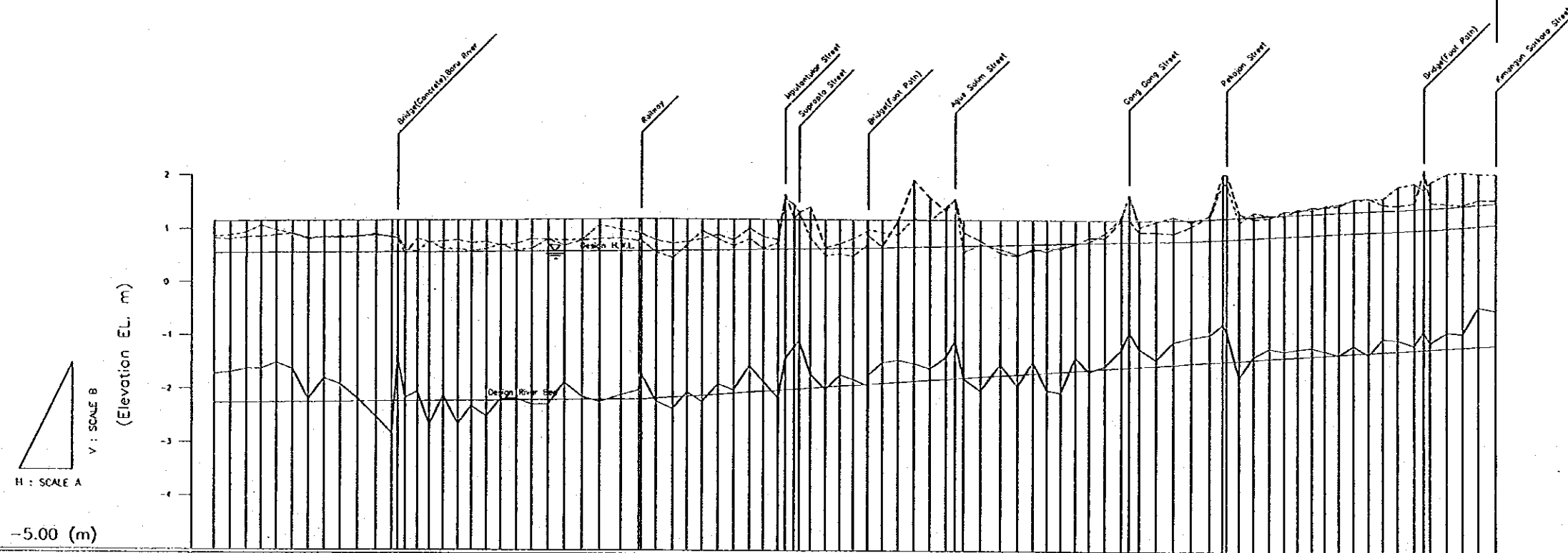
SCALE B
1 : 50



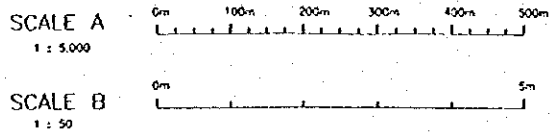
NO.	DATE	REVISIONS	ORIGINATOR	DESIGNER	APPROVED

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT		PROVINCE CENTRAL JAVA
SURABAYA FLOOD CONTROL PROJECT COMPONENT: URBAN DRAINAGE SYSTEM IMPROVEMENT SEMARANG RIVER LONGITUDINAL PROFILE (1/3)		PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA DISTRICT SEMARANG CITY
JAPAN INTERNATIONAL COOPERATION AGENCY CITY ENGINEERING CO., LTD. in association with PACIFIC CONSULTANTS INTERNATIONAL, INC. PACO INTERNATIONAL, INC.		DRAWING NO. U.P1-S-Lo-1 SHEET NO. 10
CHIEF OF PLANNING AND DESIGN APPROVED: <i>[Signature]</i>	CHIEF OF PROJECT APPROVED: <i>[Signature]</i>	DATE CONTRACT NO.

IMPROVING BY CHANNEL EXCAVATION AND DIKE RAISING



GRADIENT OF DESIGN RIVER BED		1=1/10,000	1=1/1,500
DESIGN ELEVATION (EL. m)	DIKE CROWN	1.146	1.594
	HIGH WATER LEVEL (H.W.L.)	0.546	1.194
	RIVER BED	-2.260	-1.095
EXISTING ELEVATION (EL. m)	RIGHT BANK	0.830	1.650
	LEFT BANK	0.870	1.650
	LOWEST RIVER BED	-1.720	-0.440
DISTANCE (m)	ACCUMULATED	2400.97	4837.01
	PARTIAL	30.069	33.42
STATION NO. (SMR-)		79	161



NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

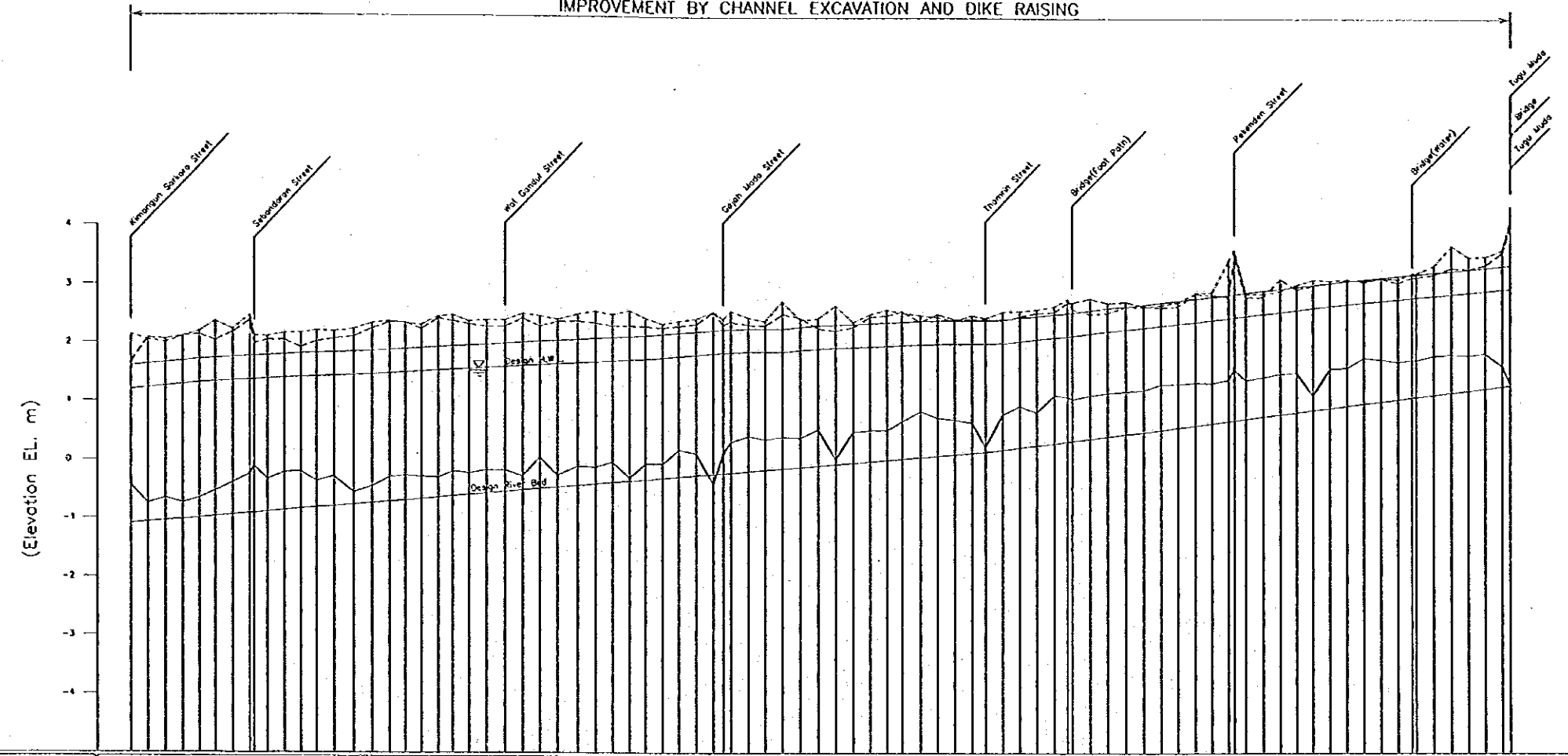
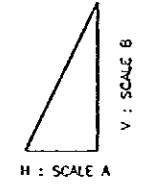
IRATURNELUNA FLOOD CONTROL PROJECT
 COMPONENT 1: URBAN DRAINAGE SYSTEM IMPROVEMENT
 SEMARANG RIVER
 LONGITUDINAL PROFILE (2/3)

JAWA INTERNATIONAL COOPERATION AGENCY
 CII ENGINEERING CO., LTD. IN ASSOCIATION WITH
 PACIFIC CONSULTANTS (INDONESIA) PT. LTD. AND
 TARKO INTERNATIONAL P.T.

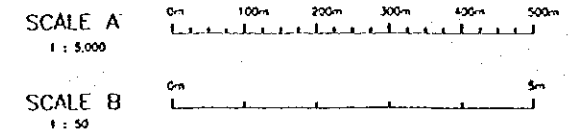
DESIGNED: [Signature]
 CHECKED: [Signature]
 CHIEF OF PLANNING AND DESIGN
 PROJECT MANAGER

PROVINCE: CENTRAL JAVA
 PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
 DISTRICT: SEMARANG CITY
 DRAWING NO.: U.P1-S1-02
 SHEET NO.: 11
 DATE: [Blank]
 CONTRACT NO.: [Blank]

IMPROVEMENT BY CHANNEL EXCAVATION AND DIKE RAISING



STATION NO. (SMR-)	DISTANCE (m)		EXISTING ELEVATION (EL. m)	DESIGN ELEVATION (EL. m)			GRADIENT OF DESIGN RIVER BED	
	PARTIAL	ACCUMULATED		DIKE CROWN	HIGH WATER LEVEL (H.W.L.)	RIVER BED	RIGHT BANK	LEFT BANK
161		4537.01	-0.440	1.594	1.194	2.130		
162	30.29	4887.3	-0.750	1.625	1.223	2.040		
163	29.41	4886.7	-0.660	1.651	1.251	1.990		
164	29.75	4926.45	-0.740	1.680	1.280	2.100		
165	28.81	4956.06	-0.540	1.709	1.309	2.190		
166	30.55	4984.62	-0.400	1.726	1.326	2.360		
167	30.26	5013.16	-0.400	1.744	1.344	2.220		
168	29.96	5043.52	-0.370	1.769	1.369	2.170		
169	29.47	5073.88	-0.340	1.788	1.388	2.100		
170	29.97	5104.82	-0.220	1.813	1.413	2.150		
171	27.77	5135.29	-0.210	1.801	1.401	2.160		
172	31.04	5165.06	-0.370	1.813	1.413	2.200		
173	31.94	5194.1	-0.290	1.827	1.427	2.190		
174	33.52	5227.62	-0.560	1.842	1.442	2.230		
175	32.02	5259.64	-0.460	1.856	1.456	2.330		
176	30.87	5290.31	-0.300	1.872	1.472	2.360		
177	28.29	5318.6	-0.270	1.887	1.487	2.300		
178	28.69	5346.8	-0.290	1.902	1.502	2.300		
179	24.27	5375.49	-0.310	1.918	1.518	2.440		
180	28.76	5403.76	-0.200	1.932	1.532	2.460		
181	30.92	5429.51	-0.230	1.948	1.548	2.360		
182	31.84	5460.43	-0.180	1.965	1.565	2.380		
183	30.43	5492.27	-0.180	1.982	1.582	2.380		
184	30.00	5522.7	-0.280	2.000	1.600	2.410		
185	30.74	5552.7	0.040	2.017	1.617	2.450		
186	35.89	5583.44	-0.270	2.034	1.634	2.400		
187	31.04	5616.13	-0.110	2.053	1.653	2.490		
188	29.89	5650.16	-0.130	2.071	1.671	2.540		
189	29.72	5680.05	-0.040	2.088	1.688	2.480		
190	27.56	5709.77	-0.310	2.104	1.704	2.350		
191	29.58	5737.33	-0.070	2.119	1.719	2.420		
192	28.43	5766.91	-0.070	2.140	1.740	2.320		
193	31.11	5795.34	0.170	2.160	1.760	2.370		
194	29.72	5826.45	0.110	2.186	1.786	2.410		
195	28.57	5856.17	-0.410	2.215	1.815	2.530		
196	30.17	5885.42	0.310	2.236	1.836	2.350		
197	30.17	5916.57	0.410	2.251	1.851	2.440		
198	29.21	5945.78	0.360	2.251	1.851	2.380		
199	30.11	5975.89	0.400	2.251	1.851	2.500		
200	30.12	6006.01	0.390	2.251	1.851	2.400		
201	30.26	6036.27	0.330	2.251	1.851	2.440		
202	30.07	6066.34	0.020	2.251	1.851	2.220		
203	36.75	6097.08	0.490	2.251	1.851	2.370		
204	29.39	6126.47	0.320	2.251	1.851	2.460		
205	29.80	6156.28	0.520	2.251	1.851	2.480		
206	25.63	6181.91	0.670	2.251	1.851	2.550		
207	31.91	6213.82	0.840	2.251	1.851	2.370		
208	30.18	6244	0.730	2.251	1.851	2.480		
209	30.13	6274.13	0.700	2.251	1.851	2.390		
210	30.17	6304.29	0.650	2.251	1.851	2.490		
211	22.78	6327.07	0.240	2.251	1.851	2.410		
212	30.40	6357.47	0.790	2.251	1.851	2.550		
213	30.06	6387.53	0.930	2.251	1.851	2.470		
214	31.15	6417.29	0.830	2.251	1.851	2.590		
215	21.5	6448.43	1.120	2.251	1.851	2.550		
216	27.29	6479.32	1.080	2.251	1.851	2.600		
217	30.89	6509.54	1.110	2.251	1.851	2.760		
218	29.95	6539.48	1.150	2.251	1.851	2.700		
219	30.67	6570.15	1.180	2.251	1.851	2.630		
220	30.56	6600.71	1.210	2.251	1.851	2.650		
221	29.65	6631.32	1.310	2.251	1.851	2.620		
222	31.21	6661.17	1.320	2.251	1.851	2.710		
223	29.22	6692.36	1.340	2.251	1.851	2.880		
224	29.14	6723.0	1.330	2.251	1.851	2.840		
225	29.25	6753.65	1.390	2.251	1.851	2.880		
226	29.26	6784.34	1.360	2.251	1.851	2.860		
227	29.80	6811.04	1.430	2.251	1.851	2.810		
228	29.88	6840.84	1.490	2.251	1.851	3.120		
229	28.88	6869.72	1.510	2.251	1.851	2.910		
230	28.00	6898.32	1.110	2.251	1.851	3.020		
231	29.65	6927.86	1.570	2.251	1.851	3.090		
232	29.36	6957.51	1.590	2.251	1.851	3.090		
233	29.62	6986.86	1.760	2.251	1.851	3.080		
234	29.84	7016.48	1.730	2.251	1.851	3.120		
235	29.84	7046.31	1.680	2.251	1.851	3.110		
236	29.27	7075.91	1.720	2.251	1.851	3.140		
237	30.21	7107.63	1.790	2.251	1.851	3.190		
238	30.36	7137.98	1.820	2.251	1.851	3.180		
239	29.82	7167.8	1.800	2.251	1.851	3.290		
240	29.92	7197.32	1.840	2.251	1.851	3.360		
241	29.90	7227.02	1.820	2.251	1.851	3.310		
241+13	13.86	7241.88	1.820	2.251	1.851	3.370		



NO.	DATE	REVISIONS	COORDINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
 AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

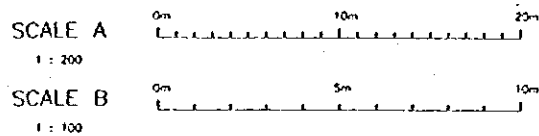
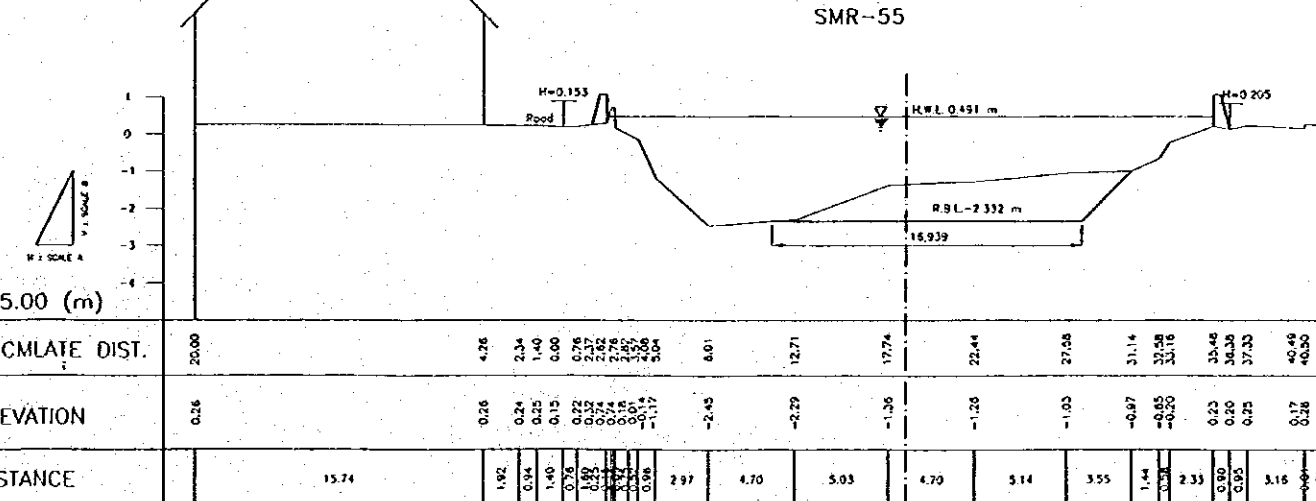
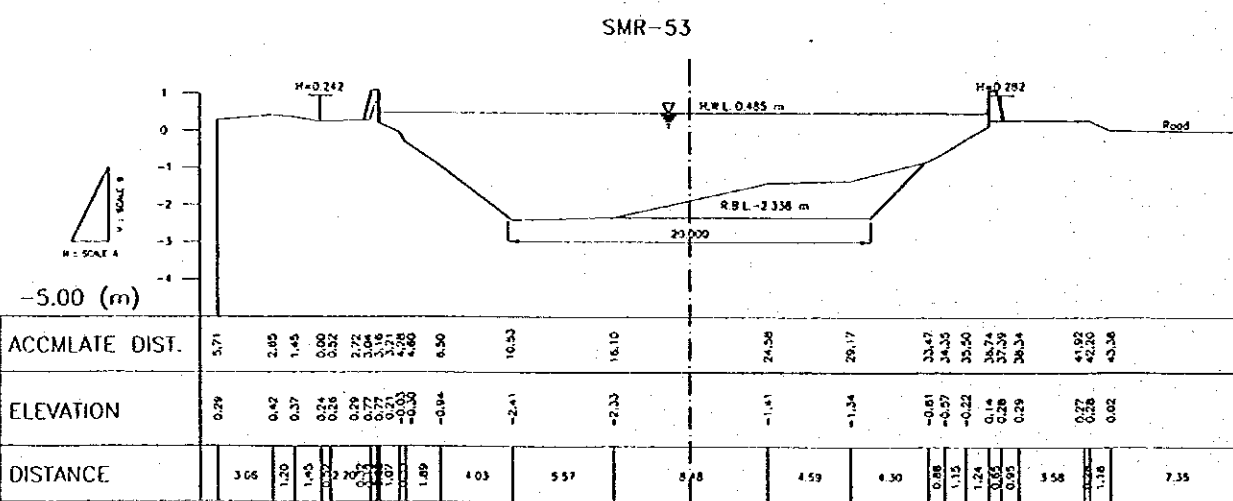
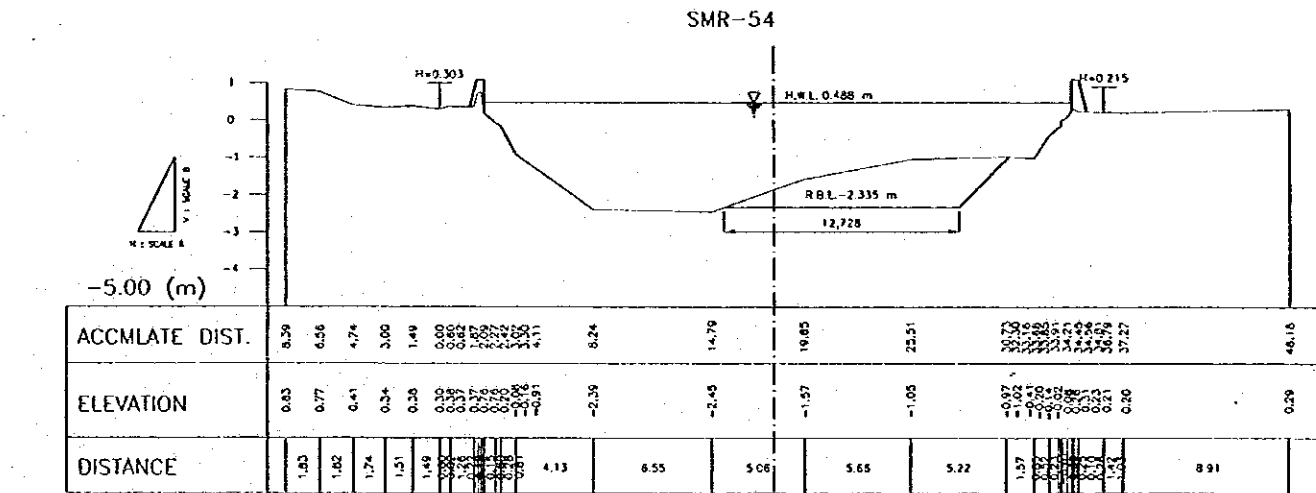
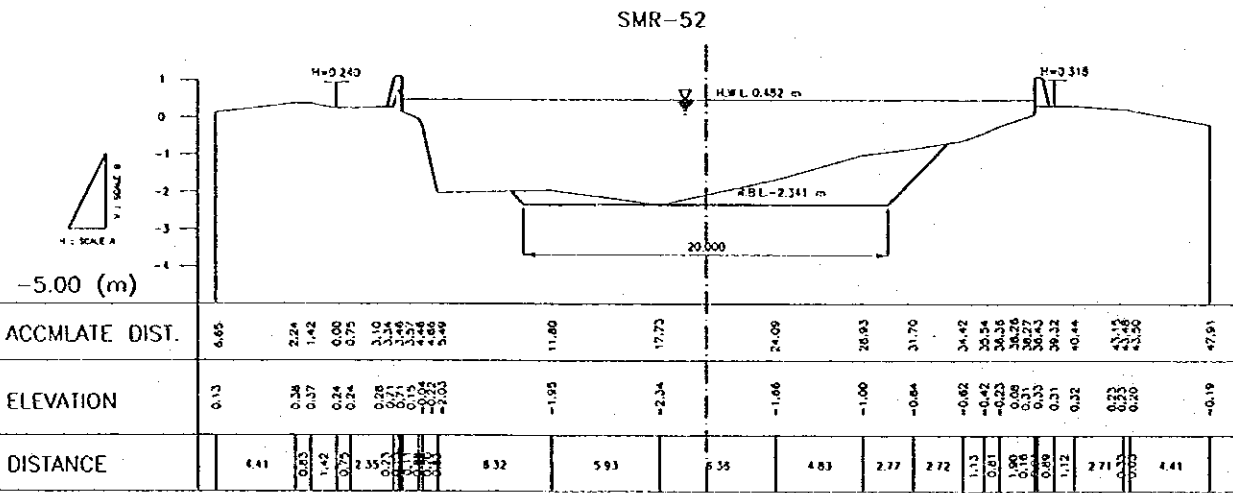
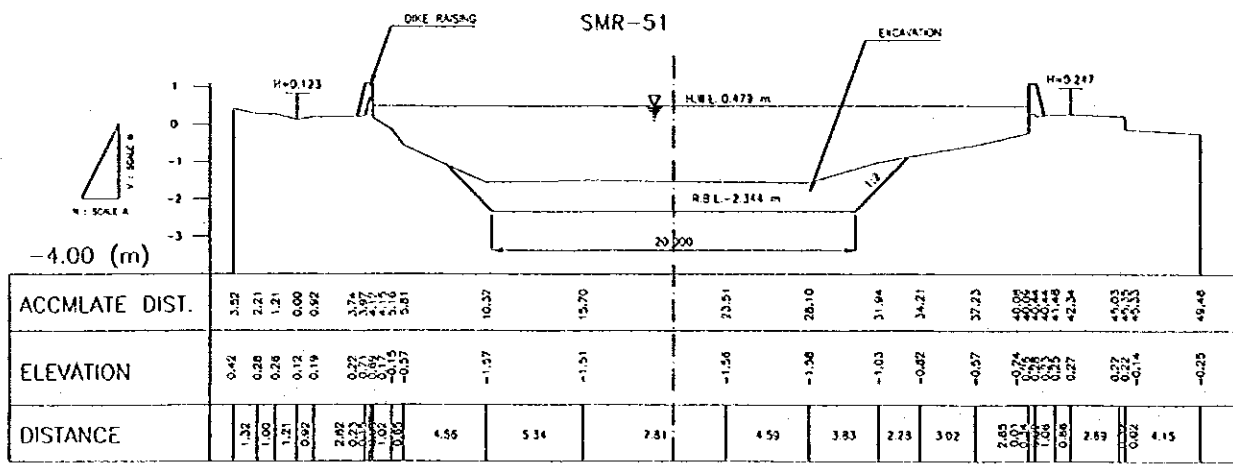
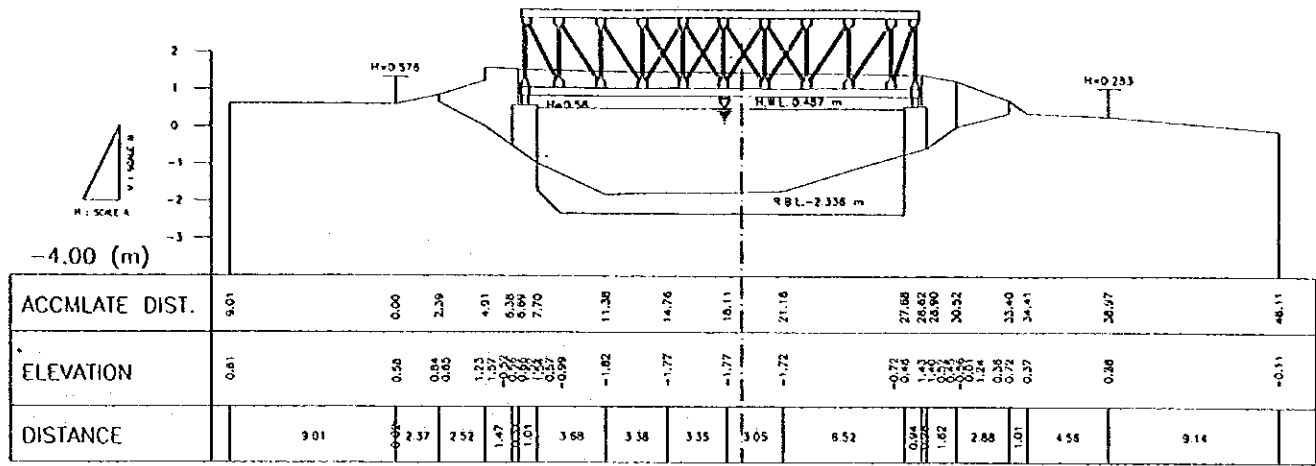
JATUNGLINGGA FLOOD CONTROL PROJECT
 COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
 SEMARANG RIVER
 LONGITUDINAL PROFILE (3/3)

JAPAN INTERNATIONAL COOPERATION AGENCY
 CITY ENGINEERING CO. LTD. IN ASSOCIATION WITH
 PACIFIC CONSULTANTS INTERNATIONAL INC.
 PAKO INTERNATIONAL PTE. LTD.

APPROVED: [Signature]
 PROJECT MANAGER

DATE: [] CONTRACT NO. []

SMR-53+17



H.W.L. : DESIGN HIGH WATER LEVEL
R.B.L. : DESIGN RIVER BED LEVEL

NO.	DATE	REVISIONS	CREATED	DESIGNED	APPROVED

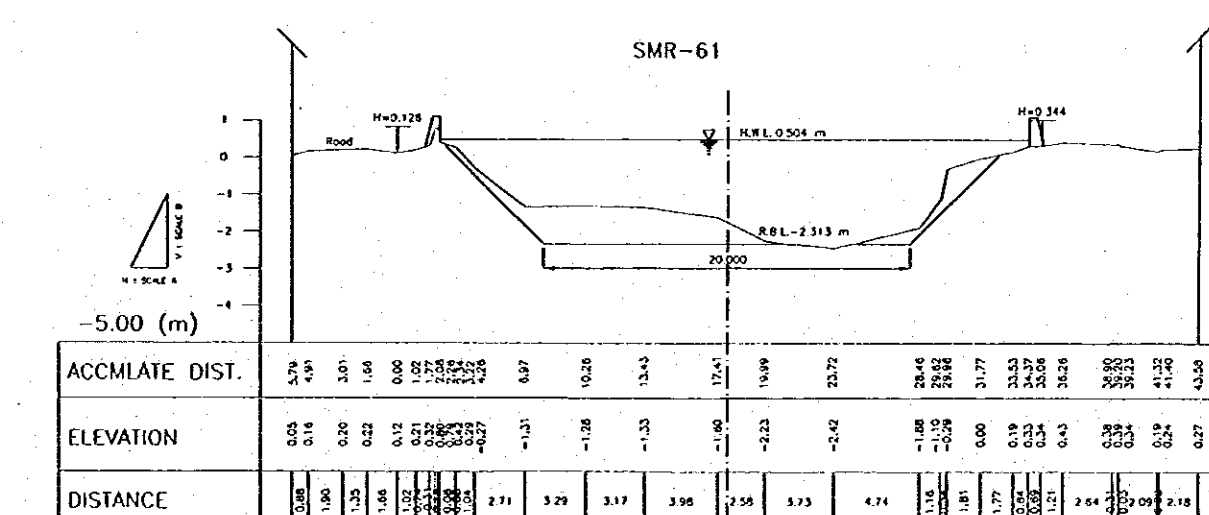
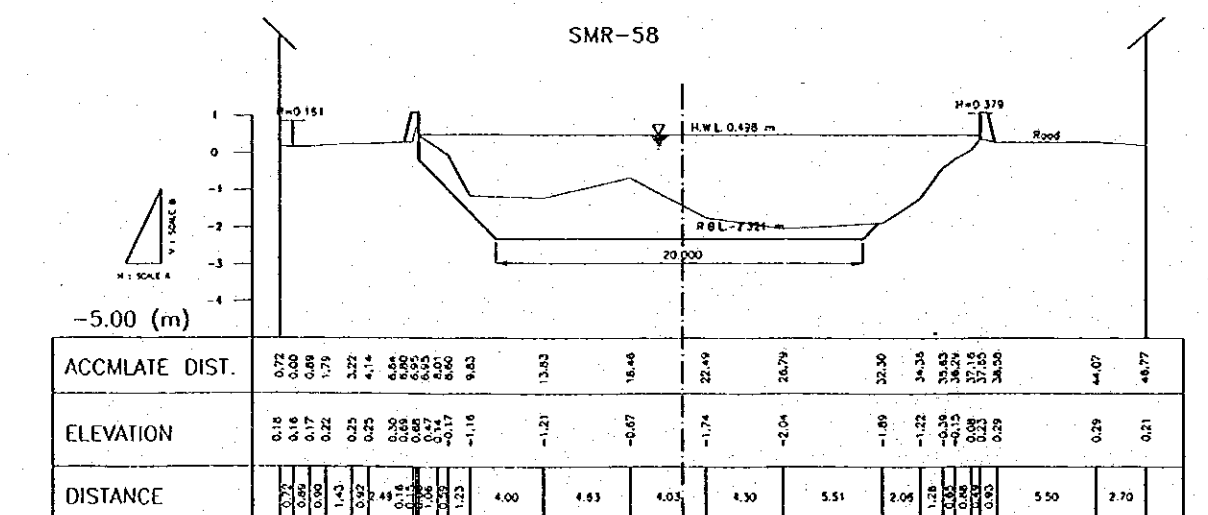
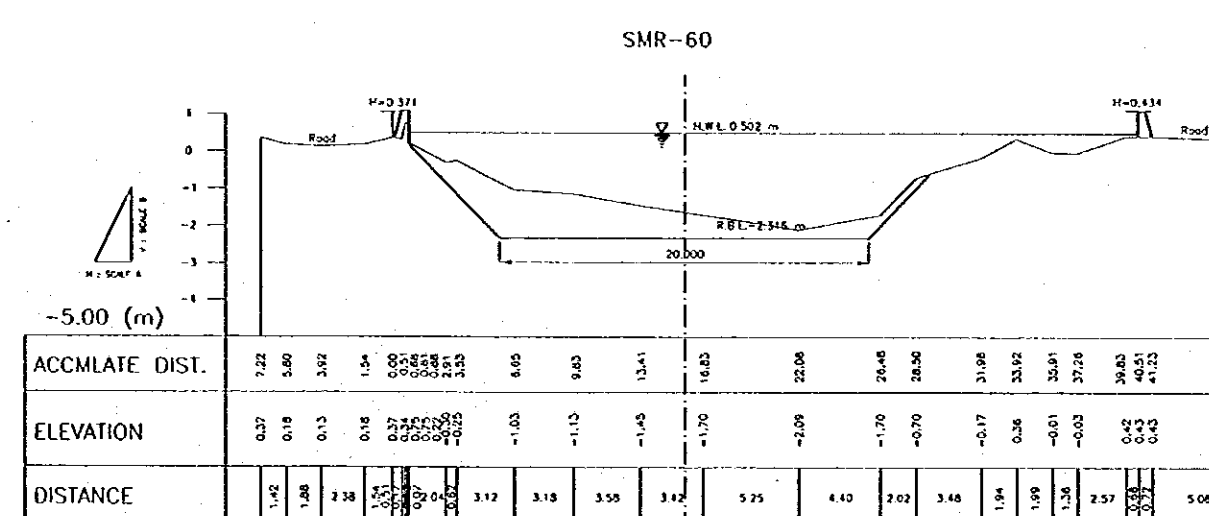
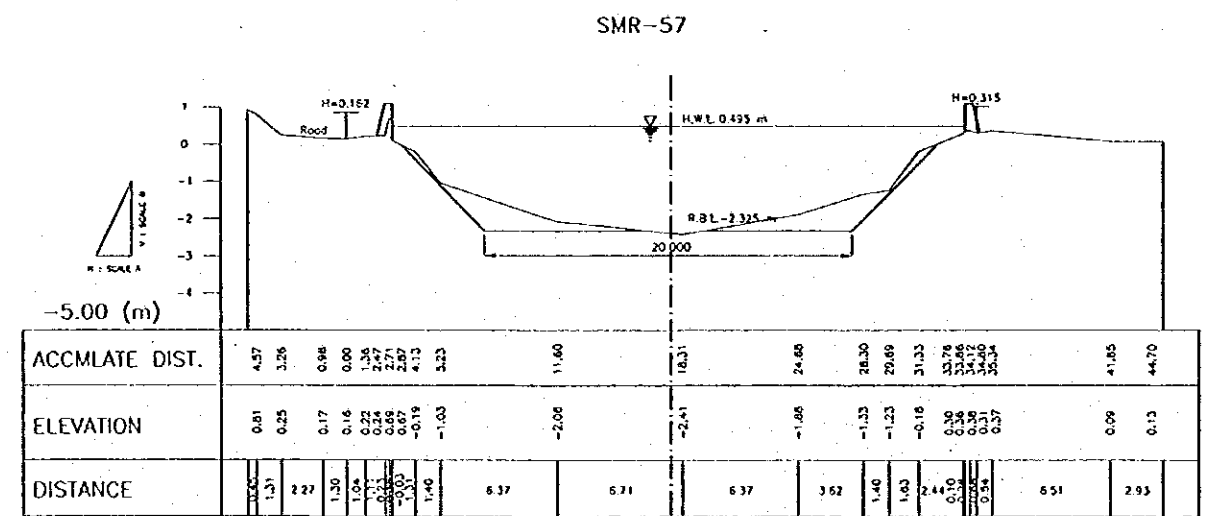
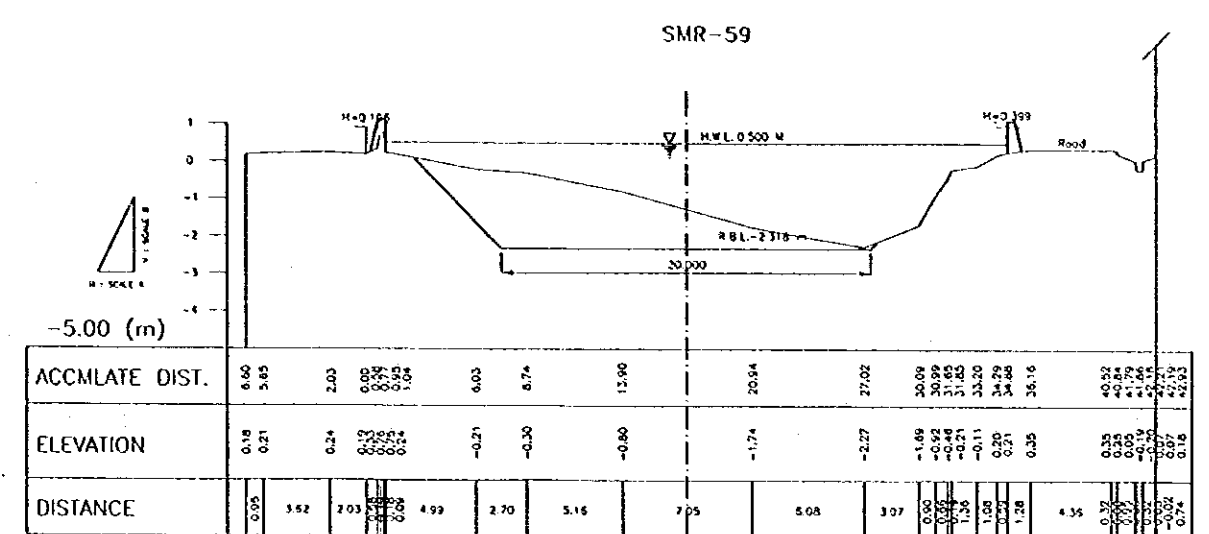
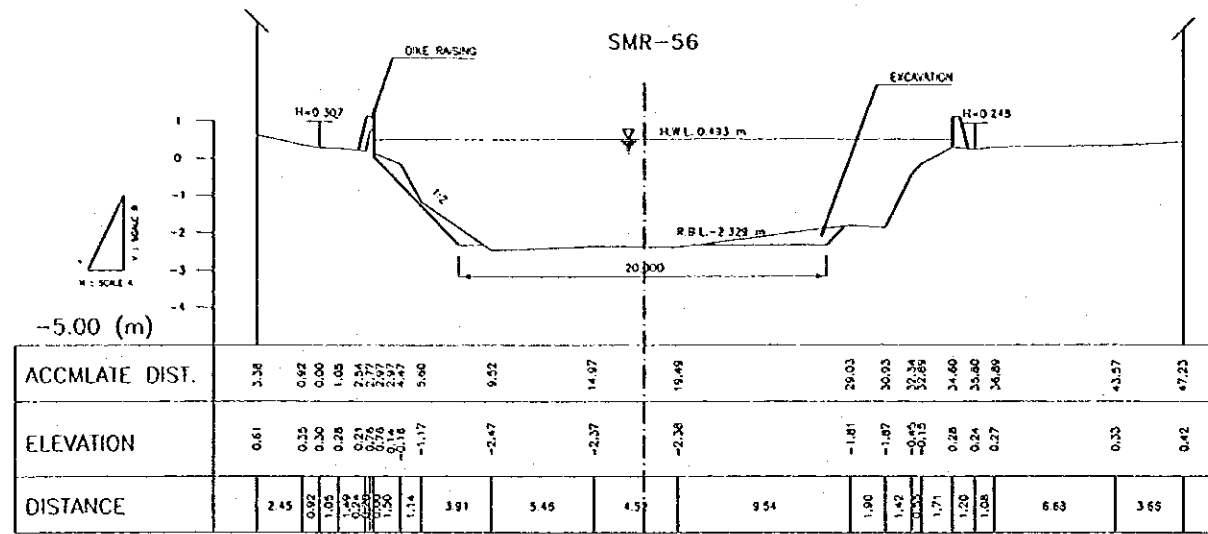
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSRUMAH FLOOD CONTROL SYSTEM PROJECT
COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER
CROSS SECTION (2/36)

JAPAN INTERNATIONAL COOPERATION AGENCY
CITY ENGINEERING CO., LTD. in association with
PALING CONSULTANTS INTERNATIONAL and
FARCO INTERNATIONAL INC.

DESIGNED: [Signature]
CHECKED: [Signature]
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
DISTRICT: SEMARANG CITY
DRAWING NO. U-P1-S-Cr-2
SHEET NO. 14
DATE: [] CONTRACT NO. []



SCALE A
1 : 200
SCALE B
1 : 100

H.W.L. : DESIGN HIGH WATER LEVEL
R.B.L. : DESIGN RIVER BED LEVEL

NO.	DATE	REVISIONS	DESIGNED	APPROVED

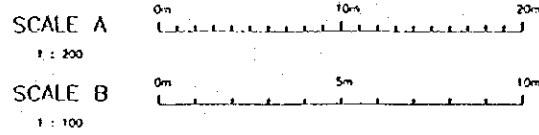
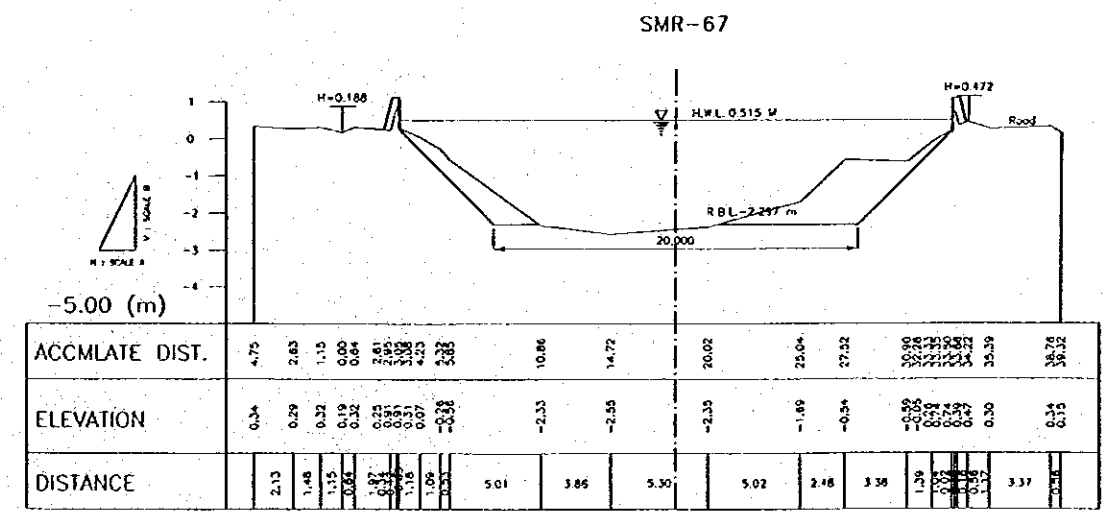
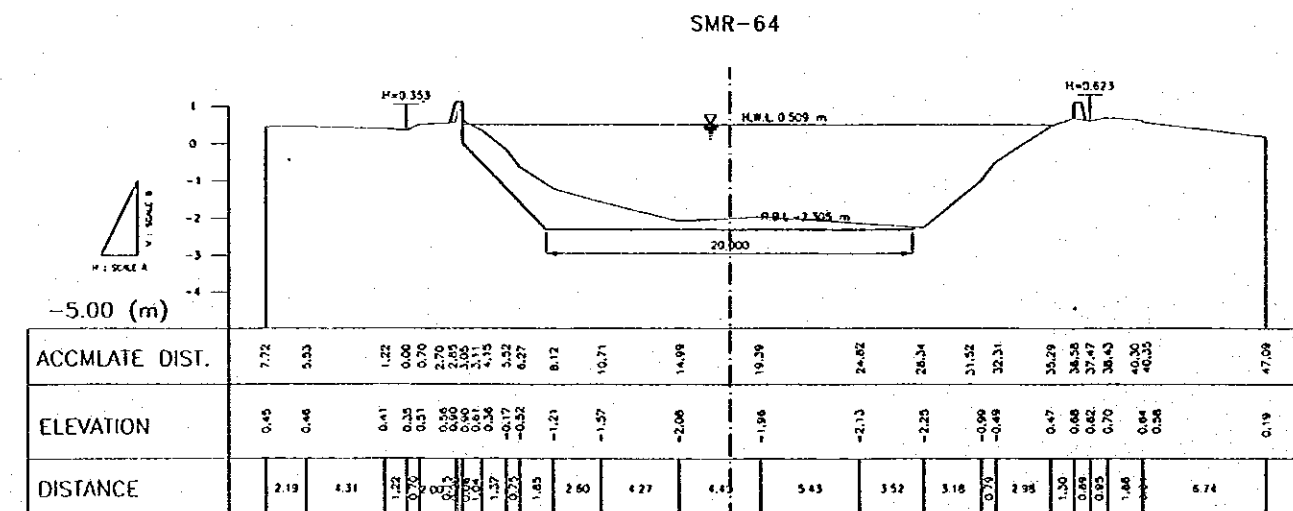
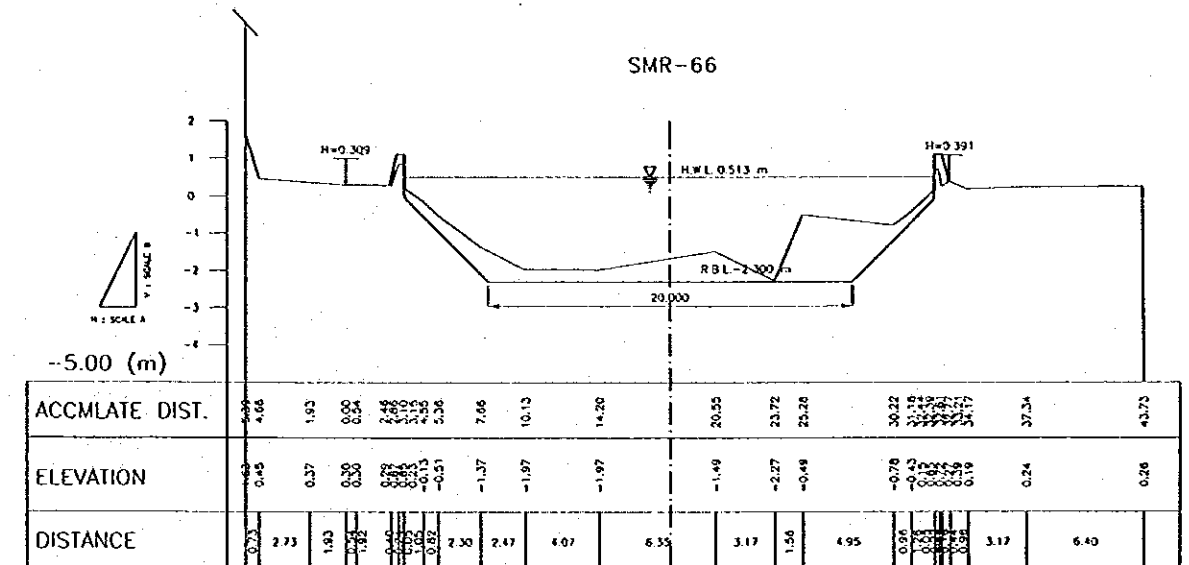
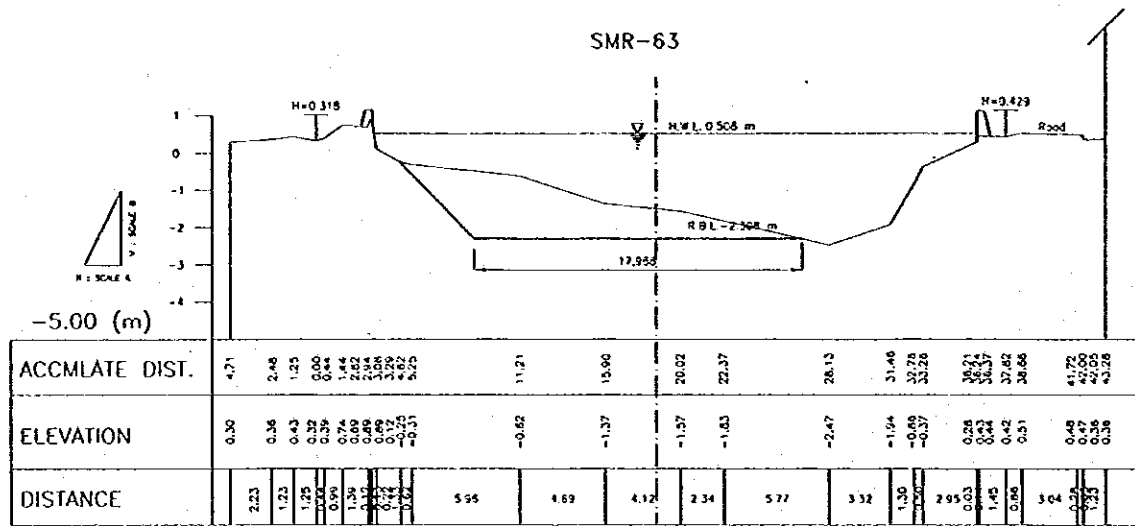
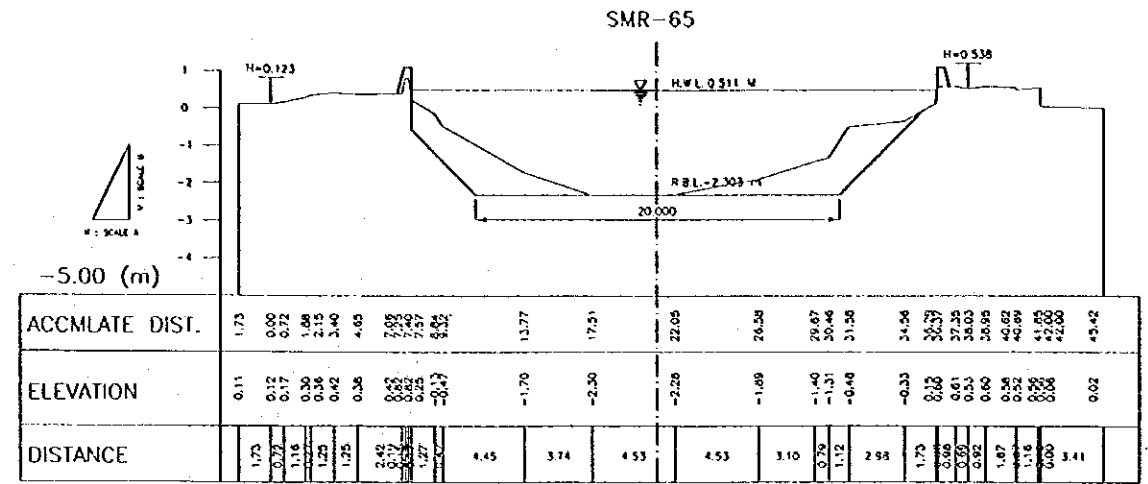
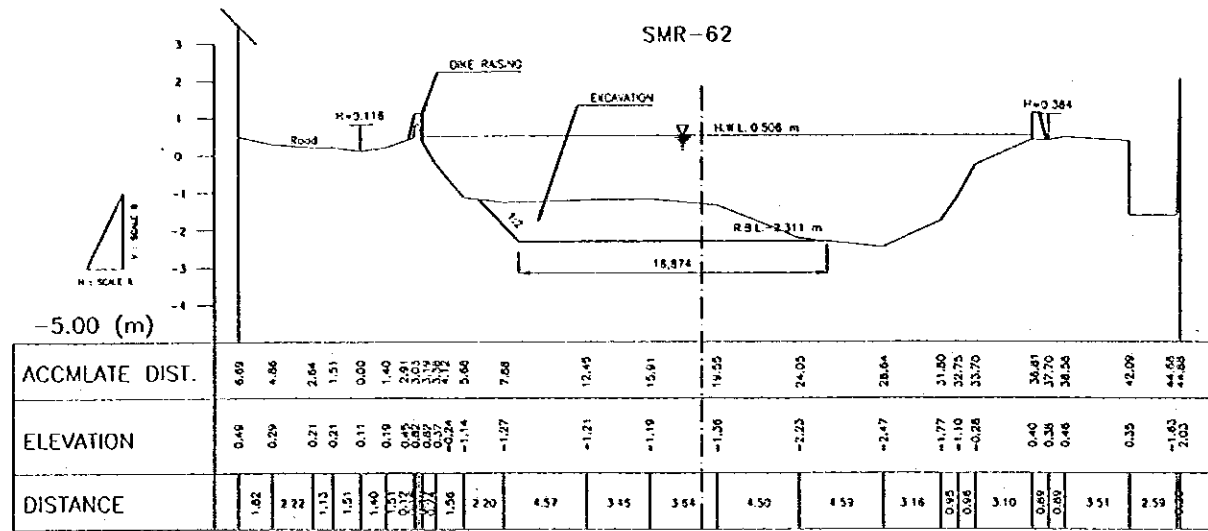
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

PELATUNSELILINDA FLOOD CONTROL PROJECT
COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER
CROSS SECTION (3/36)

PROVINCE : CENTRAL JAVA
PROJECT NAME : FLOOD CONTROL, URBAN DRAINAGE AND
WATER RESOURCES DEVELOPMENT IN
SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT : SEMARANG CITY
DRAWING NO. : U-PI-S-Cr-3
SHEET NO. : 15
DATE :
CONTRACT NO. :

JAPAN INTERNATIONAL COOPERATION AGENCY
CI ENGINEERING CO., LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL INC.
PACIFIC INTERNATIONAL INC.

DESIGNED :
CHECKED :
CITY OF PLANNING AND DESIGN
PROJECT MANAGER :



H.W.L. : DESIGN HIGH WATER LEVEL
R.B.L. : DESIGN RIVER BED LEVEL

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

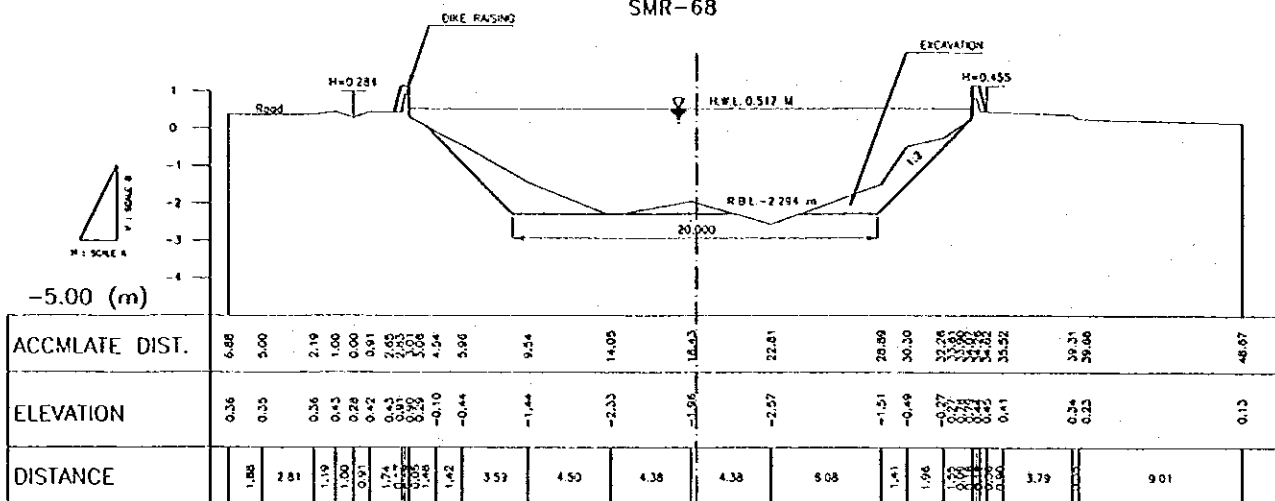
TRATUNSELUMA FLOOD CONTROL PROJECT
COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT
SEMARANG RIVER
CROSS SECTION (4/36)

PROVINCE : CENTRAL JAVA
PROJECT NAME : FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT : SEMARANG CITY
DRAWING NO. : U-P1-S-Cr-4
SHEET NO. : 16
DATE :
CONTRACT NO. :

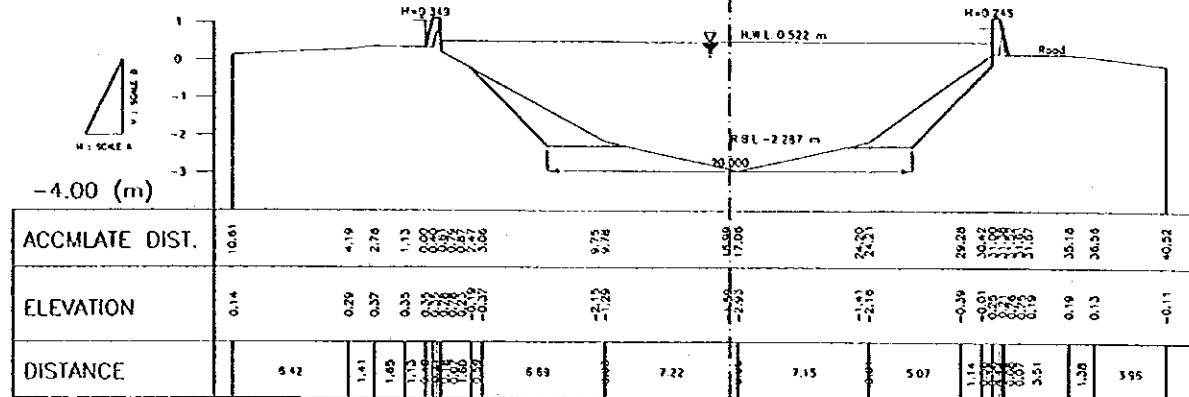
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL, INC.
TAMCO INTERNATIONAL, INC.

CHECKED
PROJECT MANAGER

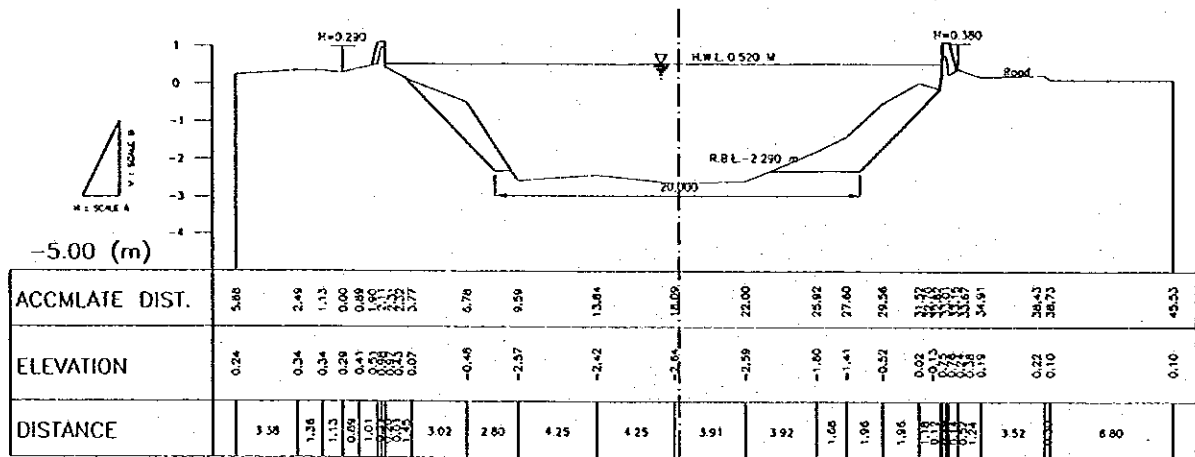
SMR-68



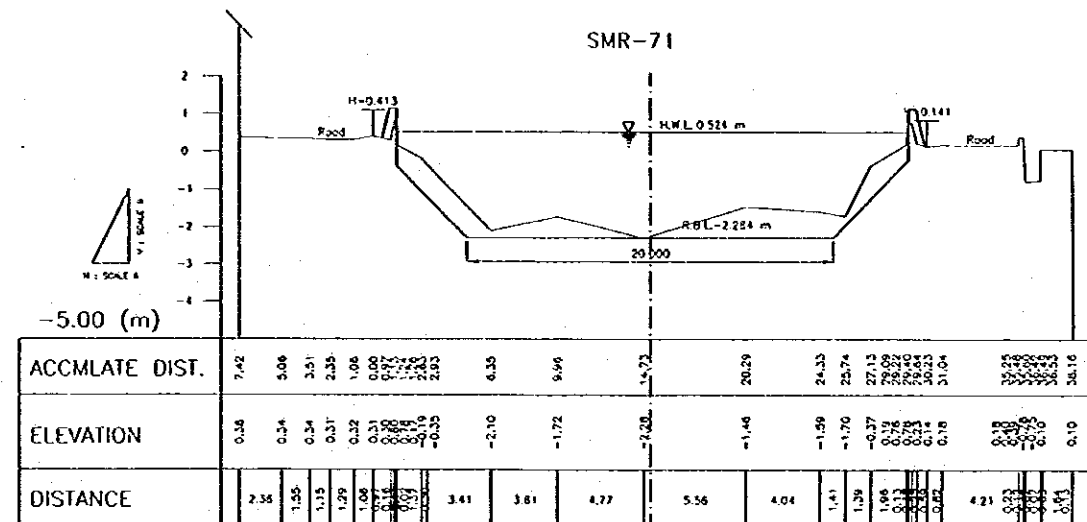
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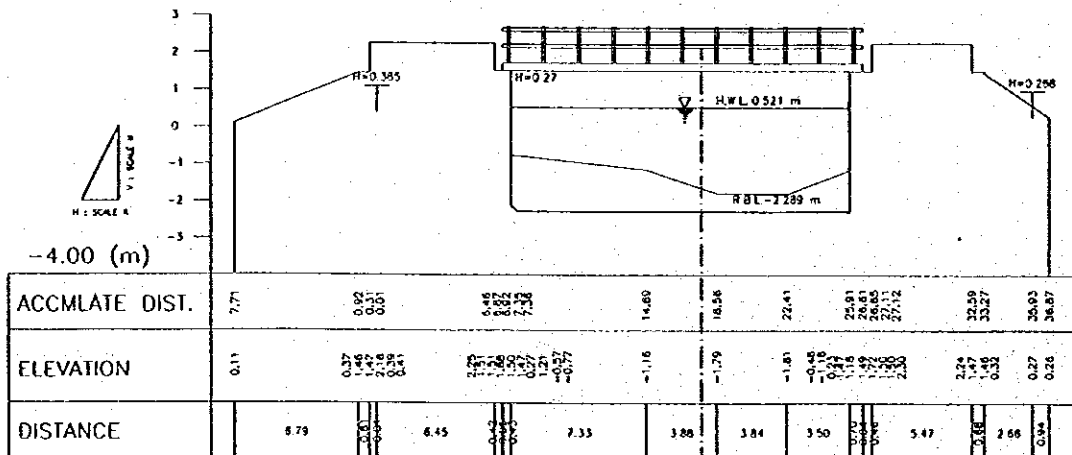
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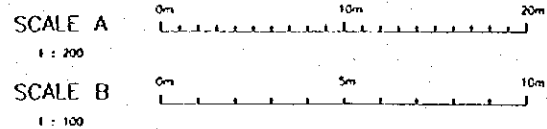
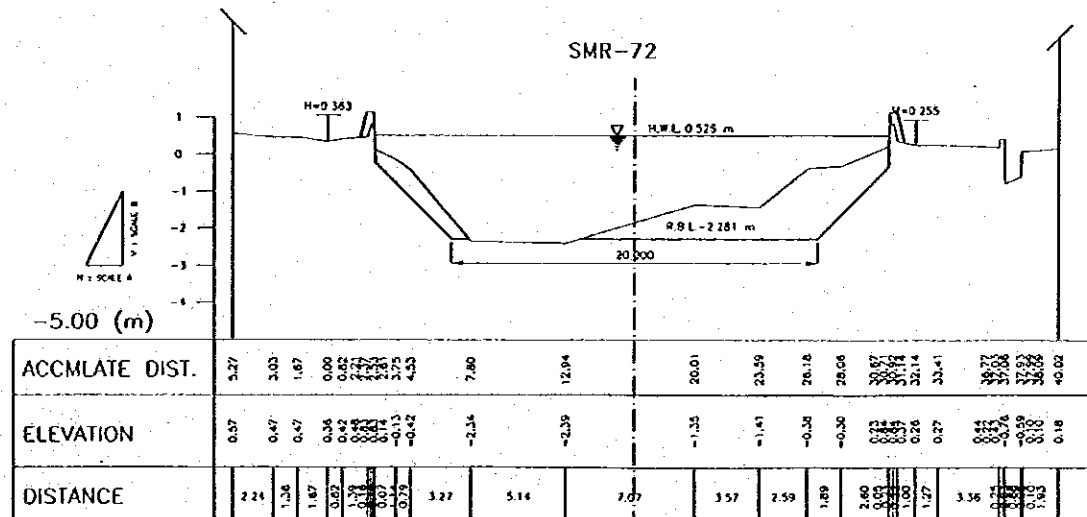
SMR-71



SMR-69+14



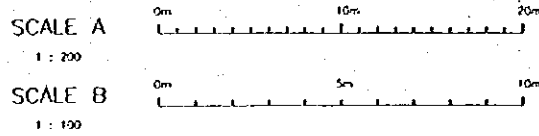
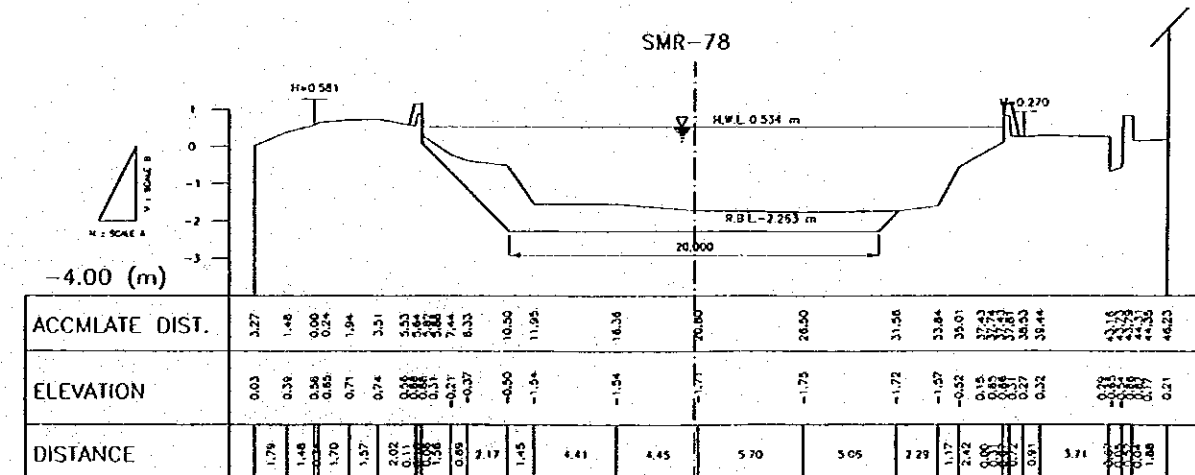
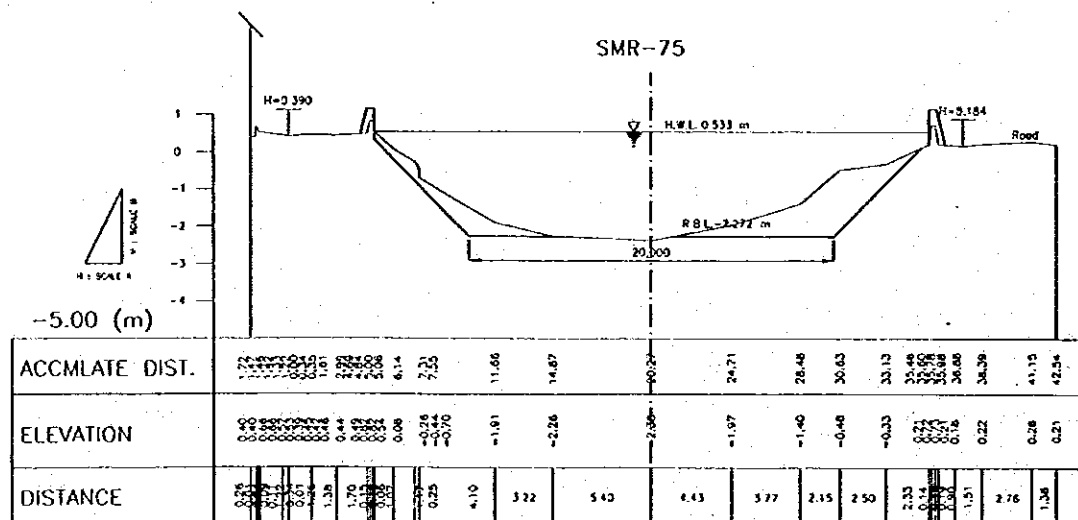
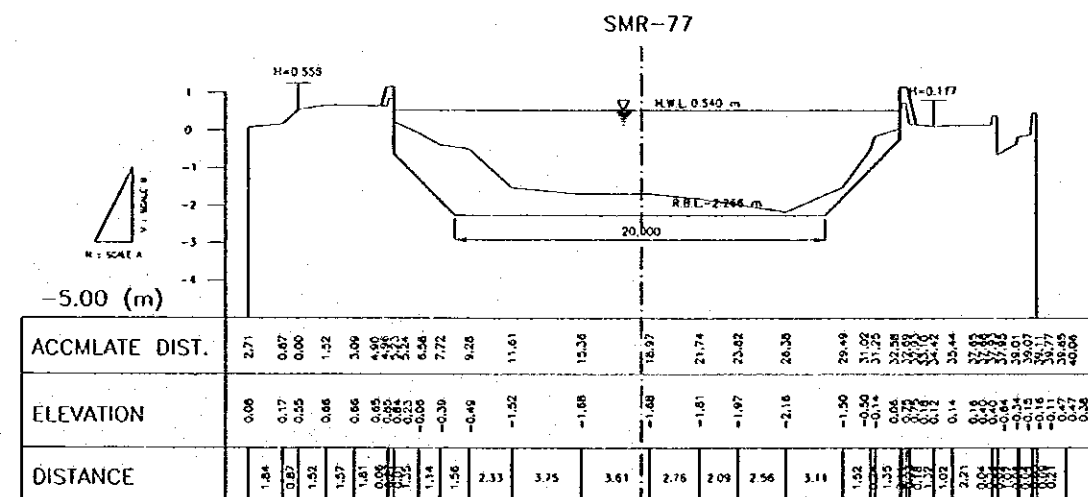
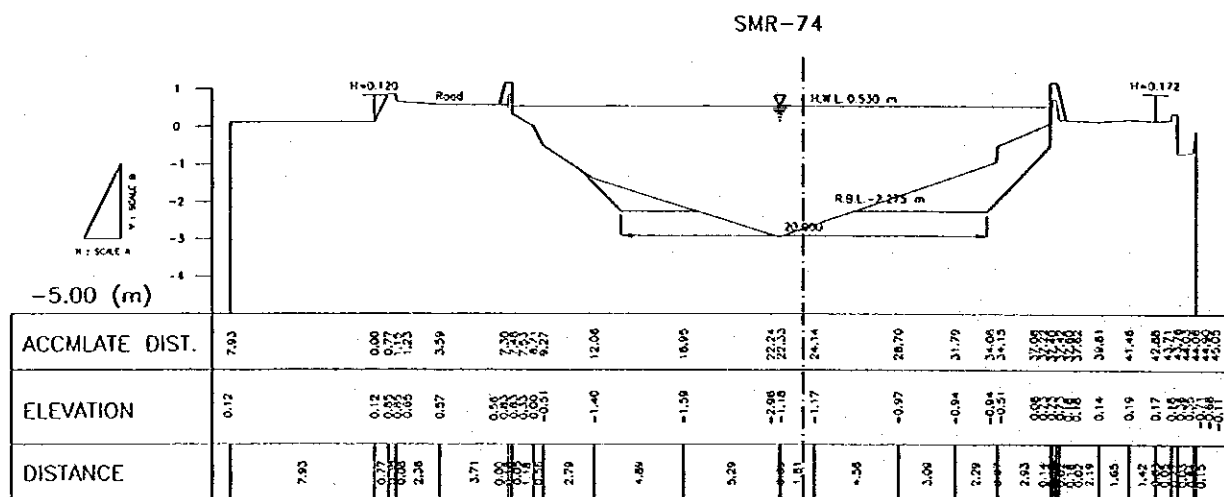
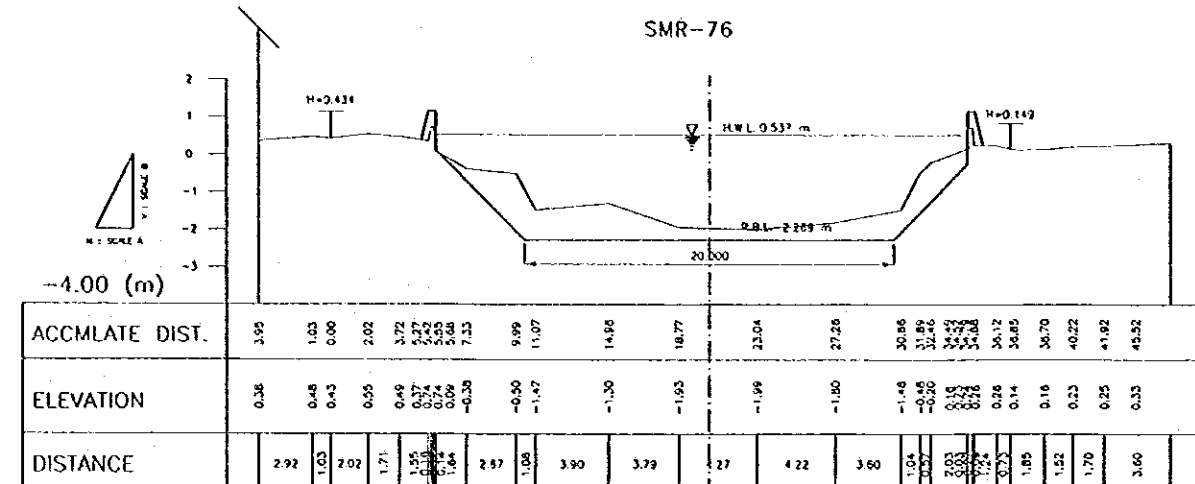
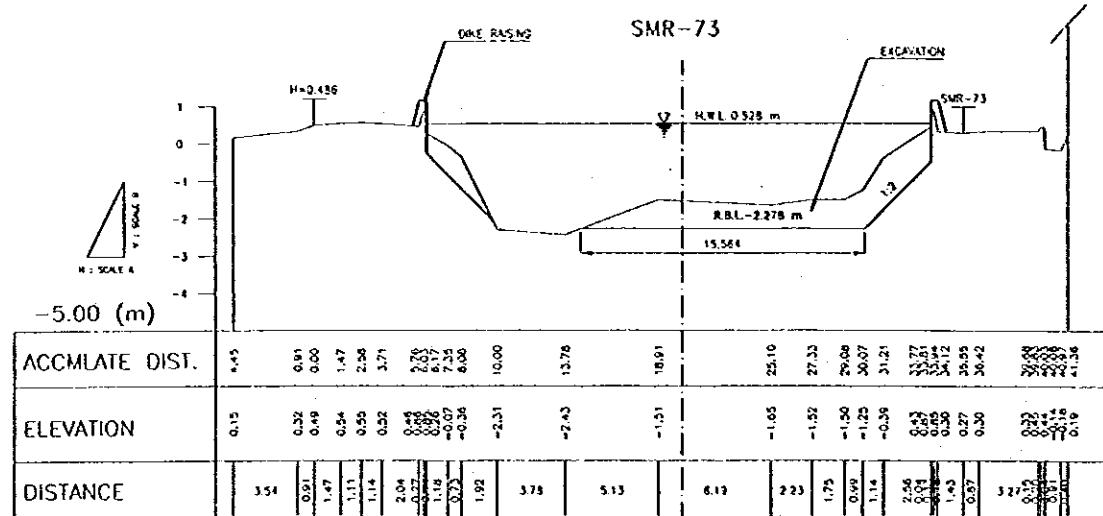
SMR-72



H.W.L. : DESIGN HIGH WATER LEVEL
R.B.L. : DESIGN RIVER BED LEVEL

NO.	DATE	REVISIONS	OPERATED	DESIGNED	APPROVED

<p>THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT</p>		<p>PROVINCE CENTRAL JAVA</p>
<p>BRATUNGLINGA FLOOD CONTROL PROJECT COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT SEMARANG RIVER CROSS SECTION (5/36)</p>		<p>PROJECT NAME FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA</p>
<p>SAJAH INTERNATIONAL COOPERATION AGENCY CITI ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSTRUCTION INTERNATIONAL AND TANCO INTERNATIONAL INC.</p>		<p>DISTRICT SEMARANG CITY</p>
<p>CHECKED DRAWN DATE</p>		<p>DRAWING NO. U.P1-S-Cr-5 SHEET NO. 17</p>
<p>APPROVED PROJECT MANAGER</p>		<p>DATE CONTRACT NO.</p>



H.W.L. : DESIGN HIGH WATER LEVEL
R.B.L. : DESIGN RIVER BED LEVEL

NO.	DATE	REVISIONS	ORGANIZED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JATUNGLUBUN FLOOD CONTROL PROJECT
COMPONENT : URBAN DRAINAGE SYSTEM IMPROVEMENT

SEMARANG RIVER
CROSS SECTION (636)

JAPAN INTERNATIONAL COOPERATION AGENCY
CIE ENGINEERING CO. LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
TAPOK INTERNATIONAL INC.

DESIGNED: [Signature]
CHECKED: [Signature]
DRAWN: [Signature]
PROJECT MANAGER: [Signature]

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER SUPPLY DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO.: U-PI-S-Cr-6
SHEET NO.: 18
DATE: [] [] [] [] [] []
CONTRACT NO.: [] [] [] [] [] []

